

Special Feature

A Method of Music Therapy Assessment for the Diagnosis of Autism and Communication Disorders in Children

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ABSTRACT: Music therapy has a significant role to play in the diagnosis and assessment of children and adults with pervasive developmental disorders. In the differential diagnosis of autism, assessment methodology relies predominately on batteries of standardized tests in cognitive psychology, speech and language therapy, and neurology, as well as medical investigations to find a profile that meets current diagnostic criteria. Music therapy assessment reveals strengths and weaknesses in core impairments including social interaction and communication. The identification and analysis of musical events in improvisational music therapy using Bruscia's *Improvisation Assessment Profiles* (1987) is described and illustrated through a case example. The results offer clear evidence of musical material to support the diagnostic criteria for autism. Reflections of the subjective and objective parameters of music therapy assessment are discussed, and the necessity for standardized models of assessment in music therapy is considered for future development.

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Music therapy theory has developed out of empirical practice. Perhaps because of this, attention to the importance of assessment has been less rigorous and standardized than in other disciplines. But the indicator for a therapeutic treatment in other professions relies on effective and systematic assessment. The different forms of assessment that have developed in music therapy rely more typically on subjective interpretation than on reliability and validity, which, characteristically, underpin standardized assessments in psychology, speech and language therapy and neurology. Assessment varies widely within and between different models of treatment in music therapy; there are few "general" models, let alone "standard-

ized" models of assessment in our profession, that are taught and used by a majority in clinical practice. Practitioners have constructed evaluation or assessment scales which focus on a variety of aspects of the music therapy process. Among these include the assessment of: (a) musical interaction (Pavlicevic, 1995); (b) response, relationship and musical communicativeness (Nordoff & Robbins, 1977); (c) diagnosis (Raijmaekers, 1993); (d) psychological function (Silkstrom & Skille, 1995); (e) cognitive, perceptual, motor and visual skills (Grant, 1995); (f) sound-musical profiles (Di Franco, 1999); and (g) improvised music (Bruscia, 1987).

This paper considers the evaluation of autistic disability using diagnostic music therapy assessment at Harper House Children's Service in England. This clinic is a tertiary center, taking referrals of children who have already presented as confused (both from a diagnostic and management point of view), to primary healthcare services and secondary services at local district hospital pediatric departments. Children with communication disorders that may or may not meet the criteria for autistic spectrum disorders are a puzzle. Although Harper House staff has seen over 150 children a year for the last 15 years, the puzzle continues, despite increasing clarity in diagnostic manuals.

The music therapy assessment at Harper House is often part of a broader battery of assessments which may include cognitive psychology, physiotherapy, art therapy, speech and language therapy, and scholastic skills. Children who present with an array of symptoms which could fit a number of different diagnostic categories are assessed by the process of differential diagnosis. The dominance or clustering of a number of those symptoms will indicate which diagnostic label is appropriate. Frequently children are referred to the Harper House Children's Service with a question as to whether they are autistic, or fall within the general area of pervasive developmental disorder. However, distinguishing autism from other

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ditions is a complex diagnostic process. The diagnostic criteria specified by both American and European diagnostic manuals, the *Diagnostic and Statistical Manual (DSM-IV)* and the *International Classification of Diseases (ICD-10)* respectively, separate out pathologies with similar symptoms. Conditions with similarities to autism include other pervasive developmental disorders: (a) elective mutism, (b) attachment disorder, (c) receptive language disorder, (d) disintegrative disorder, (e) global developmental delay, (f) Landau-Kleffner syndrome, (g) Asperger syndrome, (h) Rett syndrome and (i) atypical autism.

Diagnosis of Autistic Continuum Disorders

It is difficult for people to agree on a diagnosis for autism because autism is rare in the general population. Only four to five children in ten thousand are affected with autism (*DSM-IV*), and they generally appear physically normal. Since 1943, research and clinical assessment of autism have gone through a number of changes, and a variety of diagnostic indicators have been proposed for autistic spectrum disorders (Creak, 1964; Gilberg, 1989; Rendle-Short, 1971; Wing, 1976, 1987). Likewise, many explanations of cognitive difficulties (Frith, 1991; Pennington, 1991; Rutter, 1978; Rutter and Scholper, 1987; Trevarthen, Aitken, Papoudi & Robarts 1996), theories of mind (Baron-Cohen, 1988), and methods of assessment (Gilberg, 1989; Pennington, 1991) have been proposed. The Harper House Children's Service currently subscribes to the triad of autistic impairment described by Lorna Wing (1987), which includes the following profile:

Autistic Continuum Disorders

Essential Features

1. Impairment of Social Interaction
Most severe form: aloofness/indifference to others.
Mildest form: spontaneous but inappropriate approaches to others.
2. Impairment of Social Communication
Most severe form: absence of desire to communicate with others.
Mildest form: problems with social use of language/two-way conversation.
3. Impairment of Imagination
Most severe form: absence of copying/pretend play.
Mildest form: no understanding of the purpose of social conversation/fiction/poetry.

