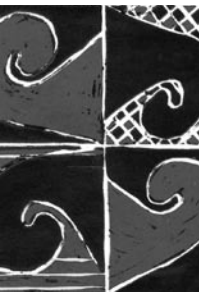

Music Therapy in Special Education

Where are we now?

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ABSTRACT

Research is an essential aspect of the music therapy profession. Practice is grounded in theoretical frameworks based on research studies and the evaluation of clinical interventions. Early research drew heavily on behavioural principles, observing measurable change in response to musical interventions. As the profession gained stature, music therapy researchers also began to ask questions requiring in-depth qualitative analysis. Nevertheless, ready acceptance and appreciation of music therapy as a valid service within special education settings in both Australia and New Zealand is variable. Music therapists continue to be challenged to demonstrate the effectiveness of music therapy. The current article outlines the historical precedent for a likely increase in qualitative emphasis, and describes the current knowledge base generated through the literature on the topic of music therapy in special education. It also explores the need for new research in the evidence-based framework and proposes a research path for future studies.

Research Paper

Keywords

Effective practices, evidence based practice, inclusive education, individual education plan, music therapy, qualitative research, quantitative research.

BACKGROUND

The applied discipline of music therapy was established in the post WWII years (Davis, Gfeller & Thaut, 1999). Although music has traditionally been used as a form of healing in many cultures, contextualisation of the work within psychotherapeutic frameworks and principles – primarily in behavioural, humanistic or psychoanalytical terms – led to the professionalisation of music therapy.

Theoretical underpinnings are drawn from numerous fields including psychology of music, physiology, biochemistry, sociology, psychology and education. Students undertaking music therapy training are required to develop an understanding of dominant theories from these fields, and to develop a wide range of competencies in music therapy methods (e.g. improvisation and/or song-writing) and research (Bunt & Hoskyns, 2002; Darnley-Smith & Patey, 2003; Wigram, Pederson, & Bond, 2002). Music therapists in many countries, including New Zealand, Britain, and Australia, are commonly classified as health professionals and work within allied health teams across a range of settings from special education to nursing homes, psychiatry, palliative care and in hospitals.

The World Federation of Music Therapy (1997) offers the following definition of music therapy:

> Music therapy is the use of music and/or musical elements (sound, rhythm, melody and harmony) by a qualified music therapist, with a client or group in a process designed to facilitate and promote communication, relationships, learning, mobilisation, expression, organisation, and other relevant therapeutic objectives, in order to meet physical, emotional, mental, social and cognitive needs. Music therapy aims to develop potentials and/or restore functions of the individual so that he or she can achieve better intra- and interpersonal integration and consequently a better quality of life through prevention, rehabilitation or treatment (p.1).

Music therapy in special education differs from music teaching in its emphasis on the acquisition of non-musical skills, using music as a symbol of emotional and personal growth rather than as a cognitive skill-set to be learned and practised. The profession is guided by ethical policies grounded in the acknowledgement of the importance of the relationship between client and therapist.

A great deal has been written about the value of music therapy for children who have special needs (Boxill, 1985; Bunt, 1994; Bunt & Hoskyns, 2002; Chester, Holmberg, Lawrence & Thurmond, 1999; Daveson & Edwards, 1998; Jellison, 2000; Ockelford, Welch & Zimmermann, 2002; Wilson, 1991) and the literature includes references to programmes undertaken in special schools, units, or mainstream settings (Brunk & Coleman, 2000; Bunt, 2003; Lathom-Radocy, 2002). In the USA in the 1970s, when government legislation for inclusive education was passed, there was a considerable increase in the number of music therapists employed in educational settings to provide service for school-aged children who had special needs (Alley, 1977, 1979; Jellison, 1979, 2000; Lathom-Radocy, 2002).

A procedure of referral, assessment, treatment, documentation and evaluation shapes the clinical intervention in line with the Individualised Education Program (IEP) structure (Davis et al., 1999). Teachers and allied health professionals typically refer children to music therapy. Music therapists work with clients either individually or in groups depending on the identified needs of those individuals.

Early literature identified the assessment process as crucial to ongoing clinical evaluation (Cohen, Auerbach & Katz, 1978; Cohen & Gericke, 1972). Several authors have published assessments suitable for use with children who have special needs (Boxill, 1985; Brunk & Coleman, 2000; Bruscia, 1988; Darrow, 1991; Elliott, 2000; Gilbert, 1980; Goodman, 1989; Layman, Hussey, & Laing, 2002; Nordoff & Robbins, 1977; Shoemark, 1993; Wigram, 2000; Wilson & Smith, 2000). However, none of these are standardised. Further, Loewy (2000) has reported that 94% of music therapists she surveyed in 1994 were not using the formal music therapy assessment tools available to them. Wigram et al (2002) note instead that 'clinicians have developed their own very effective and appropriate ways of analysing and recording change in music therapy' (p. 257). This unfortunately reduces the possibilities for replicable controlled studies without a change to naturally occurring practice.

