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Welcome to the 30th Volume of AJMT! As we enter a new decade in the history of our journal, I was inspired to look back through the online AJMT archive. Our very first volume, edited by Sandra Curtis, was published in 1990 and featured articles by eminent music therapy researchers, Denise Grocke, Alison Short and Claire O’Callaghan. Since then, AJMT has continued to make rich and diverse contributions to music therapy knowledge, which attract readers from across the globe. This latest Volume builds on our strong history with four innovative articles by Australian and international authors.

New approaches to the way we think about and apply music therapy are always of interest. Arns and Thompson expand our understanding of working within a transdisciplinary specialist school for students with autism. Using a phenomenological approach to analyse semi-structured interviews, they explain how music therapists collaborate with other professions to positively contribute to school communities and culture. This article, while specific to the experiences of RMTs working in the education sector, is also relevant to health and community settings where multidisciplinary, interdisciplinary and transdisciplinary structures are commonplace. Fuller and McLeod inspire further innovative thinking in their exploration of music therapy via video conferencing for children with hearing loss and their families living in remote parts of Australia. They provide a detailed account of online delivery from practitioner and participant experiences, and recognise the substantial benefits that this program offered including reduced isolation for families. Again, this article will be of interest to all who aspire to work via online forums across our vast country, regardless of population interest.

Two further articles have a neurological focus. Bower, Sham & Gentle present a case study of an amateur pianist during her rehabilitation following stroke. They draw on the literature to explain neuroplasticity and musical recovery and posit that a neuroprotective role from premorbid musical skills may have facilitated both functional and musical recovery.
In the final article, Williams presents the concept of “Regulative Music Therapy”, a receptive method developed in Germany, as a potential therapy for people with Parkinson’s Disease. He examines an interview with an expert in this field using qualitative content analysis and compares these findings with relevant literature to provide a rationale for using this method in clinical practice and research.

Finally, my sincere thanks to Dr Kate Williams for her continued service as Associate Editor. I would also like to thank Dr Elizabeth McLean for her amazing work as AJMT’s very first Copy Editor from March 2017 to July 2019. We welcome Kate McMahon with her exceptional publishing expertise as our current Copy Editor. Please also note the generous contributions from all of our reviewers in 2019 (see previous page). We hope you will enjoy reading this 30th edition of AJMT.

Dr Imogen Clark
Editor, AJMT
Musical expertise as a consideration for post-stroke rehabilitation: A retrospective clinical case example

Bower, J., Sham, F., & Gentle, E.


In plain language:
This article describes an amateur musician’s retention of piano playing skills following a severe stroke. Emerging evidence of music-induced neuroplasticity and the potential neuro-protective role of musical skills is outlined to support the discussion of a musical recovery bias in this single case. Music therapy is relatively well established within traditional neurorehabilitation models and this article proposes to expand on this knowledge by considering the importance of rehabilitating musical skills within the model of functional rehabilitation.
Background

Rehabilitation following stroke. Stroke is an acute neurological event, resulting from a disruption of blood flow, that causes the death of brain tissue. Despite medical advances, stroke remains a leading cause of death and disability worldwide (Warlow et al., 2008). Recovery from stroke is a complex heterogeneous process with several factors impacting rehabilitative potential, including the type and location of the stroke, the volume of brain tissue damaged, and the pre-morbid health and functioning of the stroke survivor (Warlow et al., 2008).

Rehabilitation following stroke is broadly defined as treatment or therapies that maximise an individual’s capacity to “achieve and maintain optimal functioning” within their current health status and lifestyle choices (Gutenbrunner, 2011, p. 768). Evidence supports that rehabilitative therapies should commence as early as medically possible following stroke onset as early response and recovery are considered prognostic for long-term rehabilitative potential (Bernhardt, Chan, Nicola, & Collier, 2007; Paolucci et al., 1998). Current adult rehabilitation practices aim to maximise daily functioning and quality of life (Gutenbrunner, 2011). Recovery of mobility, communication and activities of daily living

Clinical reflection

Musical expertise as a consideration for post-stroke rehabilitation: A retrospective clinical case example

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Abstract

Functional areas addressed within a best practice multidisciplinary rehabilitation framework typically encapsulate mobility, communication and activities of daily living for stroke survivors. Traditionally reported rehabilitative music therapy interventions contribute to this functional model. This retrospective clinical case describes the retention of musical skills following a severe diffuse bilateral stroke and explores the value of rehabilitating musical skills as a target for functional rehabilitation, in an individual with pre-morbid musical expertise. This case illuminates the concept of a musical recovery bias in a stroke survivor and presents an argument for the consideration of musical skills as an important focus for individuals with pre-morbid musical expertise.