This triad is commonly accompanied by:

4. Repetitive Stereotyped Activities
Simple forms: flicking fingers, spinning objects, feeling special textures, tapping.
Complex forms: lining/ordering/collecting objects, insistence on following particular routines, repetitive questioning.

Variable features that are common, but not essential for di-

agnosis, include language problems, abnormal sensory responses, motor difficulties, inappropriate emotional reactions, and sometimes the presence of special skills of the type found in autistic savants, with a contrasting lack of skills in other areas (Wing, 1987).

Harper House generally subscribes to the most recent research supporting the theory that autism is the consequence of an underlying defect that affects normal brain function and, in so doing, has compromised normal development (Gilberg, 1989; Trevarthen et al., 1996). There is no scientific evidence that psychological or psychosocial stressors can lead to autism, but there is evidence that autism has an organic basis (Trevarthen et al., 1996).

What must be clearly understood about the pathology of autism is that it is a continuum or a spectrum of disorder ranging from severely developmentally disabled to average and above average IQ. While the majority of children fall into the moderate to severe range, there are a small proportion who come into the category of high functioning autism. At the same time, the severity of the symptoms and behaviors can range from mild to severe (Gilberg, 1989; Wing, 1987).

At Harper House, batteries of standardized cognitive assessment tests are carried out according to a strict protocol. Although they highlight strengths, and indicate intelligence quotient (IQ), they inevitably create an experience of failure in children when they are presented with tasks that become successively more difficult. Nevertheless, they provide an important part of the clinical picture.

Music Therapy for the Purpose of Differential Diagnosis

Music therapy assessment provides another part of this picture. The methods and case study described here consider how behavior and interaction of these children can be viewed by using a music therapy assessment. A psychologist at Harper House recently commented that a significant strength in music therapy assessment was in the area of social engagement and non-verbal communication—precisely the areas where children with autism have some of their most profound difficulties (Wing, 1976, 1987). However, music therapy can evaluate more than just social engagement. Music therapy can also specifically examine musical events and musical behavior.

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Interpretation of this musical material can be achieved by evaluating both quantitative and qualitative data. The frequency and duration of musical events which take place while therapist and client are improvising music together can be

examined using quantitative analyses. The number of musical acts and their duration may be counted and tracked. Tempos and dynamic levels can be measured and analyzed. For example, the tempo at which a child plays a drum may be variable, while the volume at which they play may be consistently loud.

Because interest in music therapy focuses on the way these children interact, one can qualitatively assess interaction within the context of their music-making during a musical duet, ascertaining whether they are a follower, leader or perhaps a resister. Musical events in improvised music making can be categorised and analyzed to support evidence about the child's pathology, personality and social receptivity. Whether or not an autistic child is intentional or inter-subjective in his or her communication can be assessed during musical play, giving the clinician a profile of the child's capacity for interaction and motivation and intention for acting. Children with autism demonstrate their pathology in their music, and from a diagnostic point of view can reveal aspects of behavior that set them apart from children with a language disorder who may present as autistic. The value of a music therapy assessment, particularly because of the freedom improvised music allows is that, besides identifying areas of difficulty, children often reveal unexpected abilities and potential. Previous publications in the field of assessment in improvisational music therapy, particularly in assessing communication disorders in children, give a comprehensive framework in terms of method of therapy, the structure of assessment sessions, and the types of data that can be collected (Wigram, 1991b, 1992, 1995a, 1997, 1999a, 1999b).

Improvised music is frequently the medium for creating this musical dialogue with a client, and has formed the basis for many approaches and traditions (Alvin, 1975, 1978; Bruscia, 1987, 1991; Heal & Wigram, 1993; Nordoff & Robbins, 1977; Odell-Miller, 1995; Pavlicevic, 1995; Priestley, 1994; Wigram, 1991a; Wigram, Saperston & West, 1995). In improvisational music therapy, the musical material is important in understanding the client, the nature of the musical dialogue between a client and a therapist, and the musical elements that go into making up the dialogue. Musical elements may be representative of therapeutic issues for the client. The overuse of volume may represent a client's need for power or control; a vague, wandering melody may be interpreted as a client's inability to be grounded and stable. In much the same way that verbal language reflects (either directly, unconsciously, or in metaphor and symbol), the client's internal and external world, so musical material may similarly reflect these aspects. The client's musical material also gives the clinician a perspective on his or her personality and possible pathology.