Nevertheless therapists have often used behavioural analysis or developmental tools in order to align their practice with the IEP process (Adamek, 2002; Brunk & Coleman, 2000; Johnson, 2002; Lathom-Radocy, 2002). Chase (2004) surveyed 207 music therapists working in the USA with children who have developmental delay. She found that data was consistently collected by observing behaviour. Music therapists reported they were assessing in the following domains:

- Motor skills (sensory motor, physio-motor, physical, perceptual motor, fine motor, and gross motor).
- Communication skills (vocal expression, vocalisations, speech production, expressive language, language, language development and verbal skills).
- Socialisation (behaviour, attention, social/emotional skills, interpersonal skills, relatedness/relationship).
- Cognitive skills (perceptual, sensory, academic).
- Musical responses (rhythm, beat, melody/tonal, instrumental exploration, interest/preference) were also documented.

The information gathered in a music therapy session can provide a different picture from that seen in other settings (Bunt, 1994; Gantt, 2000; Loewy, 2000; Wigram, 2000). The opportunity exists to evaluate a child's responses in terms of their *potential* to respond to other forms of therapy or intervention (Wigram, 2000). Children often show enhanced responses in a music therapy environment. Despite seeming to have significant disability or neurological trauma, they respond to music (Gantt, 2000; Nordoff & Robbins, 1977; Sacks, 1995). Jellison's (2000) comprehensive review of music research with disabled children and youth identified that when comparisons were made there was often no significant difference in the musical abilities of children deemed to have disabilities and those who were not.

Drawing on this potential, music therapists often work closely with members of multidisciplinary teams to help the student achieve goals set by other professionals. This includes the physiotherapist or occupational therapist, who might measure outcomes in physical terms; speech and language therapists; and classroom teachers who might measure outcomes in cognitive or social terms.

The challenge of evaluating collaborative and consultative models of practice, where a student's progress towards IEP goals cannot be directly or independently attributed to music therapy interventions, have been discussed in the literature (Register, 2002).

THE HISTORY OF MUSIC THERAPY RESEARCH

Quantitative research in music therapy aims to control a range of variables in order to demonstrate the relationship between the music therapy intervention and the outcome, thus proving its benefit. In contrast, qualitative research attempts to capture the richness of the client's experience and to value an individual's experiences. Although both qualitative and quantitative research use rigorous scientific methods, qualitative investigators believe that knowledge is constructed by individuals and distrust quantitative findings that claim to be true for all people given particular variables.

Early music therapy research was predominantly quantitative and drew heavily on behavioural principles, observing measurable change in response to musical interventions. Music therapists documented and evaluated the work in behavioural (Alley, 1979; Appell, 1980; Presti, 1984; Steele, Vaughan, & Dolan, 1976) or developmental (Coates, 1987) terms to meet all criteria for accountability.

In contrast, Hanser (1999) suggests that for music therapists 'accountability means describing the *processes* which affect the people with whom they work' [italics added]. Nevertheless she also encourages clinicians to provide 'objective evidence of their effectiveness'. Hanser argues that by communicating these ideas to clients, colleagues, legislative agents or others, music therapists 'establish the basic parameters of their task' (p. 35).

Wigram (1993) found that towards the end of the 20th century music therapists had begun to question the traditional methods of music therapy research. Controlled methods using objective measures – which were predominant in the USA – were thought by some to have considerable limitations for individual cases and particularly for psychotherapeutically based work. Because of the potent relationship between music and the emotions, it can be a unique tool to address psychological aspects of development that are related to disability, such as sense of identity, self-esteem and expression of emotions such as frustration, anger, loss and fear. Outcomes of these interventions may be measured through behavioural strategies, as seen by reductions in self-harming behaviours. However these psychodynamic changes have proven to be difficult to capture with quantitative designs.

Over the past two decades, music therapy research has increasingly relied on qualitative descriptions to communicate outcomes. Questions have changed in focus from, "Does this work?" to "Why does this work?" In music therapy, qualitative research is popular not only for capturing the spoken descriptions offered by clients, but also their musical material. It allows researchers to capture the musical dialogues which occur as part of the primary communication between the therapist and the clients in music therapy sessions, a topic of great interest to music therapists and other music researchers.

