

Musica - res severa verum gaudium

Proceedings of the ISME Commission Seminar on Music in Special Education, Music Therapy, and Music Medicine

Editor: Manuela Prause-Weber



Vitoria/Spain 2004, 5 to 9 July

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Proceedings of the ISME Commission Seminar on Music in Special Education, Music Therapy, and Music Medicine

ISME COMMISSION FOR SPECIAL EDUCATION: MUSIC THERAPY, MUSIC MEDICINE

The Commission was established in order to contribute to the progressive development of music therapy and music in special education. The commission seeks to emphasise the importance of communication between the related disciplines which are involved.

The commission aims to:

- gather and present detailed information from each specific profession;
- exchange information regarding training of the three professions;
- share information and research through an informal email discussion group and through biannual seminar meetings;
- present the outcomes of these meetings in publications.

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International Society for Music Education



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Vitoria/Spain 2004, 5 to 9 July

All papers presented at the ISME Commission for *Special Education, Music Therapy, and Music Medicine* Seminar in 2004, Vitoria, Spain were peer reviewed by a panel of international authorities before inclusion in the Seminar Proceedings.

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In memory of Rosalie Pratt



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to build and maintain a worldwide community of music educators characterised by mutual respect and support

to foster international and intercultural understanding and cooperation, by providing accessible opportunities for individuals, national and international groups to share knowledge, experience and expertise in music education

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This volume is the report of the 10th meeting of the "Commission of Music in Special Education, Music Therapy, and Music Medicine" of the International Society for Music Education (ISME), which took place from July 5th to July 9th 2004 at the Palacio de Congreso de Europa in Vitoria, Northern Spain. This meeting, which constituted the 30th anniversary of this international Commission, was held in cooperation with the Summerschool of the Music, Art and Process Institute, Centre of Spanish Music Therapy and was hosted by Patxi del Campo, head of the Institute.

Musica – res severa verum gaudium: Music, it is an important concern to bring joy to others. This statement is the famous inscription at the concert hall *Gewandhaus* in Leipzig, home to Johann Sebastian Bach. To bring joy to individuals with disabilities and others in need and to improve their lives has always been a concern and a theme of our Commission. The present volume is intended on the one hand to document current practice and research and on the other hand to contribute to the further exchange and creative dialogue between professionals in order to serve people in need through the art of music.

I am indebted to all former and present commissioners. Commissioners for the biennium 2004-2006 are Jaakko Erkkila (Finland), Liliana Acuna (Argentina), Alice-Ann Darrow (USA), Kimberly McCord (USA), and Liza Lee (Taiwan). Other former commissioners who supported me, to whom I owe many thanks and who still help the Commission with their valuable experiences and advices are Paul Waskiewicz (USA, Co-Chair for the conference in Vitoria), Janet Montgomery (USA, past Chair), Daniela

Laufer (Germany, Special Adviser), Phil Ellis (Great Britain, Special Adviser), Yoshiko Fukuda (Japan), Cheryl Dileo (USA) and working group member Juha Salo (Finland). I owe particular thanks to Judy Thönell, who with invaluable professional and personal interest guided the planning process of the Commission meeting and the work on this volume. I thank my colleague and dear friend Daniela Laufer for all her support and for long encouraging conversations during the planning process. Special thanks go to Paul Waskiewicz and Janet Montgomery for bringing me into the commission as a member, for suggesting me as Chair and for their deep confidence in me. Thanks to Walter Piel for all his help and confidence in my work. I thank him as well as Barbara Wichelhaus, Dean of the Department of Art Therapies at the University of Cologne, for encouraging and supporting me to organize this conference. I am indebted to Joanne Loewy, Director of the Louis and Lucille Armstrong Music Therapy Program at Beth Israel Medical Center, New York, for allowing me to use the Music Therapy Assessment and Music Therapy Referral Forms of her department. Thanks go to Rosalie Rebollo Pratt for her pioneering work for the Commission. We are thankful for the time we had with her. Janet, Daniela, and Rosalie, as hearts of our Commission served the Commission for the last two decades with invaluable personal and professional passion. I also thank Alice-Ann Darrow, who participated in the conference as keynote speaker, for her great support in all aspects and for her inspiring help. Thanks are due to the host of the conference in Vitoria, Patxi del Campo and his staff, particularly Rebeka Eizaguirre. I must thank Cindy Ropp, Marie Digiammarino, and Kim McCord for serving on the editorial board. They read the papers and gave invaluable help. Kim, in particular, made her expertise available and gave me critical encouragement and tremendous support throughout the editing process. As always I owe thanks to my husband and parents.

Manuela-Carmen Prause-Weber

Chair of the Commission of Music in Special Education, Music Therapy, and Music Medicine

30 years of the ISME Commission of Music in Special Education, Music Therapy, and Music Medicine – History and Aims

Manuela Prause-Weber, Germany

In 1974 the Commission of Music in Special Education, Music Therapy, and Music Medicine, then the "Commission on Music Therapy and Music in Special Education," was founded as one of six new Commissions at the XIth World Conference of the International Society for Music Education in Perth, Australia. The major tasks and objectives of this Commission were, according to its first chair Violeta Hemsy de Gainza, (a) "to lend expertise to the Executive Committee and membership, calling attention to the results and implications of ongoing and past studies and projects"; (b) to establish international and interdisciplinary cooperation; and (c) to provide and exchange information about current practices and research (Hemsy de Gainza 1989, 6). While in the beginning of the Commission's existence the similarities and differences between the two fields, Special Music Education and Music Therapy, were the central themes (seminars in Paris 1982 and 1985; Lisbon 1984; Bad Honnef, Germany 1986; Provo, Utah 1987; Melbourne, Australia 1988), the field of Music Medicine

became increasingly important since the second decade of its foundation: "Discussions at the Melbourne conference led to the suggestion that music relates to education, therapy, and medicine, and that this perspective should rightfully be part of the Commission's responsibility" (Pratt 1989b, 3). As a result in 1988 during the World Conference in Canberra, Australia, the term Music Medicine was added. Rosalie Rebollo Pratt (Commission Chair from 1988 - 1992) states:

"Professionals in all three areas were already collaborating in research and practice on the effects of music on human behavior, but the moment had finally come to recognize formally that the vision and work of the commission had earned us the title of 'Commission for Special Music Education, Music Therapy, and Music Medicine'" (Pratt 2004, 203).

The following biannual conferences of this interdisciplinary Commission took place in Tallin, Estonia 1990; Bad Honnef, Germany 1992; Boulder, Colorado, USA 1994; Rennes, France 1996; Capetown, South Africa 1998; Regina, Canada 2000; Jyväskyla, Finland 2002 and Vitoria, Spain 2004. A look at the past seminars' themes, *Evolution in Music Therapy, Music in Special Education, Music Medicine – Specialized Approaches; Music as a Medium: Applications and Interventions; Music in Communication, Healing, and Cognition; Special Resonations – Baselines and Connections in Music in Special Education, Music Therapy, and Music Medicine; Community, Creativity, and Culture: Connections in Music in Special Education, Music Therapy, and Special Education, Music Medicine, shows that these in general are formulated very broad, showing the Commission's intention to generally give space for a wide range of topics within all three fields.*

The dissemination and exchange of information about the Commission's meetings has always been considered important for this interdisciplinary working group. As a result, a body of publications has been produced, documenting the presentations at the meetings since 1986. The first publication titled *The First Research Seminar of the ISME Commission*

on Music Therapy and Music in Special Education (Pratt & Moog, 1989) documents the presentations held in Bad Honnef, Germany; the next two publications, Music Therapy and Music in Special Education: The International State of the Art, volume I (Pratt & Hesser, 1989) and Music Therapy and Music in Special Education: The International State of the Art, volume II (Pratt, 1989a), document the conferences in Utah, USA and in Melbourne, Australia. The papers held at the following conference in Bad Honnef are documented in Music as a Medium: Applications and Interventions (Laufer & Montgomery, 1998), at the conference in Cape Town, South Africa in Music as a Human Resource: Drafts and Developments (Laufer, Chesky, & Ellis, 2000) and at the conference in Regina, Canada in Resonances with Music in Education, Therapy, and Medicine (Laufer & Montgomery, 2002).

These publications that now document the Commission's work for almost 20 years "provided an opportunity for the Commission to establish its professional identity and to reach audiences that could not otherwise benefit from their exchanges" (McCarthy 2004, 193).

The 10th seminar of the "Commission of Music in Special Education, Music Therapy, and Music Medicine" of the International Society for Music Education (ISME) took place from July 5th to July 9th 2004 at the Palacio de Congreso de Europa in Vitoria, Northern Spain. This meeting, which constituted the 30th anniversary of this international Commission, was held in cooperation with the Summerschool of the Music, Art and Process Institute, Centre of Spanish Music Therapy and was hosted by Patxi del Campo, head of the Institute.

Last year's proceedings in Spain confirmed the necessity of having an international forum, where the three fields "Music in Special Education, Music Therapy, and Music Medicine" come together. All three highlight the beneficial use of music for people in need:

"To this day, the ISME 'Commission for Special Education, Music Therapy, and Music Medicine' stands alone in the international arena of music and healing as the one international organization that understands the distinct yet reciprocal roles of education, therapy, and medicine" (Pratt 2004, 203-204). The lively exchange between the three professions at the conference in Spain showed, alongside all existing and necessary differences, the basic similarities between these scientific areas.

During the Commission meeting in Spain 15 presenters from eight countries (Spain, Great Britain, USA, Finland, Brazil, Japan, Taiwan, and Germany) held lectures representing the three different areas of our professions. A total of 140 participants gave witness to the growing interest in these fields.

The papers from this conference which are the content of this volume document current research results and practical approaches. They range from topics concerning the use of music with visually impaired, blind, mentally impaired and autistic children to the therapeutic use of music with Cochlear-Implant-patients, asthmatic patients, patients in palliative care and neurological rehabilitation to the use of technologies in Music Education with disabled children, in Music Therapy and Music Medicine, and theoretical reflections on aesthetical and ethical implications for Music Education and Music Therapy.

The main intention of the Commission's work is and always has been to have a constructive exchange and dialogue between a) the three professional fields, b) research and practice and c) different countries. In order to help people in need through the medium of music we should not restrict ourselves to our own familiar approaches, but make use of the whole range of possibilities of using music and explore new ways together. The statement which commissioner Barbara Hesser made in 1989 still holds true today:

"The international dialogue that takes place in a (...) working symposium is an important and rich opportunity. A meeting

like the World Leadership conference in Music Therapy and Music in Special Education (...) helps us to attain a global perspective of our professions. To see and know ourselves and our work in this broader context is like the awesome, life-challenging experience of an astronaut when he views the earth from space. Our small, separate perspectives and concerns are quickly seen in a new light" (Hesser 1989, vii).

It is the intention of this volume to contribute to the further exchange and creative dialogue between professionals in order to serve people in need through the art of music.

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The Musical Intersection of Therapy, Medicine, and Special Education

Alice-Ann Darrow, United States

PART I

Therapists or educators – clients, patients, or students, are we alike or different? We intersect harmoniously when we use music for the benefit of others; yet, we are diverse enough to have different names. So what's in a name? Does it matter? This presentation will address the convergent and divergent aspects of music medicine, music in special education, and music therapy (figure 1.).



In keeping with the intersection analogy – intersections converge and diverge. In addressing where these three professions intersect or part, it seems useful to briefly examine the definitions of each. Since music is used in the title of all three professions, let us first examine the definition of music. Work with me for a moment, and in your mind – define music. Defining the primary component of these professions is not so easy as it might seem. Therein lies one problem. Here are several definitions for *music* from various dictionaries such as Webster, Princeton, and American Heritage:

- 1) The art of arranging sounds in time so as to produce a continuous, unified, and evocative composition, as through melody, harmony, rhythm, and timbre.
- 2) Vocal or instrumental sounds possessing a degree of melody, harmony, or rhythm.
- 3) Artistic form of auditory communication incorporating instrumental or vocal tones in a structured and continuous manner
- 4) Any agreeable (pleasing and harmonious) sounds

(Webster's Revised Unabridged Dictionary, 1996, 1998; WordNet, 1997).

The last two definitions appeal to me because of the words "communication" and "any". The word "communication" is appealing because, whether we are talking about therapy, medicine or education, communication should be a key element. The word "any" is appealing because it suggests an inclusionary aspect to music. One might take exception to the term "agreeable", however, since the term agreeable is subjective, and one might suggest that sounds that are thought to be disagreeable may still be considered music. I am sure all of us can think of a particular style of music that we consider disagreeable. Moving on to medicine. . .

Medicine is defined as:

1) The science of diagnosing, treating, or preventing disease and other damage to the body or mind.

- 2) The branch of science encompassing treatment by drugs, diet, exercise, and other nonsurgical means (such as music).
- 3) An agent, such as a drug (or such as music), used to treat disease or injury.

Obviously, the parenthetical words referring to music are mine. Wouldn't it be nice if they were included in the Princeton, Webster, or American Heritage Dictionaries where most of these definitions (Webster's Revised Unabridged Dictionary, 1996, 1998; WordNet, 1997) appeared?

Special education does not appear in most dictionaries, but it does appear in the American Heritage Dictionary of the English Language:

Classroom or private instruction involving techniques, exercises, and subject matter designed for students whose learning needs cannot be met by a standard school curriculum (Houghton Mifflin Company, 2000).

The Princeton University Dictionary gives a similar definition, "the education of physically or mentally handicapped children whose needs cannot be met in an ordinary classroom" (WordNet, 1997), though with a glaring omission and commission – it does not use person first terminology as outlined in IDEA, the Individuals with Disabilities Education Act Amendments of 1997, and uses the term handicapped which has been replaced with the term disabilities since handicapped is a pejorative term referring to an earlier time when persons with disabilities had to beg with cap in hand to survive. Never mind that the definition also does not include references to the psychosocial, communicative or other types of disabilities. But I digress ... let us proceed with our definitions.

Before defining therapy, however, we must first address the little twoletter preposition that often precedes it. Is it music *in* therapy, or music *as* therapy? To avoid the question, we often just refer to music therapy. Most music therapists would suggest there is indeed a difference. Music *as* therapy infers that music itself is the therapeutic agent; whereas, music *in* therapy infers that music is a tool used in therapy. Thus, music *as* therapy implies that music is the primary therapeutic agent, and music *in* therapy implies that the therapist is the primary therapeutic agent.

The definition of music may be complex; however, the most common definition of therapy is quite simple: the treatment of illness or disability. Although when we put the two words – music and therapy together, we find a host of definitions. Authors have devoted chapters to defining music therapy (Davis, Gfeller, & Thaut, 1999). In fact, Ken Bruscia (1998), professor of music therapy at Temple University in Philadelphia, PA has written a 370-page book entitled, *Defining Music Therapy*. His simple working definition is:

"Music therapy is a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships that develop through them as dynamic forces of change" (Bruscia 1998, 20).

Although quite enlightening, I will spare you the following 350 pages that dissect each component of that working definition. The American Music Therapy Association's working definition appears on its web home page as:

"Music therapy is the prescribed use of music by a qualified personto effect positive changes in the psychological, physical, cognitive, or social functioning of individuals with health or educational problems" (American Music Therapy Association 2004, 1).

The Association's extended definition appears in the 1997 AMTA membership brochure, and includes various types of health problems assisted through music therapy, offers a brief historical perspective, and lists some of the health care settings in which music therapists are most often employed. However, as noted by Davis, Gfeller, & Thaut (1999), such a definition offers little information about how music functions as a therapeutic tool. The function of music is no small issue as it is integral to the identities of music medicine, music in special education, and music therapy.

MUSIC AS MEDICINE

Music as medicine serves many functions. Research has shown that it can help:

- reduce the perception of pain,
- reduce pre-operative and pre-procedural anxiety and fear,
- people regain physical functioning,
- people regain their ability to verbalize,
- promote growth and development in premature infants,
- promote relaxation,
- improve muscle functioning.

(Cohen, 1994; Cohen & Masse, 1992; Daveson, 1999; Dileo, 1999; Edwards, 1998; Han, 1998; Malone, 1996; Standley, 1986, 2002; Thaut, 1985)

The setting for music medicine is usually a hospital, and hospitalization affects a one's quality of life; therefore, persons with acute or chronic medical conditions typically have other needs that must be met as well:

- to allow emotional expression and find support
- to prevent isolation and provide socialization
- to adapt to the illness and its limitations
- to help the family adjust to the illness
- to adjust to the hospital environment
- to reduce fear and anxiety about the illness and prescribed treatment
- to maintain an environment as close to normal as possible
- to continue cognitive and social development
- to prevent or overcome developmental delays resulting from long term illness or treatment
- to engage in physical activity
- to face issues related to one's mortality

(Daveson, 1999; Davis, Gfeller, & Thaut, 1999)

Although there are a few of these functions that might also apply to music therapy or even to music in special education, most of these functions are unique to music medicine because they are related in some way to ill health. In music medicine, music is used to restore health or to reduce the impact of physical or psychosocial problems related to a patient's illness. The setting is usually a hospital, and the relationship between the therapist and the patient is usually brief.

MUSIC IN SPECIAL EDUCATION

In music in special education, the word education has certain implications that readily identify the professional relationship - teacher-student, and the setting – a school. However, what is the function of music? Is it used to educate – to provide knowledge? Or is music the subject matter to be taught? Since there is no published definition that I could find, I will quote my own which is adapted from the special education definition given previously, "Classroom or private music instruction involving techniques and exercises designed for students whose learning needs cannot be met by a standard school music curriculum." According to this definition, music is the subject matter, and accommodations are made for its instruction. The students involved are usually those with disabilities; that is, stable conditions from which they will not recover. Thus, the clientele is much different from those who receive music medicine, as they are neither hospitalized nor ill, but rather in need of specialized education. This distinction alone helps to delineate the function of music in special education. Music is not a medium, tool, strategy, or vehicle to achieve a medical, academic, or other nonmusical goal. The function of music is to provide students with disabilities the same education afforded to their peers.

According to Elliot Eisner, Lee Jacks Professor of Education and Art at Stanford University, the functions of music in such an education are to make cognitive contributions, to enable one to express and to know, and to provide experiences that are, "at their best, deeply treasured." (2003, 1). The function of music in special education then is to improve the quality of life for students with disabilities, and to afford them the right to artistic expression. Nevertheless, we know that in learning music can enhance learning in other subject matter as well. For the special music education student, the nonmusical learning occurs more vicariously perhaps than for the music therapy client.

The typical goals of special music educators are the Music Educator's National Conference's (MENC) national standards. To teach all students to:

- 1) Sing, alone and with others, a varied repertoire of music.
- 2) Perform on instruments, alone and with others, a varied repertoire of music.
- 3) Improvise melodies, variations, and accompaniments.
- 4) Compose and arrange music within specified guidelines.
- 5) Read and notate music.
- 6) Listen to, analyze, and describe music.
- 7) Evaluate music and music performances.
- 8) Understand relationships between music, the other arts, and disciplines outside the arts.
- 9) Understand music in relation to history and culture.

MUSIC THERAPY

The function of music in therapy is to restore, maintain, or improve the psychological, physical, cognitive, emotional, or social functioning of individuals (American Music Therapy Association, 2004). For music therapists, nonmusical learning is their raison d'être. Most music therapists are music therapists because they want to work with clients on nonmusical goals. Although I would suggest to any music therapist in public schools who is the sole provider of musical experiences to students in special education,

that if they exclude music learning, they are depriving their students of a critical component of their education. They are also depriving their students of the joyous childhood experiences with music that likely led them to a major in music therapy. All children deserve the right to study music, but the special music educator can perhaps best address that right.

The typical goals of music therapists are to assist clients in developing or restoring:

- 1) physical and motor skills
- 2) cognitive and academic skills
- 3) psychological and emotional health
- 4) social skills
- 5) communication skills
- 6) activities of daily living

(American Music Therapy Association, 2004).

PHILOSOPHICAL UNDERPINNINGS OF MUSIC MEDICINE, MUSIC THERAPY, AND SPECIAL MUSIC EDUCATION

I recently edited a text, *Introduction to Approaches in Music Therapy*. It was written for entering students in music therapy programs, or anyone who wants to know more about music therapy. It was also written with the hopes that we as professionals, can appreciate and become more familiar with approaches and therapeutic philosophies that may not be our own, and consequently, take pride in the rich diversity within the music therapy profession. The book is organized into three major sections: Approaches Adapted from Music Education, Psychotherapeutic Approaches to Music Therapy, and Medical Approaches to Music Therapy, which closely resemble

the three professions I am discussing today. In each section, the author describes the philosophy behind the approach. I have never engaged in any academic activity that has given me more appreciation for philosophical diversity than editing this book.

Diverse as philosophies may be, central to any philosophy are the "wh" questions: why, who, where, what, and when? The why question is usually addressed first, but I will address it last, as that question, "Why music?" ultimately leads me back to the title of this presentation. Who, where, what, and when are the "wh" questions that define the individual philosophies of these professions. There can be multiple responses to any of these questions. The nature of philosophy involves reasoned criticism and argument, not just opinion. The responses to these questions can be developed and refined through mutual criticism and counter-criticism. What is common to these questions is that they can be answered only by reasoning. Philosophy is largely a matter of conceptual analysis – or thinking about thinking.

Who then should do music medicine, music therapy, and special music education? The obvious response is those with training; however, should it be limited to those individuals? Dentists have used audioanalgesia for years, using music to mask the sound of the drill. Classroom teachers often use music across the curriculum to teach concepts about math, social studies, science, and English. Many nursing homes have volunteers who perform for residents or do sing-alongs.

When should music be used in medicine, special education, and therapy? For all patients, clients, and students? For a select few? Only for those who want it?

Where should music medicine, music therapy, and special music education take place? Music medicine seems easy -a hospital? But couldn't it also take place in a doctor's office, or in someone's home? Using music to reduce the perception of pain, or for relaxation, or to regain mobility could occur almost anywhere. Special music education should take place in a school – correct? What about the teacher who gives piano lessons in her

home to a student who has a learning disability or developmental delays? Or the music therapist at the hospital who is teaching a child a song? Is the music therapist equally at home in the band room or the operating room?

What should be the content of each professional domain? Is there expertise that those working in each profession should have regarding medicine, education, or psychotherapy? Is there expertise that all professionals in these fields should have? What should the curriculum look like for these professions? What kind of music is used in each profession – all music? Should heavy metal be the subject matter for those in special music education?

THE MUSICAL INTERSECTION

The "why" question is perhaps the easiest to answer. The common element of all three professions is music. Music is what has brought us all here today -a love of music and what it can do to improve the human condition. So why music?

- Music is a science. It is exact, specific, and acoustical. The musical score is a chart, a graph that indicates frequencies, timbre, and volume changes all at once and with the most exact control of time.
- Music is mathematical. It is rhythmically based on the subdivisions of time into fractions that must be done instantaneously, not worked out on paper.
- Music is a foreign language. Most of the terms are in Italian, German, or French; and the notation is certainly not English but a highly developed kind of shorthand that uses symbols to represent ideas. The semantics of music is the most complete and universal language.
- Music is history. Music usually reflects the environment and the times of its creation, often even the country or racial origins.

- Music is physical education. It requires fantastic coordination of fingers, hands, arms, lip, cheek, and facial muscles in addition to extraordinary control of the diaphragm as well as back, stomach, and chest muscles, which respond instantly to the sound the ear hears and the mind interprets.
- Music is all these things, but most of all, music is art. It allows us to take all these subjects and use them to create emotion, for it is the emotion of music that allows us to be effective in our professions.

(adapted from Music Education Online, 2004).

E. Thayer Gaston (1968), the father of music therapy, along with his colleague, William Sears, wrote two chapters in *Music in Therapy*, on why music. Their functions of music in therapy are still cited often today. The following principles have been outlined from the text online at the Mostar Music Centre's website (http://www.warchild.org/projects/centre/princip. html).

EXPERIENCE WITHIN STRUCTURE

Music demands time-ordered behavior

The unique structure of music is that it exists through time and requires the individual to commit himself to the experience moment by moment. Music must be carried through in its time order to be completed. One cannot be musical playing one note per day. The extent and rapidity of the commitment can be adjusted to the individual by an appropriate selection of the level of skill required, including the number of responses per unit of time. The time order of music requires the client to structure his behavior in the most minute and continuous manner. No other form of human behavior demands and depends so completely on strict adherence to time-ordered structure.

Music demands reality-ordered behavior

Music involves reality orientations in many forms and on such levels as the situation requires. The various stimuli included would be aural (both musical and verbal), the feel of the instrument itself, visual (musical notation and conductor cues), and the individual's own body. The individual's responses can be judged for their appropriateness to real stimuli built on the time ordered necessities of a given musical situation.

Music demands immediate, continuous and objectified behavior

Because the time order of music is continuous, the individual's responses must be continuous; and because the individual's responses are continuous, the appropriateness of his responses is immediately observable moment by moment.

Music permits ability ordered behavior

Behaviors ranging from simple to complex may coexist among several individuals, as in a group performance where part difficulties vary. Parts may also be modified to fit the individual's ability.

Music permits ordering of behavior according to physical response level

Required musical behavior can be adapted to the physical capacities and operational levels of the individual.

Music permits ordering of behavior according to psychological response level

Required musical behavior can be adapted to the client's psychological capacities and operational levels. The levels may have various bases such as mood, motivation, intellect, and levels of musical knowledge. Through the motivation intrinsic in the music and the structure provided by the music therapist the client can be moved to a more desirable psychological level.

MUSIC PERMITS ORDERING OF BEHAVIOR ACCORDING TO SOCIAL RESPONSE LEVEL

Music evokes affectively ordered behavior

The general behavior of groups can be controlled or at least influenced by appropriately chosen music (Sedative - Stimulative), although predictions are less certain when working with individuals because of unique associations that may exist.

Music provokes sensory-elaborated behavior

Participation in music offers unique sensory experiences ranging from just perceptible responses on the neuromuscular level to the highest level of human behavior (intellectual meditation and contemplation), all of which are essential to the aesthetic experience.

Music demands increased sensory usage and discrimination

Music significantly demands the integrated use of several sensory modalities at any given time within the musical experience as previously discussed.

Music may elicit extramusical ideas and associations

Music may often bring about certain ideas or pictures. When these ideas fall outside of a "normal" response range, the differences may reveal significant insights into how the individual structures their world. The associationprovoking quality of music can be used to reinstate or remind the individual of healthy forms of behavior including ideas.

EXPERIENCE IN SELF-ORGANIZATION

Experience in self-organization concerns inner responses that may only be inferred from behavior, and has to do with a person's attitudes, interests, values, appreciations and meaning.

Music provides for self expression

Whenever choice by an individual is involved, her behavior is a reflection of her self-expressive needs. The adaptability of music provides many avenues for self expression in performance and listening; they range from simple and random to complex and highly organized. Such a wide range also offers many socially acceptable ways of expressing negative feelings, energetic behavior, closeness, any of which may reduce the need for expression in more overt, unacceptable forms. The movement from random expression to organized, meaningful expression is the goal.