Improvisation leaves the client free to explore and develop within a musical relationship. Using thematic improvisation, one finds a starting point with a client by using a short rhythmic, melodic or harmonic theme which may be created by the therapist or the client at the beginning of an improvisation.

This theme may represent many different things: (a) mood, (b) a message or communicative act, (c) an aspect of their personality, (d) a form of resistance, (e) an expression of emotion, or (f) a physical state. Thematic improvised music gives the therapist insight into the internal world of the client. Interpersonally, themes are the starting point for improvised dialogues between the client and the therapist; they also represent an intra-personal state of being (Wigram, 1995b).

Music therapy can play a significant role in the assessment process with children who have communication disorders because of the non-verbal nature of the medium when working with children at a pre-verbal or non-verbal level. A music therapy framework allows children potential for revealing pre-verbal and alternate communication systems that they have developed which can, in turn, support or negate a diagnosis of autism. Healthy babies are biologically primed to play an active role in social interaction; they have an inherent sense of timing that controls "turn-taking dialogues" with others. This is very important in the music therapy process, as the nature of music making between two people relies on timing, turn-taking, sharing and creating, i.e., the essence of communication. Trevarthen (1996) describes the early development of mother-baby interaction, the relevance of timing and facial recognition, the interpretation and response to emotion in facial expressions particularly well in the context of the emerging difficulties of autistic children. When looking at the difficulties a child with autism faces emerging from babyhood, one can see that brain dysfunction interferes both with the coding and also the making sense of "messages" (e.g., spoken language, facial expression, etc.), and with the use and understanding of timing. These children do not develop the normal pre-verbal "conversational exchange" that is typical with most babies. Therefore, they do not develop normal social interactions or form social relationships, which precedes normal language development. Music making in an improvised and free way, both with instruments and with vocal sounds, is one way of revisiting this early phase of communicational exchange, using simple rules and free, unlearned sounds. The children who are assessed in music therapy at Harper House readily enter into this medium and demonstrate their desire to communicate musically when verbal language, whether due to either pathological or social disabilities, has not properly developed.

Information Seeking in Music Therapy Assessment

A music therapy assessment session is different from a regular music therapy session. In diagnostic assessment, the therapist takes responsibility for a number of different factors:

1. Exploring the child's range of responses.
2. Exploring the child's lack of response.
3. Looking at both the difficulties and potential of the child.
4. Evaluating the child's response to the novelty of the situation.

Table 1
Physical and Tactile Behavior

Type of behavior	Example
Flicking and twiddling Spinning	With drum sticks, small instruments. Tambours, cymbals, rotary drums, jingles on a tambourine.
Fiddling	With parts of an instrument—with the nut in the middle of the cymbal.
Playing with instruments tactily but without musical intention	Turning tambourines back and forth, bunching the bars on the wind-chimes, plucking the strings of a guitar individually, and watching the vibration.
Choosing instruments for their material quality	Being more interested in metal instruments.

5. Testing diagnostic hypotheses proposed for the assessment.
6. Evaluating the child's response and potential to benefit from music therapy.
7. Evaluating the child's response in terms of their potential for responding to other forms of therapy or intervention.
8. Considering the child's behavior and response in a music therapy assessment in relation to the wider picture of the child's response to other media.

When undertaking a music therapy assessment for diagnostic purposes, it is necessary to work at different levels using different approaches, but at the same time not moving suddenly, and perhaps unpredictably, from one idea to the next. The session remains essentially a therapy session where a subtle movement from one framework or scenario to another is necessary to sustain and develop a therapeutic relationship, and sustain the engagement and confidence of the child. If a child is easily engaged and enjoys close contact, it may be useful at some point in the session to establish distance from the child, retreating from the engagement to see what happens. If the child is more responsive to structure and finds that approach easier, one can introduce a period of very free activity without rules or direction. At times one can use pre-composed music, in order to compare responses to improvised music. It is important to create a careful balance between giving the child freedom to control what is happening in the session, and placing demands on the child. One can thus explore the reactions when more demands are made (as when, for example, the child is encouraged to engage despite apparent resistance).

The music therapist has at his/her disposal a wide range of instruments that children can use in therapy sessions. In a conventional therapy session children will often choose favoured instruments, or instruments to which they feel most connected. These may remain the instruments they use for the entire session. In an assessment therapy session, it is important to explore their potential using a wide range of instruments.