Key Words: pianist, stroke, neurorehabilitation, music therapy

Background

Rehabilitation following stroke. Stroke is an acute neurological event, resulting from a disruption of blood flow, that causes the death of brain tissue. Despite medical advances, stroke remains a leading cause of death and disability worldwide (Warlow et al., 2008). Recovery from stroke is a complex heterogeneous process with several factors impacting rehabilitative potential, including the type and location of the stroke, the volume of brain tissue damaged, and the pre-morbid health and functioning of the stroke survivor (Warlow et al., 2008).

Rehabilitation following stroke is broadly defined as treatment or therapies that maximise an individual’s capacity to “achieve and maintain optimal functioning” within their current health status and lifestyle choices (Gutenbrunner, 2011, p. 768). Evidence supports that rehabilitative therapies should commence as early as medically possible following stroke onset as early response and recovery are considered prognostic for long-term rehabilitative potential (Bernhardt, Chan, Nicola, & Collier, 2007; Paolucci et al., 1998). Current adult rehabilitation practices aim to maximise daily functioning and quality of life (Gutenbrunner, 2011). Recovery of mobility, communication and activities of daily living

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(ADLs) account for approximately 75% of functional goals targeted by multidisciplinary teams during inpatient rehabilitation (Plant & Tyson, 2018).

**Music therapy in neurological recovery.** Currently, the vast majority of reported music therapy services in stroke rehabilitation use musical interventions to positively contribute to the rehabilitation of the functional, non-musical areas described above (Magee, Clark, Tamplin, & Bradt, 2017). In this context, many music therapy interventions, including Neurologic Music Therapy (NMT) methods, are supported by the current evidence describing the neurological processing of music in musically untrained individuals and the relationship between musical and non-musical functions (Särkämö, Tervaniemi, & Huotilainen, 2013; Thaut, 2005). More specifically, as a complex auditory stimulus, music is made up of many components (pitch, timbre, harmony, melody, rhythm, etc.) that are perceived as a complex whole. The perception and production of music activates a complex global network of cortical and subcortical neural regions (Altenmüller & Schlaug, 2013; Koelsch, 2009; Peretz & Zatorre, 2005) including neural areas also responsible for emotional, motor, memory, speech and language functions. The extensive nature of the musical neural network strongly suggests the potential for retention of basic musical functionality, even in the presence of significant brain damage following a neurological event such as stroke (Gentle, Barker, & Bower, 2015). The ability to meaningfully process music, and the vast neural activation stimulated by this processing, is not reliant on musical expertise or systematic musical training (Herholz & Zatorre, 2012).

Targeted music therapy methods have been found to improve functional recovery for individuals with various brain injuries, including stroke. In a recent Cochrane Review, Magee and colleagues reported that music and music therapy interventions may be directly beneficial for gait rehabilitation, communication rehabilitation and quality of life (Magee et al., 2017). However, evidence supporting the positive role and mechanisms of music in rehabilitation of cognitive skills such as attention and memory is still under-researched and poorly understood compared to physical and speech counterparts (Magee et al., 2017). The music therapy interventions included in this review targeted the functional areas of recovery that Plant and Tyson (2018) reported make up the majority of inpatient rehabilitation goals. Positive outcomes following participation in music therapy are not thought to be dependent on pre-morbid musical expertise. Indeed, limited exploration of the role of pre-morbid musical expertise is presented in the current literature that explores the rehabilitative potential of music for individuals who sustain a neurological insult, including stroke.