Music provides compensatory endeavors for the handicapped

By being able to accomplish in music some of the same things that his normal counterparts do, the individual with a disability may be led to a healthy acceptance of his limitations. That is limitations as one aspect of the self and not as the whole self.

Music provides opportunities for socially acceptable reward and nonreward

When appropriately structured, musical activities may carry an inherent pleasure found in the performance itself. Commendation can be given.

MUSIC PROVIDES FOR THE ENHANCEMENT OF PRIDE IN SELF

Through music the client is confronted with objective evidence concerning the relationship of effort spent and goal achieved.

Music provides for successful experiences

The individual may chose or have arranged for him, a level of musical participation almost certain to ensure success. A continuum of opportunities for successful experience, ranging from mere presence within a group to a position of prominence.

Music provides for feeling needed by others

The feeling of being needed by others, of giving the self to an important pursuit, and of achievement, may be gained through especially structured musical situations.

Music provides for enhancement of esteem by others

A person who shares successful musical experiences with others or contributes to the success of others through a supporting role normally receives the esteem of others.

EXPERIENCE IN RELATING TO OTHERS

Music provides experiences for persons as group members

Ensemble music requires the individual to subordinate his interests to those of the group if music is to result. In the group, the individual is more able to assess his own identity. The goal is to increase the size of the group in which the individual can successfully interact, to increase the range and flexibility of his behavior in those interactions and to provide experiences that will help him relate to non-institutional life.

Music provides a means by which self expression is socially acceptable

Music provides a wide range of emotional expression. Expressions not otherwise permitted may be acceptable in music. Dance activities permit closeness to other individuals not normally possible in different situations.

Music provides opportunity for individual choice of response in groups

The client should be given opportunities to make choices in the group.

Music provides opportunities for acceptance of responsibility to self and others

Her arrival on time for lessons or other activities or her participation as a member of the group requires the student or client to be responsible to others.

Music provides for developing self directed behavior

The wide range of experiences and levels of achievement offered in music permits the individual a variety of choice in personal goals. The client should assume more and more responsibility of directing his or her own behavior.

Music provides for developing an awareness of others

In group settings the individual must learn to subordinate his interests to the interests of the group. An awareness of others and ones relation to them is constantly required in the process of achieving a musical expression and interpretation.

Music enhances verbal and nonverbal social interaction and communication

It is easier to talk with music in the background. Clients may express in music or through musical preference feelings not otherwise expressible.

Music provides for experiencing cooperation and competition in socially acceptable forms

The very nature of music makes possible the experience of socially acceptable forms of cooperation and competition.

Music provides entertainment and recreation necessary to the general therapeutic environment

Diversional and recreational activities are a necessary part of the institutional routine. Keeping up morale makes the attainment of therapeutic goals easier.

Music provides for learning realistic social skills and personal behavior patterns acceptable in institutional and community peer groups

Music skills usually enable individuals to interact more successfully in community groups. Dancing and other skills may help the patient with more poise and less need for defenses.

Music is human behavior

Music has a unique and powerful influence. It helps to change behavior, sometimes by itself, but most often the persuasion of the music therapist is involved. Music is the essence of humanness, not only because man creates it, but also he creates his relationship to it. Man's larger brain size and society set him apart from the rest of the animals inhabiting the earth. Gaston (1968) believed that music came into being because of man's interdependence and his need for expression and communication. Music provides multi-sensory stimulation.

All persons have need for aesthetic experience and expression

The great potential of man's nervous system take him beyond bare animal adaptation to the aesthetic. The aesthetic experience may be one of the best devices to help him adjust to his environment. We are never satisfied with just the sounds of nature. As our aesthetic sensitivity develops we must elaborate and make more complex sensory and motor behavior. The universal need for aesthetic experience is not ephemeral. It is a physiological component of man's well being.

All art forms are unique

The two distinguishing characteristics of human development are society and a complex brain. These two characteristics are interactive and interdependent. The brain size makes possible communication and abstract thinking.

The best arousal, according to Karl Pribram, comes from variations on the familiar.

Extreme repetitiveness leads to internal inhibition and drowsiness. If too much novelty is present the same result occurs, inhibition and a lack of attention, although these findings are concerned chiefly with learning and habituation, they are applicable to music therapy. This neurological evidence points to the dulling effect of sensory deprivation or monotony. The same effect occurs when there is so much novelty that it cannot be organized. Reaction to novelty seems to be a built in feature of the central nervous system.

Rhythm is an organizer

Rhythm alone makes possible the temporal order of music. Most people will disregard music to which they cannot keep a beat. If rhythmic order cannot be established then melody and harmony loose their potency. Much of music involves dancing. Dance involves a unity of purpose and activity. Rhythmic activities make working together easier, because no words are needed; rhythm is the common bond.

Rhythm is an energizer

Stimulative rhythms are detached, percussive and vary in their patterns. Sedative music is legato and nonpercussive. Generally rhythmical performances garner greater applause. A number of small studies relate these two aspects of rhythm to differences in pictures drawn by children, pictures drawn by adults, gastric motility, galvanic skin response, papillary dilatation and electromyograms. – Lullabies are unrelenting in rhythm.

Musical expression and experience are determined by the culture

Music is shaped by culture, but in turn influences that culture of which it is a part. Music is a unique phenomenon that exists only in terms of social interaction.

Music and religion are integrally related

In many religions there is a greater emphasis on group musical activity as opposed to individual efforts. Music aids memory. Music functions similarly in all societies. Singing in social groups promotes the feeling of acceptance.

Music is structured reality

Music has structure. Patterns of melody, pitch, rhythm, tempo and dynamics all demand preciseness. All the senses bring to us aspects of reality. Music can be read, heard and felt. Music's reality and structure make it a valuable therapeutic medium.

Music is a source of gratification

The performance of music usually brings a sense of gratification, feelings of accomplishment and mastery. Music has order and predictability and both are essential for competence. Music permits and encourages each person to participate dynamically in his/her own growth and change.

The effects of music are strongest in the group, particularly the peer group

Music by its very nature draws people together for the purpose of intimate yet ordered function. Music provides a gestalt of sensory, motor, emotional and social components in which the participants concur for the most part. It unifies the group for common action and it is this setting that elicits or changes many extramusical behaviors. Group music leads to desirable ends with a minimum of verbal commands.

How fortunate we are to have music as the integral part of our professions. It is music that has brought all of us here to Vitoria. Music has provided a meaningful and useful intersection for sharing ideas and experiences. We are much more alike than different in our professions. There is considerable overlap and the lines are certainly blurry, particularly between music therapy and music medicine. I think that is a positive. Aside from music, we
also share a desire to improve the human condition and to leave the world a better place than we found it. I like to think that we are all related in what we do, perhaps with some identify, but not so distinct as to segregate us. Segregation in any context is rarely good. It is my hope that we intersect often, and always to the benefit of the people we seek to serve.

PART II

DO WE KNOW IT WHEN WE SEE IT?

Most of us appreciate the advantage of recognition over recall. The old adage, "I don't know what it is, but I know it when I see it" may apply to our concepts of music medicine, music in special education, and music therapy. To determine if this adage is true, I have devised a little test that I would like you to take. We will discuss our responses, and through our discussion, perhaps come to a better understanding of the functions of music in these related professions.

(View video excerpts and discuss the functions of music in each.)

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Music Education in the Facilitation of Social and Behavioral Changes in a Cohort of Taiwanese Autistic Children

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BACKGROUND

Since the enactment of the Individuals with Disabilities Education Act in the United States in 1997 music educators have sought innovative ways to promote inclusion and educate students in the least restrictive environment (Turnbull, Turnbull, Shank, Smith, & Leal, 2002). While in Taiwan, access and inclusion are not mandatory goals, music educators, nevertheless, consider them important. To achieve these goals the efficacy of music within music therapy programs has been investigated with a wide range of individuals, including children diagnosed with autism (Wager, 2000).

Since music therapy promotes development in social, emotional, cognitive, and perceptual/motor areas, children with autism are especially good candidates for this approach. Within music therapy autistic children are given opportunities to interact socially through musical games, and use speech through vocal activities such as singing songs and hearing repeated phrases. In addition, music therapy is an enjoyable, fun approach to encourage change and a more satisfying life for children with autism (Edgerton, 1994).

As a program for social, emotional, and behavioral change, music therapy is an allied health profession that utilizes music to encourage social/ emotional, cognitive/learning, and perceptual/motor development. It is a unique application of music designed to enhance personal lives in exceptional children, adolescents and adults in medical and educational settings. Music is effective within music therapy because it is a nonverbal form of communication, a natural reinforcer, and provides motivation for practicing nonmusical skills. More generally, music therapy is successful because most humans respond positively to some form of music. The attraction of music to an autistic child comes from a feeling of inclusion and being fully absorbed within a musical environment (Alvin & Warwick, 1992). Figure 1. depicts the positive interaction between music therapy, autism syndrome, and behavioral change.



Figure 1. Interaction between music therapy, autism syndrome, and behavioral change

LINK BETWEEN AUTISM AND MUSIC

Research demonstrates that, in general, autistic children have a strong attraction to music and have little difficulty processing musical, as opposed to nonmusical, symbols. Many autistic children have an accurate memory for song lyrics and are more likely to initiate singing as opposed to speaking. More important for the production of positive behavioral outcomes, autistic children show increases in attention, motivation, and emotional involvement during music activities. As an aid in the transition to speaking, music provides an avenue for autistic children to connect with speech and social activity since, with music, no linguistic barriers exist. It has been demonstrated that while autistic children will not usually respond to the emotional aspects of speech, they will respond emotionally to music (Heaton, Hermelin, & Pring, 1999).

RESEARCH ON AUTISM AND MUSIC THERAPY

Autism includes, among other symptoms, difficulty with social interaction and communication, heightened sensitivity to sensory stimulation (especially touch), and a compulsion toward repetitive and obsessive behaviors. Autistic children often display unique talents in areas such as mathematics or music. A number of studies (Wager, 2000; Toigo, 1992) suggest that autistic children respond more frequently, appropriately, and with more pleasure to music than to any other auditory stimulus. Since participation in music is non-threatening it allows them to experience outside stimuli while avoiding direct human contact. As a symbolic medium music serves as an ideal channel to improve communication, social and behavioral skills, attention span and sensorimotor development in autistic children. Figure 2 reflects specific connections between music therapy and social/emotional behavioral change in autistic children made possible through musical activities, social/group activities and parental involvement.

RESEARCH STUDY

In an assessment of music therapy outcomes, a music program was designed to improve language and social behavior in 15 Taiwanese autistic children. The study was conducted over a 15-week period using musical activities, individual and group teacher-student interaction, specialized musical props, and intensive parental involvement. Classroom activities included singing, movement activities, playing instruments and listening exercises designed to encourage speech recognition, emotional involvement, language learning, and situationally appropriate, behavioral responses. Designed to both utilize the emotional connection between autistic children and their parents, the study relied on the latest advances in music therapy techniques and technology. To assess outcomes, the Achenbach "Child Behavior Checklist" and "Caregiver-Teacher Report Form" were completed at the beginning and at the end of the program. Prior to the research, few studies on music therapy outcomes with autistic children had been conducted in Taiwan and no Taiwanese studies ever analyzed using the Achenbach system of empirically based assessment.



Figure 2. Music therapy and social/emotional behavioral change in autistic children

PARTICIPANTS AND SETTING

The class was held at an autistic children center in Taiwan. The 15 participants were all males ranging in age from 2 to 6 years old. All children were diagnosed with mild to severe autism syndrome. A 45-minute lesson was provided weekly, with the duration of the program lasting 15 weeks. All parents were given a consent form whereby they agreed to their child's participation in the program. Baseline measures of each child's level of (1) emotionality, (2) reactivity, (3) withdrawal, (4) attention, and (5) aggression were made at the beginning of the program using the Child Behavior Checklist scales. At baseline, all children were outside the normal range in all categories with only 6 children showing evidence of language use.

DEVELOPMENT OF CURRICULUM

The curriculum, developed in the United States to facilitate linguistic, social, and cultural development in Asian-American children included singing, moving, playing instruments, listening and musical games. Singing activities were used to improve children's syndrome of mutism, atypical language, and lack of speaking. Singing was also used to facilitate self-expression, the learning of concepts, the improvement of speech, and increases in levels of social skills. Cohen (1992) found that singing, the use of rhythmic speech drills, and vocal exercises caused increases in frequency of speech, variability of speech rate, and an increase in verbal intelligibility in neurologically impaired individuals.

Movement activities were designed to improve children's fine and gross motor skills. They also facilitated communication and provided a safe and acceptable form of tension release. Music therapy is commonly used in the treatment of children with serious orthopedic handicaps and those who need to attain basic goals such as learning to attend to, and imitate, movement.

Playing and singing music were non-threatening ways to engage in symbolic interaction since verbal communication with the children was limited. There were opportunities for affective expression by and towards all the children, which made the transition into verbal activities easier. Within the study

playing and singing music were used to increase self-expression and selfesteem, and to provide a socially acceptable release of tension and anger. These activities also aided in improving childrens' levels of participation in group activities.

Listening activities provided children with opportunities to listen to others, imitate modeled sounds, rhythms, melodies, words, and maintain a tempo consistent with the music heard. Volume, pitch and rate components were demonstrated and modified. Listening activities were used to increase attention span, improve memory and mood states, increase decision-making skills, and provide a means of relaxation.

Musical games were used to increase self-expression, improve self-esteem, validate feelings, encourage instrumental tasks, and provide a safe method of communication. Such play is required for work with autistic children in order to overcome their general, pervasive need for repetition and rigidity.

RESULTS

Results from analysis of The Child Behavior Checklist, obtaining parents' ratings on problem items including descriptions of their children's disabilities, what concerns them most about their child, and children's strengths revealed that 9 children who used no language at the beginning of the program (Time 1) could make sounds in response to music and independently speak at least one word at the end of the program (Time 2). From initial testing (Time 1) to the end of the program (Time 2), 5 children evidencing high versus low levels of disruptive behavior (DB) were reported to be less anxious and significantly less disruptive in basic social situations by the end of the program. While all 15 children displayed moderate to high levels of problems with attention span at Time 1, only 4 children at the end of the program remained within this range. On the basis of Caregiver-Teacher Report Forms, parent interviews, and Teacher/Research observations, however, the attention span of all children increased, although moderately for 2 children, during the course of the 15-week program. Analysis of the Caregiver-Teacher Report Form that obtained ratings by parents and teacher on 99 items plus behavioral problems, disabilities, and what concerns them

most about the child revealed that 7 children (46.6%) evidenced greater responsiveness and an ability to appropriately socially interact with other children from initial testing (Time 1) to the end of the program (Time 2). Aggressive behavior in 5 children (33.3%) displaying disruptive behavioral problems at the beginning of the program was substantially reduced by the end of the program with parents indicating that the moderation effect transferred from the music therapy sessions into the home. (See table 1.).

Time 1 Time 2 Behavioral Outcomes					
	None	Some	None	Some	% Positive Change
Language	9	6	3	12	60 %
Attention Span	4	11	2	13	73%
Social Interaction	12	3	2	13	87%
Disruptive Behavior	2	13	10	5	67%

Table 1. Music therapy behavioral outcomes in autistic children

CONCLUSION

As the study demonstrates, music therapy using activities such as singing, playing of rhythm instruments and participation in body movement helped to promote language development, improved behavior, and increased attention span in most of the autistic children studied. As social and behavioral issues often appear in autistic children, learning to share and take turns during instrument playing addressed difficulties which are crucial to participation in normal school and future life situations. As a single activity, singing appeared to provide the most therapeutic benefit by aiding children in listening skills, learning to follow instructions, and developing verbal and nonverbal communication.

As children with autism almost always display social withdrawal and isolation, demonstrated advances were made in eye contact, physical responses, interaction with others, and overcoming the need to avoid changes to their environment. Although Edgerton (1994) found that as autistic children get older, they almost always continue to remain socially

isolated, the study demonstrated that advances could be made to facilitate socialization and bring autistic children out of a state of chronic social isolation. This finding is consistent with literature demonstrating that socialrelations problems are more effectively addressed with music therapy than any other disorders an autistic child may have. As they frequently avoid physical and social contact, music therapy appears to give children an initial substitute relationship with an instrument. Rather than feeling threatened by physical contact with a person, the shape, sound and touch of an instrument became quite appealing.

Music therapy helped to improve the student's motivation because everyone was able to participate with any instrument on a non-evaluative basis. Since therapy was context appropriate it helped focus children and parents on the areas that were relative to each child, such as children who were shy, excited, passive, aggressive, collaborative, or explorative. By helping children learn and interact in an environment that was safe, as well as fun, it became increasingly easy for the children to understand and participate.

The use of music therapy to aid communication focuses on processes involved in creating speech and stimulating the brain in the areas of conceptualization, symbolization, and comprehension (Bettison, 1996). The beginning of the process involved motivating the children to want to communicate and to recognize why communication is important in their life. Using improvisation to accompany ritualistic behaviors, the therapist established a relationship of communication, i.e. the child did something, which caused the therapist to make a sound. Children reacted positively, and this newly formed relationship between music and their activity lead to their desire to communicate in other ways.

In his book "Awakenings", Oliver Sacks (1990) discussed the influence of music on patients with neurological impairments. Studies are currently underway to investigate the precise reasons for the effectiveness of music therapy with autism and the cerebral mechanisms involved in the brain's perception of music. In the past, music was believed to be primarily found in the right hemisphere. Exploration of different aspects of music (melody, rhythmic patterns, speech, pitch and tonality) has revealed that the right and left hemispheres are both active, but for different functions, and that music processing is a complex task that cannot be viewed in terms of simplistic right and left hemispheric strategies. The perception of music appears to require integrated hemispheric functioning with subcortical involvement. These findings together with the positive linguistic, social, and behavioral outcomes demonstrated with the current cohort of Taiwanese autistic children advances our understanding of how music therapy operates at the social level to modify the inner world and behavior of autistic children in more behaviorally adaptive ways.

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Blind and Visually Impaired Children Using the MIDI Instruments in Elementary General Music Classes

Kimberly McCord, United States

The Individuals with Disabilities Education Act of 1990 (IDEA) mandated free, appropriate public education in the least restrictive environment for children with disabilities. In 1997, the IDEA was amended to require that assistive technology be considered when preparing an Individual Education Program (IEP). Assistive technology (AT) is defined as "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of children with disabilities" (IDEA, 1997). AT can be used to augment an individual's strengths, using abilities to counterbalance disabilities. AT can also provide an alternative means of performing a task in order to compensate for a disability or bypass it completely (Lewis, 1993). Assistive technology may be further conceptualized as a cognitive prosthesis to replace an impaired ability or as a cognitive scaffold providing support to accomplish tasks more effectively, efficiently and independently (Blackhurst, 1997; Cavalier, Ferretti, & Okolo, 1994). Assistive technology may also serve as a leveraging agent, allowing students with disabilities to experience greater academic success and independence (Bryant, Bryant, & Raskind, 1998; Bryant & Seay, 1998; Raskind & Higgins, 1998). Moreover,

AT serves as a conduit for students with disabilities to gain access to the general education curriculum (Smith & Jones, 1999; Puckett, 2004) and computer-based music instruction (Gregory, 2002).

Vygotsky identified scaffolding as an effective way to access the zone of proximal development. Scaffolding requires the teacher to provide students the opportunity to extend their current skills and knowledge. The teacher must engage students' interest, simplify tasks so they are manageable, and motivate students to pursue the instructional goal. In addition, the teacher must look for discrepancies between students' efforts and the solution, control for frustration and risk, and model an idealized version of the act (Hausfather, 1996). Using electronic musical instruments as assistive technology is one way to scaffold musical learning for more effective inclusion in the general music classroom.

Students with a variety of disabilities are being included in music classes and ensembles. However, students with visual impairments are not always participating fully in general music classes because of their difficulties with movement, writing music and playing barred instruments. I had the opportunity to work with a blind second-grader, Kolby, to help him find alternative ways to participate when barred instruments were used in lessons. I will describe two electronic instruments that offer opportunities for students who are blind or visually impaired to easily perform instrument parts.

Kolby attends a K-8 school that has a blind/low vision program. He spends some time during the day in the vision teacher's resource room learning Braille and other disability-related skills. The vision teacher or the paraprofessional accompany him to his other classes except for music, which meets during their planning period. The music teacher tries her best with Kolby but is often at a loss for ways to fully include him in all lessons. She also has two other students in the same class with severe physical and mental disabilities. When I observed the class, Kolby often remained seated when the class danced unless they were dancing in place. Kolby enjoyed moving with the other students, but the teacher had decided it was too dangerous for him to dance around the room with 20 other children, including two in wheelchairs. The teacher would sometimes find ways he could help such as playing a hand drum as the others did movement.

One lesson I observed students learning parts on Orff instruments. The music teacher planned for Kolby to use the bass xylophone and she removed the bars not needed and helped Kolby to position his mallets. Kolby got excited, forgot how to hold the mallets, and missed the bars most of the time. It was simply too hard for him to coordinate playing barred instruments. Kolby was very disappointed because he knew his peers were enjoying playing all of the Orff instruments and he was unable to have the same experience. I wanted to try to teach Kolby to play an electronic instrument that could be programmed to sound like Orff instruments while not requiring the handeye coordination of a conventional barred instrument.

THE STUDY

I met with Kolby individually once a week for 30 minutes before his music class. Beforehand, I found out from the music teacher which pieces would be taught in class. Then I taught Kolby his parts ahead of time so that he would be prepared to participate. I chose two instruments that offered better accessibility for students with vision impairments. I videotaped the half hour sessions and I videotaped the general music classes and transcribed the sessions. My ultimate goal was to teach the music teacher how to use the electronic instruments with Kolby and other students with disabilities in her classroom.

THE INSTRUMENTS

The Soundbeam is an innovative instrument developed for dancers to create their own sounds as they moved in space. The instrument consists of ultrasonic beam(s) that are emitted from a device that resembles a microphone. The beam can be adjusted to be wide enough to accommodate the movement of the entire body or small enough to focus on twitching an eyebrow, depending on abilities of the player. Up to six beams can be controlled through one sound module box. Each beam can be divided into pitches that can be triggered by movement in and out of the beam at different lengths from the device. Like other electronic instruments, the

Soundbeam can be programmed to produce a variety of sounds. My plan was to program the Soundbeam with the pitches of ostinati used in the Orff pieces, and then to teach Kolby to find the pitches and to play them with the correct rhythms.

Kolby was very excited in his first session. He quickly learned how to move within the beam to get a variety of different pitches. He was thrilled to find out he could stand very still but the beam was still able to sense his eyes blinking. He also experimented with changing timbres that were programmed into the Soundbeam module and to adjust the speaker. In the second session we worked on learning to play a simple ostinato in C using a root and a fifth. I played the pitches and rhythm on a real Orff instrument and he listened and matched my pitches and rhythm on the Soundbeam, although finding the right place in the beam to produce the correct pitches proved to be a challenge for Kolby. Eventually, he was able to locate the pitches accurately but he was not coordinated enough on the instrument to play those pitches in the correct time. When we included Kolby with the class, he struggled to find the correct pitches. The other students were also distracted by him playing the instrument and would forget to play their instruments and sing while they watched Kolby struggle. In summary, although Kolby was successful in finding pitches on the Soundbeam during individual instruction, he was unable to play them with the correct rhythm or to participate in ensemble playing using this instrument. Also, use of the Soundbeam was somewhat disruptive to the class as a whole.

Kolby enjoyed composing on the Soundbeam instrument. He created stories that he accompanied with a variety of timbres. He worked back and forth between playing the beam and selecting sounds with complete independence. The Soundbeam was a valuable tool for encouraging his individual creativity, but did not work well as a means of integrating him into group activities in the classroom.

Next I used a Roland SPD-6 Percussion Pad connected to a MIDI sound module. This instrument has six three-by-three inch rubber pads that can be played using sticks or the fingers. Each pad can be programmed to produce a different sound. I chose to program each pad with a specific pitch and the timbre of a xylophone. I introduced the Roland Percussion Pad by guiding Kolby's hands across the surface, showing him how to locate the individual pads and how to produce the sounds. He quickly understood how to play the instrument. He was fascinated with playing the six pitches and tried to figure out different songs he knew by playing the different pads. I played the pitches for the Orff ostinato on the xylophone and asked him to find them on his instrument. Within a few minutes, he was able to match my pitches and play the rhythm. I sang the song they would be learning that day, Liza Jane, as he played the bass xylophone part with me.

We brought the Roland Percussion Pad into the classroom and set it up next to the bass xylophone. When it came time for Kolby to play with the student who was playing the bass xylophone, he easily played his part. The Percussion Pad blended in well with the ensemble. Best of all, Kolby smiled when we finished and the other students applauded. The music teacher was able to use the Roland Percussion Pads and MIDI module to include Kolby every time she taught Orff parts. Use of the percussion pads has become routine. Other students in the class have tried it and accept it as another instrument in their class instrumentarium.

The Roland Percussion Pad is affordable, it costs about \$250. The instrument does not come programmed with xylophone sounds. I had to enlist some help from a colleague and use an older MIDI module that we could hook up to the Roland and we had to program the Roland to substitute a single pitch using a xylophone sound for each pad (C, D, E, F, G, A). But once we got this to work the rest was easy.

There are other percussion controllers, such as the Roland Handsonic (which is much more expensive), and a new instrument called Trigger Finger made by M-Audio (around \$250). Both instruments have built in ability to play pitches without needing an additional device.

RECOMMENDATIONS

The Soundbeam is a wonderful instrument that opens up many possibilities for movement and creating sound. It has been used successfully with students with physical and mental disabilities and is a valuable addition to the general music classroom. However, the Soundbeam requires practice and can be difficult to control. Kolby liked it best for composing.

Percussion controllers are an exciting way to add accessibility for a variety of students with disabilities. Because the instruments are sensitive to even weak finger tapping, they are a great alternative for students with weak motor abilities. A percussion controller can be placed on a wheelchair tray for easy access. My visually impaired student, Kolby, mastered the Roland Percussion Pad very quickly because it required tactile rather than spatial input.

General music teachers can find support for purchasing these devices by classifying them as assisitive technology and including them in the student's Individualized Education Program (IEP). Kolby needed the instruments to fully participate in music class. Under special education law, cost should be no factor if the device aids students in being able to participate fully. Electronic percussion controllers are easier to integrate into your classroom but the Soundbeam offers many possibilities for movement and creating activities.

In choosing electronic instruments, the educator should consider the student's abilities as well as disabilities, the student's preferences, the suitability of the instrument within the context of the music, and the physical space within the classroom. Although Kolby was not embarrassed to play the Soundbeam or the Roland, some students might be self-conscious and unwilling to play an instrument that is different from the instruments played by their peers. Encouraging students who do not have disabilities to play these instruments can overcome this problem.