Finally, in a diagnostic assessment session one focuses on

Table 2
Pathological Elements in Musical Material

Type of behavior	Example
Establishing routines	Systematic and repetitive way of playing.
Repetitive structure	Lining up instruments.
Using instruments to play sounds in order	Perseverative and repetitive scale playing on the piano, xylophone, metallophone, etc.
Sequencing	Making an unchanging rhythmic sequence, or playing consecutively a beat on a drum, cymbal, chair and the floor, and repeating the sequence.

differentiating autistic disorders from others, taking particular interest in developing strategies for sharing and turn-taking in music making, and in the use of the instruments. When normal children begin to explore instruments and learn how to make music creatively, they usually use the instruments in appropriate ways. They instinctively create music that is expressive, and has musical intentionality. This intentionality may often be missing in the music making of children with autism. Recurring patterns in the way some of these children use musical instruments have emerged in a large number of cases (See Table 1).

During improvisation, certain patterns can also reveal the presence of autistic pathology in music-making and playing, which clearly separate children with autism from those with learning disabilities or language disorders (See Table 2).

Children on the autistic continuum reveal significant difficulties in social interaction and communication in music making, and often demonstrate a lack of skill or intuitive ability in turn-taking, sharing, anticipating, copying, reflecting or empathic play. Because of their apparent lack of interest and awareness of others for normal or typical social interaction, they can also show a lack of interest in, and ability for, responding to or sharing changes in tempo, rhythm, timbre, intensity, and many other elements of a shared musical engagement.

Not all children with autism reveal these difficulties during assessment, and they may develop abilities and motivation for social interaction through inter-personal engagement in music. What needs to be understood is that an analysis of musical events (and the interpretation of meaning in the child's music) must be considered in terms of communicative intentionality and meaning in either individual expression, initiating connection to the therapist, or responding to music initiated by the therapist.

Analysis and Interpretation of Musical Material

When presenting the results of a music therapy assessment, a description of musical material and the analysis of the musical experience that has been present during the session will

the child are fundamental and necessary. While there are many models for evaluating music therapy in the literature, very few involve a detailed analysis of musical material. Documentation of changes or sameness in musical material is necessary to provide supportive evidence of change or lack of change during the music therapy process. In case material in the literature, one frequently encounters clear descriptions of behavioral change in clients with quite vague references to musical events that have led to the interpretations of change. This does not alter the interpretation that has been made, nor bring into question the therapeutic judgement that has been offered of the benefit of music therapy in facilitating change, development, improvement or insight. However, it is unclear to other music therapists, and even more unclear to other professionals, on what basis interpretations were made when there is a lack of description using musical parameters of the musical behavior which indicated the change described.

In many case study reports, actual description of musical material is frequently missing, and the therapist may prematurely interpret the musical interaction. For example, in describing the nature of a client's musical activity, the therapist may refer to the client as being "blocked", "resistive", "lacking in creativity" or "avoiding contact," while recording their own responses as "supportive", "reflecting", and "holding" or "containing the client's blocked feelings." Musical material can be clearly described with terminology that is understandable, that directly represent a client's state, and the therapist's reaction to that state.

One assessment procedure that focuses specifically on musical elements as the basis for analyzing change or lack of change in clients in Bruscia's *Improvisation Assessment Profiles (IAP)* (Bruscia, 1987). Over the last three years the IAP has been used to analyze the musical material in diagnostic assessment sessions with children who have come to Harper House. Despite the fact that Bruscia's IAP has been in the literature for some years, there appears to be limited use of this comprehensive assessment tool. The profiles have been translated into Norwegian, and have been used in Scandinavia (Ege & Ostergaard, 1994). However, they are a complex, detailed, and extensive method of analysis, and this complexity can be off-putting to the practitioner where, when using the IAP in its most comprehensive way, a short excerpt from a music therapy session could require several hours of analysis.

In the complete set of profiles, Bruscia has defined six specific areas of investigation: (a) autonomy, (b) variability, (c) integration, (d) salience, (e) tension and (f) congruence. Each profile provides specific criteria for analyzing improvisation, and the criteria for all the profiles form a "continuum of five gradients or levels, ranging from one extreme or polarity to its opposite" (Bruscia, 1987, p. 406).

The two profiles used in analyzing musical material in the diagnostic assessment work described in this paper are *autonomy* and *variability*. These two profiles are useful in differen-

tiating between children who have autism or have some other variant of pervasive development disorder or communication disorder. Autonomy helps one look closely at the interpersonal events that are going on, particularly the readiness of a child to work together with a therapist, take turns, share and act as a partner, or their propensity for resisting suggestions or becoming overly dependent. Variability can illustrate at an inter- and intra-musical level the child's capacity for flexibility and creativity, or evidence of a child's rigid or repetitive way of playing that might support a diagnosis on the autistic continuum.