**Music as a neuro-protective factor following stroke.** Learning to play a musical instrument proficiently may be one of the most neurologically demanding tasks a human being can undertake (Altenmüller & Schneider, 2009), and instrumental training has been shown to result in structural changes in the brains of musicians when compared to non-musicians (Herholz & Zatorre, 2012; Merrett, Peretz, & Wilson, 2013; Schlaug & Chen, 2001). For example, the anterior corpus callosum has been found to be larger in pianists. The corpus callosum is a vital communication pathway that connects the two hemispheres of the brain and is essential in the successful execution of bimanual motor tasks like playing the piano. It has been suggested that an increase in the size of the corpus
callosum may lead to greater inter-hemispheric communication in musicians, particularly in those who commenced instrumental training from childhood (Münte, Altenmüller, & Jäncke, 2002). Structural differences in musicians have also been observed in many other areas of the brain, with increased grey matter volumes compared to non-musicians seen in the primary motor cortices, auditory cortices, premotor and cerebellar cortices in addition to frontotemporal white matter connections (Omigie & Samson, 2014; Schlaug & Chen, 2001).

Although still in the early stages of investigation, the neuroplastic changes seen in musicians (particularly instrumentalists), may influence non-musical cognitive and motor functions (Omigie & Samson, 2014). In adults, the neuro-anatomical differences seen in musicians overlap with neural areas associated with higher cognitive processes including language, memory, attention, planning and problem-solving (Moreno & Bidelman, 2014; Tervaniemi, 2017). It has been hypothesised that the neuro-anatomical changes seen in individuals with a long history of musical exposure and practice creates a greater chance of preserved substrates, connectivity and corresponding behavioural/cognitive functions following neural damage (Omigie & Samson, 2014). As the musical brain is adept at recruiting a widespread network of neural functions, this may also result in increased availability to recruit alternate functional pathways following localised damage to neural tissue (Omigie & Samson, 2014). In short, there is a growing body of compelling evidence to suggest musical training represents a neuro-protective factor for increased recovery potential following adult brain injury, including stroke.

Music therapy addressing musical rehabilitation following stroke. It is the experience of the authors that the assessment and rehabilitation of musical skills following brain injury, in clinical music therapy practice in Australia, is an ancillary consideration compared to the rehabilitation of motor, speech and other non-musical capabilities in acute and sub-acute hospital settings. Given the body of emerging evidence supporting musical training as potentially neuro-protective for a range of functions following brain injury, the value of a thorough assessment of musical history and greater attention to musical functioning therapeutically as a way of promoting and aiding goal-based recovery cannot be underestimated.

The following retrospective clinical case study presents an early exploration of the value of assessing and rehabilitating musical, specifically instrumental, skills post stroke in an individual with pre-morbid musical expertise. Music therapy was utilised to access meaningful responses earlier in recovery than seen in other therapies, with musical skills being overtly used earlier in the recovery process compared to speech and complex motor skills. The clinical case offers an expanded understanding of how music may facilitate earlier access and therefore greater potential for recovery for both musical and non-musical functions.

Retrospective Case Study: Wendy

Wendy, a 63-year-old female, suffered a series of severe strokes following vascular surgery that was complicated by

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1 A pseudonym has been used. Patient, family and institutional consent was gained for publication of this case study.
intra-operative bleeding. Wendy was admitted to the intensive care unit (ICU) following surgery with a fluctuating consciousness. Electroencephalogram (EEG) performed on day 10 post-surgery revealed a non-convulsive status epilepticus, which is a state of continuous seizure associated with significant impairment and death. At that time, magnetic resonance imaging (MRI) showed multiple septic emboli (clots). Wendy remained in the ICU for three weeks before being admitted to an acute general medical ward for another three weeks with a continuing state of decreased consciousness. Imaging studies at this stage revealed an emergent complex neurological insult that resulted in lasting periventricular white matter changes (reduced connectivity). There were multiple areas of cell death (infarct) throughout her cortical and subcortical neurons (grey matter), particularly in the frontal lobes and noticeably in the right hemisphere. Significant areas of infarct were also noted in Wendy’s left parietotemporal white matter. These imaging results indicated a significant global brain injury, with damage seen in bilateral cortical and subcortical regions of Wendy’s brain. Following medical and conscious state improvements, Wendy was transferred to an inpatient sub-acute specialist neurorehabilitation ward.

On admission to the sub-acute rehabilitation facility, Wendy remained grossly functionally impaired. Her awareness, responsiveness, speech and motor skills were extremely impaired; she had a dense left hemiparesis (paralysis on one side of the body) and was minimally responsive to external stimuli. Wendy’s treating team were concerned about her potential for meaningful recovery due to the length of time that had elapsed since stroke onset and her limited responsiveness at that time point.