In this brief article, I have described my experiences using electronic instruments to accommodate a blind student in the Orff classroom. Electronic instruments offer many possibilities for students with a wide variety of disabilities as well as for their peers. As music educators, it is our responsibility to make our classes accessible to all children. For additional resources and information, visit links to the new Illinois State University music website for teachers and parents at: www.coe.ilstu.edu/seat/

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Inclusion through Music – Music Classes for Visually Impaired Children

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INTRODUCTION AND AIM

The fact that visually impaired children have musical abilities is well documented in the literature (Goldstein, 2000; Prause-Weber, 2005). In some countries, i.e. the United States, Great Britain and Germany, the development of musical potential in visually impaired children is an essential element of school curricula in institutions for visually impaired children (ibid.). Moreover, the development of this musical potential is supported in the course of the Mainstream and Inclusion movements. Thus, the provision of adapted materials such as braille music notation, the adaptation of goals to the Individualized Education Program of the visually impaired child, and the close cooperation between music teachers and teachers of special education are considered important prerequisites for successful music education with visually impaired children (ibid.; Hammel 2001, 11; van Weelden 2001, 56).

The authors will show how inclusion of visually impaired children into the world of non-impaired people is possible through music education. This writing is based on the hypothesis that inclusion into the world of non-disabled people through music will help these children in their entire development, in their ability to accept and express themselves, to comunicate, and to find and reach personal goals in life. Theoretical and methodological guidelines that play a role will be outlined.

The implications that will be presented are based on a two year experience in music classes with visually impaired children at Laramara, Brazilian Association of Assistance for the Visually Impaired, São Paulo/Brazil. Laramara, including the main braille press center, is the most important association for the education of visually impaired children and spreading information about visual disabilities in Brazil. According to the Brazilian Institute of Geography and Statistics, there are 13.74% handicapped people in Brazil and almost 1.0% of the total population has some kind of visual impairment. In 2004, the declaration of Salamanca, a statement for the provision of equal rights for disabled people, celebrated its tenth anniversary. The implementation of this law into schools had implications for music classes with visually impaired children as this would be an opportunity for social inclusion. The project was held in cooperation with the State Department of Culture within the field Special Talents, which promotes art classes for handicapped people all over the state of São Paulo, with the main goal to promote social inclusion through art.

Thirty children, from 4 to 11 years of age, participated in the project. Different levels of visual impairment were represented. Some impairments were due to genetic, congenital or traumatic causes, and some of the children had additional impairments as well, including mental or physical disabilities. All the groups participated in music classes once a week during a period of two years. The evaluation of the project was based on a) the music educator's experience; b) documentation of music classes via videotape; and c) close cooperation with and reports from parents.

THEORETICAL REFLECTIONS AND METHODOLOGICAL GUIDELINES FOR MUSIC CLASSES WITH VISUALLY IMPAIRED CHILDREN

Maximum Development of Non-Disabled Senses through Multisensory Approach:

For children with visual impairments, daily life requires a high amount of concentration in order to organize different sensory perceptions. Children have to learn to differentiate, locate, and organize auditory signals perceived without relying on the sense of vision. Visually impaired children depend on the auditory sense to compensate, and this sense needs to be highly trained and developed (Moog, 1981). Music can be used to develop auditory abilities as well as other non-impaired senses, such as vibratory and vibrotactile modality as well as the sense of proprioception. In music class with visually impaired children a multisensory approach is helpful to integrate perceptions in order to get a meaningful sensory impression.

By using notation which can be felt through the hands, rhythmic concepts can be made perceivable through the tactile sense (see picture 1.).



Picture 1. Provision of rhythmic concepts.

Likewise, tonal concepts can be taught using different materials such as creating different tones by tapping glasses that contain different amounts of water. Activities that promote an awareness of sound, as well as the creation of sound memory and organization of sound consist of playing games with different tactil stimuli such as soap bubbles, plastic balls, "barbecue sticks" (see picture 2.), which all use movements that work in different directions activating the vestibular system.



Picture 2. Playing games with different tactile stimuli.

Additional Use of the Element of Movement:

The use of movement is particularly beneficial in music work with visually impaired children. Through movement, the musical experience is supported through kinesthetic-tactile feedback. Here another sense supports the musical experience.

Specific exercises that focus on the use of music and movement are exercises for orientation in the room, sensory and motor exercises (i.e. enhancing tactile sensibility and tactile memory), and social exercises (i.e. leading and following) (Prause-Weber, 2005).

Special conditions and tools are necessary, including the availability of an empty room. This empty room in which activities take place can make it possible for visually impaired children to rid themselves of the fear to move in a room.

Children are encouraged to let music lead the free body movement. Here, using an intermediary object for expression such as a ball, sheet, or sound paper is helpful (see picture 3.). When children experience this freedom of movement with an object within a guided and safe setting, they may start feeling more confident and experience a pleasant sensation, which helps them to be more confident in movement in daily life. Movement activities support the integration of proprioception and hearing. Through supporting the experiencing of a sequence of movements, activities can also help visually impaired children to organize their movement and to use their bodies to move with intention.



Picture 3. Use of intermediary objects.

Provision of Aesthetic Experiences:

Since visually impaired children are not able to take part in aesthetic experiences that require vision, it is important to let them take part in aesthetic experiences that do not require vision (Moog 1981, 338). Music classes offer these children the opportunity to make pleasant experiences through listening to music, moving to music or acting creatively by playing instruments. The provision of positive aesthetic experiences is an important basis for success in music classes with visually impaired children.

Importance of Playing:

In working with visually impaired children, music offers the possibility of experiencing play. The importance of play was pointed out by Winnicott: "The reason, why playing is so important, lies in the fact that in his play the patient is creative" (Winnicott 1993, in Tuepker 2003, 118). In purposeless activity, visually impaired children get the possibility to do something creative and something on their own. In this regard, music class offers countless opportunities for activity. In the music project, it was seen that visually impaired children in music classes were relieved to do something without meeting expectations. They enjoyed moving to music just for the sake of it, without any purpose.

Expression of Creativity through Music:

Music provides visually impaired children with the opportunity to express their creativity (Joly, 1994). Music plays and activities should be based on musical material that is already known and preferred by the child. In finding this material, the active participation of the parents plays an important role. They may provide a list of melodies that are well known by their child. Here, the possibility is offered to include cultural aspects through the involvement of traditional national songs or songs from family cultures. In the music project it was important to take the family culture into consideration. Since in Brazil the population consists of many different cultures, it was important to know what kind of musical and cultural experience the children brought into the music class. Visually impaired children have an opportunity to become sensitive to different musical phenomena, finding interest in different music styles and valuing their own cultural heritages. As an example, a map of Brazil with different textures was used (see picture 4.). According to the regions of Brazil the children represented, traditional songs, dances, instruments and characteristics from those regions were selected and included.



Picture 4. Work on different music styles and childrens' own cultural heritages.

In the music project it was seen that expressing creativity through acting musically often provided the foundation for therapeutic benefits in the areas of emotional and social development, particularly in aesthetic experience and the enhancement of self-esteem.

Activation of Doing Something by Themselves:

Important is the fact that visually impaired children can be activated to do something by themselves. In work with sensory impaired children, the development of non-impaired senses is generally the focus of attention, thus usually something is done 'with' the children (e.g. auditory training, movement therapy etc.). Music class on the contrary offers the opportunity that children can act autonomously, even if this is only possible on a very basic level, such as deciding which instrument to play or how much they want to participate. In music classes it was observed that visually impaired children found a sense of fulfillment and self-accomplishment through the sensation that they 'can do things'. This feeling is an emotional benefit that they might not achieve in other places, where the disability is the focus of attention, such as in school or even at home. It was seen that benefits in this realm became possible when the activities were suitable for particular developmental stages, abilities, and characteristics.

Social Inclusion through Music:

In the music project it could be seen that social inclusion could actually take place through music. The first realm was within families. Focusing on the development of musical ability allowed parents and relatives the opportunity to witness children who were hard to deal with at home achieving things like playing instruments or dancing. Seeing their children acting musically, they experience a different feeling and might not see them as children filled with incapacities, but as individuals who are able to accomplish valuable things. Thus they gain a complete new impression of their family member and can share positive feelings together. In this experience and interaction with the focus on the potential of children – and not on disabilities – the exchange and relationship can happen on an equal level, which may be the opposite of the daily situation, in which negative feelings dominate.

Moreover, it could be seen that social inclusion can take place in the community, in open programs and regular classes. In the music program it could be seen, that no matter how big the incapacity of these children seemed to be, they seemed to be equal once they were given the opportunity to be included. A prerequisite for the success for music education with visually impaired children included additional instruction for the teachers involved. They were given information concerning the adaptation of their teaching methods and materials in order to give their visually impaired students the same developmental opportunities as their students without disabilities.

Furthermore, it could be seen that social inclusion could also take place through the participation of the visually impaired children in cultural events, such as visits to the theatre, cinema, or other cultural events. It was observed that during these activities the reactions of visually impaired children were, in general, similar to those of children without disabilities. Even if visually impaired students at first felt insecure being in an unknown place, as soon as they listened to the music they felt comfortable, because through the music project, it was a known experience to them. Taking part in a cultural event, students with disabilities and students without disabilities were involved in the same atmosphere doing the same thing. This shared experience lead to a growing interest and understanding of each other.

At Laramara, social inclusion is supported through the opening of special facilities for the visually impaired – such as a resource center with adapted materials, library etc. – to the public. The general public as well as the families gets the chance to get in touch with different resources visually impaired children are exposed to.

Taking Specific Problems and Developmental Stages of Children as Starting Point:

Emotional problems, such as a lack in the ability to maintain relationships as well as in the ability to regulate closeness or distance within relationships, can arise in children with visual impairments (Voigt 1998, 294). Typical problems arise concerning social-emotional issues and parent-childinteraction: "These patients often show almost no motoric drive, a loss of interest in social offers and no exploration of their surroundings. Many of these children have few opportunities to actively take part in playing activities within their families; they have few communicative possibilities that are understandable for their social surroundings. Often, due to the fact of the disability a heavy strain is put on the families of these children. The children are not able to react to playful and interactive offers according to the parents expectancies. This can lead to uncertainties of the parents in the relationship with the child" (Voigt 1998, 294; translation M. P.-W.). Here, music provides an opportunity to develop interactive competencies of the child and to support a positive parent-child-interaction. According to parent reports, through music classes, parents viewed their children in a completely different light, not as disabled children but as competent personalities, who were able to actually do and achieve things. In order to achieve these results in music class, it is important to take the developmental stage of the children into account and take it as starting point for musical work. Starting from the level the children are in, the next developmental stages should be gradually introduced and enhanced, i.e. if roll easily is difficult, that is the starting point to work from, or if abstract concepts are too difficult to understand, elements that can promote these concepts can be brought into music class. Giving space for the development of musical potential and using challenging activities are prerequisites for successful musical learning in these children (Willems, 1962).

Visually impaired children depend on the use of adapted materials such as braille music notation, and maps with texture, well chosen instruments and a specific methodology including clear verbal instructions for movements and playing instruments. In order to make music class a time of pleasure and positive experience for these children – and not a time of huge difficulties as in regular life – it is particularly important that the music educator is able to make use of a broad range of musical activities, which correlate with the abilities and preferences of each individual child. Gainza (1964) points out that the more opportunities that can be offered to children to understand music, the more likely they will understand and like it. In order to make this possible, it is essential to know deeply the musical interest, behavior, tastes and dislikes of each child and adapt the methodology and instruments accordingly.

Activities that provide a pleasant experience can include dancing to a strong beat and rhythm, beating a soft ball with hands and heads, or using little plastic hammers, flutes and other real instruments where sound vibration can be felt. A tune and an instrument believed to be most suitable with the music may be chosen, or body percussion including new body sounds may be used. Children may make little instrumental compositions or improvisations, exchanging groups of instruments, according to the kind of sound, or pulse, melody and rhythm desired. This music can be recorded, listened to, and evaluated in terms of aesthetics.

It is always important to offer a safe and organized environment where the visually impaired child can act safely. The room should have no objects, and in the first session, all children need to touch every corner to get to know where they are going to be and where the instruments can be found. It is also important that the class sequence is organized in a way that children can anticipate the action. They are led to instrument closets and they choose some instruments. Each sound is presented and they are encouraged to touch and feel each instrument, its sounds, characteristics, and material and to explore whatever they find interesting about it.

The class should have a sequence to help children prepare themselves for what comes next, to gain trust in the teacher and the class. Sessions should always start with a compliment song, followed by an activity of free body expression conducted with classical instrumental music, a coordinated body activity involving musical aspects and playing instruments or toys. At the end of the class, there should always be a moment to internalize the day's activities allowing the muscles to cool down, and the mind to turn off in order to remember what has been learned. In this moment it is important to create a "sharing love moment" finishing with stretching. A good bye song contributes to the consolidation of an emotional bond between teacher and pupils and is important for the learning process.

CONCLUSION

Visually impaired children can be educated in music. Specific adaptations and strategies including the use of a multisensory approach or the use of adapted materials such as braille music notation support the musical learning process. Music learning and expressing creativity through music help visually impaired children in whole development, in finding goals in life, and are often the prerequisites for non-musical benefits in the areas of emotional and social development. Music offers visually impaired children the chance to be included in society and to not be excluded from it. To make use of this chance as often as possible and to provide visually impaired children possibilities in this field seems to be a desirable educational goal.

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The Influence of Predictability and Structure in Musical Improvisation for Children with Pervasive Developmental Disorders and Profound and Multiple Learning Disability

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Music Therapy is described as a creative process where clients are given a 'musical pace' where they can engage in therapeutic musical experiences, 'express themselves' and build a relationship with therapists. In Europe, a tradition of free improvisation has grown up, originally described by Juliette Alvin, developed further by Mary Priestley and simultaneously by Paul Nordoff and Clive Robbins. Clients/children are freed from the requirement to have musical skills, and their musical product is understood to represent them, their conscious and unconscious feelings.

This short paper was derived from a presentation held at the ISME Commission on Music in Special Education, Music Therapy, and Music Medicine in Vitoria, Spain in July 2004. The presentation was substantially supported by video examples from clinical music therapy, and also from a recently published book on improvisation (Wigram, 2004). Some of the clinical examples are also previously published in a book and an accompanying CD (Wigram, Pedersen, & Bonde 2002, 253-255).

HOW DO WE LEARN TO APPRECIATE MUSIC?

- We hear it from birth and develop likes and dislikes
- We develop through it, through communicative musicality
- We experience it in different situations: social, military, religious and romantic
- We all develop musical responses and reactions

HOW DO WE CONVENTIONALLY LEARN MUSIC?

- We learn to read notes
- We learn to play melodies
- We learn basic then complex harmony
- We learn conventional rhythmic skills, perhaps with off-beat and syncopated styles
- We learn to memorize music and perform

WHY SHOULD DEVELOPING MUSICIANS LEARN IMPROVISATIONAL SKILLS?

- Improvisation is not typically taught in music education
- Improvisation encourages creative music making
- Improvisation builds skills and teaches listening ability
- Improvisation encourages playing 'by ear'
- Improvisation develops musical technique
- Improvisation develops musical expressiveness
- Improvisation expands musical ambitions

STRUCTURE IN MUSIC

Music contains a significant degree of structure which helps us learn music, and which can be applied in therapy. Specifically, structure is apparent in rhythm, melody, harmony, phrasing, and dynamics.

Clients with autism, pervasive developmental disorder, and pervasive

multiple learning disability (PMLD) find change, especially unpredictable change very difficult, and this provokes anxiety responses. They do not understand what is required or expected of them. They often do not understand verbal language. However, they can participate in music without anxiety because of its predictable structure.

There are many kinds of musical frameworks which provide predictable structure:

Rhythm: Basic pulse; predictable rhythmic patterns; metre; rhythmic grounding; flexible rhythmic patterns – playing in and out of metre;

Melody: Repeated melodic phrases; songs (verses and choruses); melodic style: modal, atonal, jazzy, blues; chanting; melodies over a predictable chordal structure;

Harmony: Tonal structure 1: Tonic, dominant, sub-dominant; tonic submediant (major-relative minor); tonal structure 2: 12 bar or 16 bar jazz frame; cycle of 5^{th} 's harmony built into a melody – i.e. Greensleeves, Harry Potter, Auld Long Syne; harmonic progression: i.e. in a Spanish style.

THERAPEUTIC STRUCTURE

The importance of structure for some clients also requires the therapist to use therapeutic methods that incorporate musical structure, such as:

(In list below, use same words in the same order as later descriptions. In description following list, the order is matching, rhythmic ground, tonal grounding, etc.)

- Matching
- Rhythmic Grounding
- Tonal Grounding
- Accompanying
- Frameworking: Atonal Jazz
- Frameworking: Tonal Jazz
- Frameworking: Modal
- Frameworking: Spanish
- Dialoguing

The following sections define these various therapeutic methods, and refer to examples that are included in the CD that accompanies the text Improvisation: *Methods and Techniques for Music Therapy Clinicians, Educators and Students* (Wigram, 2004).

MATCHING, RHYTHMIC GROUNDING, & TONAL GROUNDING

Matching: *improvising music that is compatible, matches or fits in with the clients' style of playing while maintaining the same tempo, dynamic, texture, quality and complexity of other musical elements* (Wigram, 2004) (CD 20: Client-xylophone; therapist-piano).

Rhythmic Grounding: *Keeping a basic beat or providing a rhythmic foundation for the client's own improvising* (Bruscia, 1987). (CD 27: Client-xylophone; therapist-bongos).

Tonal Grounding: *Providing an octave, fifth or harmonic chord in the bass that is congruent with, and tonally grounding for the client's music* (Wigram, 2004). (CD 29: Client-glockenspiel; therapist-piano).

ACCOMPANYING

Accompanying – providing a rhythmic, harmonic or melodic accompaniment to the client's music that lies dynamically underneath the client's music, giving the client a role as a soloist (Wigram, 2004).

A good therapeutic method of using accompanying could have any of the following characteristics:

- The accompaniment is simple and repetitious
- The accompaniment consists of a short rhythmic or harmonic sequence that is sustained

- The accompaniment continues in a stable way despite some changes in the client's music
- The accompaniment is sensitive to pauses or small developments in the client's music

(CD 15: Client-xylophone; therapist-piano) (CD 16: Client-metallophone; therapist-drum).

FRAMEWORKING

Frameworking – Providing a clear musical framework for the improvised material of a client, or group of clients, in order to create or develop a specific type of musical structure (Wigram, 2004).

In order to develop a helpful framework, the therapist needs to listen to and analyze the musical production of the client and consider what type of musical frame would support it considering harmony, melody and rhythm. Initially the therapist needs to establish *matching* with the client's music. From matching, he needs to begin to develop a musical framework that can be used. At this point, he needs to reflect on whether the client's playing and the framework the therapist is creating are relatively congruent in order for the client to feel that his music is part of the frame. The therapist needs to reflect on the client's response to the musical frame as to whether it is positive, neutral or negative. He needs to note any ways in which the client begins to use the musical frame (or elements of it). When the client uses the musical frame, he needs to ensure that he drops down into a more supportive role using either accompanying as a method, or perhaps grounding/holding.

EXAMPLES OF FRAMEWORKING

Examples of frameworking include atonal jazz (CD 47: Client-xylophone and cymbal; therapist-piano), tonal jazz (CD 48: Client-glockenspiel; therapist-piano), Spanish (CD 50: Client-drums; therapist-piano), and modal (CD 51: Client-metallophone; therapist-piano).

DIALOGUING

The development of 'dialogue' in musical interaction is often a significant and essential element in improvisational music therapy.

Dialoguing – *a process where therapist and client(s) communicate through their musical play.*

Turn-taking dialogs: making music together where the therapist or client(s) in a variety of ways, musical or gestural, can cue each other to take turns. This 'turn-taking' style of dialog requires players to pause in their playing and give space to each other.

Continuous 'Free-floating' dialogs: making music in a continuous musical dialogic exchange – a free-floating dialog. Here participants, therapist(s) and client(s), play more or less continuously and simultaneously. In their playing, musical ideas and dynamics are heard and responded to, but without pause in the musical process.

There are different ways in which a musical dialogue can be promoted and developed:

- 1. Therapist and client(s) take turns to play, taking over immediately from each other.
- 2. Therapist and client(s) take turns to play with pauses in between "statements."
- 3. Therapist or client(s) interrupt each other.
- 4. Therapist and client(s) play (talk) together at the same time.
- 5. Client(s) makes long statements; therapist gives "grunt" or "ah-ha" responses of very short phrases.
- 6. The therapist's musical style in the dialogue is very empathic (similar) to the style of the client(s) (or vice versa).
- 7. The therapist's playing in the dialogue is very oppositional/ confrontational to the client(s) (or vice versa).

(CD 33: Client-metallophone; therapist-xylophone) (CD 34: Client-african splitdrum; therapist-xylophone) (CD 35: Client-xylophone; therapist-piano).

Finally, the musical structure that is common in music composition, and is also present in music therapy, is thematic development – the spontaneous development of music based on a theme (leitmotiv), parts of a theme, or musical elements contained within a theme. This process includes all the musical techniques and therapeutic methods, using melody, harmony, tonal intervals, ostinati, tonal grounds, rhythmic grounds, contour, inversion, variations in metre, tempo and mode (CD 66: Piano).

CONCLUSION

Music can be structured in a predictable or unpredictable way.

Pre-composed music can be adapted, 'performed' or interpreted creatively.

Improvisation remains the most flexible medium for therapeutic engagement.

Improvisation in therapy, for clinical aims, needs a skilled approach to establish and develop structure and predictability for clients who have significant difficulties in this area.

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Aesthetical and Ethical Implications for Music Education and Music Therapy

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WHY MUSIC EDUCATION - WHY MUSIC THERAPY?

There must be a reason for the existence of both, which goes beyond pure functionality and profitability. This paper offers aesthetical and ethical implications, which may serve as a starting point for answering these fundamental questions.

I remember her well ...

She was a mother of a 14-year-old autistic girl with whom I worked in music at a school for mentally disabled children. The girl and I were at the beginning of a sound dialogue with drum and voice, when her mother opened the door and rushed into the room. She was disappointed, angry and furious, accusing me of wasting the so-needed time for education and therapy for her daughter with "that silly drum and these kindergarten amusements. My daughter is in need of learning how to behave, how to read and write, how to live, and not how to slap that silly drum. I must tell you that you are not doing your job. She does not need music. She needs the real, the important stuff. After learning how to read and write she can have

a bit of fun with some music listening. Entertainment is not your job, but education, therapy and furtherance."

And she left without giving me a chance to answer ...

Ouch – there I was as a young assistant teacher with enthusiastic ideas and commitment for my work as a special music teacher. Music was so much more for me than simple entertainment.

It was a challenging question this mother asked, and in a way this paper still is an answer to her request.

I will try to answer this question in a twofold way: We will have a look at the theory of aesthetics and will then - in a second step - develop ethical outcomes.

Aesthetics or aesthetical theory, "what an old-fashioned concept!", some of the readers may think. Aesthetics, today, is a very enigmatic term torn between the idea of pure beauty and the search for it on the one hand or simplified as the mechanisms of perception on the other hand.

"The term aesthetics and its meaning is worn out between the question of human perception, often misunderstood as the mechanism of sense organs and the brain, and between the assessment of art, disconnected from its genesis and the similar processes in life." (Zur LIPPE 1987, 7; translation D. L.)

Aesthetics – as we will use this term today – is

"... the study ... about art ... and that about people which has throughout history caused them to need art as an essential part of their lives." (REIMER 1989, 2)

This quotation marks a basic or grounding thesis for our further considerations: We need music and the arts as an essential part of our lives. Aesthetic experience and behaviour is not an evolutionary extravagance, but forms an original way of epistemology, of understanding life, of insight. This understanding supplements the cognitive approach. We are looking at the "universal meaning of aesthetics" (ZUR LIPPE 1987, 15; translation D. L.). We are looking at aesthetics as a transition which lies "between the direct sensorial experience and the true insight" (SCHURIAN 1986, 10; translation D. L.). Aesthetics means "a special mode of being in the world" (KLEIMANN 1996, IN OTTO 1988; translation D. L.). It is, metaphorically speaking, a special pair of glasses which we use to understand the outer world.

RIBKE (1995, 183; translation D. L.) gives the etymology of the Greek term 'aisthetis' (aesthetics):

To feel, to experience, to sense;

To notice, to feel/realise, to find out;

To understand, to get an insight.

With this semantic field we have a three-fold way of each personal activity: sensorial, experience-oriented and understanding. A starting point for aesthetic feeling, experience and recognition is the sensorial perception. Aesthetic experience is linked with human perception. As we know today, perception cannot be seen any longer as a process in which an external stimulus meets an inner mechanism which is ready for perception. The constructivistic and systemic approach gives us evidence that "*perception is not the registration of a reality which exists, as it is', i. e. independently from the individual. When we perceive, we rather sketch subjective ideas of the world..."* (LINDEMANN & VOSSLER 1999, 1; translation D. L.). These ideas are dependent on the neurological set-up and the individual knowledge we have gained so far.

That leads to the conclusion that the process of perception is a subjective one, in its outcome not comparable between two individuals. Therefore individual development is unique, since it has its grounding in personal experience. Human beings are *"autonomous entities"*, whose autonomy is visible on each level of existence, because these are able to *"specify the individual being..."* (MATURANA & VARELA 1984, 55; translation D. L.). This whole process is known as autopoiesis, which is the circular systemimmanent organization and creation of the Self.

There is evidence in research that from the very beginning life is selfcreation (Laufer, 2003). Self-creation is a process of self-imagining and self-forming, which starts in the very first step of metabolism. Each layer of metabolistic organisation is executed according to the inner self-image of the subject. There is no strict plan but there are rather choices. The execution of these choices has to be seen – in my view – as the beginning of aesthetic sensitivity, experience and behaviour.

According to the research of the Austrian psychotherapist Victor FRANKL man is searching for a personal meaning in his life; this is "the specific human motivation" (FRANKL 1955, in Frankl 1959, 146; translation D. L.). Searching for meaning is establishing meaning by the individual and is a result of the sensory activity (KÜKELHAUS 1983, in DREHER 1996, 99). The basis of this personal meaning lies within the personal involvement with somebody or in something, in an idea or with a person. This involvement may also include the arts (Frankl 1959, in Frankl 1994, 80, 81). This gives us a hint at the grounding of our will, our need for aesthetics: it is one prerequisite for our "standing" in the world, one of the reasons or even the very reason why this world has a personal meaning for us, why this life is worth living. This personal meaning is established due to the sensory activity within the womb. This creation of personal life leads to a very personal, immanent memory within the single cells and within the developing brain and body which are stored as "traces of experience" (RIBKE 1995, 84; translation D. L.) or as "traces of having lived"² (SEEWALD 1992, 259; translation D. L.) according to the personal self-creation of the subject.