Practical Application of the IAP

To use these profiles in an economic and effective way to analyze musical material, one needs to follow the recommendations and guidelines that Bruscia offers for using the IAP. Essentially, one follows a process of reducing the amount of material to be analyzed to that which will be both pertinent and fruitful. This process includes the following steps:

1. Consider whether one is focusing on intra-musical or inter-musical events, or both.
2. Choose the relevant profiles for analysis, related to either the focus of the therapy, or the questions raised for the assessment.
3. Review the entire session to be analyzed, and select sections of the session that contain some of the most relevant material that will reap pertinent and valuable information when analyzed (Bruscia, 1987).

Decisions regarding the focus for analysis are based on issues related to the referral or the child's behavior. Having reviewed musical events and the musical behavior of the child in this session, particular musical elements on the IAP (for example rhythm, volume and phrasing) can be chosen as those most relevant to use in the analysis. An event charting system is used, whereby on repeated analysis of video material, musical events can be identified that are instances of a "behavior" on a profile (such as "rigid") exemplified by a chosen musical element, counted and charted. Typically, two or three sections of the session will be selected for analysis, followed by a selection of the elements of the scale on which it will be fruitful to focus. These are written down under each gradient of the two different profiles. Watching the sections that have been chosen for analysis on video, often two to three times, the number of events in a child's playing, for example, of variability in tempo or following a volume change, are counted, and the total entered in the boxes. Bruscia provides a very rich resource in his descriptors of types of musical material that come under these gradients when he describes the five different levels of either variability or autonomy in his descriptions of the IAP (Bruscia, 1987, pp. 430-431, 445-447) (See Table 3).

When writing a music therapy assessment report, the data generated from this analysis can be drawn on to interpret and cite examples of musical material that support any proposal

Table 3
Improvisation Assessment Profiles, (Bruscia, 1987)

Patients Name: Daniel.				Date		
AUTONOMY				VARIABILITY		
Section:	A	B	C	A	B	C
DEPENDANT				RIGID		
Rhythmic Ground	—	—	—	Tempo	12	7
Rhythmic Figure	—	—	—	Rhythmic Figure	8	3
Timbre	—	—	—	Timbre	3	—
FOLLOWER				STABLE		
Rhythmic Ground	3	—	—	Tempo	—	—
Rhythmic Figure	—	—	—	Rhythmic Figure	—	—
Timbre	—	—	—	Timbre	—	—
PARTNER				VARIABLE		
Rhythmic Ground	2	3	5	Tempo	2	—
Rhythmic Figure	1	—	—	Rhythmic Figure	1	—
Timbre	—	—	—	Timbre	—	3
LEADER				CONTRASTING		
Rhythmic Ground	2	1	1	Tempo	—	—
Rhythmic Figure	1	—	—	Rhythmic Figure	—	—
Timbre	—	—	—	Timbre	—	—
RESISTOR				RANDOM		
Rhythmic Ground	9	4	1	Tempo	—	—
Rhythmic Figure	7	3	1	Rhythmic Figure	—	—
Timbre	10	7	2	Timbre	2	—

Key to Analysis:

Section A: Opening events followed by drum playing.

Section B: Guitar, autoharp, piano, and cymbal playing.

Section C: Vocal improvisation using amplified microphone.

Numbers indicate the cumulative events for each musical parameter within each gradient of the profile in question (variability or autonomy).

or opinion regarding the child's difficulties or diagnosis. Citing either rhythms or melodic fragments can also be included in a music therapy assessment report. The form and its data are kept on file, and in some circumstances the information is attached to the report in much the same way as data from a cognitive psychology assessment records the raw and standardised scores in a child's assessment.

Case Study: Daniel

Daniel was referred to the Harper House Children's Service at the age of 9. Although he had not received a definitive diagnosis, it was proposed on referral that he might be a child with autistic disability. Daniel's general health was good. He had two younger siblings, both of whom had developed normally. Early history revealed that he did babble, and at 18 months began to join words. However, his attention was poor, he was irritable, and he often screamed. At 2½ he began to flap his fingers in front of his eyes and would often line up objects in a row. He did not mix with other children and did not communicate. He occasionally spoke, and it was reported that he used a few signs to indicate what he wanted (although we did not see any evidence of this in the first appointment).

His early communication skills were very primitive; he could not point to indicate his needs, or follow an adult's point with his finger. He had not developed symbolic play, but had been observed spinning objects when he was young; he had a range of self-chosen activities which were bodily or object directed. Although at the initial appointment the team largely concurred with the diagnosis hypothesised in the referral of autistic disability, it was decided to proceed with a full assessment to evaluate the nature and extent of autistic disability, and to look at his future potential.