Wigram's (1993) analysis of the content of American and British journals of music therapy (1987-1991), found a total of 453 articles that focused on fields of special education and described children with developmental disability (291), autism and psychiatric issues (72) and sensory and physical disability (90). Two hundred and forty-seven (247) of these articles focused on clinical work, 176 on research, and 30 were general papers. Nevertheless, Wigram concluded that there was a lack of research in music therapy clinical fields, and even where some studies had been undertaken they were in quite selective areas. Wigram, therefore, encouraged music therapists to continue to undertake research which demonstrated the efficacy of their work using quantitative designs.

MUSIC THERAPY RESEARCH WITH CHILDREN AND ADOLESCENTS (1995-2005)

In a further systematic review, Jellison (2000) identified 148 studies of disabled children and youth published in refereed English language journals between 1975 and 1999 (inclusive). Only papers that reported data and used well-established descriptive or experimental research methodologies were included. A North American bias was apparent in the selection of literature. Jellison identified a balance between articles which described clinical practice (n=72) and empirical articles (n=76) where researchers 'structured music to facilitate the acquisition of academic, social, motor and verbal behaviours' (p. 235) to evaluate outcomes. One hundred and nine of the studies noted the function of music for non-music outcomes. The reports demonstrated that music used as a stimulus cue or prompt, could improve the accuracy of student responses and increase activity levels. It was shown to improve functional hand use, early written communication skills, social skills and comprehension, head posturing, in-seat behaviour, and preacademic skills, and to increase interactions and imitative behaviour. The use of music to facilitate specific behaviours did not reduce the participants' enjoyment of music in other settings.

Most recently, Gold and colleagues (Gold, Voracek, & Wigram, 2004) conducted a meta-analysis of eleven music therapy studies involving children and adolescents with psychopathology, including six which were carried in special education settings (Edgerton, 1994; Eidson, 1989; Haines, 1989; Michel & Farrell, 1973; Michel & Martin, 1970; Montello & Coons, 1998). The review found that music therapy is highly significant ($p < .001$) as an effective treatment for children and adolescents with behavioural or developmental disorders. It was theorised that this effect may be due to the short concentration span experienced by children with these disabilities, with music therapy interventions serving as a motivating medium for engaging the child and therefore allowing them to achieve their full potential. It also noted that eclectic music therapy approaches were the most successful, with strict behavioural interventions indicating non-significant outcomes.

In 1998, Daveson and Edwards published an article outlining the role and application of music therapy in special education in Australia with reference to the most recent research and practice literature at the time. They argued that the available evidence highlighted extensive and unique applications of therapy in special education and that music therapy should be included as part of the special education curriculum and services. These authors noted that funding was being allocated within special education for music services to be implemented by people with music interest and abilities, but who lack necessary qualifications and training for music therapy practice. This situation results in a lack of awareness about the powerful emotional responses that can be evoked by music and the ability to successfully work with these psychological responses. More recently Booth (2004) examined the provision of music therapy in special schools in Victoria, Australia. She found that 41% of respondents did employ a music therapist and that their answers to interview questions accurately reflected the nature of music therapy indicating a high level of understanding of this service. Nevertheless she found that some misconceptions did still exist and that more work needs to be done to ensure relevant information is provided to schools regarding musical interventions.

Kennedy and Scott (2005) examined the effects of music therapy techniques on the story retelling and speech skills of English as a second language (ESL) students and found significant differences between the ESL and the no treatment control groups for story retelling. No control data was available for the speech skills measures but participants made significant within group progress.

In another important study, involving preadolescents who had emotional, learning and behavioural disorders, Montello and Coons (1998) showed that that students' attention, motivation and hostility had improved significantly after receiving music therapy. Building on Montello and Coons work, Rickson and Watkins (2003) used a randomised control design to determine whether music therapy was effective in promoting prosocial behaviours in adolescent boys who had clinically significant aggressive behaviours. While the study involved a small number of students and no definite treatment effects could be detected, the results suggested that a music therapy programme promoting autonomy and creativity could help adolescents to use more appropriate behaviours in the residential villa setting. However, there were also indications that some students' behaviour temporarily deteriorated in the classroom following music therapy sessions and that some students, particularly those who had a diagnosis of attention deficit hyperactivity disorder (ADHD) might require more highly structured music therapy sessions.