Therefore aesthetic sensitivity, experience and behaviour is an anthropological pattern which manifests itself in processes like imagination, memory, in dreaming and day-dreaming, in hesitating and amazement, in being irritated and being touched (Otto 1998, 6). With that we finally can define:

Aesthetical experience means a "holistic or complete, devoted and extremely varied sensorial perception, including the experiences which are connected

¹ "Erlebnisspuren"

² "Gelebtheitsspuren"

with these" (SEUBERT 1997, 141; translation D. L.). Aesthetic sensitivity, experience and behaviour is an approach to get well acquainted with the world. And this happens in a sphere of mere joy and delight. Joy has to be seen as an "enriching and humanising experience [Izard 1971, Maslow 1970], one which may be available to all human beings, whatever their level of disability may be" (Ellis & Laufer 2000, 134).

This brings us back to the statement of FRANKL: The basis of personal meaning lies within the personal involvement with somebody or in something, in an idea or with a person. Perception is engagement; aesthetic sensitivity, experience and behaviour is a field of encounter.

Music is aesthetic resonance (ELLIS 1994) resulting from sounding phenomena.

"Music deals with the question which sounds and how sounds are presented successively or simultaneously." (Moog 1979, 36; translation D. L.)

Music experience is "*relational sound experience*" (Moog 1984; translation D. L.); the relations between sound are its subject matter. These relations are transformed into time gestalts by our experience and with that aesthetically evaluated:

"Musical sense is generated in the process of the aesthetic perception." (Faltin 1979, 221; translation D. L.)

Music, looking from the angle of music psychology, refers to nothing but sound itself. Sound and its relationships trigger the personal involvement, which lead to personal activity and impression. Music has the power to impress us.

Perception is, as we already mentioned, a field of encounter which has a twofold starting point. There is the person, who perceives (P) and there is the item to be perceived (I) (figure 1.). According to SCHURIAN the space between these two is not empty, but filled with wave-like movements, which meet in the 'in-between' by overlapping and by causing resonations (SCHURIAN 1986, 7):



Figure 1: Perception as a field of encounter after Schurian (1986, 7).

Perception is a process of interaction, a field of encounter:

"What really matters, is the transition in the in-between." (Schurlan 1986, 3 5; translation D. L.).

That means: aesthetic sensitivity, activity and behaviour is our gateway to the freedom of experiencing our counterpart according to our inner needs, abilities and possibilities. One decides which use he makes of this encounter, who perceives and decides which approach of understanding he chooses.

"This aesthetic resonance is the fundamental grounding for personality and provides for the communication between the inner and outer worlds. Through the exercise of aesthetic encounter our internal resources develop and in so doing can enable us to more effectively communicate with the external world. This encounter also provides for growth in at least the following areas: trust, autonomy, intrigue, delight, exploration, experience. This process is always open-ended and feeds a cycle of actions and reaction." (ELLIS & LAUFER 2000, 118)

With these terms "field of encounter, counterpart, resonance" we approach the professions we are working in: music in special education and music therapy. Both live from the meeting or encounter of at least two persons involved and music. They meet in music, they meet through music. There is a relationship between the two persons involved, and there is a relationship between each of these persons and music. It is the listener who decides how he perceives this sounding phenomena. Incoming sound can have various functions in the perception of the listener: it can convey information as noise and language do, or it can be evaluated aesthetically. As already said, the topic of pure music experience is "relational sound experience" (Moog, 1984; translation D. L.). It generates musical sense in the process of aesthetic perception (FALTIN 1979, 221; translation D. L.). With that listeners have different levels of approaching sounding phenomena. These levels depend on how the listener focuses his or her attentiveness. There are "actual facts" and "factual facts" (BOEHME 2001, 25; in RICHTER 2004, 17). "Factual facts" refer to the structural and measurable features; "actual facts" are concerned with the atmosphere, the charisma and the message of the sounding phenomena. In music in special education and music therapy we are more concerned with the "actual facts".

"Music is no matter as such. It is much more than an object ... It is a living counterpart for the human being and a partner who demands activity and who offers ... enrichment in life purposes. 'She' (as the personification of music; DL) is a manifold activity and affectivity domain of our life and an inexhaustible extensive appearance of our reality... The reality of music is produced and received by activity, experience and understanding. It is always inserted in life contexts and contributes to the vitality of living." (RICHTER 2004, 17; translation D. L.)

Music in an aesthetic approach is a field of encounter which lives on the sensitivity, activity and behaviour within each listener and within the two persons involved in our professions: the teacher and therapist, the student and client.

Music in special education can have two aims: to teach music to students

with special needs (education in music) or to use music in an utilitarian purpose (education through music), e.g. to improve the student's social skills, attention span, language skills, etc.

"Music therapy is the art of purposefully using music in incriminatory moments of life with the aim of healing or ameliorating/recovering persons in need." (PIEL 2001, 381; translation D. L.)

The basis of both approaches is the relationship between the two persons involved and the aesthetic resonation within each of them and between them. Music in special education and music therapy have their grounding only in aesthetic sensitivity, activity and behaviour.

Aesthetics, as we said earlier on, is "... the study ... about art ... and that about people, which throughout history has caused them to need art as an essential part of their lives." (REIMER 1989, 2)

But, in music in special education and music therapy this process does not happen within one person but within a relationship of two persons. We have two independent entities with their own personal background: a professional in music and a person in need encounter the field of music and the field of interaction, communication. These two persons meet in music, through music and they do it with different expectations and different aims. One of them wants to teach or to work therapeutically, the other one wants or needs to be taught or to be in therapy. Therefore we have to go one step further in our questions for implications for our professions.

Ethics is the name of the "*philosophical science of well-doing*" (Antor & Bleidick 2001, 158³; translation D. L.) and is in the end founded in the reflection about the right of the other human being to be present. It is about the common creation of a facet of reality, a mutual world, "*an area of existence, in which both participants meet in bringing forth a common world.*" (Maturana & Varela 1984, 264⁴; translation D.L.)

³ "vom guten Tun"

⁴ "einem Existenzbereich, in dem beide Parteien in der Hervorbringung einer gemeinsamen Welt zusammenfinden." (Maturana & Varela 1984, 264)

This again is an encounter in the 'in-between', where both participants, student or client, teacher or therapist, have to move something or have to be moved in order to achieve healing, recovery and/or education.

These are fundamental questions to be asked in music education and music therapy: What is our concept of human existence? What do we see in our participant when we encounter him, be it in the field of education or therapy? Is there a deep respect for the abilities and resources the other one offers?

Music in special education and music therapy, in my opinion, must be based on and demonstrate an insight of human living in which our counterpart without any doubt has a right to live, in which he is treated like a person with complete and fundamental personal rights of living, well-being and education. In this wide-ranged context of being human our daily work in special education and music therapy is being fulfilled.

This insight takes for granted that human beings are active, self-imagining and self-forming entities, and it proves our right and our duty to bring human beings – with or without disabilities – together with music.

It is not adequate only to adjust people to society, only to make them a functioning member. Human co-existence is, will be and has to be, an adventure of human encounter to create a mutual world worth living for all of us.

In this common world, in the musical 'here and now', developments can arise which slowly or dramatically change the life of our students or clients or even our own. On this common ground we share, understanding, amelioration/recovery, healing and education can take place. But this is only possible if we, as therapists or teachers who have been given power by society, have a view of the student or client as equal in an ethical point of view. We are not the same or identical, but we have the same value.

According to KANT every human being has to be seen "*as an end in itself*"⁵ in his right of self-determination (FORSTER 2004, 236; translation D. L.).

⁵ "Selbstzweck"

"What is defined as an end in itself cannot be determined from an external point of view. This includes that we cannot say with certainty and cannot be sure with validity, what and who this person or the other is." (FORSTER 2004, 236⁶; translation D. L.)

This means: *"Life only can be evaluated while living it yourself."* (Radtke 1990, 275; translation D. L.)

Therapists and teachers have to be well aware about this. And they have to establish a relationship based on a sense of responsibility.

"Responsibility appears to be the core of ethics." (FORSTER 2004, 232⁷; translation D. L.),

Since the mere existence of a human being is at the same time a mandate and therefore a matter of 'having-to' [Sollen]. To take over responsibility for this mandate means we have *"to reflect in each activity the reason for doing so. This has to be done not only on the basis of our own interest but due to the personal rights of the other person involved and due to common principles."* (FORSTER 2004, 234; translation D. L.⁸)

All of this only happens if we preserve the other one's dignity in treating him with deep respect: Respect is "the acknowledgement of dignity of all human beings. Dignity is a value which is an end in itself, which has no equivalent..." (Forster 2004, 236⁹; translation D. L.).

- ⁶ "Was Zweck an sich selbst ist, entzieht sich jeder Bestimmung von außen. Das schließt auch ein, dass wir, d. h. die jeweils anderen, nicht mit dem Anspruch auf letzte Gültigkeit sagen können, was und wer dieser oder jener Mensch ist." (Forster 2004, 236)
- "Verantwortung erscheint ... als das 'Urphänomen' der Ethik..." (Forster 2004, 232)
- ⁸ "bei jeder Handlung eine Reflexion über ihre Begründbarkeit anzustellen und in dieser Reflexion nicht nur auf unser Eigeninteresse zu achten, sondern uns auf das Eigenrecht des Anderen und auf allgemeine Grundsätze der Begründbarkeit einzulassen." (Forster2004, 234)
- ⁹ "Anerkennung einer Würde ... am anderen Menschen, d. i. eines Wertes, der keinen Preis hat, kein Äquivalent..." (Forster 2004, 236).

This act of attributing dignity in creating a mutual field of encounter in deep respect transforms this mutual relationship into a deeply humane one - far away from the concept of pure functionality and profitability.

"What defines a human being as a human being is ... his 'dignity' which is acknowledged in deep respect." (FORSTER 2004, 236; translation D. L.)

This statement brings us back to BUBER's philosophy of encounter, the mutual resonation which allows changes in the two persons involved: A human being becomes a subject in juxtaposition to another subject/object. Or: *"he becomes an T when facing a 'You'."* (BUBER ³1973, 33¹⁰; translation D. L.)

This reality of interpersonal meeting in ethical responsibility creates the human being as a person.

"Without this ethical grounding the human being is inexistent ... as a person (Levinas 1989)." (FORSTER 2004, 237¹¹; translation D. L.)

Only this responsibility for the interpersonal interchange guarantees that a human being is not restricted to pure functionality and profitability. Much more it encourages and challenges the person to follow his inner motivation for self-imagining and self-forming.

We have an important anthropological basis for that at hand: the resonance between the inside and the outside, between consciousness and unconsciousness, between dreaming and planning. The aesthetical response, "this special way of sensing myself" (MOLLENHAUER 1990, 289, in SEUBERT 1997, 25; translation D. L.) appears in processes like "imagination, memory, in dreaming and day-dreaming, in hesitating and amazement, in being irritated and being touched" (Otto 1988, 6; translation D. L.).

¹⁰ "Der Mensch wird am Du zum Ich." (Buber 1973, 33)

¹¹ "Ohne eine ethische Beziehung ist der Mensch als Person … nicht existent (vgl. Levinas 1989)." (Forster, 2004, 237)

The aesthetical approach is much more than an evolutionary luxury or a nice accessory to our functional life. There is an evolutionary need for aesthetics arising in the personal will for aesthetics. Aesthetical approaches are *"basic anthropological patterns with the same value as recognition, conceptualization, systematization and measurement of one's surrounding by number and measure."* (OTTO 1988, 6; translation D. L.).

Do you remember that furious mother from the beginning?

Music is fun. Yes, but it is so much more than simple entertainment. It is a sensorial, experience-oriented and understanding way of approaching the world which we have no right to neglect or oversee. That is why music education and music therapy serve a world beyond pure functionality and profitability and pure learning *"how to behave, how to read and write."* Musical experience and aesthetical appreciation *is living* indeed.

That is what I would answer this mother today before I would go back to my student and to our so-needed dialogue with that *"silly drum."*. The girl would understand ...

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Automatic Improvisation Analysis Methods for Music Therapy

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INTRODUCTION

This paper describes an ongoing research project, of which the purpose is to develop an automatic (computer-based) music analysis system that could be used in the analysis of improvisations produced in clinical music therapy. The paper begins by putting the project in context, and outlining the overall method employed. Following this is a description of some of the analysis tools developed so far, after which some examples are given of how these tools might be used in the clinical setting. A small pilot study, the aim of which was to examine the appropriateness of part of the overall method, is then outlined. The paper concludes by describing some of the details of the project, particularly how the clinical data is being gathered, and what is required of the therapists who have agreed to participate in the project.

BACKGROUND

Intelligent Music Systems in Music Therapy is a three-year (2003-2006) research project funded by the Academy of Finland. The objective of the

project is to develop automatic music analysis systems that can be used, among others, in analyzing improvisations produced in clinical music therapy. The development of the analysis methods is based on the research work carried out during the last ten years by the Music Cognition Group at the University of Jyväskylä (www.jyu.fi/musica/cognition). This work focuses on the perpection of melody, rhythm, and tonality as well as improvisation, variation, cross-cultural music cognition, and computational music analysis.

We suppose that suitably chosen features extracted from a musical performance (e.g. clinical improvisation) can be used to predict assessments given, and thus psychic meanings attained, by therapists. Furthermore, we assume that these methods could be developed into computational analysis tools that would help make clinical music therapy work more effective. Finally, we suppose that interactive music systems based on intelligent musical feature extraction would be more rewarding and efficient than the present ones from the point of view of music therapy clients.

To carry out automatic extraction of musical features, current knowledge about musicology, psychoacoustics, and the perception of melody, harmony, rhythm, and tonality will be applied. The methods will be based on statistical analysis as well as various modeling techniques (e.g. neural networks and dynamic systems). The connection between the extracted musical features and the perceived qualities of improvisations will be studied using listening tests. To this end, a set of improvisations will be subjected to automatic feature extraction to obtain descriptions of musical features and gestures for each improvisation. For the same improvisations, experienced music therapists and musicologists will provide subjective evaluations of given perceived qualities. The interrelationship between the musical features and the perceived qualities will be investigated using various statistical and modeling techniques. We seek to obtain models that, given the extracted musical features, provide estimates of perceived musical qualities. To this end, various statistical and neural network methods will be utilized. Figure 1 shows a schematic overview of the methods used.



Figure 1. A schematic representation of the method for obtaining a system for automated analysis of improvisations.

ANALYSIS TOOLS

The computational analysis is based on the MATLAB software (www. mathworks.com). MATLAB is a programming environment for mathematical computation, analysis, algorithm development, and visualization. Depending on the application area, the MATLAB software can be supplemented with various *toolboxes* that contain specialized functions (e.g., signal processing, neural networks, statistics, fuzzy logic). Currently, the analysis is carried out from MIDI files. To access and analyze them, we use the Midi Toolbox (Eerola & Toiviainen, 2004). The MIDI Toolbox is a compilation of functions for analyzing and visualizing MIDI files in the MATLAB environment. Besides simple manipulation and filtering functions, the toolbox contains cognitively inspired analytic techniques that are suitable for context-dependent musical analysis that deal with such topics as melodic contour, similarity, key-finding, meter-finding, and segmentation.

The analysis methods used specifically for music therapy improvisations are being compiled into another MATLAB toolbox, the Music Therapy Toolbox (MTTB). The MTTB utilizes various functions of the MIDI Toolbox (see figure 2.). Currently, the MTTB provides graphical representations of

certain musical features of the improvisation. These features are related to the density of notes, dynamics of playing, usage of register (pitch height), duration of notes, and the clarity of pulse and tonality. When there are two improvisers, these features can be separately displayed for each improviser, allowing for the examination of interaction between the improvisers on these musical dimensions. The MTTB is continually being developed and extended, using feedback received from clinicians and music therapy researchers involved in the project. As an end product, we aim to develop an improvisation analysis software package for music therapists.



Figure 2. Hierarchy of the analysis tools used.

EVALUATION AND REPRESENTATION OF MUSICAL DIALOG BETWEEN THERAPIST AND CLIENT

One important dimension of musical expression that may be of interest for music therapy is the degree of communication between the therapist and the client playing together. In particular, when communication takes place, players imitate one another at some particular moments of the improvisation. The assessment of musical dialog may therefore be assessed through an observation of the degree of local similarity between the temporal evolutions of both improvisations, along the different features computed by the MTTB (density of notes, dynamics of playing, etc.). These local imitations are displayed in a new graphical representation – called *imitation diagram* (ID) – that has been specially designed for this purpose.



Figure 3. Temporal evolution of the musical variables (on the left) and their respective imitation diagrams (on the right).

Each line of Figure 3. is dedicated to a different musical feature: note density, mean duration, pitch standard deviation, and mean velocity. On the left side the temporal evolution of the corresponding feature with respect

to each player is displayed, player 1 in black and player 2 in gray. On the right side the respective ID is associated, where the horizontal axis also corresponds to the temporal evolution of the improvisation. Lines in the ID indicate local imitations. Darkness of lines is associated with strength of imitation: light-gray corresponds to slight and coarse similarities, while black corresponds to distinct and close imitations. When the line is vertically centered, the imitation between both players is synchronous. When the line is at the upper side of the diagram, on the other hand, player 2 imitates player 1 after a specific delay, displayed by the vertical axis, in seconds. Similarly, when the line is at the lower side of the diagram, player 1 imitates player 2. Finally, the length of the line indicates the duration of the imitation.

This representation displays some interesting information. With reference to note density (first line), player 2 imitates player 1 from time 90 seconds, with a delay of nearly 20 seconds. As regards mean duration (second line), player 2 imitates player 1 from time 70, with a slight delay of a couple of seconds. Meanwhile, with reference to pitch standard deviation (third line), player 2 imitates player 1 from time 110, and both players become progressively synchronous. Finally, as regards mean velocity (fourth line), both players imitate one another during the whole improvisation, one player being ahead at some points, and the other player at other points. All these characteristics can be seen in the graphs on the left hand side.

MTTB FROM CLINICAL PERSPECTIVE

The idea of the MTTB project is to provide an improvisation analysis method in a condensed visual form (see figure 4). Depending on the needs and goals of the analysis the therapist can choose the most appropriate combination of the automatically extracted features. In the example there is first a traditional piano roll representation for both of the improvisers (first two rows of the graph). This type of representation can be found in the traditional sequencer software as well.



Figure 4. An example of the MTTB graph. The graph depicts the improvisation by two improvisers where the dot-line represents improviser 1, the single hair-line improviser 2.

After the piano roll representation, the next graphs from top down are: musical *density*, mean *duration* of notes, mean *pitch* of notes, pitch standard deviation, mean *velocity* of notes, *pulse clarity*, *tonality* and *articulation*. The basic idea and content of each of these concepts is described in figure 5.

Density	The number of note onsets per second within the time window
Duration	Mean duration of notes within the time window
Pitch	Mean pitch of the notes within the time window. Can be associated with the concept of 'register' in music
Pitch stv.	Standard deviation of the pitches of notes within the
	time window. Can be associated with the concept of
	'ambitus' in music
Velocity	Mean velocity of notes within the time window. Can
	be associated with the concept of 'volume' in music
Pulse clarity	Regularity of pulse within the time window
Tonality	Similarity of note distribution with typical note
	distributions in western music (i.e. the relative
	frequency of each of the notes in the scale)
Articulation	The extent of which the notes overlap or are
	separate. Can be associated with the concept of
	'pizzicato' or 'staccato' and 'legato' in music

Figure 5. A Description of the MTTB features.

The idea of the MTTB is first of all to offer a tool for a clinician that will make the first stage of the analysis process easier, as well as to help him/ her to trace the pivotal sections or phenomena in the improvisation which will be subjected to more detailed or complex analysis. At the moment, only fairly coarse musical features can be represented by MTTB. As the project progresses, the representation of more detailed features, like melodic motives and rhythmic patterns, may come within the scope of the MTTB. However, there will always be phenomena and features in human expression – like improvisation – that remain more or less outside the realms of computational analysis. In the next section a brief evaluation of the benefits and possibilities of the MTTB will be made. The evaluation is based on comparison between the MTTB and some widely used ideas and methods in the context of music therapy improvisation analysis.

THE MEANING OF COARSE MUSICAL FEATURES IN IMPROVISATION ANALYSIS

The more complex the music is the, more sophisticated an analysis method is required. This is true especially in the context of traditional music

analysis where for instance a masterpiece of classical music is the focus of analysis. For example, in GIM (Guided Imagery and Music), which is based on listening to western, mostly classical music, it is a big challenge to recognize the musical events that stimulate an imagery process, or a single image, from a highly complex and multilayered field of stimulus. In the work by Erdonmez Grocke (1999) 15 categories have been listed that affect the imagery process in GIM. The categories are 1) Style and Form, 2) Texture, 3) Time, 4) Rhythmic features, 5) Tempo, 6) Tonal features, 7) Melody, 8) Embellishment, ornamentation and articulation, 9) Harmony, 10) Timbre and quality of instrumentation, 11) Volume, 12) Intensity, 13) Mood, 14) Symbolic/ associational, and 15) Performance. Each of these categories is divided into sub-categories. Some of these will be dealt with later on in this article.

It is self-evident by looking at the list of the main categories that most of them are relevant from the point of view of the improvisation analysis as well; but probably not in the way they are applied to the analysis of composed music. For instance, category 7, melody, includes definitions (as sub-categories) like main themes in the selection (1st theme, 2nd theme with development or variations), the structure of the melody, significant intervals, etc. most of which are not relevant in the context of (clinical) improvised music. A composed piece of music is based on planned processes and carefully thought logic, whereas improvisation - especially in the clinical context - is often a spontaneous activity with much musical freedom (i.e. non-specific techniques). Thus, it is obvious that when analyzing clinical improvisations the focus of attention of the analyzer (music therapist) is primarily concentrated on the most salient, or all-inclusive level. This is often sufficient in order to make appropriate clinical conclusions. When dealing with Erdonmez Grocke's categories, also Wigram (Wigram, 2004) refers to this difference between composed and improvised music.

TONAL FEATURES AND THE MTTB

In the IAPs (Improvisation Assessment Profiles) (Bruscia, 2001), the tonal features of improvisation are defined by using the concepts of melody, harmony and scale/key. When doing an analysis, the therapist is asked to assess the amount by which these tonal elements are related to each other as

well as how much they change in the course of an improvisation. The special focus, of course, is the role that the client takes in relation to the tonal elements.

In the MTTB, the tonal elements can be assessed by the 'piano roll' and 'tonality' graphs (see figures 6. and 7.). From these graphs we can see,



Figure 6. Piano scroll from 135 s. forward



Figure 7. Sense of tonality in the expression of two improvisers

on a coarse level, what the basic roles of the improvisers are in terms of melody (figure 6.). We can, for instance say that improviser 1 (upper stave) is not producing any clear melodic lines, whereas improviser 2 (lower stave) produces wide melodic contra-movements by using both hands. When looking at the whole improvisation we can see that melodic expression has a stronger role at the end, mostly caused by improviser 2.

In figure 7 we can see that the performance of improviser 1 is rather tonal between 135-150 s., whereas improviser 2 has a more varying tonal role at the same point as well as towards the end of the improvisation. Certainly,

we can say that the improvisation is not based on any given scale, although it is not totally atonal.

In order to say more about the tonal details and their roles – like melodic patterns, themes or motifs – there is still the need to analyze the improvisation 'by ear'. However, the MTTB clearly helps the therapist to perceive the salient tonal phenomena as well as the salient tonal roles of the improviser(s), and to capture them to be analyzed more profoundly.

TEXTURE AND THE MTTB

After Bruscia (1987) the texture scales (in the IAPs) deal with the overall fabric of the improvisation, pitch registers, voicing configurations, musical roles of each part, and phrasing. In figure 8. the pitch information



Figure 8. Mean pitch (above) and pitch standard deviation (below) from 135 s. onward

can be seen both as mean pitch and as pitch standard deviation. If the client is playing a single-line melody the pitch graph indicates precisely the register used at any given moment. With polyphonic expression (like in the improvisation under investigation) the pitch information is somewhat more relative due to the effect of the mean. However, the relationships between the improvisers in terms of pitch/register can be clearly seen in the graph.

The lower graph in figure 8., the pitch standard deviation (std), tells us about ambitus. The higher the value, the greater is the distance between notes played (between left and right hand). In figure 8. we can see that around 155 s. improviser 1 has high pitch std value, which can be seen as a large ambitus in the piano scroll representation.

It is possible to differentiate various musical roles in the improvisation by looking at the graphs and the different musical features they represent. We can also see different musical roles between the improvisers at a given moment. However, it is difficult to say much about phrasing, which again is a sensitive musical concept, and thus hard to automatically extract.

RHYTMIC ELEMENTS AND THE MTTB

After Bruscia (1987, 406) the rhythmic scales deal with the components of pulse, tempo, meter subdivision, and pattern. At the moment only pulse (clarity) can be reliably described in the MTTB. The higher the value the more sense of pulse can be found in the improvisation. In figure 9. it is interesting to see that when the overall density of the improvisation increases towards the end, and when the real melodic expression by improviser 2 starts, the pulse clarity dramatically decreases in the same sequence.



Figure 9. The MTTB pulse clarity graph

Both Erdonmez Grocke (1999) and Bruscia (1987) stress the meaning of rhythmic patterns and motifs as well as of rhythmic repetition when doing musical analysis in a music therapy context. This will be a big challenge for the MTTB project.

ACTIVATION, AROUSAL, INTENSITY - AND THE MTTB

The feature called musical density in the MTTB seems to have some interesting connections to previous studies and theory building in the field of music psychology. In figure 10, the trend lines of musical density are depicted so that the dot line represents improviser 1, the single hairline improviser 2. We can see that there is a clear increase of density starting after approximately 140 seconds, and lasting throughout the rest of the improvisation.



Figure 10. Musical density depicted as a MTTB graph

The concept of density in MTTB can be compared with the concepts of activity and arousal that are well known concepts in (music) psychology. After McMullen (1996), activation has often been explained as an increased state of arousal, and activation is frequently used even as a synonym for arousal. McMullen also refers to the work of Osgood, Suci and Tannenbaum, who have stated that, when depicting connotative meaning, one of the key factors is the activity dimension (McMullen, 1996).

Increased density in improvisation seems to consist of the contribution of several musical factors, including increase in volume, acceleration of tempo, shortened note durations, and increased number of notes in a given time window. When this kind of overall increase – arousal – in musical expression occurs it is a sign of increased emotional and physiological intensity as well (Husain, Thompson, & Schellenberg, 2002).

Maybe it is possible to associate the concept of density with musical intensity as well. The musical concepts that have been connected to the

concept of intensity are for example increased tension/release, crescendo, building peaks and resolving them, harmonic tensions, etc. In a music therapy context, for instance, Erdonmez Grocke (1999) has stressed the meaning of musical intensity in the GIM process.