Music Therapy Assessment

Three sections of the forty-five minute music therapy assessment session were selected for analysis:

Section A: The opening of the session moved from Daniel working on a single drum to a number of drums.

Section B: Daniel tried the guitar, then the zither, and then wandered around the room, playing with the therapist for a short period on the piano, then subsequently on his own using the cymbal and the piano.

Section C: Daniel used the amplified microphone. This section reflected attempts at vocal exchange and engagement.

The descriptions of the musical events, together with the analysis undertaken on sections of the assessment session using the IAP, reveal clear musical and behavioral evidence of autistic disability. For the purpose of clarity the first person will be used in the description of the case material.

Section A

Initially, Daniel sat away from me in the part of the room where there were no musical instruments, on the smallest chair in the room. As I started to play, he looked away from me although he appeared to be listening. I used an approach described by Juliette Alvin as "empathic improvisation" (personal communication, 1975), i.e., playing intuitively and empathically the mood or feeling Daniel was evoking in me. From this starting point, I played a slow, tonal waltz, grounded in D minor, with an improvised melody in single steps, interspersed with a nonrhythmic, five note melody over the first five notes of the D minor scale. The feeling I was reflecting to Daniel was of "lack of interest" and "being lost". First, I offered him a drumstick, which he ignored. Then, I put a drum and a stick near him, and returned to the piano. He turned his back away from the instruments and from me, and began to rock back in the chair. I went over and encouraged him to play, offering him a felt-headed beater. Initially, he held the beater between two fingers and let it bounce on the surface of the drum. He did this for several minutes, and I joined in. He was preoccupied with letting the head of the beater bounce on the surface of the drum, feeling the tactile sensation of the handle of the stick rocking in his hand.

I perseverated in this style, playing for much of the time. He played the drums with beaters, and the playing was remarkably lacking in communicative or musical intent and meaning. Following this, however, he was amenable to my bringing him over to where I was working in the room, and he sat at the drum and used both sticks more forcefully on the instrument. He began to beat the drum quite loudly in a regular steady rhythm; consequently, I joined in. At the beginning of the session he had also responded when I sang his name and called to him. As we started to play together, I also sang about Daniel playing the drum. I observed an occasional half smile when I mentioned his name.

This drumming continued, and I introduced another drum for him to use. He used both sticks on each drum, continuing to play monotonous, heavy beats. When I introduced a third drum (snare drum), he ignored it for a while, but then began to play that drum alone. He accepted new sticks that I offered for him to try, and appeared to listen to a musical phrase I played. I paused, waiting for him to play, but he put the sticks down and walked away. He had, in fact, gone to get another drum from behind the piano and placed it rather carelessly at the end of the line of the other three drums. This part of the session continued for six or seven minutes, and he stayed seated for most of the time, exploring the sounds he was making on the instruments. He was distracted for a short while when

he wanted to close the curtains. I reintroduced him to playing the drums. Because I wanted to vary and change his steady, monotonous rhythms, I sat with him, took the sticks away and encouraged him to use his hands and fingers.

Initially, he appeared to enjoy responding to the alternate "bangs" that we were making on the drums with our hands. He also enjoyed my drumming my fingers on the surface of the drum and then up his arms! After a while, he began to edge away, pulling the drum with him, and seemed to indicate that I was "invading his territory". He pulled the drum very close to himself, without actually playing it. I encouraged him to bring it back, which he did, and we continued to play. Again, he became distracted; he went to the door and returned.

There were other moments during the session (at infrequent intervals) when he wandered around to look at something (for example, what might be on my desk), but he did come back to play. There were also moments in the session (perhaps three or four) when he seemed to become agitated and put his wrist in his mouth as if to bite. He also made noises of irritation and anxiety on two occasions.

Analysis of Section A.

It was difficult to find variability in Daniel's music, despite my musical attempts to introduce variation and creative ideas. He demonstrated a classic rigidity in his playing, congruent with autistic disability, and the scores in Table 3 reflect the number of events where Daniel played in a repetitive and unvarying way. His tempo rarely changed, except for one or two short bursts of slightly faster beating on the drum in response to quicker tempos from me. His choice of instruments was quite fixed, unless I offered him direction to try a different instrument.

Our interaction was hard to quantify. Because he predominantly played without variation, despite musical "proposals" from me, I classified many of the musical events I noted in the category of "resistor". He decided how he wanted to play, and because of the lack of intentionality and apparent meaning, he did not appear to recognise or respond to my musical ideas. To identify his role as leader, according to Bruscia (p. 447), I needed to find examples where he attempted to influence my playing, by either controlling or giving direction to some aspect of the musical material. Daniel did not appear interested in influencing my music, and in the role of resister, he more typically "did not attempt to influence the overall improvisation or the partner's improvising, and did not participate in any joint efforts or interactions" (Bruscia 1987, p. 447).