**Music therapy program.** Music therapy interventions commenced on Day 10 of Wendy’s admission to the sub-acute neurorehabilitation ward (Day 52 post stroke onset). Wendy was referred to music therapy because of her low-responsive state with the goal of eliciting repeated, meaningful, cortically mediated responses to stimulate early cognitive recovery. Musical background information was gathered from Wendy’s family before the initial music therapy contact. Wendy came from a musical family where both her grandmother and mother were proficient pianists. Wendy received formal piano lessons between 8-15 years of age. Wendy continued to play the piano for leisure almost daily throughout her adult life. Her musical preferences included classical music and hymns.

Wendy received 2-3 music therapy sessions per week of 30-60 minutes duration, facilitated by an experienced registered music therapist (RMT) who has additional training in NMT. The primary music therapy methods used are briefly described below and were clinically selected to maximise functional recovery while supporting Wendy’s emerging musical capabilities.

**Musical sensory orientation training.** Musical sensory orientation training (MSOT) is an NMT technique that utilises live or recorded music to stimulate arousal, orientation and facilitate meaningful response (Thaut & Hoemberg, 2014). As consciousness improves, MSOT may include engagement in simple musical exercises to increase basic attention. In this case, a full-sized keyboard was introduced for stimulating awareness and intentional responses, as it was a pre-morbidly familiar musical instrument to Wendy.

**Therapeutic singing.** Therapeutic singing (TS) is an NMT technique that uses singing activities to facilitate the initiation and
articulation in speech in addition to improving function of the respiratory apparatus (Thaut & Hoemberg, 2014).

**Oral motor and respiratory exercises.** Oral motor and respiratory exercises (OMREX) is also an NMT method, and utilises vocal exercise and the playing of wind instruments to increase the strength of the musculature required for speech.

**Therapeutic instrumental music performance.** Therapeutic instrumental music performance (TIMP) is an NMT technique in which the playing of musical instruments is utilised to simulate functional (non-musical) movement patterns. Musical instruments may be frequently utilised in non-traditional ways to facilitate motor rehabilitation including range of motion, strength, endurance and coordination (Thaut & Hoemberg, 2014).

Table 1 below presents the timeline of Wendy’s inpatient recovery, primary music therapy interventions utilised to support functional rehabilitation, and progress during the music therapy program.

### Outcomes

As outlined in Table 1, Wendy’s music therapy program portrays a use of music therapy interventions to address non-musical domains of functional recovery over 15 weeks. This aligned with the rehabilitation goals developed by the multidisciplinary team. Throughout weeks 2–6 pre-morbidly familiar songs were sung by the RMT with a simple guitar accompaniment, a standard application of MSOT to increase arousal and awareness in an individual presenting with limited behavioural responses to external stimulation. A simple homophonic musical texture was initially used as it was determined by the RMT to be less demanding for Wendy’s emerging cognitive processes. As Wendy’s recovery and rehabilitation progressed and she was observed to be increasingly responsive, she was encouraged to more actively engage in the MSOT interventions through singing along or playing hand-held percussion instruments.

Two significant and unexpected outcomes occurred during Wendy’s inpatient rehabilitation. The first occurred in Week 5 when her preserved ability to play the piano became evident. Wendy was assisted in her wheelchair to sit in front of an electronic piano as part of the extended MSOT intervention to address her emerging arousal and awareness. She was verbally encouraged to play and was able to play a culturally well-recognised Christmas carol that was suggested by the RMT. She played from memory with her right hand only, as at this stage of her recovery her left hand remained significantly affected by hemiparesis. Initially she played the song tentatively, with a large number of melodic errors. However, she was able to self-correct these errors, demonstrating awareness, insight and adaptive learning skills and during this single session she progressed to playing ‘Jingle Bells’, ‘Silent Night’ and ‘Away in a Manger’ with her right hand. Wendy further demonstrated the ability to *play by ear* when the RMT sang a melody and she was able to reproduce this melody on the electronic piano. In doing this, she demonstrated preserved musical functioning including relative pitch and rhythm. Wendy also demonstrated skills in audiation, which is being able to hear and comprehend music mentally. Wendy’s piano playing ability improved in accuracy during the following weeks and, as she progressed, she was encouraged to self-generate songs to play rather than always playing the songs suggested by the RMT. She was able to generate the musical information required to play songs that had been pre-morbidly familiar, not just songs that had been played
Table 1. Timeline of Wendy’s inpatient music therapy program and recovery during the same time period