VELOCITY IN THE MTTB - A RELATIVE TO THE VOLUME?

Velocity is a MIDI-concept which can be associated with volume in musical vocabulary – with reservations. After Bruscia (1987), volume scales (in IAPs) deal with sound intensity and mass, or what is commonly called "dynamics".



Figure 11. Velocity in the MTTB graph

In IAPs, the therapist is asked to evaluate how closely related in volume simultaneous parts are, how much volume change, and what roles the client takes with regard to volume. In our example we can see the difference between the improvisers in terms of velocity (volume) within the section with high density (intensity). First, when the overall intensity starts to increase – i.e. melodic expression, musical density, decrease of pulse clarity – from 135 s. onwards, the force/speed, i.e. by which the improvisers press the keys, seems to increase. Second, there is a slight difference between the volume roles of the improvisers not only at this point of improvisation but also elsewhere in the improvisation. As far as we can associate velocity with the volume it is clear that the MTTB can reliably describe the changes and the role relationships in volume.

CONCLUDING REFLECTION ON THE MTTB FROM A CLINICAL POINT OF VIEW

The MTTB is under construction, but has already proved to be beneficial when doing music therapy improvisation analysis. In this section of the article, only those clinical aspects with clear connections to previous knowledge and practice in the field have been considered. Thus, although the feature called "articulation" may prove itself beneficial later on, at the moment it is not easy to say what might be its role/significance from the point of view of the improvisation analysis.

In this section, not much has been said about the clinical relevance of the Imitation Diagram (ID), mainly because it has been clearly described elsewhere in this article. However, its clinical relevance is obvious, especially if it can be developed in the direction of melodic and rhythmic pattern recognition.

It seems that, at the very least, the MTTB makes it easy for music therapists to do a "fast analysis" that helps them to get an overall picture of the nature of the improvisational interaction and expression of their clients. The MTTB may also help music therapists to recognize those improvisations, or parts of them, that have special clinical relevance, and that should be analyzed in detail.

A totally untouched theme is how to do psychological interpretations on the basis of MTTB analysis. Some music therapists may want to do psychoanalytical interpretations, others may put attention to the social development of the client, and some music therapists may see it unnecessary to do any interpretations. What connects the MTTB for instance to the IAPs is that both of the methods are more like bases upon which any kind of interpretations can be constructed.

A PILOT STUDY – HUMAN EXPERIENCE VERSUS COMPUTATIONAL FEATURE EXTRACTION

Introduction

This section describes a small pilot study, of which the purpose was to assist in the development of the part of the project in which experienced music therapists and musicologists would subjectively evaluate clients' improvisations.

In the pilot study, music therapy students were required to give subjective ratings of a series of short (60 sec.) improvisation excerpts. Each excerpt had to be rated on two scales: perceived ACTIVITY, and perceived VALENCE. These two scales were selected on the basis of a number of theoretical accounts which suggest that relationships between musical stimuli and affective/aesthetic behaviour can be predicted using a two-dimensional – activation/activity, and acceptance-rejection/evaluation – framework (McMullen, 1996).

The second of these dimensions, the concept of valence, based upon pleasant-unpleasant judgments usually investigated using several adjective pairs, is frequently used to describe affective/aesthetic responses to musical stimuli (Rauhala, 1973). Thus, activity and valence may be seen as central agents in the process in which one is judging the psychological meaning of musical stimuli, or the differences between stimuli.

The subjective ratings obtained in this experiment were to be compared with the musical features extracted from the excerpts using the computational methods described in the previous section. Using regression analyses, it was anticipated that some of the extracted musical features would be good predictors of participants' activity and valence ratings.

Method

Participants. Thirteen individuals participated in the pilot study. All participants were students on the Master's music therapy program at the University of Jyväskylä.

Stimuli. Participants were presented twenty 60-sec. excerpts from therapistclient improvisations produced by students on the Master's music therapy program in the department of music at the University of Jyväskylä. The improvisations were produced during a typical student training session. The excerpts were selected from thirty originally recorded excerpts, that were of a duration from 2 - 4 minutes.

Apparatus. An Apple Macintosh computer, running Logic sequencing software, was used to present stimuli to participants via headphones. Attached to the computer was a basic four-octave keyboard equipped with a data entry slider and a pitch bend wheel. Participants used the data entry slider to indicate the level of perceived ACTIVITY, and the pitch-bend wheel to indicate perceived VALENCE.

Procedure. Participants were presented the 20 excerpts in two identical blocks. The start and end of each excerpt was signaled by a percussive tone, and there was a period of six seconds of silence between each excerpt and the next. During the first block, participants were required to rate the amount of perceived ACTIVITY. During the second block, they were asked to rate perceived VALENCE. During both blocks participants' ratings were sampled at 500 ms intervals.

Results

Using the computational methods described in the previous section, the following musical features were extracted from each excerpt, with a 3-sec sliding window moving at 500 ms intervals:

- 1. DENS note density (note onsets per second)
- 2. DUR mean durational accent of notes
- 3. MEANP mean pitch (MIDI note value)
- 4. MINP minimum pitch
- 5. MAXP maximum pitch
- 6. STDP standard deviation of pitch values
| 7. | MEANV | mean velocity |
|-----|-----------------|---------------------------------------|
| 8. | MINV | minimum velocity |
| 9. | MAXV | maximum velocity |
| 10. | STDV | standard deviation of velocity values |
| 11. | TON | tonal clarity |
| 12. | MAJOR clarity o | of major key |
| 13. | MINOR clarity o | of minor key |
| 14. | ART | articulation index |
| 15. | AC | pulse clarity |

Ratings of ACTIVITY and VALENCE were analyzed separately. For each dimension, the values of the 15 extracted musical features, and the mean rating made by participants, were used as predictor variables in a linear regression analysis. Significant models emerged from each analysis, and are shown in **Table 1** (ACTIVITY) and **Table 2** (VALENCE) following.

Table 1. Results of regression analysis for ACTIVITY. Using the *simultaneous* method of variable entry, a significant model emerged [F(15, 2384) = 196.462, p < .001; adjusted R square = .553]. Significant variables are shown below.

Predictor Variable	Beta	Significance Level
DENS	.542	P<.001
MEANV	.248	P<.005
MINP	.229	P<.005
MEANP	.191	P<.05
MAXV	.177	P<.05
AC	146	P<.001
MINV	130	P<.05
STDP	128	P<.05
TON	127	P<.005
DUR	.100	P<.001
MINOR	.085	P<.005

Jaakko Erkkilä, Olivier Lartillot, Geoff Luck, Kari Riikkilä, Petri Toiviainen **Table 2.** Results of regression analysis for VALENCE. Using the *simultaneous* method of variable entry, a significant model emerged [F(15, 2384) = 24.403, p < .001; adjusted R square = .128]. Significant variables are shown below.

Predictor Variable	Beta	Significance Level
MAXV	613	P<.001
MAXP	.533	P<.001
MINP	507	P<.001
STDP	491	P<.001
MINV	.326	P<.001
STDV	.254	P<.001
TON	.108	P<.05
ART	061	P<.05
AC	051	P<.05

Summary

A number of the computationally extracted variables were found to predict participants' ratings of ACTIVITY and VALENCE fairly accurately. The most significant of these variables were DENS (note density), MEANV (mean velocity), and MINP (minimum pitch).

Overall, this study suggests that there is some connection between the extracted musical features and the perceived qualities of the improvisations. Subsequent experiments, which will build upon the pilot study presented here, will attempt to describe this relationship in more detail.

CLINICAL APPLICATIONS OF THE MTTB IN THE PROJECT

Clinical use of the Music Therapy Toolbox is currently at a test stage. After the very first trials with music therapy students there is a need to explore the possibility to apply the Music Therapy Toolbox in various clinical settings. A decision was made to begin this work at institutions for mentally disabled

Jaakko Erkkilä, Olivier Lartillot, Geoff Luck, Kari Riikkilä, Petri Toiviainen individuals. Qualified music therapists of these institutions are contributing to this research project.

Music therapy clients in contributing institutions are mostly mentally retarded but there are other clients as well. Mentally retarded clients have mostly a mild disability.

Research data is gathered from clinical situations. Client and therapist play together with two separate but identical MIDI keyboards using piano sound. Length and content of improvisation is not restricted. MIDI controller keyboards, with no built-in sound, but 88 dynamic keys with full hammer action and aftertouch are used. The piano sound comes from a sound module. Improvisations are recorded with sequencer software. The MIDI files produced are then sent to the researchers via the web.

In addition to improvisations, therapists explore clients by performing a test, in which the client tries to repeat what the therapist has played, or what the therapist has asked the client to play. The purpose of this test is to find out how well the client can use his or her hands and fingers, as well as mapping some simple musical skills. The MIDI test will be saved as a MIDI file that can be analyzed later.

Moreover, the therapists are required to fill in web-based forms. An improvisation assessment form must be completed after every improvisation. It is a checklist that includes some musical as well as nonmusical assessment in a subjective manner. It also contains a free field for the therapist's and client's comments on the current improvisation. A basic information form is completed after the very first improvisation session only. This form contains questions concerning the client's age, diagnosis, and verbal as well as motor functioning.

Every third month, therapists have to complete a follow-up form, which is the same as the basic information form except diagnostic information, which usually remains the same over longer periods.

MTTB analysis is then performed to investigate possible connections between motor, mental, emotional, or social functioning of the clients,

and musical features of the improvisations. Gabrielsson & Lindström (2001) have summarized research results concerning relationships between musical features and emotional expression, and Juslin (2001) has examined emotional communication in music performance as a function of musical codes placed on dimensions of valence and activity. Their work is a well-established basis for analyzing emotional content of musical features in music therapy improvisations.

Motor functioning is present in all MIDI data. Note clusters, for example, may suggest limited motor skills. As dissonance, they can be interpreted as emotional expression as well. To avoid incorrect interpretations, reliance upon only one musical feature may not be enough in all cases. Some clients are probably able to express themselves by using major/minor tonality that can be also treated as an element of emotional content of an improvisation. In addition to motor and emotional functioning, MTTB analysis is expected to reveal something about the social functioning of the client. In an MTTB graph it is easy to see the level of synchronization between the musical functioning of client and therapist. Initiative actions, and following responses, can easily be detected as well.

CONCLUSIONS

The aim of this project is to develop computational improvisation analysis tools for music therapists to use in everyday clinical practice. While therapists may choose to base much of their analysis on non-computational techniques, it is anticipated that these tools will help illuminate the musical interaction and experience shared by the client and the therapist.

The process of turning an auditory input, i.e., a client-therapist improvisation, into a visual output, such as a representation of client-therapist interaction, results in a static representation of a temporal event. When utilizing computers in this way, we can be sure that the visual representation is at least precise. What we cannot say yet, however, is whether the features we represent are clinically relevant. The relevance of the extracted features should become more apparent as the project unfolds.

Jaakko Erkkilä, Olivier Lartillot, Geoff Luck, Kari Riikkilä, Petri Toiviainen The next stage of the project, to be carried out in collaboration with clinicians, is to test and develop the method with improvisational data gathered from the field. If the MTTB is found to be appropriate in the clinical setting with this particular group consisting of mentally disabled clients, it is hoped that the method could be applied to other client populations as well.

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Creative Psyche and Music Therapy

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The thoughts I am going to describe are based on the need to define the relationship between creativity and psyche as part of improvisation work in music therapy.

Every day it becomes increasingly necessary to more explicitly use the process of artistic creation as a therapeutic framework. In this sense, I will use as a basis the work of Héctor Fiorini, a doctor of psychoanalysis and a professor of the School of Psychology at the University of Buenos Aires, who defines this relationship within a new system of psyche, i.e., *Creative Psyche* (Fiorini, 1995).

According to Fiorini "the process is something that is created ... For creation to exist, there must be a series of instruments that establish a creative field. A creative field is a space with multiple possibilities. Nothing is sure, we only establish spaces of possible events" (ibid.).

Through improvisation and creation, music therapy makes it possible for these spaces of possible events to exist in a direct and enriching manner. We must investigate the use of improvisation and creation processes within parameters that allow us to know not only the meaning of the product, but also the changes that the patient brings about during the process (Boden, 1994; Garaigordobil, 1995; Horney, 1993; May, 1982; Perez Fernandez, 2001). In this way, we will be able to intervene more precisely as containers and enablers of new relationships and communications networks.

In music therapy work, music is a transitional object that provides a vehicle and a metaphor for creative psychic dynamics. By means of musical improvisation, we create a transitional area where the patient's and music therapist's improvisations interact in continuous instability, where sound and silence create a dialogue and listening.

The idea is to offer a linking space where creativity oscilates between the polarity of repetitive fixation and the polarity of continuous innovation, recovering the history of self-creation that had been blocked and arrested.

"(..) in the clinic we have been called to create. (...) when individuals, groups or communities consult us, they do not only do so to be told what happens, but so that we can contribute to creating something different with what happens. In this manner, the clinic also turns into a creative space" (ibid.).

In order to approach the concept of creativity, we must observe and take as a reference various ideas from different fields and search for a common path in all of them that will lead us to the understanding of psyche through creativity.

CREATIVITY AND SIGNIFICANT LIVING

"When creative experience is lost, the feeling of a real and significant life disappears" (Winnicott, in Fiorini 1995).

We must begin by understanding creativity as the enabler of human processes and not only as an aspect concerning the world of art.

Creativity appears to us in everyday life through experiences where trial and error, potential and limit, the possible and the impossible, security and insecurity, sound and silence, and many others, live together in processes that are in constant movement. This creative process is present in significant living when the adaptation to reality is active and not passive. The concept of **active adaptation** – according to Pichón Rivière – "is a dialectic concept in the sense that, as soon as the subject is transformed, he modifies the medium, and when modifying the medium he modifies himself" (Pichón Rivière, 1987). From this point of view, the human being can feel that he is an active part of the events he is living, in a certain manner "the master of his own life" (ibid.).

In the words of the artist Jorge Oteiza: "Art does not transform anything, it does not change the world, it does not change reality. What really transforms man in his evolution and completes his languages is he himself. And it is this man, transformed by art, who can try to transform reality through life" (Oteiza, in Fiorini 1995).

In view of these two thoughts by Pichón Rivière and Oteiza, concepts come together, such as self-knowledge, conscience, listening attitude and active adaptation, concepts that shape significant living or creative living.

But, what is creativity? According to de la Torre, 1985, "Creativity is above all a polysemic, multidimensional phenomenon with a plurality of meanings". Omnipresent, called upon by artistic, scientific and business environments, it resists the restriction of precise definitions, because, as Torrance in 1988 and 1993 points out, "it is almost infinite; it commits every sense ... Much of it is invisible, non-verbal and unconscious. Therefore, even if we had an exact concept of creativity. I am sure we would find it difficult to express it in words." However, if we are going to study creativity, we must have some approximate definition. Some definitions were given by Ribot in 1900, Dugas in 1903, Queyrat in 1905 and 1908 and by Ruyra in 1938, who all are conscious that creative imagination or creativity is not exclusive to geniuses or to exceptionally talented people. However it exists in everyone although with different levels of intensity and application (Fiorini, 1995). The human spirit – as Dugas wrote in 1903 – has, from its origins, the need to invent, and this need is never discarded (ibid.). With regard to ideas of inheriting genius, these authors already proclaim the universality of creativity and the possibility of stimulating inventiveness.

In 1950, Guilford gave a speech of far-reaching importance to an assembly

of the *American Psychological Association* to identify and develop creativity, which was considered "the creativity manifest," dividing its history into a "Before" and "After" period. This author's approach leads to overcoming behaviourism, the idea of genius and the monolithic conception of intelligence favouring a factorial conception of creativity (ibid.).

For behaviourists, there would be no need to study or explain creativity because creativity, understood as a specific process that intervenes in producing something really new, does not exist. Either the product is really something old, or, if it is new, it came about by accident.

For the Gestalt theory, creativity refers to the fact that different specific elements can give rise to different entities due to the form in which they are arranged. It insists that the whole is different than the sum of the parts, and creativity would consist of the ability to break with the tendency to give a common answer, which involves a new way of perceiving the characteristics of objects.

For the latter, creativity begins with a problematic situation, with the perception of something unfinished, with the attempt to organise the structures observed in a significant whole.

Wertheimer stated that a strong dependence on specific prior experiences could produce "fixations" on a certain problem-solving tactic, interfering with and hindering creative thought processes. In order to break with prior experience and produce truly original solutions, it is necessary to analyze the specific difficulties of the problem at hand; if one manages to "mentally fill" the gaps of the problem, the solution would fit by itself.

In his 1950 theory, Guilford distinguishes between the following characteristics of creativity:

- 1. **Sensitivity to problems:** it appears that creative people are especially sensitive to the existence of problems. This quality has many forms: being aware of the need for change, of applying new methods, of defects and deficiencies of things.
- 2. Fluency of thought: at this moment in time Guilford considers it a

heterogeneous factor, and he will later make a factorial distinction among four different types of fluency: concerning verbalization, association, expression and ideas.

- 3. *Originality*: as the concept most commonly associated with creativity.
- 4. *Flexibility of thought*: as the ability to abandon old ways of treating problems and giving thoughts a new direction.
- 5. *Redefinition*: as a common aptitude of creative thought favouring problem solving: the revision of the form in which an object or concept is used.
- 6. *Evaluation*: with a decisive role in the final result of the process. The product is evaluated by its author according to the prevailing criteria for mastering the experience where it appeared.

The aptitudes that are most important for this author in relation to creative thought could be divided into two categories:

- 1) Divergent production aptitudes.
- 2) Transformation aptitudes.

From **de Bono**'s (1990) point of view, the objective of lateral thought would be the change of model, the breakdown of its structures so that the different parts of these models could be arranged differently. According to him, "the mind is characterised by the creation of fixed concept models, which limits the possibility of using the new information available, unless there is some means of restructuring the already existing models to objectively update them with the new data. Traditional thought allows models to be defined and their validity to be checked, but in order to achieve optimum use of the new information, we must create new models to escape from the monopolising influence of those already in existence. The function of logical thought is to initiate and develop concept models. The function of lateral thought is to restructure these models (perspicacity) and create other new ones (creativity). Logical thought and lateral thought are complementary. Ability is required for both" (de Bono, 1990). In 1958 **Freud** gave an explanation for the role of conscious and unconscious processes in creativity and suggested that creative attempts or efforts can be seen as wishes being carried out. In general terms, as Arieti in 1976 and 1993 pointed out, "although he contradicted himself very often in this sense, he saw a great similarity between neurosis and creativity: both have their origin in conflicts arising from the most fundamental biological impulses. In other words, they are attempts at resolving conflicts originating in powerful human instincts" (Arieti 1993, in Fiorini 1995).

According to **Jung**, 1969, the greatness of creative work comes from the reactivation of the archetype, and the creative process consists of an unconscious animation of these fundamental experiences that occurred on repeated occasions over generations and remain in the collective unconscious. When the wealth of dominant experiences in the collective unconscious awakens, the creative process confers the work of art with universal meaning.

More recent psychoanalytical perspectives have continued to make the creative process depend on those preconscious functions that swing precariously between the rigidity of the conscious function on the one hand (anchored in reality) and the rigidity of the unconscious function (anchored in stereotyped, repetitive symbolism of unconscious processes) on the other.

In 1930, **Vygotski** explained his conception of imagination and creativity in childhood, differentiating between reproductive activity and memory (which emerges from recall) and combining or creative activity. In view of this differentiation, he considers creative activity any human activity whose result is not the reproduction of what happened in one's experience, but the creation of new forms or activities. For Vygotski, imagination, fantasy, and creativity are more conscious than unconscious processes, though full of emotions. He linked creativity with fantasy, explaining how subjective thoughts are directed towards reality and are combined with realistic thoughts.

The humanist school understands creativity in terms of personal fulfilment, and considers that the tendency of the human being towards self-fulfilment is the greatest source of creativity.

For **Maslow** (1983), someone with creative self-fulfilment has a relationship with the world characterised by:

- a) open perception, shying away from prior categorising or preconceived notions;
- b) spontaneous expressiveness, lacking inhibition;
- c) a great attraction to the unknown, to meditate about things in depth, avoiding comfortable stances;
- d) the integration of aspects commonly considered irreconcilable (egoism altruism, individualism concern about social problems, childishness maturity, etc.);
- e) as a consequence of this integration, self-acceptance takes place; such people have resolved fundamental conflicts and show greater security and confidence in the activities themselves.

Rogers in 1978 and 1980 defines creativity as the appearance of a new relationship product which comes from the uniqueness of the individual on the one hand and the circumstances of life and the contributions of other individuals on the other.

For this focus, one of the characteristics of the creative individual would be an openness of experience. Products must be novel and emerge from a process where interaction between the creator and the materials occurs by force.

Sternberg and Lubart establish that *intelligence* has three key roles in creativity: a synthetic role, an analytical role and, finally, a practical role:

- a) the *synthetic* or formative aspect consists of the ability to see things in a new light or not in a set way, "redefining problems and putting things right";
- b) the *analytical* role of intelligence consists of "assigning resources and evaluating ideas", that is, recognising which of the new ideas are also good ideas, in the sense that they allow the effective allocation of resources and will finally be widely valued;

c) the *practical* aspect, understood as the ability to promote an idea and appropriately present it to the public.

On the other hand, a creative person tends to show a particular set of *personality* qualities. After reviewing these attributes, there are five characteristic qualities that stand out:

- a) tolerance of ambiguity,
- b) willingness to overcome obstacles and persevere,
- c) willingness to grow and openness to new experiences,
- d) willingness to take risks,
- e) individualism and support of one's own convictions

As a conclusion from the different concepts of creativity and according to de la Torre, 1991, it is possible to point out some constants that allow the establishment of a conceptual framework outlining what we understand as creativity.

According to this author, creativity:

- *a) is an intrinsically human potential*; it is defined as an ability, as a potential and not current quality, specific to the human being;
- *b) is intentional*, directional; it aims to respond to something, to satisfy an internal tension or a tension from the medium;
- *c)* has a transforming nature; the creative individual recreates, changes, reorganises, redefines the medium via dialectic and transforming interaction with it;
- *d) is communicative* by nature; it is orientated to the other and turns into a message when communicating via a certain symbolic system;
- *e) means novelty*, originality; these were the most universally shared attributes from the first studies on the subject and formed the most outstanding identifying factor.

(de la Torre 1991, in Fiorini, 1995).

CREATING AND GROWING

"(...) creating means bringing about tensions and contradictions and giving these tensions and contradictions new forms so that these forms can contain them and make them fertile. (...) The creative worker takes the terms of a contradiction, brings them together, works inside the contradiction and establishes relationships there. (...) this work is the work of the clinic (...) to help the contradiction turn into material, material from which to build" (Fiorini, 1995).

If we offer different people the chance to play with the two words Create and Grow, we get associations that envelop these tensions and contradictions. Words such as:

Restlessness, bearing fruit, risk, evolution, impossible, difficult, positive, art, need, getting involved, time, movement, process, etc.

These words in relation to each other favour creative and divergent compositions, such as:

Growing is an evolution in the course of time which implies movement in which a difficult and positive, high-risk transformation takes place; and through a fruitful change, we make art to create you.

You evolve and change you take a risk. It is not easy, but it is positive. Time is process and movement which will bear fruit in you, to be sure, the seed of art.

In these examples the words Create and Grow are called upon to create a space between them where urgency and time, movement and stillness, separation and union, etc. create structures where multiple contradictions are woven together and resonate. Winnicott called this field between elements transitional space, the space of transitional phenomena where creative processes emerge. The newly created field will be an open display space for a wide variety of relationships and possibilities, for limitless reverberations, constructing an architecture in its core that links multiple oppositions-contradictions.

"For the human being, creativity means to go beyond what is known, to reach the *truth* (something lived at the moment that expresses our individual connection with the whole) of things. And that is where chaos appears" (Briggs & David Peat, 1999).

Improvisations in music therapy must not be subject to linear, Cartesian action; on the contrary, they must be open to the laws of chaos and the laws of change.

It is the music therapist's task to stimulate the transition from chaos (understood as disorder without meaning) to the perception of reality made evident in all of its contradictions, not exempt from harmonious order.

This complexity requires noting the evident contrasts and shades of an improvisation, and also the small variations that are established and the possibilities arising between them. The evolution in the improvisations will be found when they are reorganised in a different way, with varying degrees of freedom and including a new key and a new tempo, promoting new structures of self-organisation.

Fiorini (1995) invites us to view the materials of the therapeutic process as sets consisting of:

Sound – Emotion – Body – Link – Gesture – Image – Thought – Acts – Processes – Projects

These materials, which are ways of being and presenting psychic-related things, and which happen wrapped up and crossed by UNIVERSES OF SOUND, produce different combinations, forming living blocks which breathe:

INTENSITIES SPEEDS RHYTHMS CONFIGURATIONS SEQUENCES DESIGNS STYLES FLOWS OF ENERGY COMPOSITIONS OF FORCES VARYING FORMATIONS DIFFERENT CODES

These materials are always individual, specific to each subject, each group and each moment of space and time. They are happenings, events never to be repeated identically and generally, in which senses occur as well as signs that cannot be made semiotic, that cannot be put into words or speech as they are pure presentation.

"Truth and chaos are linked. Living with creative doubts means entering chaos to discover that truth cannot be measured in words" (Briggs & David Peat, 1999). Creativity appears in improvisation when we facilitate a space of chaos and contradiction where an interchange of sensations and perceptions occurs making a new communication code possible. This leads us from the known as reassuring space full of seductive possibilities to the real impulses of doubts and uncertainties capable of organising themselves into creative chaos. Within musical improvisation, we find a continuous flow of forces that virtually trace an infinity of possibilities and bridges lasting for a moment. Prigogine reminds us that previously we identified science with precision. Now we require sciences of the imprecise, of the incomplete, in order to approach the chaos of the infinite and dare to navigate it.

In order to carry out an improvisation based on the theory of chaos we

can find help by following in the steps of Briggs & David Peat (1999) who suggest the creation of three vortices, which are understood to be "an individual, differentiated entity, however, inseparable from the river which created it." A musical improvisation or creation is created by the patient, it is his own, but at the same time it reveals truths related to the world surrounding him.

Creation of vortex 1, Turbulence: the space where contradiction becomes conscious and order turns into chaos. Where we sacrifice what is familiar to enter chaotic material enveloped in the unconscious.

Creation of vortex 2, Branching and expanding: The ability to take advantage of errors as an opportunity for change. Making use of a sound, a rhythm engendering a seed that will bear its fruit with expansion.

Creation of vortex 3, The open flow: Where the here and now allows time to vanish as something linear and convert an improvisation or creation into an open work which we can enter and leave creating a constant flow between the old and the new.