Section B

I introduced the guitar and the autoharp to see how he would react to using different instruments (strumming and plucking, rather than hitting). With the guitar, he pulled the strings quite hard and let them twang back onto the instru-

ment. He allowed me to help him physically strum the instrument briefly, but did not play in a conventional way; he continued to pull individual strings. He watched the strings vibrate, an interest that had parallels in the preoccupation he appeared to have with the felt-headed beater bouncing on the drum. When he rejected the guitar, I replaced it with the autoharp, which he initially played by flicking the strings. He played the instrument in the same way as the guitar, pulling individual strings up and twanging them hard, quite rapidly losing interest in it.

He wandered off to the door again, and I resumed playing the grand piano to encourage him back to what we were doing. He joined me, and began playing the piano. He chose to play predominantly in the bass register, playing individual notes and then clusters of notes as he brought the palm of his hand down to play several notes at once. He seemed to enjoy sitting on my lap and the corresponding physical contact. He also went over and started playing the other piano in the room while I continued to play the grand piano. At this point, he span the cymbal, and fiddled with the butterfly nut that holds the cymbal on the stand. With his other hand, he casually began to randomly play single notes on the piano. He pulled the edge of the piano lid up and down.

Analysis of Section B.

Looking at the number of events I scored on the autonomy profile, I still classified moments in his musical material, using the guitar, zither and piano as resistive (See Table 3). He still wasn't leading, although at one point in the piano interaction he showed interest in the way I followed his idea. He paid scant attention to the musical ideas I produced, and his own musical material lacked any recognisable meaning, intentionality (other than at a tactile level) or expressiveness. I continued to interpret and classify musical events as resistive where there was potential for him to respond to rhythmic grounds and rhythmic figures I was proposing. There were three events on the piano when his tempo appeared to match mine. These were scored as partner events.

There was significantly little variability in Daniel's playing, and therefore a paucity of events scored. His style did not vary, nor his volume, tempo or other musical elements. Consequently, I scored a majority of events as rigid, which is congruent in general terms with autistic disability, as was found in Section A.

Section C

In the last part of the music therapy assessment session, Daniel also worked with me on the piano. I introduced the amplified microphone, and he was quite fascinated by the sounds that I made with it. He tried, with encouragement, to make sounds himself. At first, he tried to bite it, or scrape his teeth on it. It became a game. He enjoyed my tickling him, and he laughed into the microphone. On two or three occasions when I went "aargh" in a loud voice, he tried to make

the same sound softly, succeeding two or three times. He seemed to have the capacity to both listen to the sound I was making, and then attempt to imitate it or make his own sound.

Vocally, he also produced some small "sing-song" sounds when I hummed or sang random two and three note phrases for him. The microphone work continued for seven or eight minutes, and he appeared to be amused and interested in the effect he was getting from the amplification of both my sound and his own.

Analysis of Section C.

This concluding part of the session was the only time when I felt that Daniel demonstrated potential for co-operation, change, turn-taking and shared activity. Because of the responses he gave, I scored events on the variability scale the first time at the "stable" gradient in terms of the speed, rhythm and timbre of his voice when copying my sound. While he still showed resistance to engagement at an equality level, thereby scoring events at a resistive level on the autonomy profile, the short vocal dialogue produced five events of follower/leader sharing (See Table 3).

Results

Musically, Daniel played in a repetitive, perseverative way. In terms of variability, there were a limited number of occasions when he responded with varied rhythmic figures and more flexible tempi and dynamics. In terms of autonomy, there were only a few occasions in the session when his musical response was definitely related to something the therapist had initiated. He appeared to understand verbal instructions at times, and on several occasions when I asked him to stop, or to do something specific, he responded appropriately. He was focused on the activity, although it was predominantly on his own terms. In spite of some wandering throughout the session, his ability to sustain attention appeared fairly good for much of the forty-five minute period. He responded to some structure at times, but needed to "escape" frequently and resisted attempts to sustain engagement. There were times in the session when he wanted to close or open the curtains and switch off the lights. This did not become a predominant feature of the session; on the one or two occasions that occurred, I had no difficulty in re-engaging him.

The nature of the client/therapist relationship was lacking any emotional elements, either at an inter-musical or interpersonal level. Characteristic with more severe autistic disability, Daniel showed no real interest or response to emotional content in the music (for example, excitement at crescendos and accelerandos, or aspects of humor in unusual sounds). Reflections in the music of a melancholy nature, using minor keys, slow, falling melodies, and diminuendos all appeared to evoke no empathic response from Daniel.