To answer the question that arose in the 2003 study, Rickson (2006) investigated the impact of instructional and improvisational music therapy approaches with adolescent boys who have ADHD. The instructional approach was based on behavioural and developmental theory and involved direct teaching and modelling of specific beat and rhythm tasks. The improvisational work involved using instruments in a freer way to promote communication and expression.

The specific target goal to reduce restless-impulsive and hyperactive-impulsive behaviours on the Conners' Rating Scales (Conners, 1997) subscales was not achieved, and there were no significant differences between the treatments. However, teachers reported a significant reduction in the

Conners' DSM-IV Total and Global Index subscale scores suggesting that music therapy does contribute to a reduction in a range of ADHD symptoms in the classroom.

Elefant and Wigram's (2005) examination of individuals with Rett syndrome utilised a single subject, multiple probe design to examine learning ability within the music therapy context. This methodology is popular in behavioural analysis and considered appropriate by evidence based advocates for use in investigating young people with multiple disabilities. It involves changing the conditions at some arbitrary points in during the study to evaluate whether participant responses are related to the test conditions – in this case, the music therapy. In this study, the seven girls, aged between 4 and 10 years, participated in tri-weekly music therapy sessions over 8 months. Results indicated that song frameworks provided a strong motivation for learning as seen by an increase in the rate of intentional choice making across time, reduction in the required number of sessions to learn new songs, and a very high and sustained level of intentional choice making. This research has been widely applauded within the Rett syndrome community due to its rigorous design and findings that challenged the "uneducable" label often ascribed to these young women.

Music therapy is frequently used with children diagnosed with Autism Spectrum Disorder (ASD) and has been the focus of many quantitative investigations continuing into the current century. A Cochrane review has been conducted (Gold, Wigram, & Elefant, 2006) to examine the effects of music therapy for individuals with ASD. This methodology is highly regarded within the evidence based framework because only controlled trials are included. According to The Cochrane Collaboration (2007), a Cochrane review is 'a review of a clearly formulated question that uses systematic and explicit methods to identify, select and critically appraise relevant research, and to collect and analyse data from the studies that are included in the review'. The Gold et al. review of relevant studies by Cochrane standards provided evidence that music therapy can help children with ASD to improve communication skills. In all cases, music therapy was found to be superior to a placebo intervention or standard care in terms of communication outcomes, a central component of the autistic condition.

A meta-analysis of homogeneous research with children and adolescents who have autism (Whipple, 2004) also showed that the use of music in treatment with this population has a relatively high effect. In addition the results of a survey of goals and outcomes for 40 music therapy clients who have autism (Kaplan & Steele, 2005) also suggested that a wide range of specific music therapy interventions are effective with this population and that generalisation does occur.

In addition to the kinds of studies that draw on behavioural analysis, it is also important that music therapists continue to investigate the questions that emerge from their clinical practice. A greater understanding of the communicative and symbolic meanings of clients' musical material is needed and qualitative analysis has been used to address these questions (Aigen, 1991; Arnason, 2002; McFerran & Wigram, 2005; Rainey Perry, 2003). In addition, continuing to gather rich descriptions of participants' experiences in music therapy is a valid and important methodology for improving understandings of the benefits of music therapy (Aigen, 1997), although difficult with non-verbal populations such as those frequently found in special education.

One excellent example of the value of qualitative investigation is the rigorous analysis undertaken by Perry (2003) in a study of communication outcomes for 10 young people with severe and multiple disabilities in individual music therapy. A qualitative case study design was utilised that incorporated methods of naturalistic inquiry to analyse a single session. Data was collected through a number of sources. A communication profile designed by the researcher was used in the analysis of video of sessions. Results of the analysis indicated that within the musical dialogue, different communication strategies could be identified such as turn-taking, engagement and attending. This provides evidence to support the importance of music therapy in achieving these communication goals, although it is not numerical evidence. According to Tesch's (1990) description of research methodology, this use of qualitative, explorative investigation to underpin the accuracy of further quantitative, measurable outcome studies is a valid sequence. Perry's (2003) study provides insight into the validity of measuring communication outcomes in music therapy to provide an indication of multiply disabled children's communication skills generally. Improvements fostered in music therapy can then be understood as valuable for broader development and interpreted accordingly.