Each improvisation creates another history on our own history. As de Unamuno said, "The future gives new meaning to the past" (Unamuno, in Fiorini, 1995). Each improvisation or creation turns into a new possibility. We must fence in each of them, establish limits so that links and bridges are set up between them, thus multiplying the possibilities of new realities. This is how we will turn the therapeutic space into the space where different stretches of the patients' lives are represented, where the space of contradiction is transformed into the field of possibilities having recourse to silence as the point of departure for dialogue.

THE DIALOGUE OF THE IMPOSSIBLE TO FIND THE POSSIBLE

In reviewing the existentialist philosophers, Heidegger and Sartre, we find that "(...) the concepts of project, vital project, must have a significant place in our comprehension of the facts in the clinic. In these authors, the thought of the possible emerges as the horizon of existence, a concept which in

our opinion indicates an entire space of psyche, a space around which the creation as a project is arranged" (Fiorini, 1995).

In order to understand the model contained in this proposal, Fiorini (1995) establishes a topic where he places the operations of the creative process and makes room for the anxieties and failures of these processes (figure 1.).



Figure 1. Model of the given, the possible, and the impossible (Fiorini 1995).

The given is what is constituted, known and established. It is the point of departure for creative processes. From there springs the impulse to cross the limit, rearranging known forms.

The impossible corresponds to the conflictive space where forms and movable matters live together in intense acceleration.

The possible is where a new area of reality is created. Where a new object takes form and the creator puts distance between it and himself.

The project, vital project, is found in the three spaces of the topic:

In the given as the potential (the same problem holds the seed of its keys and solutions).

In the impossible as the transformation test space, the sign of possibilities.

In the possible to update new forms, then to launch them for new acquisitions

and ends that will once again, perhaps, turn into the beginning of other changes.

The given	The impossible	The possible
 Place of conflict Blockage because of excluding oppositions Departure situation Stagnated form (Blockage) of the binary confrontation Place where the crisis is suffered. 	 Transformation space Setting up a "productive crisis" (creative field) Place of vertigo Search for keys to the potential Process of change Contradictory space 	 New production of relationships between opposites Space transformed by the creation of a new personal reality. Updating the potential Transformed place where the project is to be sent Place where the contradictions and opposite sides of a conflict are harmonised (integration without loss of identity) A new view of reality and oneself Individual conflict resolution by creating a way of relating binary terms

Figure 2. Human growth and the spiral of the given, the impossible, and the possible (Fiorini, 1995).

Fiorini's proposal makes it possible to see human growth in relation to the ability of the person to oscilate through the spiral of the given, the impossible and the possible. As Fiorini points out "falling into the impossible is a risk of this mobilisation, of this provocation of chaos", but even so, chaos opens the possibility of building new objects, new forms and relationships, that is, building the possible as the alternative to the real, and letting a new reality appear in this place of the possible (ibid.).

The creative pulse is incessant and therefore a new object transformed into

the "possible" will become part of the given to once again enter creative processes.

The music therapist works in this space of possible events and possibilities, walking through processes that are being built over and over again, where nothing has a fixed place; the patient and the music therapist travel along the routes the process takes.

Seeing improvisation as a creative field where a multidimensional network of forces and energies is traced, where the patient builds – destroys, moves among his own contradictions, makes it possible to convert improvisation not only into a product, but also into a process where sound envelopment is being recreated and multiplies itself into new realities in constant change.

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Music Therapy in a Medical Setting

Brian Schreck, United States

Opening Hospital Setting the Tone: Taking a Look at you as the Patient

"Quiet", J. Mayer

midnight close all the doors and turn out the lights feels like the end of the world this Sunday night there's not a sound outside the snow's coming down and somehow I can't seem to find the quiet inside my mind

3:02 the space in this room has turned on me and all my fears have cornered me here me and my TV screen the volume's down blue lights are dancing around and still, I can't seem to find the quiet inside my mind

daylight is climbing the walls cars start and feet walk the halls the world awakes and now I am safe at least by the light of day

The Music Therapy Program at Beth Israel Medical Center resides on floor 6 of the Dazian building in the Petrie Division of the medical center located on 16th street and 1st Avenue in Manhattan, New York. This program facilitates a unique blend of personal care therapy and patient/group specific needs and goals through the medium of music.

The program works mainly on four units of the medical center: Pediatrics and Family Practice, Oncology and Hematology, NICU (Neonatal Intensive Care Unit), and Department for HIV patients. Each unit is as special as the population which resides within it. This program works very closely inside the Social Work Department of the medical center. These services are an integral component of the health program.

In her book "Music Therapy and Pediatric Pain", Joanne Loewy (1997), director of the Louis & Lucille Armstrong Music Therapy Program at Beth Israel Medical Center, states:

"the idea of 'complementary' treatment has replaced the notion of 'alternative' within the community of care givers. This, in essence, has allowed less conventional practices to blend with more traditional forms of medicine. There is the notion that Eastern and Western philosophies may be used together and provide more significant results. Music therapy need not be seen as a replacement for, or an alternative to, a pharmacological approach, but may be used effectively in conjunction with, or as a complement to, a particular treatment plan Pain is a perception that cannot be treated as a purely physiological symptom The music therapist's evaluation may serve to provide an integral piece of medical information, not available through other sources. Through a music therapy pain assessment, the therapist may determine the particular kind of pain that the patient may be experiencing, as well as identify important techniques that will best serve the patient's physical and emotional well-being. Additionally, a music therapy pain consult may provide the medical team with key information concerning the patient's source of defenses, as well as his/her ego capacity to handle the anxiety and tension accompanying the physical discomfort." (Loewy 1997, 1).

Music therapeutic techniques at Beth Israel Medical Center include: Clinical improvisation through patient's preferred music, songwriting, lyric substitution, instrument choice and play, soundscapes, vocalizations, meditations, guided imagination, musical holding, and vibrational toning. Procedures in music therapy include: Referral: see "Music Therapy Referral Criteria" (figure 1.) and "Music Therapy Referral Form" for patient described in the case study (figure 2.); Consultation of patient's medical chart (optional); music therapy session; Written assessment; and Follow-up session(s).

Music Therapy Re	ferral Criteria
I. Anxiety/Fear Music Therapy soothes, familiarizes, and/or activates:	
A. Separation anxiety	Chanting, musical holding and collaborative musical experiences create a feeling of safety in the hospital.
B. Pre/Post operative anxiety	Making music relaxes and eases the mind and body of tension and fear stimulated by hospital procedures.
C. General anxiety II. Pain/Stress Clinical improvisation provides an alternative, non-verbal means of release for a patient in discomfor	Musical experiences help patients make sense of their fears through a non-threatening medium.
A. Breathing & vocalizing	Life rhythms and tonal intervallic synthesis heip a patient synchronize and deepen the breathing process. Toning stimulates the connection between the body breath and feeling states.
B. Tension release	Opening channels of musical creativity stimulates the body's
III. Expressivity	need to release tension.
A. Depression, non-verbal/inactivity	Structured and unstructured therapies help elicit feelings that may be "muted" or "blocked".
B. Acting out or hyperactivity	The implicit structure music therapy techniques such as African drumming song sensation, and instrumental composition offer patients a safe means of channeling their excessive apoints of nearching their excessive apoints of nearching their excessive apoints of nearching the safe the sa
IV. Ego strength/Coping	excessive amounts of energy.
A. Facing the illness	The metaphoric use of music in song selection an composition offer patients a safe way into understanding and adjusting to their illness.
B. Self esteem	Performing and tape creating strengthen a patient's feeling of worth during this fragile time.
C. Communication/Socialization	Community singing, drumming circles, and collaborative free improvisations foster communications between patients and within families
V. Loss of Consciousness/Coma/ICU	and wrone families.
A. Awareness	The use of familiar melodies help patients become oriented or tuned in to a state of safe grounded, familiarized awareness.
B. Stimulation	The use of music and guided imagery stimulates the healing process.

Figure 1. "Music Therapy Referral Criteria", Music Therapy Program at Beth Israel Medical Center; printed by permission.

Armstrong Music Ther MUSIC THERAPY RE	apy Program SFERRAL FORM	
Name of PT ^y Diagnosis: Breast CA,	Age: 34y mets to lung, skin	
Floor & Room:		J
Primary Language of Pati	ent:	English:yesno
Caretaker(s) Name: Primary Language of Care	etaker:	
Relationship to patient:	_motherfathersibling _foster parentrelative _friend	
Reason(s) of Patient's Re	ferral for Music Therapy (definitions on I	reverse side) Check areas that apply:
Anxiety/Fear:	() Separation anxiety	() Pre or post
	🗱 General anxiety	operative anxiety
Pain/Stress:	Breathing Difficulties	() In need of tension release
Expressive Difficulties:	() Depression or Non-Verbal	() Acting out or hyperactive
Coping:	♦ In Facing the illness	() Self Esteem
		() Communication/socialization
In Loss of Consciousness:	() Increase awareness	() Increase stimulation or use of imagery
Other Specify: fear o	f withdrawal; concern about m	medications; fatigue; endema
Comments:10	y ago, married, child 10y old	I, family around - 2 sisters and
niece, mother in	Puerto Rico - does not know o	liagnosis
		· · · · · · · · · · · · · · · · · · ·
Person Referring:	ocial Work Dept.	Ext:Date:
*Please p	lace referrals in 6 Dazian Music Therapy	y Room Box or in the Music Therapy Referral

Figure 2. "Music Therapy Referral Form" for patient described in case study, printed by permission.

The Department of Pain Medicine and Palliative Care's Mission is dedicated to providing comprehensive care of the highest quality in pain management

and palliative care, and advancing the educational and research aims of these disciplines. The clinical mission is pursued through the efforts of interdisciplinary teams of two divisions, the Pain Division and the Palliative Care Division. In both pain management and palliative care, state-of-the-art scientific principles are applied with compassion, continuity, and respect for the autonomy and dignity of patients and their families. The academic mission is furthered by the efforts of researchers and educators in the Institute for Education and Research in Pain and Palliative Care. These efforts are focused on education of professionals, patients, families, and the community at large, on research into diverse clinical issues related to pain and palliative care.

The Department of Radiation Oncology at Continuum Cancer Centers of New York is recognized among the largest and most sophisticated centers in the country. This program is celebrated as a premier program due to the comprehensive, multidisciplinary approaches to care. Cancer patients often receive other treatments – chemotherapy, hormone therapy, and/ or surgery – while they undergo radiation oncology. To ensure the best possible outcome, the multidisciplinary approach is built on collaboration and coordination among the specialists on a patient's treatment team. The major goal of radiation oncology is to maximize cure while maintaining optimal organ function and quality of life.

Music Therapy is an important facet to the interdisciplinary team in regards to the quality of life aspect of the patients' ongoing treatment while in the hospital. The magnitude of emotions which is set off by the kaleidoscope of treatments within a patient's unique treatment plan can be to say the least overwhelming. Music Therapy embraces these emotions between and during treatments through music to ultimately help: a) diminish pain (physical/mental), b) grip single feelings out of the multitude as they are presented through embracement and acknowledgement, c) reduce hospital stress (focusing on coping with feelings of being hospitalized), d) provide a source of release and process to express any fears, e) increase hope and the awareness of life as it is by connecting internal and external resources which support coping and healing, f) center prognosis, and g) ground the spirit to allow a validation to accept or not accept their present life and future.

Ja Fo	nuary 12th, 2004 ollow-up Session #3 ily, Female 34
Fo	ollow-up Session #3 ily, Female 34
	ily, Female 34
Patient data: Li	
Diagnosis: In Si re 19 sk in 5/ 8/ 19 th R A fr of C Ol C Si Si Si Si Si Si Si Si Si Si Si Si Si	filtrative intraductal carcinoma of L breast (1994) table for 3.5 years after mastectomy – followed by construction and six months of chemotherapy. 297 developed rash/discoloration of L breast over the tin flaps used for reconstruction – turned out to be a skin vasion – treated with radiation therapy and surgery. 298 rash extended to R breast, developed new carcinoma R breast. 298 received stem cell transplant 98 the rash resumed all over her chest. 299 R mastectomy followed by six weeks of radio erapy. eceiving chemotherapy monthly since 2001. dmitted 10.27.03, 3:55a.m. for high fever. She moved om Puerto Rico to New York at 15 years of age. One E seven children. Father and mother alive, mother Colon ancer 58 yrs. – survived. Married (Robert) with 10 year d son. Brother DM, Father HTN. Lily's last job: Project oordinator at the children's T.V. workshop, disabled two ears. eadmitted 12.24.03 for breathing difficulties – progressed a, mets to lungs and liver. xpired 1.13.04 2:00 a.m. See Music Therapy Program Beth Israel Health Care System "Music Therapy ssessment" sheet for patient (figure 3.).

MUSIC THERAPY PROGRAM	Lily (name changed)
MUSIC THE	RAPY ASSESSMENT
Individual Family Group	
Reason for Referral: Socialization, been ref	using/declining other complementary service
breast cancer, fever	
<u>Instruments/Activity Selection</u> : Ocean Drum, gato drum, rain stick, vi	bro-tone, body gong, djembe, and guitar.
 Greeting/Discussion 2) Breathing American improvisation 5) Discussion Voice: 	exercise 3) Ocean relaxation 4) Native
Lily's voice was very strong at times	and quite soft and close at other times
-	
Description of the Music: (Affect, Activity level, Expression	vity, Willingness to collaborate)
Lily was very willing to collaborate	to the social and numan asthetics in which
Mabro chorapy can ractifiate.	
She expressed feelings and thoughts a Her overall demeanor was quite gracio	about her childhood in Puerto Rico. us and playful and the music choices
She expressed feelings and thoughts a Her overall demeanor was quite gracio reflected this totally. Midway through the session she stated to collapse over the bed - with the m I had forgotten.	about her childhood in Puerto Rico. us and playful and the music choices 4: "Before you came in I thought I was going uusic I have found energy and strength
She expressed feelings and thoughts a Her overall demeanor was quite gracio reflected this totally. Midway through the session she stated to collapse over the bed - with the m I had forgotten. <u>Significantisques</u> : During the fourth part of the session asked me, "Do you mind if I stand up	about her childhood in Puerto Rico. us and playful and the music choices d: "Before you came in I thought I was going music I have found energy and strength n (Native American drum improvisation) Lily and dance?"
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She expressed feelings and thoughts a Her overall demeanor was quite gracio reflected this totally. Midway through the session she stated to collapse over the bed - with the m I had forgotten. Significantissues: During the fourth part of the session asked me, "Do you mind if I stand up She sang/vocalized and danced in a ci a duration of 3 minutes.	about her childhood in Puerto Rico. us and playful and the music choices 4: "Before you came in I thought I was going music I have found energy and strength n (Native American drum improvisation) Lily and dance?" ircle with her eyes closed for
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She expressed feelings and thoughts a Her overall demeanor was quite gracio reflected this totally. Midway through the session she stated to collapse over the bed - with the m I had forgotten. Significantissues: During the fourth part of the session asked me, "Do you mind if I stand up She sang/vocalized and danced in a ci a duration of 3 minutes. Follow-up plans: wind instruments: Patient stated she	about her childhood in Puerto Rico. us and playful and the music choices 4: "Before you came in I thought I was going music I have found energy and strength n (Native American drum improvisation) Lily and dance?" incle with her eyes closed for was having a little trouble breathing.

Figure 3. Music Therapy Assessment, Beth Israel Medical Center; printed by permission.

In the body picture (figure 4.) "Lily" rated her pain using a scale: 0 being the lowest amount of pain and 10 being the highest. Before our session she stated that her upper body was a 10/10 (the most pain possible colored black) and 7/10 (colored blue) for her lower extremities. After our session

she rated her pain a 7 out of 10 in her upper body and a 4 out of ten for her lower body. She also used words to describe what she had colored. Since her lungs had begun to metastasize she felt like there was "no oxygen" and that this was her worst physical pain. Due to her retention of fluids in her legs she felt as though they were filling up with water.



Figure 4. Patient's own body picture; printed by permission.

- Events: Hello Warm-up Ocean improvisation with Lily's Aunt (Polly) and Friend (Nadine) Body Gong Djembe improvisation with Polly and Nadine So Long to Lily with Polly, Nadine, and Lily's older sister (who did not speak english)
- Therapy: This writer noticed a severe progression to Lily's symptoms since one week previous, indicating that her demise was inevitable and close. Lily's eyes were glassy and fixed, her breathing sporadic in depthness of in/exhalation. This writer introduced himself to the visitors – this writer had met Nadine last Monday (1.5.04), Polly had arrived from Puerto Rico Sunday the 11th.

This writer began a warm-up that had been used with Lily two sessions previous. This writer had interjected on 1.5.04 that when one sings, one breaths more and better. This became prevalent in that session, in that Lily's talking voice became stronger after we sang the warm-up, as well as a noticeable positive change in her ability to inhale. This writer told Lily that it may be a good idea to sing when she is feeling like her breathing becomes more difficult, whenever she wants, even when no one was around, or when everybody was around. Lily recognized this and used this by singing a large portion of that session – things she might say verbally, she sporadically sang. This writer verbally refreshed our last session on October 31st – Lily began to cry a little bit, and sang, "Brian, you remember me, you remember me Brian remembers me".

This is important, because Polly was awaken by Lily at 4:00 a.m. on January 11th, singing, "Hello Hello". Polly began to cry and laugh when I began to sing "Hello/Hola" in the warm up in the same fashion that Lily had woke her up to the night before, Polly saying, "It's you, It's you".

This writer was playing the acoustic guitar and singing quite close to the right of Lily, Polly was at her left holding her hand. This writer as well as Polly observed the pulse in Lily's carotid artery increase as the warm up developed. Nadine, Polly, and myself sang hello/hola to each other and to Lily. This writer closed the warm up by entraining the guitar/voice with Lily's breathing.

After the warm up this writer gave Polly the gato drum, and Nadine the rain stick, while this writer played the ocean drum over Lily, singing about descriptions of Puerto Rico Lily had explained to this writer in previous sessions: Eating by the beach with her family, all nine children in one car; drinking only red and purple soda; eating stuffed bananas; sneaking out with her older brother and going to parties at the beach; smells of the ocean; the breeze of the ocean. This writer noticed Lily's eyebrows raise one time throughout this improvisation.

Lily verbally stated her enjoyment of the body gong in our last session. This writer invited the visitors to close their eyes and take a moment for themselves if they wanted. This writer gonged for a few minutes. This writer observed Lily's eyebrows raise quickly and hold for one second before relaxing.

With the knowledge that Lily used to pretend she was a Native American when she was young, in the woods of Puerto Rico with her siblings, dancing around and vocalizing while gently clapping their hands to her mouths. We had been using a West African rhythmic pattern entitled the "Limbaji Toko" to facilitate an interactive improvisation. In this selection the rhythm allows a break to vocalize the phrase, "Limbaji Toko". In the past sessions, Lily had gone from sitting to standing to dancing to the djembe – even in the previous session one week previous, Lily went from breathing shallow on her back, to sitting up in her bed and clapping with her eyes closed, singing "Limbaji Toko" to the specific rhythms of the large hand drum. This writer facilitated a milder version of this due to evolving delicacy of Lily's physical condition. Lily showed physical changes once more in her carotid artery. Polly played the afuche and Nadine played the spring drum.

Lily's older sister came in during the closing of this movement, as well as two other relatives/friends that put their coats on the chairs in the room and smiled before exiting. This writer invited them to stay, but equally stated that it was ok if they did not. They smiled and stepped outside the door. Lily's older sister stayed. Since more people were arriving and this writer had been in the room for about 40 minutes, this writer made the decision that it was time to wrap things up so her family could visit.

This writer gave Polly the rain stick, Lily's sister the ocean drum, and Nadine the afuche. This writer began to sing, "Thank you for making music Lily Thank you for everything.....your family and friends are here here to be with you to take care of you Goodbye, goodbye." This writer facilitated space for the people in the room to say or talk to Lily about whatever they wanted to Nadine translated this to Lily's sister in Spanish. Polly went first talking very closely to Lily, crying and holding her hand while holding the rain stick. Lily's sister played the ocean drum very carefully over Lily's body while Polly spoke to her. Lily's sister began to speak in Spanish and crying over her, still playing the ocean drum. This writer gently maintained his guitar playing. Nadine stated, "Thank you Lily for teaching me so much about life about friendship and about living I do not want to say goodbye so I'll say 'see you later alligator'." This writer gently sang, "See you later alligator". We all looked at each other and smiled. Two tears escaped this writer's eyes. Lily's aunt, sister, and friend handed me their instruments and said, "Thank you". This writer reciprocated.

The two women waiting outside grabbed this writer's hands and said, "Thank you for being here".

Significant

Events: Lily's physiological changes were the most significant to this writer, music therapeutically. The goodbye song facilitated a little closure to Lily and her family/friend, making space available, comfortable, and most importantly safe. This goodbye song simultaneously facilitated closure to this writer as well.

Closing

(The) Next-To-Last Song Lyrics Artist: Bjork

Dear family, of course you are near And now it's nothing to fear Oooh, I should have known Oooh, I was never alone

This isn't the last song There is no violin The choir is so quiet And no-one takes a spin This is the next-to-last song And that's all, all

Dear family, of course you are near And now it's nothing to fear Oooh, I should have known Oooh, I was never alone

And that's all, all

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Good to Know Asthma Music

Yoshiko Fukuda, Japan

The number of children with asthma is now increasing in the world. The World Health Organization (WHO) has announced that asthma patients are more than 100,000,000 in number among the world population.

Now childhood asthma has become one of the worldwide problems. It is said that air pollution and environmental changes are the cause of the asthma attack upon the small young bodies of children.

We started a research in the 1970's and we have developed some devices to be used in music therapy for children suffering from asthma. We are now leaders in this practice. This therapy will make children acquire the power to overcome the disease through music for themselves, without having to rely on medication only.

MUSIC THERAPY FOR ASTHMA

We defined three principles to the original form of music therapy as follows:

- Principle 1: Smooth Leading to Abdominal Breathing out (Continuous Breathing out as long as possible)
- Principle 2: Smooth Leading to Abdominal Breathing in (Relaxing Abdominal Muscles quickly just after Finishing Breathing out)
Principle 3: Breathing out as Starting Abdominal Breathing (Starting with Breathing out every time)

We completed this definition after repeated trial and error with the help of children in the hospital. We came to a conviction. It was a method for children to master abdominal breathing automatically. If we lead children, based on this principle of using music as a tool, even children with a narrow trachea, can master abdominal breathing while they are breathing in their own amount of air without effort. The most important point was that children enjoyed taking part in the practice.

We employ the following methods based on the principles stated above when we work with children with asthma:

- 1. The Fermata Singing Method
- 2. The One-breath Singing Method
- 3. The Asthma Symphony played with pitch pipes
- 4. The Asthma Symphony played with recorders
- 5. The Asthma Exercise Method
- 6. The One-breath Recitation Method
- 7. The Fermata Recitation Method
- 8. The Asthma Recreation Method
- 9. Breathing Training in Daily Life
- 10. The Asthma Calling

ASTHMA MUSIC CLASS

Music therapy for asthma started with training asthmatic hospitalized children and children not hospitalized. It was also introduced in school camps for asthmatic children (third graders up to ninth graders), and camps for preschool children (0 up to 3 year old children) and their parents. Asthma music classes with music therapy were also being held for 3 year old children up to third graders with their parents and for adults.

Music therapy is very different from typical training. When children practice abdominal breathing, they do it with their friends, singing and piping songs. When they do asthma exercise, moving their bodies, we let them enjoy the practice in many ways. We find young asthma patients are acquiring strategies to relieve their mild attacks themselves, and at the same time, they are healing themselves with this therapy.

In the class for adults, some people say, "can we cure asthma if we use abdominal breathing? How can we practice abdominal breathing?" They understand what abdominal breathing is in their mind, but when they come to think about it practically, many questions seem to come up to them. When they learn it through experience, based on the three principles, they come to accept it. "Oh, my stomach is moving." "I see." They wear happy expressions. We hope asthma music class can be a place where the participants can talk about the same disease with others in a district.

ONE EXAMPLE OF MUSIC THERAPY PRACTICE

Fermata Singing:

"Let's practice with the song 'Bells are Tinkling"

"Let's sing the last part of each phrase as long as possible, as your breathing out lasts."

"Bells are tinkling. Bells are tinkling------"

"Work begins. Work begins-----"

"Merrily come to school. Merrily come to school------"

"Ding dong bell. Ding dong bell-----"

- 1. "While you are singing, your abdomen will shrivel. (Breathing air will go out of your body.) This is the first principle."
- 2. "When the voice (air) is gone, loosen your abdomen muscles. (You breathe in.) This is the second principle."

"When you can do 1. and 2., you have mastered abdominal breathing." The younger the patients are, the better they can practice abdominal breathing. So it is important to lead them, not to lose their ability, and not to force them to do it excessively.

HOW TO COPE WITH ATTACKS

Young patients react naturally with a conditioned reflex after they master the movement. We apply this reaction to our therapy. We hope they can cope with mild attacks making use of breathing practice to music, this is music therapy for asthma children. The children who have mastered this breathing can relieve their pain and put down the attacks, when the attacks are mild. We lead them to blow a pitch pipe, to breathe on their fingers, or to breathe out and in a small amount of air. This way, we lead them to try the abdominal breathing. When an attack occurs, if you try to do abdominal breathing at that moment without the practice beforehand, it is very difficult to perform it. If you have mastered the breathing of music therapy through the practice on a regular basis, you can overcome breathing difficulties by abdominal breathing without getting into a state of panic.

We lead the asthma patients to have good knowledge about peak flow in our asthma music class. They check their peak flow value every day, and, before and after each session, so they learn the positive results of music therapy. When they come to check peak flow value exactly, the value shows their health conditions every day, and they can make use of it for preventing the attack. My idea is that every family with an asthmatic child should keep this peak flow meter just as every family has a clinical thermometer, and, by checking the value, they understand their health condition every day.

THE CHANGE OF PEAK FLOW VALUE: BEFORE AND AFTER SESSION

In our asthma music class, we check asthma conditions with the peak flow meter before and after each session. The speed of air-flow when children blow out as hard as possible is shown as peak flow value. The device to check the value is called a peak flow meter. When the airways are narrowed with asthma, the peak flow value becomes low. The graph in figure 1. shows the changes in peak flow value of fifteen children, who practiced asthma music for three days in one district (figure 1.). The number of children (red) whose post-session value was higher than pre-session value continue to increase day by day, while the number of children (blue) with lower postsession value than pre-session value decreased on the last day compared with the first day. These results indicate that the asthma music program worked well for breathing even over a short period.



Figure 1. The change of peak flow value: Before and after music therapy session.

Reports describing impressions written by school children and the parents of preschool children who attended the sessions follow:

"My child enjoyed the session, came to understand asthma more deeply, and practiced 'boat rowing' willingly at home." "We did not know how to practice abdominal breathing, so this session was a good help to us."

"We parents and our child would like to go on with fun."