The rigid and resistive scores in the IAP reflected an isolated and preoccupied child. His way of making music tended to be mechanical. However, one might view this more comp-

sionately as a serious lack of understanding on Daniel's part, rather than as resistance. Rather than displaying an overt intention to be resistive, Daniel may not have understood what the symbolic musical "messages" meant, and could only use the situation in a way that made him feel secure. Therefore, the term "resistor" in the autonomy profile can be inappropriate for a person with autistic disability; it might be more appropriate to use the term 'independence' rather than "resistor". The approach in music needed to be creative and interesting for him, and he was very capable of working with me on an individual basis. It was hoped that he might build upon his capacity to interact and respond. This could lessen the rigid and inflexible behavior he displayed due to autistic disability. There was evidence of this in the last section, when an overwhelming attraction to the sound of amplified voices brought Daniel into the most direct level of contact he achieved in this session.

Daniel seemed to be able to tolerate interaction through this musical work. A "pressure on—pressure off" approach, with some demands alternating with some flexibility might be most effective. From the point of view of giving a diagnostic opinion, the evidence from Daniel's musical and non-musical behavior in this session, his rigidity in playing and lack of interest in a shared experience supported a diagnosis of autism.

Summary and Conclusion

Flexibility is essential in the music therapists' skills, and adaptability to the clients needs, to the situation and to their changing emotional and interactional state, within a broad but structured musical framework. The approach and therapeutic interventions described above range from a strongly structured framework, to a flexible and free style of work. A combination of these approaches has proved effective in diagnostic assessment.

The process of assessment demands both an objective and subjective attitude on the part of the music therapist. The structure of a therapy assessment described previously by the author has been developed more specifically to be used in diagnostic assessment, and therapy assessment will require more evaluation over time.

The use of the IAP in evaluating the musical material and the inter-personal relationship gives musical criteria to work with in evaluating musical activity before attempting to form hypotheses, interpretations and conclusions. It is a method whereby elements in the musical material can be identified and brought into focus in order to integrate thinking about the client's musical and interpersonal world. At one level, this method might appear inadequate or reductionist in that it does not do justice to the complexity and completeness of the IAP's full potential. However, this adaptation allowed me to use the profiles and the scales effectively, within time constraints, and to evaluate in part the relevant aspects of a child's musical and pathological behavior.

There are limitations to the process of analysis. The primary

limitation is the subjectivity with which the analysis is undertaken, and through which the events are scored. In a full Harper House assessment, it is possible to observe the child in assessments by other professionals. The therapist is better informed, but also potentially biased. The process one undertakes to conduct this analysis is to (a) review the session from memory, (b) watch the video of the entire session in order to select the sections to analyze, and (c) watch the specific sections several times in order to score them. The musical events that are scored are selected from a third, fourth, or fifth viewing of the session. Nevertheless, there is no inter-observer reliability, and this method has not been researched to explore issues of external validity and reliability. The use of this method to date has been solely for clinical purposes in diagnostic assessment.

The conclusions reached in the music therapy assessment using this model of analysis are compared to other therapy assessments, and major discrepancies in interpretation, or in the overall picture between disciplines, can result in the need for further analysis, consideration and reconsideration.

There are also limitations in the reductionist nature of this process. Music therapy improvisation provides a very rich source of material for analysis, and the analysis model using the IAP relies on good judgement by the therapist to follow an appropriate and fruitful process in the session, selecting relevant sections, and musical elements in the scales for analysis. This also leaves one vulnerable to individual bias and selective interpretation. However, external validation comes in the process following the analysis and report writing. At Harper House, each case has a case co-ordinator who could be any member of the team that originally saw the child in the first appointment. The case co-ordinator's job is to compare and contrast the findings of the various assessment reports, examining evidence of an agreed-upon picture of the child. The conclusions reached in the music therapy assessment using this model of analysis are compared to other therapy assessments, and major discrepancies in interpretation, or in the overall picture between disciplines, can result in the need for further analysis, consideration and reconsideration. The final conclusions, written by the case co-ordinator, need to reflect an agreed-upon picture, and result in consistent recommendations.

Music therapy has not yet found a standardized method by which reliable assessment can be undertaken. The method described above is one among a wide range of assessment protocols, most of which still rely on subjective interpretation of musical or behavioral data. The issue that is still in question, and needs addressing, is the necessity of an assessment tool

that can be the subject of widespread trials with an objective to produce a standardized tool that will be widely accepted and used in clinical practice.

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