FUTURE RESEARCH PATHWAYS

Because of the diversity of music therapy practice, it can be difficult for researchers to recruit sufficient numbers of students with similar needs and working on common goals, who are able to participate in research projects that might produce statistical evidence for the support or negation of music therapy. Nevertheless, 'research in the broad field of music therapy has been a real focus of attention over the last forty years, and a number of clinicians and academics have obtained whatever resources they could find to initiate, carry out and report studies' (Wigram et al., 2002, p. 221). The problem of sample size has been partially addressed by recent advances in the use of meta-analysis. 'Because of their intuitiveness, they may help to bridge the 'gap' between research and clinical practice … and help to identify what research findings are clinically relevant' (Gold, 2004, p. 94). On the other hand although meta-analysis is a rigorous research method in its own right, Dileo and Bradt (2005) point out that meta-analysis procedures:

1. are labour intensive, time-consuming and require expertise in selecting, computing and interpreting appropriate statistics.
2. do not highlight more subtle aspects of a study.
3. are vulnerable to publication bias which occurs when only material which suggests the intervention was successful is published and other studies are not.
4. include studies that might not be homogeneous (i.e. not very comparable).

Ockelford, Welch and Zimmermann (2002) acknowledge that 'a great deal of significant work takes place in (music therapy and music education) contexts… but further research, leading to the provision of new resources for curriculum and staff development, is crucial to the realisation of music's full potential in the lives of pupils with severe and profound and multiple learning difficulties' (p. 178). Although music therapy is being used to support child development in many domains, it is important for music therapists to continue to question and explain the uniqueness of the discipline (Gantt, 2000) and to choose research methodologies which capture meaningful information.

Jellison and Gainer (1995) measured a participant's on-task behaviour in music education and music therapy settings for a full year and although they were able to note that the child was for the most part on task in both settings, following the study they had serious doubts that 'behaviours that traditionally have been identified as good indicators of a child's success in the classroom (i.e., on-task behaviour and correct task performance) are in and of themselves adequate measures of the child's success in either setting' (p. 238). This doubt has resonated with many music therapy clinicians who have found the quantitative research studies that are revered by the evidence based approach to be irrelevant to their clinical practice.

Music therapy research employs many different research designs and strategies (Aldridge, 1996; Bruscia, 1998; Bunt, 1994; Gold, 2004; Jellison, 2005; Langenberg, Aigen & Frommer, 1996; Rogers, 1995; Smeijsters, 1997; Wheeler, 2005; Wigram, 1993). Although evidence based approaches are increasingly demanded (Ansdell, Pavlicevic & Procter, 2004) this should not undermine the importance of investigations of a qualitative nature (Edwards, 2005). In fact, Lincoln (2005) a respected qualitative researcher in the field of education, argues that the recent emphasis on this framework within education is dangerous methodological conservatism. She emphasises that multiple perspectives have long been considered as the most rigorous approach to investigation, with an emphasis on individual researchers 'determining best practice for pursuing research questions' (Lincoln, 2005, p. 178). Although the results of rigorous qualitative research are not fully recognised under the evidence based framework, this does not deplete their value. Nonetheless, it is crucial that music therapists acknowledge identified gaps in the literature and seek to address these with appropriate studies. Recent reference to music therapy as a "controversial" and "unsupported" practice in special education (Stephenson, 2006) fails to recognise the wealth of literature and research that has been conducted over the past 25 years and appears not to value the qualitative evidence which underpins music therapy practice.

Stephenson (2006) identified a lack of recent quantitative studies investigating the impact of music therapy for improving communication in children and adolescents with severe intellectual disability. In response to her challenge, the authors are collaborating with her to undertake a research project that fulfils the expectations of the evidence based framework. The study uses a quantitative methodology considered suitable for investigations where a mean response is less informative than detailed information about individual responses. The single subject ABAB design will incorporate an initial baseline phase (A) where the music therapist plays with the identified child, offering opportunities for communication, but not including musical strategies. The intervention phase (B) will utilise improvised and semi-structured music therapy strategies to engage the child in communication. This will then be repeated in order to account for the potential influence of a rising baseline. Analysis of the video footage of both the child and the therapists will be used to provide valid evidence that it is the music therapy intervention that results in increased communication.

Further studies can be developed from this quantitative basis, and complemented by the more in-depth analysis available from mixed designs and qualitative investigations. Music therapists are both creative and practical according to personality studies (Holmes, 2004) and these joint skill-sets are the basis of the powerful clinical work that is undertaken as well as important research work of the past, present and future. Edwards (2005) has outlined the affinities and challenges that exist between music therapy research and evidence-based approaches. It is generally agreed that this in an important model within special education and medical fields that must be acknowledged. The increasing prominence of evidence-based practice in the 21st century provides an important opportunity for the discipline to re-establish a balance between qualitative and quantitative research.

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