"This is a practical idea to take in for our daily life, so maybe, we will be able to practice it."

CONCLUSION

Anyone can practice music therapy for bronchial asthma. Anyone who has the voice to talk with others, and can breathe, is able to practice abdominal breathing easily and pleasantly, anytime, anywhere. Two minutes a day is enough. You should go on with the practice every day and if you practice every day, when you have an attack of labored breathing, you can cope with it automatically. You never forget a skill easily if you have practiced it until it becomes automatic.

Though this process is simple, such a simple thing will be a great support for you. The songs will make you cheerful. The songs are not the music you listen to. You should try it, and you will acquire it. This is the basic idea of music therapy for bronchial asthma.

At the ISME commission seminar results of my study were presented by showing the video "Good to Know Asthma Music" (Fukuda, 2003).

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Music Therapy in the Rehabilitation of Cochlear Implant Patients – Some Reflections and Implications from Research

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THE COCHLEAR IMPLANT: FUNCTIONS AND INDICATIONS

The cochlear implant (CI) is an assistive hearing device that has been surgically provided since the mid-80's to persons with prelingual and postlingual hearing impairment (Leonhardt 1997, 11). Unlike acoustic devices, the CI can be employed by persons with complete deafness or minimal residual hearing to help them (re)gain their ability to hear (Wisotzki 1996, 230). For those with sensorineural hearing loss, the cochlea's sensory receptors are either completely destroyed or extensively damaged so that the conversion of mechanical into electric signals is disrupted. This malfunction of the inner ear results in minimal or no residual hearing. However, the auditory nerve fibres and the central hearing system are often largely intact offering the possibility of implanting an assistive hearing device in the form of an inner ear prosthesis (Bucher, Arnold & Mathis 1991, 45).

During cochlear implant surgery, electrodes are implanted into the inner ear as a substitute, so to speak, for the organ of Corti and its function (figure 1.).

"The little microphone worn at the pinna receives acoustic stimuli which are relayed in the form of electric waves to the speech processor where they are electronically converted into electric signal patterns. These impulse patterns are transmitted to the implanted electrodes via a supracutaneous transmitter system and a subcutaneous receiver system" (Bucher, Arnold & Mathis 1991, 45). Because every transmitted frequency triggers a potential within the nerve fibres responding to this frequency, a specific impulse pattern occurs in the auditory nerve. This direct stimulation of the still functional cochlear neurons may enable individuals with a profound hearing impairment to experience sounds and also possibly understand spoken language (Illg et al. 1999, 170).



Figure 1. The Cochlear Implant (adapted from Bucher, Arnold, & Mathis 1991, 45).

A cochlear implantation may be advised if conventional hearing aids prove to be useless while the auditory nerve is still functional and if the patient suffers from absolute binaural deafness. The central problem inherent in the implantation is the possible irreversible destruction of sensory hair cells, with the effect that a previously still existing residual hearing cannot be restored should the CI fail (Bucher, Arnold, & Mathis 1991, 45).

Today, people from 6 months to 80 years old undergo cochlear implant surgery. The number of people with a cochlear implant is steadily growing, and many of them express their hope for musical experience (Gfeller & Lansing 1991, 916; Gfeller et al. 1997, 252; Prause 2003, 18). Patients keep mentioning that they enjoy listening to music. After receiving a cochlear implant, many individuals with postlingual hearing impairment have indeed regained their ability not only to understand spoken language but also to experience music. However, the sound quality of the music remains limited so that listening to music with a CI cannot be compared to unimpaired listening to music (Dorman et al. 1991, 35). The continuous improvement of CI systems and speech processors enhances the quality of music reception and the options of experiencing music.

MUSIC THERAPY IN THE REHABILITATION OF PATIENTS WITH COCHLEAR IMPLANTS

Music therapy is increasingly playing an important role in the rehabilitation of cochlear-implanted patients, especially children. Knowledge about the music experience of patients with cochlear implants is still very limited. However, there are some research studies which have implications for the use of music and music therapy in the rehabilitation of these patients. Prause-Weber (2004) showed that adult implant users with postlingual hearing impairment want to have access to music, even if this initially requires a great deal of effort.

After the CI speech processor has been adjusted, patients will have to learn to deal with hearing new sounds. The individuals affected have to cope with high psychological demands arising from this new way of hearing which is often initially considered to be disconcerting ('ghostly voice') and unpleasant ('dreadful, only high voices') and is, in any case, experienced as different from unimpaired listening (Prause-Weber, 2004). Especially if a long period of time has passed between becoming deaf and the provision of the CI, this change in hearing may, in the initial phase, lead to loss of orientation and in extreme cases, to a kind of 'hearing shock' (ibid.).

Particularly in the beginning, this sudden exposition to a new world of sound and experience can also lead to nervousness. In his "cochlear implant diary", Victor Senn, an adult CI user with postlingual hearing impairment, describes this loss of orientation as his "implant-crisis": "I feel as if I am always travelling, even though I am always staying here... Everything within me is changing: my reception, my feelings, my personality ... The CI sometimes sounds brutal. Psychologically I feel destabilized. My personality is changing all the time, and I cannot do anything. New sounds irritate me all the time and I have to learn where they come from and what they mean. As soon as I hear a noise, I cannot continue what I was doing before because this noise makes me more and more nervous" (Senn, 1995, 294-295; translation M. P.-W.).

In his child psychiatric study, Kammerer (1994) found that this loss of orientation and these feelings of shock and nervousness are particularly prevalent in children because they experience the new hearing completely unprepared. Every time the speech processor is adjusted the children get a complete new hearing experience which also leads to nervousness and uncertainty (Kammerer 1994, 17). According to Radbruch (2001), music therapy can help CI patients overcome these initial feelings of crisis by helping then to (re)gain stability and confidence.

Particularly in the early phases after the processor adaptation, music therapy can provide a way to express emotion (Radbruch 2001, 7). Radbruch (2001) used video analysis to investigate the change in communicative behaviours of cochlear implanted children (in particular, the two categories of coactivity and alternation described by Daniel Stern). He found that the lengths of the interactive phases between child and music therapist increased within music therapy (Radbruch 2001, 8-13). According to these preliminary research results and experiences it can be concluded that music may help children with CI accommodate to the new world of sounds and sensations, render support, and help them to overcome the initial disappointment after the first processor adjustment.

The advantage of using music (therapy) is that here the interactions involve less stress compared to the audio-oral communicative requirements of every day life situations and listening lessons. Because of its wider frequency spectrum, music is more easily accessible than speech, and facilitates interaction. The frequency field of music lies between 30 and 4000 Hz, whereas the relevant frequencies for speech lie between 250 and 2000/2500 Hz. Music, therefore, has a far wider frequency spectrum (in particular below 250 Hz). Because music provides sensations rather than information, it also facilitates interaction. It is not necessary to receive correct information, as there is no right or wrong understanding.

The results of the survey by Prause-Weber (2004) mentioned above also indicate that the individuals affected find listening to music less stressful than understanding spoken language. While oral-communicative situations often involve errors and frustration, musical interactions, and in particular free improvisations, expand existing capabilities so that the feeling of one's own worth may be developed. Unlike oral situations in which the hearingimpaired CI user is always at a disadvantage, he finds here an autonomous and stress-free possibility to interact and communicate with his counterpart on the same level. Thus, the therapeutic relationship can give the CI patient stability, helping him regain confidence in his own person.

This aspect of self-worth is particularly important in music therapy with CI children. Here the feeling of one's own worth is often extremely restricted, because it develops in early childhood, where there is often uncertainty in the interaction between parents and child. There are a lot of psychosomatic problems due to communicative problems. Kammerer (1994) found that 30% of cochlear implanted children were diagnosed with hyperactivity syndrome. It is very important for children to feel valued by their parents. The problem for the cochlear implanted child is that, because his parents want him to wear the speech processor all the time, he gets the feeling of being imperfect, and not being accepted as he really is (as a person with hearing loss) (Kammerer 1994).

It is important in music therapy not to always focus on speech and listening skills, but instead – as one aspect of music therapeutic intervention – to offer him a place where he can express emotions without speech. Children with cochlear implants are often misunderstood by others and this leads to frustrations and anger (Kammerer 1994, 18). In music therapy they have the chance to make themselves understood (Radbruch 2001, 7). Radbruch (2001) concludes on the basis of her research, that getting in contact with others through music leads to a positive communicative experience which will increase cochlear implanted children's self-esteem as well as their boldness to get in touch with others (ibid.).

Since the cochlear implanted child usually has to learn "around the clock" and parents often function as co-therapists, the problem arises that there is almost no real "playing". Yet playing is very important for human development. According to Langenberg (1988), playing is a space ("Zwischenraum") to move, explore, try, dare, and to decide what lies in between imagination and reality, a space which human beings need (Langenberg 1988, 11). If the child knows that in the music therapy setting he can freely experiment and play (e.g. with the voice, without having to fear that he says something wrong), he gains interest in his own actions, boldness to act autonomously and to find something which is truly his own. According to Voigt (1998), music therapy provides these children with the possibility to form a relationship and to take the initiative within human interaction (Voigt 1998, 293).

In two studies investigating musical behaviors of CI users, visual aids were considered to be helpful in experiencing music (Linsenmeier 1999; Prause-Weber 2004). Visual cues, such as gestures when singing (Example: Song signing "Kumbayah"), can be incorporated into musical or music therapeutic work with CI patients. Data by Gfeller et al. from an investigation on musical involvement and enjoyment of children who use cochlear implants also indicate that "the use of visual cues or pairing of music with movement or art can increase understanding and successful participation" for these children (Gfeller et al. 1998, 225).

Another major problem that cannot be eliminated by the implantation is the acceptance of the hearing loss. Prause-Weber (2004) mentioned the tendency of many CI users to "play down" their hearing loss (to pretend as if there was nothing wrong), to keep the CI secret. Hearing impairment frequently represents a trauma (e.g. in case of acute hearing losses), and repression or denial are rather detrimental. Despite the implantation, it is important for the individual affected to accept and come to terms with his or her hearing loss. During postoperative rehabilitation, music therapy can help individuals come to terms with and accept hearing loss as well as help them find their new psychosocial identity. In the work with adult CI patients, music therapy improvisation has the advantage that there is something to work on without the need to talk about it (Weymann 2000, 199).

In her study, Prause-Weber (2004) found that listening to familiar music was important to all interviewees. Tunes CI users knew from the time when they were still able to hear could elicit reminiscence, provide cues for how to accept the loss of hearing, to rediscover and accept the present, and to reflect on one's own life story. Music could help the individual regulate and express associated emotions, such as the frustration felt upon realizing that the cochlear implant does not bring back hearing and can never replace a hearing organ.

The stigma-related problem of being unable to accept help when trying to come to terms with what has happened is often rationalized away and repressed. Here music therapy offers enormous possibilities because the patient might not see music as stigmatising and so, accepts treatment.

In a study with 65 cochlear implanted children, Gfeller et al. found "that 20% of the children enrolled in formal music activities participate in choir, given that implanted children are significantly less accurate than normally hearing children with perception of simple melodies" (Gfeller et al. 1998, 225). In his study comparing the effects of music therapy between children using cochlear implants and children using hearing aids, Haus (2000, 10) found that music therapy increased hearing impaired children's vocal abilities and motivation to use their voice. Based on these studies, it seems that music therapy can offer valuable possibilities for reducing vocal insecurity and for developing self-confidence with respect to one's own singing and speech voice.

In summary, it seems that music therapy as a treatment procedure in the rehabilitation of CI patients can be beneficial because it provides psychological care and at the same time eliminates the communicative problems arising in a purely verbal therapy. However, research results also indicate that the experience of sound and music varies widely among CI patients and the processor adjustment is frequently disappointing (Prause-Weber, 2004). Therefore music therapy does not seem suitable for every CI patient, but rather has to be understood as an optional offer.

Today, music therapy with cochlear implant patients represents a new and important sub-area of music therapy for both group and individual settings. It seems fundamental to make use of the great potential inherent in the appreciation of music by many CI users for their rehabilitation. It should be noted though that it is of central importance to the music therapist who works with CI patients to be informed about all issues concerning the CI, including the controversy which still exists over its use. Music therapists should develop a thorough sensibility for the psychological aspects involved and also develop a grasp of manual communication modes.

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Improving Well-Being and Quality of Life for the Elderly through Vibroacoustic Sound Therapy

Phil Ellis, England

INTRODUCTION

A particular use of technology in 'open-ended' contexts lies at the heart of Vibroacoustic Sound Therapy, which has been developed in schools for profound and multiply handicapped children and in homes for the long-term care of the elderly and elderly mentally infirm. The therapy uses examples of digital music technology to improve communication skills, motor control and well-being in a non-invasive approach. Research methodologies used to date capture mainly, but not exclusively, qualitative data. Indications are positive, suggesting that the benefits resulting from this therapy are tangible and significant for various conditions associated with ageing.

The focus of this paper is on elderly people within residential settings who have experienced the effects of stroke, depression, confusion and dementia, and of a study into the effectiveness of a new approach within this context – an approach called Vibroacoustic Sound Therapy (VAST).

Throughout the last century there have been significant advances in medicine and in public health. Coupled with a general improvement in hygiene and diet, there has been a general increase in longevity. As people enter their 60's it is possible for some that the quality of life will not be maintained, and when they reach their 70's and 80's there is a significant increase in the likelihood of stroke, dementia and physical and/or mental or intellectual impairment. The older we become, the more likely we are to depend on the help and caring of others.

Increase in longevity is reflected in the number of people living in sheltered accommodation, with a concomitant growth in numbers of homes for the long-term care of the elderly. These homes range in quality from the provision of rather basic care to that of high quality surroundings and more stimulating and invigorating environments. Self-contained flats can be provided within a community home, where residents may be as independent and sociable as they are able or wish to be.

Working with the elderly presents particular challenges for a therapy which depends a great deal on the establishment of both rapport and trust between therapist and resident, and on the acceptance of, and resonation with, a particular therapeutic environment.

Greer, (1994) has clearly identified the potential for "psychologically motivated endeavours" having a profound effect even on "the survival chances" of the seriously ill, and also makes a powerful case against the insensitive treatment of illness. The separation of the individual from the disease can be seen to be demotivating and can produce negative emotional and psychological effects, which in turn can decrease or depress the speed of recovery. There are numerous anecdotal reports of the variety of standards which exist both in hospitals and residential homes. Sylvia Rogers (The Guardian, 26.8.98) gives a graphic account of the carelessness and indifference which can sometimes be experienced in the hospital ward, and makes a powerful plea for every worker to be trained "to treat every patient as an individual", one of the fundamental tenets of VAST. In the area of "mind-body" medicine, it has been proved "with the utmost rigorous of modern science" that we respond "to every stimuli in global ways", (Watkins, 1997). This research supports the view that "the health of any individual not only depends on physical health but also on the unique mental, emotional and spiritual aspects of that individual" (ibid).

An essential feature of the therapy is focus on the individual, her or his

needs, and the growing interaction between patient and therapist. Emphasis is placed on the creation of an interactive environment for caring, in which the individual is given control. There are certain fundamental requirements crucial to our emotional and psychological well-being (Griffin & Tyrell, 1999):

- To feel a measure of control over our lives
- To give and receive attention
- To have a sense of community

The first two points are central to the objectives of VAST. There is some observational and anecdotal evidence to suggest that following therapy sessions, some residents are more inclined to socialize and become more involved with the community of the home environment.

The power and effectiveness of sound and music in enabling people to come to terms with, sometimes even overcome, disabilities has been noted by many authors (Boyce-Tillman, 2000; Critchley & Hensen, 1977; Goddard, 1996; Hamel, 1967; Innes & Hatfield, 2001; McClellan, 1991; Sacks, 1973, 1986; Springer & Deutsch, 1998, Storr, 1992; Wigram, Saperston, & West, 1995). Aspects from all these areas provide the grounding for this therapy which is essentially non-invasive. An emphasis is placed on the creation of a highly controlled environment in which individuals are able to autonomously develop a range of skills through aesthetic interaction with sound. The therapy brings together aspects of different worlds which are connected to music but without depending on traditional musical skills or thought processes. A broad view of music is taken, and we move away from particular ways of organising sound towards the view of sound itself as being the most important element. Therefore, although practitioners of VAST will need to have open ears, traditional musical skills such as the ability to read music notation or play an instrument are not prerequisites.

BACKGROUND

Since 1992 I have been developing the techniques of VAST through a research and development project for children with severe learning difficulties (SLD), and profound and multiple learning difficulties (PMLD). This approach brings together aspects of sound (music), aesthetics, technology and creativity (Ellis, 1994, 1995a, 1995b, 1997; Ellis & van Leeuwen, 2002).

Subsequently the therapy was introduced to a home for the long-term care of the elderly for a 30 week-long pilot study. The results were such that a follow-up project, funded by the Linbury Trust, was established in three homes for the elderly, one a residential home, and the other two homes for the elderly mentally infirm (EMI). To date more than 35 people have been involved for periods from 20 weeks to more than three years.

RESEARCH METHODS

1. Exploratory methods – grounded theory

As the research was carried out in the environment of day-care centres, homes for the long-term care of the elderly and for the elderly mentally infirm, aspects of ethnographic research methods were a natural choice and participant observation, case study and video analysis of behaviour were the main tools employed in a program of grounded theory. The application of methods to analyze the efficiency of the therapy for specific conditions focused on discovery,

"a kind of research in which order is not very immediately attained, a messy, puzzling and intriguing kind of research in which the conclusions are not known before the investigations are carried out", (Richardson, 1996).

For the work with both handicapped children and the elderly the author devised a longitudinal video-based methodology called Layered Analysis (Ellis, 1996). In this methodology, every session of Sound Therapy is completely recorded. Subsequently, for each individual, significant moments are copied on to separate master tapes. Periodically every example of one aspect from a master tape, a particular arm movement for example, can be copied onto another tape – a layers tape – and an extremely detailed chronological account of behaviour significant to an individual can be assembled for detailed scrutiny. For the purposes of reviews summary tapes can be assembled. These are limited to around 10 minutes in length and

draw perhaps on one example every three months. Rather in the manner of time-lapse photography where we can view a flower opening in a short space of time, so it is possible to see significant, and frequently very moving, behaviours developing over a period of weeks, months or years.

2. Methods for measuring the effectiveness of the therapy.

Three methods of data collection and evaluation are being used at present:

- i). Observational analysis of the video tapes produced through Layered Analysis can reveal changes in behaviour and response, which in turn can indicate progression and development.
- A small group of EMI residents have been involved in a 10 week study using the Bradford Dementia Group Profiling Scales: Wellbeing and Ill Being (WAIBS), which form an on-going planning and dementia mapping approach for individuals in residential settings.
- iii). Nurse Observation Scales together with a mood monitoring data collection are being used for settings in which the therapy is performed by staff of a home after completing a training period. This is complemented by observation records kept by the therapist, who is also a full-time activities manager within the home.

Further details appear in the result section below.

TECHNOLOGY

Three items of (music) technology are central to this therapy, and they help define the activities of the three divisions of sound therapy sessions:

1. Interactive Communication Skills.

Sound processor and microphone to (re)develop and/or improve:

- vocal inflection (expression);
- enunciation; range of phonemes (vowels, consonants, etc.);
- expressive use of voice;
- listening skills.

A basic sound processor with microphone is used to create three basic effects: long reverberation as in a large cathedral or cave; multiple echo patterns from a single sound; creating 'chords' from a single vocal sound. These effects often encourage vocal activity, responsiveness and active listening, including people who have lost speech through stroke. This part of the therapy gives emphasis to vocal interaction, with eye-contact and responsiveness being a focus, encouraging use of the voice and the development of enunciation and expression. The focus given here is on expressive communication through changes in pitch, volume and vocal timbre – non-verbal communication.

2. Independent physical movement and control.

The Soundbeam (www.soundbeam.co.uk) is a device which converts physical movement into sound. It emits an invisible ultrasonic beam. By moving e.g. a leg, arm or hand in this beam, this movement directly generates and gives expressive control over sound. The created sounds are produced digitally and so can range from traditional musical instrument sounds (flute, trombone, piano etc.) to environmental sounds, or any electronically synthesized sound. Accordingly it is possible to have sounds available to which each individual responds. Using the Soundbeam can:

- help (re)develop physical control;
- extend/re-energise listening range (quiet/loud; high/low);
- awaken curiosity through exploration;
- enable self-expression.

All the sounds created in these first two parts of the therapy are heard via loudspeaker and/or headphones and additionally felt as vibration via a Soundchair, which provides an extra stimulus, reinforcing cause and effect (Skille & Wigram, 1995).

3. Relaxation.

The Soundchair has three acoustic areas designed to transmit the vibration of sound to the thorax, abdomen and legs. It is used in this final part of a therapy session to promote a general feeling of physical and mental wellbeing, and to provide a possible trigger for recollection and reminiscence. Playing specially recorded tapes which combine gentle classical, relaxing, or content-free music with low frequency sine tones can induce deep relaxation. This in turn can help ameliorate anxiety, stress and depression, as well as muscular aches and pains (Wigram & Dileo, 1997). Much research has been undertaken concerning vibroacoustic techniques (Skille, 1991; Williams, 1997). The author has adopted a slightly different approach to others in the production of tapes used in the therapy, mixing sine tones of between 20 - 75Hz with the music, but allowing the music to determine the pitch of the sine tone as well as the timing of its pulsing.

CLIENT GROUP

Every resident involved in VAST is treated individually, and responses to a similar stimulus can vary enormously between people. Accordingly it is not possible to say that stimulus X will inevitably result in response Y. Some residents use the microphone with enthusiasm and to significant effect whilst others may reject this aspect of the therapy. However, the Soundchair with the vibroacoustic music tapes seem to be most effective, and this part of the session is looked forward to almost without exception.

The conditions which have been encountered during the project to date include:

- Disaffection
- Anxiety
- Paranoia
- Depression

Mild, Severe

- Terminal Cancer
- nCJD (new variant Creutzfeldt Jakob Disease)
- Senility
- Dementia
- Alzheimer's
- Stroke

Loss of speech, Loss of movement, Cognitive impairment

CASE STUDIES

The following descriptions are indicators of the kind of responses and effects which have been noted over a period of months, during which the residents experienced weekly VAST sessions of between 20 - 40 minutes duration.

E, aged 82, had been in a residential home for the long-term care of the elderly for a few years following a mild stroke. Her speech was not impaired, but the left side of her body was weakened and she would not use her left arm. It was understood that she was very disaffected with her life in the home, and she was described as somewhat depressed and generally uncooperative.

The 30 week study revealed a developing change in behaviour, interaction, receptiveness and smiling, positive responses. There were moments of fun, delight and energetic interchange with the microphone. When using the Soundbeam there was an increasing ability to interact expressively with sound, and the spontaneous and increasingly frequent use of her left arm which, prior to the therapy, had been rarely used. The final part of each session, during which she would listen to the relaxation music tapes, revealed a lady fully involved in listening and often being deeply moved. During the 30 weeks she received VAST her behaviour in the home gradually changed and she became a member of a small group, with a more positive and outgoing demeanour than at the start of the sessions.

Located in a home for the long-term care of the Elderly Mentally Infirm, **N** had been in care for some years and was 57 at the start of this study. Prior to living in the home he was leading a normal and healthy life, but he suddenly started to become forgetful. Deterioration was rapid and within a few months he needed institutional care, having lost the ability of physical control and apparent cognition. He had lost most, if not all, self-help skills and was unable to walk. The diagnosis was either Alzheimer's or nCJD, but this is not confirmed.

N experienced Sound Therapy initially for a six month period. He had cerebral irritation which made him fidgety. He could not sit still and was constantly pulling at himself, never being at rest. During this time the therapist found that he liked a droning sensation produced using the

Soundbeam, with some occasional positive responses (vocal, verbal and facially expressive indicators) to his experiences in the therapy.

After six months there was a gap in the therapy, and it was during this that N suddenly started to walk again. Both his wife and staff at the home feel there was a direct link with the Sound Therapy and this change in behaviour. He then received the therapy for the next ten months and was walking independently around the home and able to feed himself. According to the therapist, he frequently became somewhat agitated and non-communicative before a session. During sessions he was very responsive to the relaxation tapes. For example, the therapist often recorded that, having put headphones on him, he would gradually relax, often smiled at her, and became totally still for the next 30 - 40 minutes. On return to the lounge he was often talkative and smiling. His facial expression was often very positive.

The following brief summaries are of residents in a home for elderly mentally infirm (EMI) and extend over a nine-month period.

S was 65 years of age and had dementia of the Alzheimer's type (DAT) for the previous five years. When the project started he was withdrawn, non-responsive, completely 'locked away' – a shadow of his former self. His normal posture was to keep his head tucked into his chest, and he was only ambulatory with support.

After two months, S began to give brief, clear responses into the microphone and occasionally sat up with his head raised. Eye contact was made and smiles were exchanged. From then on it was recorded that S has initiated touch, responded to his name, replied positively to the open enquiries at the end of the sessions, and also, equally importantly, made it quite clear when he *wasn't* enjoying something.

The transformation in his condition was significant. He was now independently mobile, chatty at times, regularly engaged in eye contact, and was quite upright in posture. The nature of the sessions altered over time and he became more restless. Consequently, passive listening was considered to be the most appropriate approach to encourage him to remain seated to experience the benefits of sound and vibration. Some of the change can be assigned to medication. However, discussions with the Matron of the home led to the view that Sound Therapy promoted feelings of well being, which had positive effects beyond the VAST sessions themselves.

M was 75 years old at the start of therapy sessions. She had dementia and little coherent speech, although she did make murmuring sounds. She was independently mobile, wandering about for much of the day.

Over the course of some months, M demonstrated quite clearly her occasional uneasiness both with the microphone and Soundbeam. Because of this, the sessions were limited to listening to the relaxation tapes. M gradually moved away from a seemingly protective pose (arms to chest) to one of relaxation. Her face, which had been frequently 'busy' with various expressions, often became still and restful, and she tended to fall silent once the music started.

E was 81 years of age, and had experienced several strokes which affected her speech, comprehension and physical strength. When she first came to the sessions, she would respond predominantly by blowing into the microphone, and occasionally copying sounds. This developed into E initiating song, continuing conversations, and imitating quite complex musical phrases. It appeared that what speech she did have was becoming clearer and without doubt her self-confidence increased.

Although there was no independent playing of the beam, nevertheless, it inspired her to burst into song (and in tune with the Soundbeam tones) and also provoked laughter.

A was 96 years old, and had low mood and depression. She was mobile with a Zimmer frame, quite hard of hearing and maintained as much independence as possible. It was quite extraordinary to see the transformation in her during the sessions. There were numerous episodes of infectious laughter, smiles and real appreciation of the music – both from the beam and the pre-recorded music. These sessions also caused her to reminisce – the remembrance of family and the war being very precious to her – and she obviously enjoyed the opportunity to speak about them. Many residents with a variety of conditions reacted in a similar way following, or during, listening to the music tapes, often talking about family and experiences from their past.

D was 76 years old, with manic depression and independent mobility. She had short-term memory and obviously experienced extreme highs and lows. Her mood affected her decision whether or not to come to the sessions. She frequently talked obsessively and, until recently, it appeared that she was paying little attention to the sound or music, and had no interest in playing the beam at all. However, she really enjoyed singing with the microphone.

Toward the end of her program of VAST, she demonstrated enjoyment of both the music tapes and the vibration. She had been eager to attend the sessions, and, most recently, had sat quietly, albeit fidgeting, for several minutes. She frequently made positive comments about her feelings at the end of the sessions.

 \mathbf{M} was 80 years of age with dementia and very little in terms of quality of life – limited sight, almost deaf, totally dependent, with swallowing difficulties, being physically 'rigid' and often awkward with the staff.

It was established quite early on that M would only benefit from the effects of the relaxation tape and vibroacoustic chair, and so this was his experience each week. Anecdotal evidence suggested that on occasions his lunch time meal was more easily accepted, and that he became relatively more alert and amenable following VAST.

RESULTS

After therapy sessions all those involved would often seem happier and would smile more, with greater awareness of other people. This affect could last overnight and sometimes for some days. When talking with residents at the conclusion of therapy sessions they would often make positive comments, saying that they felt better, happier, generally more comfortable, and that physical aches and pains were reduced.

Careful observation of the video recordings of individual's VAST experiences extending over several months, and in some cases in excess of two years, indicates improvement in:

- mood
- level of distress

- level of depression
- level of aggression
- level of anxiety
- level of relaxation

and also has been seen to:

- encourage eye-to-eye contact;
- develop vocal communication, both verbal and through inflection;
- improve hearing ability, sometimes beyond the immediate Sound Therapy environment;
- develop listening skills;
- encourage and develop physical movement;
- provide opportunities for individual exploration and control;
- enable deep relaxation and pleasure;
- provide opportunities for cathartic recollection and happy reminiscence;
- promote a general feeling of physical and mental well-being;
- re-energize and motivate;
- develop positive self-esteem;
- produce smiles, happiness and a positive outlook which can permeate other aspects of experience.

It is possible to mark progression over time. From the tapes produced through Layered Analysis, there are often gradual changes in behaviour and response revealed, and there may be a change from being *dependent*, to becoming *responsive*, leading to a more *independent* form of behaviour where the resident takes some control and initiates activity. Changes can be traced over time which show this gradual process:

Progression Observed

Dependent	Responsive	Independent contributing expressive laughing expressing receptive	
isolated	aware		
indifferent	reactive		
frowning	smiling		
crying	laughing		
silent	content		
withdrawn	thoughtful	communicative	
inward	Poised	interactive	

These data are, of course, qualitative. By contrast, a recent short study of five residents over the final 10 weeks of a series of VAST sessions was conducted by Stephen Dennet of ATH Consultancy Ltd. This study was based on the Well and Ill Being Scales (WAIBS) devised by the Bradford Dementia Group. It was a very small-scale project, partly designed to see whether this data collection methodology would further validate the therapy, and consequently the results can only be seen as indicative, although they certainly support the evidence from video analysis and day-to-day observation.

Table 1: Summarized WAIBS well-and ill being scores for five participants (average age 82) over 10 weeks in which VAST was provided.

	Participant Number	Period 1 Mon	Period 2 Wed Pre	Period 3 Wed Po	Period 4 Wed En	Period 5 Frid
	1	51	59	64	38	68
	2	30	53	81	82	69
	3	21	15	25	26	27
	4	29	38	71	72	66
	5	17	24	68	72	59
Total	1200	148	189	309	290	289

Stage ONE (Sessions Running) Well-being Scores Summary Table



Figure 1. Total of summarized well- and ill being scores for five participants (average age 82) over 10 weeks in which sound therapy was provided.

From this we can see that there was an overall increase in well-being in the hour after the sessions for all participants (wednesday post). There was also an unexpected indication of expectation (wednesday pre). A reading of the total scores over the ten weeks reveals that this positive change effect remained high (wednesday evening, friday) and only dropped off over the following days (monday).

FURTHER RESEARCH

From the research activity since 2000 it is clear that there are benefits resulting from a program of VAST for elderly people with a variety of conditions. A new two-year project – iMUSE – (Interactive Multi-Sensory Environments for the Elderly) has just commenced, supported again with funds from the Linbury Trust. The target group will present a range of conditions which may include anxiety, depression, general ageing, senility, stroke, and Parkinson's Disease. Through expanding the range and scope of

VAST, the aim is to provide a stimulating, multi-sensory environment, so enabling greater self-expression and communication, and also the possibility for a more receptive response to the relaxation aspect of the therapy.

- The possibility of broadening the available sound palette may allow for a more personal, customised, aural experience for the individual. This will be achieved by using a computer controlled sound sampler and synthesizer. It will be possible to customise sound patches for individual users and the results of the new and vastly expanded sound palette will be compared to the rather limited range of sounds used todate.
- 2. Software packages which produce visuals from sound input are being explored and compared. Different ways of generating visual results from audio inputs are also being investigated. This may involve the mapping of aspects of sound (pitch, volume, timbre) onto aspects of visual stimuli (colour, density, size/shape). The effects of different mappings will be carefully monitored.
- 3. The addition of visual stimuli to the existing therapy may well increase motivation, physical activity and personal expression and communication. By having a computer as central controller, we aim to create an easy-to-use facility. This will further enhance the fundamental nature of VAST the empowerment of the individual through independent and autonomous expressive interaction within an interactive environment.
- 4. Additional research methodologies are to be developed for monitoring and evaluating, and these will be trialed and compared with current practice.

This new project will have potential reaching beyond the elderly client group. The prototype iMUSE environment suggests that it will have a significant beneficial effect for children with a variety of special needs, and trials of iMUSE in a number of special schools will be an added source of information. The conclusion of the project aims to have a system which can be of use in this domain as well as with the elderly.

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The Arts in Healthcare in the US in the Twenty-First Century

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INTRODUCTION

Healthcare in the United States faces unique challenges in the twentyfirst century. Reports to the Arts in Healthcare Symposium, held at the National Endowment for the Arts (NEA) in Washington DC, 19-20 March 2003, indicated that nearly one-third of hospitals in the U.S. is failing financially, and another third is struggling to survive in difficult economic circumstances. Rising medical costs continue to plague healthcare providers and patients. As new challenges appear, methods change. Firstly, healthcare must emphasize preventive care and more humanized methods in healthcare delivery, if it is to survive and flourish in the new century. Secondly, modern institutions trying to meet new patient and staff expectations now use marketing techniques that were once unheard of in healthcare.

Complementary and Alternative Medicine, or CAM, as it is more familiarly known, is now incorporated into many hospitals, often as a department of the facility. The handout shows what one large medical center in Missouri has included in its offerings to patients. A recent conference at a medical school in Kansas City, Missouri was entitled, "Bridging the Gap between Eastern and Western Medicine". Clearly, major changes in healthcare delivery, building design, and humanization of medicine through the arts, therapies, and non-traditional methods is a major trend in the United States. American hospital administrators are also concerned with patient care and staff burnout. In this uncertain climate, hospital Chief Executive Officers (CEOs) are coming to appreciate the humanizing value of the arts in alleviating stress and pain, and bringing comfort, beauty, and quality of life to patients. As a result, many healthcare facilities and environments now include the arts as a regular part of the hospital program. Strolling musicians, poets, dancers, and other artists are becoming more frequent sights in urban and some rural hospitals.

There is also a new approach to hospital design that can be seen in the construction of surgical and clinical facilities springing up around the country. We shall hear from Annette Ridenour, at this conference about her outstanding work in creating healing environments in hospitals and other medical facilities. Healing gardens, original paintings, bright, spacious atria, and environments that are more friendly than technical are now part of new designs for these buildings.

This strong interest in the arts is due to several factors, including: (a) the positive responses of patients and staff to the presence of the arts in healthcare environments; and (b) the desire of artists and performers to bring their art to hospitals, hospices, and other institutions (Fledderjohn & Sewickley, 1993; Marberry, 1995; Martin, 2000; Pratt, 2003).

The comprehensive arts-in-healing movement today includes both the creative arts therapies and the performing, visual, and literary arts in healthcare institutions. This paper will focus on a relatively recent development, that is, the growing presence of performing, literary, and visual artists in American healthcare facilities. It must be clear from the outset that these professionals wish to remain primarily artists; most of them, however, want to share their art beyond the concert or exhibition hall to healthcare institutions.

The recent influx of artists into healthcare environments has been dramatic, so much so that the National Endowment for the Arts (NEA) and the Society for the Arts in Healthcare (SAH) hosted a symposium in March 2003 in Washington DC for 40 national experts in the field of arts in healthcare.

The invited symposium panelists included representatives of: The National

Endowment for the Arts, The National Endowment for the Humanities, Johns Hopkins Medical School, business groups, University of Missouri/ Kansas City Medical School, hospital CEO's, hospital arts administrators, the Joint Commission on Accreditation of Healthcare Organizations, art and music therapists, and artists. AccessAbility is an office of The National Endowment for the Arts, whose role is to make the best art available to all Americans. The director of AccessAbility, Paula Terry, is responsible for the office's sponsorship of programs that, among others, foster consultation to healthcare facilities for design and art programs in their buildings. The focus of the 2-day symposium was: the present state of performing, visual, and literary artists' programs in modern American healthcare; issues and trends; and recommendations for the future (Pratt, 2003).

HISTORICAL OVERVIEW

The visual, literary, and performing arts have been a part of medical practice since the beginning of recorded history, and probably well before that time. The ancient Greeks clearly believed in health as a state of rhythmic oneness of the microcosm (the human being) with the outer macrocosm (the universe). A recent theory in physics discussed in physicist Brian Greene's book, "The Elegant Universe", proposes that the basic unit of all life is a vibrating string, a modern validation of the Hellenic belief that a universal rhythm governs all life and its manifestations at the most basic level (Greene, 1999). Both Eastern and Western medical traditions have always connected sound and rhythm with healing. Although this inclusive kind of medical practice lost some ground in Europe and the United States during the 19th and early 20th centuries, a trend in the last 50 years toward including both the arts therapies and creative arts in healthcare asserted itself and continues today with greater strength and confirmation through scientific investigation (Pratt, 1985, 1997, 2004; Pratt & Erdonmez-Grocke, 1999; Pratt & Jones, 1985; Spintge & Droh, 1994).

In response to the recent influx of arts-in-healthcare programs, the Society for the Arts in Healthcare (SAH) was organized in 1991 to promote the incorporation of the arts into modern healthcare. SAH fosters regional
and national meetings, partnerships with companies such as Johnson & Johnson, certification training for artists who wish to prepare themselves for the healthcare environment, and research information on a Web site. In collaboration with the NEA, SAH has been an instrument through which creative arts projects have been funded at hospitals, hospices, and other facilities throughout the nation.

RESEARCH

Compared to the corpus of research accrued by the arts therapies, there is a relatively small body of experimental studies investigating the effects of the arts themselves on the healthcare environment. The following are offered as examples from the literature of pilot studies about the effects of art, music, and dance on patients and their healthcare environments. These are, of course, selected references that show the breadth and diversity of the influence of the arts in healthcare. It is clear that, although there is a wide variety of discrete studies in many areas of interest to the arts in healthcare movement, there do not appear to be many long-term studies on any particular topic.

This paper will confine itself to a summary of some recent research studies about the effects of music and musicians on patient well-being and the hospital environment, and the effects of outside and inside environments on the quality of life of patients and staff in healthcare institutions. A more extensive summary of current research studies about the visual, literary, and other performing arts may be found in the background paper for the Washington DC SAH/NEA conference in March 2003.

MUSIC

A 1996 study from the Department of Pathology, the Ohio State University, showed that primordial sounds decreased the average growth of cells with tumors across cell lines as compared with rock music, which sometimes increased the average growth across cell lines (Sharma, Kauffmann, & Stevens, 1996).

A 1983 study showed that there may be a difference in the effects of live vs. tape-recorded music on hospitalized cancer patients (Bailey, 1983). Music may mitigate the effects of nausea and emesis of patients undergoing chemotherapy (Standley, 1992). The idea of using music listening for palliative purposes during treatment of cancer patients dates back to 1948, in the University of Chicago hospital, where the use of music in the surgical suite was also used specifically for patients under local, regional, and spinal anesthesia (Pratt, 1985, 1999).

Music may also affect children with preoperative anxiety (Chetta, 1981), a problem that concerns parents and medical staff alike. Music may have a salubrious effect on premature infants by shortening their stay in the intensive care unit (Coleman, Pratt, Stoddard, Gerstmann, & Abel, 1994).

A study in 1997 showed that selected music can have a self-perceived stress reduction benefit for visitors in waiting areas of hospital surgery/intensive care units (Rothieaux, 1997).

Relaxation and distraction can reduce stress and anxiety during dental procedures. These effects may be measured by salivary IgA, self-report, or other measures of tension and stress (Corah, Gates, & Illig, 1979; Goff & Pratt, 1997)

In the January 2002 issue of the *Journal of Advanced Nursing*, a systematic review of studies about the effectiveness of music as an intervention for hospital patients concluded that music is appropriately used during normal care procedures. Since the cost is relatively inexpensive, music is recommended as an adjunct to normal care practices (Evans, 2002).

Music, storytelling, and humor are increasingly recognized by the nursing profession as appropriate and effective interventions to help children cope with illness, hospitalization, and pain. These interventions may help children talk about emotional issues raised during hospitalization (Grimm & Pefley, 1990).

When older people are taught how to use relaxation, imagery, music, or any of the arts, their sympathetic response to stress is reduced and the calming

effect of the parasympathetic system takes over. Gerontology nurses can incorporate the arts and other kinds of alternative methods into innovative preventive and wellness-oriented programs for hospitals, clinics and communities (Dossey, 1997).

In a 2001 study, postsurgical cancer patients increased their use of relaxation strategies that included imagery and music. The study suggests that nurses in cancer units may benefit from teaching similar strategies to their patients (Kwekkeboom, 2001).

According to *The American Journal of Maternal/Child Nursing*, nurses must be prepared to offer new treatment methods when caring for children. Nurses need to be more familiar with human caring theory as well as complementary and alternative medicine and ways to integrate them into general care (Ward, 1998).

ART. ENVIRONMENT

The Center for Health Design advocates the inclusion of design guidelines in requirements established by the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO). At the SAH/NEA conference in Washington DC, Paul Schyve of JCAHO and Dr Haya Rubin of Johns Hopkins strongly recommended more controlled arts-in-healthcare research projects.

One study compared the effects of photographs of nature scenes, computergenerated abstract art, a blank panel, or nothing on heart surgery patients. Less postoperative anxiety was experienced by patients who looked at a picture of open water with trees (Ulrich, 1996b). Research and study of patient responses continue to inform art selection committees. Several studies demonstrate the positive effects of art support programs for patients with cancer (Heiney & Darr-Hope, 1999; Rollins, 1990), asthma symptoms (Gabriels et al., 2000) and other physical illnesses (Rae, 1991; Sturner & Rothbaum, 1980).

In response to the positive influence of the arts in hospitals and other

healthcare facilities, members of the medical profession are beginning to comment on the relationship between medicine and the arts. An article in a 2001 issue of the medical journal *Lancet* comments that medical settings can foster the creation of art (Foster, 2001).

THE HEALTHCARE ENVIRONMENT

Nature photography is recommended for use in a hospital. Color photography, when coupled with nature, can be a healing medium on conscious and subliminal levels. Reproductions of scenes in nature can emit a healing energy (Oberlander, 1979). Integration of indoors with the outdoors is a trend in healthcare facility design, and the healing role of nature is now emphasized (Pinto, 1996).

Concerning cardiac response, one study showed a strong parasympathetic component to the responses to natural but not urban environments. These results reinforce Roger Ulrich's psychoevolutionary theory that restorative influences of exposure to nature involve a shift toward a more positively toned emotional state (Ulrich, 1991). Healing gardens are now often incorporated into new designs for healthcare facilities (Tieman, 2001).

In 1999, the World Symposium on Culture, Health, and the Arts was held at Manchester Metropolitan University. Participants discussed the effects of art on medical outcomes, therapeutic benefits of landscapes and gardens in a report to the *Journal of the American Medical Association* (Friedrich, 1999).

EXAMPLES OF NATIONAL ARTS IN HEALTHCARE PROGRAMS

Arts in healthcare programs, that is, the presence of artists and the arts in the healthcare environment, exist throughout the United States. A detailed description of 23 major programs is given in a background paper written for the NEA/SAH symposium in March 2003 in Washington DC (Pratt, 2003). Six of these AIH programs will be described in this paper to give an indication of the impact on as well as the breadth of AIH inclusion in modern American medicine.

COX MEDICAL SOUTH

Springfield, Missouri (Cox Medical South Complementary and Alternative Medicine Program)

Cox Medical South in Springfield Missouri has a strong arts-in-healthcare component in its Complementary and Alternative Medicine program (CAM). The program initially received an endowment from the husband of a patient in appreciation for the musicians who performed for his late wife during her hospital confinement.

Dr Martee Robinson directs the CAM program of the hospital. Members include artists and nurses in the community. A selection committee reviews applications and tapes to determine which musical soloists and ensembles are most suitable for the various units in the facility. Cox Medical South has committed itself to a more humanized environment by building an atrium in which patients and their families may socialize while live music is provided in the background.

A research study is presently underway to evaluate cancer patients' perception of pain before and after five sequential musical interventions.

DUKE UNIVERSITY MEDICAL CENTER CULTURAL SERVICES PROGRAM

Durham, North Carolina (Duke University Medical Center, 2003)

Established in 1978 Duke University Hospital's Cultural Services Program is one of the older hospital arts programs. The mission of the program is to integrate the arts and humanities into the life of the Medical Center, bringing the healing power of the arts to people who are suffering and to those who care for them, including staff and students.

The program's initial projects were the acquisition of original North Carolina-created visual art for patient rooms; an exhibition program; and performing arts events for patients, visitors, and staff. Additional programming came to include artist residencies by NC and other US poets; artists participating in the design of hospital gardens; and programs especially for employees, including dance workshops, an annual arts and crafts festival, an annual stage production, and the weekly meetings of the Osler Literary Roundtable.

HOSPITAL AUDIENCES, INC.

New York, NY (Hospital Audiences, Inc., (2003)

Hospital Audiences, Inc. (HAI), founded in 1969 by Michael Jon Spencer, is a not-for-profit organization to provide access to the arts to culturally isolated New Yorkers. HAI serves people who are physically disabled, mentally retarded or developmentally disabled, sensually impaired, homeless, frail elderly, at risk, participants in substance abuse programs, HIV/AIDS positive, or in correctional institutions.

HAI has reached audiences of more than 10 million people at more than 309,200 cultural events (as of 2002). City and state agencies as well as foundations, corporations, and individuals support HAI's work.

HAI provides access to the arts by including people who are isolated by illness, age, or disability from the cultural mainstream in a variety of visual and performing arts experiences. Through the arts, HAI gives people in life-threatening circumstances information that is vital about their health condition and programs and treatments that are important to their survival. This includes bringing the programs into facilities for those who are unable to move about.

SHANDS HOSPITAL: ARTS-IN-MEDICINE PROGRAM

University of Florida in Gainesville

Shands Hospital created an Artists-in-Residence program in 1991 for the pediatric oncology clinic, directed by Dr John Graham-Pole.

The program spread rapidly to other units and by 1997, there were 14 visual, literary, and performance artists in the facility working 4-20 hours each per week. On any given day you might find musicians strolling the corridors or a dancer dancing with a child in her room. The atrium of the hospital contains *Healing Walls*, comprised of ceramic tiles on which patients have painted their personal expressions of feelings associated with their illness. Medical students at Shands Hospital are also involved in the art-making process.

The pediatric oncology unit is one in which Dr Graham-Pole "never allowed the seriousness of his duties and responsibilities to compromise his inherent sense of humor and sensitivity". Dr Graham-Pole says that the AIM program has brought creativity to his own life. The release of human creative expression among children and adults in various stages of pain and physical ravage is a unique tool to be used alongside the medicines and treatments that accompany serious illness (Graham-Pole et al., 1994).

UNIVERSITY OF WASHINGTON MEDICAL CENTER ART PROGRAM

Seattle, WA

Since 1986, the University of Washington Medical Center has presented an art program for the benefit and enjoyment of its community of patients, visitors, faculty, and staff. The program includes: a permanent art collection, special projects and exhibitions, an artist-in-residence program, programs in literary and performing arts and art therapy, a healing garden and meditation room.

Funding for the art collection purchases and the artist in residence program is provided by the UWMC Service League, a volunteer, non-profit organization that raises money for patient services. The art collection is run professionally, with a staff director paid for by the hospital, and utilizes a selection committee composed of interested medical center staff, volunteers and patients.

Here is another example of a relatively new medical facility that has incorporated new design ideas both inside and outside the hospital. This trend is very solid and will continue as new medical buildings are conceived and older ones are remodeled. Healing and humanizing environments are becoming the norm rather than the exception.

VANDERBILT UNIVERSITY MEDICAL CENTER

Nashville, TN

The Vanderbilt Medical Center Cultural Enrichment program is responsible for the art works and sculpture gardens throughout the hospital. In addition, the program co-sponsors a quarterly art forum to discuss the use of art in public spaces. The Art Cart with a variety of art supplies and materials is wheeled up and down hospital corridors for the purpose of involving patients and their families in creative activities. Journal Painting is a program offered to patients to help them express their thoughts through writing, watercolors, or whatever medium they choose.

The Celtic Commodores offer Irish music to patients, families, and staff. A harpist-in-residence can be found in various units of the hospital, and strolling musicians visit patient rooms. An area called Poetry Place displays poems, often thematic or seasonal, which offer patients and families an opportunity to lose themselves in the beauty of healing words.

The Vanderbilt University Medical School has developed "Art for Children in Hospitals", in which medical students earn credits as they work individually on artistic projects with hospitalized children. During an 8week period, artists help students select projects to work with pediatric patients. This experience, often the first actual contact with a patient, offers the medical student a chance to see how the arts can empower a child from whom almost all control has been taken.

CARING FOR CAREGIVERS PROGRAMS

Caregivers include professionals such as physicians and nurses, and nonprofessionals such as family members who tend to the sick and dying

in healthcare and palliative care facilities and in the home. Caregivers may become involved in the arts to help relieve their own stress and to use the arts as a way to communicate with the people they serve. The arts, together with other interventions, can alleviate the negative aspects of continued care of older people in the home (Haylock, 1993; Scott, Butin, Tewfik et al., 2001). Artists may make home visits, bringing artmaking and performance to homebound patients and their caregivers. Performing and literary artists offer other creative outlets for caregivers such as making music or art or creating a poem. Pediatric patients may become involved. For example, here is a coloring book designed by a pediatric oncology patient. The book has been reproduced and is offered to all patients in the unit.

Medical and nursing schools such as Georgetown University, and the University of Missouri/ Kansas City, offer credit and non-credit classes and workshops in the arts and humanities to help healthcare professionals develop skills to maintain their balance and perspective while tending to the clinical needs of patients (Rollins, 1993; Farnsworth, 1991). In fact, the General Professional Education of Physicians report has recommended that medical schools admit more liberal arts graduates into their programs (Fraser & Smith, 1989).

THE FUTURE

The growing presence of performing, visual, and literary artists in the healthcare environment presents opportunities and challenges. The opportunities include the integration of artists and the arts themselves into healthcare facilities; the extension of artistic exhibits and performances beyond the traditional venues of museums and concert halls; and the consultation of artists with hospital administrators concerning the humanization of physical and interior environments of their facilities. The support and approval at the government level is crucial to the expansion of the arts, therapies and non-traditional techniques in hospitals of the twenty-first century.

One major challenge includes the preparation of artists for entrance into

the hospital environment, training of artists for best practices within this environment, and maintaining and expanding existing AIH programs in the country. Some training programs already exist. It is my suggestion that the music therapy programs create specific courses for artists entering the hospital environment and then offer certificates to those who complete the requisite courses. In this way, music therapists, the best possible trainers, will teach artists best practices, the rightful place of artists in the environment, and the differences between bringing art into the hospital and providing a therapeutic intervention.

A second challenge and opportunity lies in involving artists in the design of healthcare facilities before construction. Annette Ridenour has brilliantly created outside and inside designs that bring aesthetic beauty, comfort, and humanization to the hospital environment.

Funding is always a problem in artistic programs that compete for dollars that are becoming scarcer in global and national economies that are volatile. Arts in healthcare programs often seek funding from private as well as government sources. SAH has formed a partnership with Johnson & Johnson; private donors or community organizations fund many AIH programs. Solid evidence from controlled research studies will help convince healthcare professionals of the value of the arts (Ulrich, 1996a). New medical facilities that show attention to the aesthetic and humanizing aspects of design contribute to patient and staff well-being, comfort, and healing. The Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) has encouraged the incorporation of the arts in healthcare and strongly supported controlled research to demonstrate the tangible benefits of this aspect of Complementary and Alternative Medicine.

For the first time in my career, I was asked in 2003 by a medical doctor at University of California/Berkeley to contribute a chapter about the creative arts therapies to a medical journal on physical medicine and rehabilitation released by Elsevier Publishers in August 2004. In my judgment, the next step is to publish a book directed primarily at physicians, healthcare groups, hospital CEOs, and insurance companies that shows specific successful uses of the arts in modern medical practice. I see this as an opportunity to present a compelling argument for the arts by demonstrating instances of reduced costs through shortened hospital stays, reduced patient requests for pain medications, enhancement of healing process, and, above all, improved patient and staff well-being.

The newest facilities show attention to exterior and interior design, emphasizing gardens, walkways and visiting areas outside, and aesthetically pleasant interior designs.

The performing, visual, and literary arts, now established in American healthcare, bring a unique humanizing element into healthcare facilities that benefits patients, staff, and visitors. Extending the arts beyond the concert or exhibition hall makes them available to those whose lives are vulnerable because of illness or disability. The Washington DC symposium at the National Endowment for the Arts soundly endorsed the idea of the arts in healthcare. It is the hope and goal of the Society for the Arts in Healthcare and the National Endowment for the Arts that this movement to include the arts and artists in healthcare environments continues to flourish and expand throughout the nation.

The Chairman of the National Endowment for the Arts, Dana Gioia, addressed the symposium in Washington with these words:

"The arts and medicine: These are two human callings that belong together and our challenge is to rediscover the ways in which they can most effectively be brought together again \dots I think one of the great opportunities we have right now in America is to connect art – its strengths, its potentials, its possibilities – with the inevitable journey of human life" (NEA/SAH report, 2003).

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ISME Commission for Special Education, Music Therapy, and Music Medicine

Publications - see website for details and availability

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