<table>
<thead>
<tr>
<th>Time (Sub-acute admission)</th>
<th>Documented functional recovery</th>
<th>Music therapy interventions</th>
<th>Progress in music therapy</th>
</tr>
</thead>
</table>
| Weeks 1–3 (7–8 weeks post stroke onset) | - Nil eye contact  
- Nil verbal/gestural communication  
- Inconsistently attending to objects in left visual field  
- Used comb appropriately in therapy | MSOT | - Non-verbal  
- No observed behavioural response to familiar music |
| | | | |
| Week 4 | - Non-verbal  
- Writing with inconsistent legibility  
- Able to write yes/no responses | MSOT | - Non-verbal  
- Increased eye contact  
- Cried when listening to a pre-morbidly familiar song |
| | | | |
| Weeks 5–6 | - Non-verbal  
- Writing with inconsistent legibility  
- Demonstrated basic comprehension when writing | MSOT | - Non-verbal  
- Played songs suggested by RMT on piano, from memory (right hand only)  
- Improved accuracy of songs with repetition  
- Perseveration evident in piano playing |
| | | | |
| Weeks 7–9 | - Non-verbal  
- Increased attention span in therapies  
- Recalled important dates/events  
- Increased complexity and legibility of writing | MSOT | - Non-verbal  
- Initiated playing of variety of different songs on piano  
- Able to write song titles of the songs played |
| | | | |
| Week 9 | - Spontaneous return of speech – recited a prayer  
- Verbally answering open-ended questions (e.g. name, address)  
- Following two-stage commands  
- ++ response time for verbal instructions  
- Limited verbal initiation | MSOT TS | - Singing familiar songs  
- Increased volume during singing compared to speaking  
- Continued improved accuracy of songs on piano with repetition  
- Decreased response time for instructions related to piano playing compared to ADLs |
| | | | |
| Weeks 10–15 Discharge from sub-acute facility | - Significant improvement in ADLs (dressing, showering, etc.)  
- Improved movement and strength of left upper limb  
- Increased initiation and engagement in conversation | TS TIMP OMREX | - Improved left upper limb strength. Able to play drum independently with bilateral arm/hand movements  
- Increased voice volume and articulation accuracy during singing |
during previous music therapy sessions, for example playing Haydn’s ‘Surprise Symphony - No. 94’ during one of her final music therapy sessions. This ability to play pre-morbidly familiar songs indicated a notable retention of intact memory and motor functions. This retained musical ability was extremely unexpected given the severe nature of Wendy’s brain injury.

A second surprising outcome of Wendy’s recovery and rehabilitation was observed in Week 9 when Wendy’s speech returned spontaneously while attending a familiar cultural event with her family. Following this, Wendy was able to verbally communicate in all contexts, although responding time was slow and her voice was very soft. TS was then introduced to facilitate and encourage verbal output with an increased volume and intelligibility of vocalisations. Pre-morbidly familiar songs were used with adjustments to tempo and pitch to match/scaffold Wendy’s emerging abilities. OMREX was added to the music therapy sessions to further support Wendy’s speech rehabilitation through increasing the strength of the muscles required for speaking. TIMP was utilised to support Wendy’s emerging upper limb function, and incorporated simple grasping activities, progressing to a focus on more complex coordinated bilateral arm movements.

Discussion

Wendy was an amateur musician (pianist) who suffered a severe diffuse bilateral brain injury as a result of multiple strokes at the age of 63, with greater damage evident in her right hemisphere. Wendy’s early functional recovery was minimal and she was initially given a poor prognosis. It was almost 10 weeks post stroke onset before Wendy consistently presented with a behavioural response to sensory stimulation, which indicated awareness and some ability to organise a meaningful behavioural response. However, just one week later Wendy was able to play pre-morbidly familiar songs from memory on the piano, with her right hand, and she was observed to have retained complex musical skills despite her profound brain injury, hemiparesis, nonverbal presentation, very slow processing and poor motor skills. Music therapy began 52 days post stroke (Week 1 of the music therapy timeline reported above in Table 1) initially as standard practice to facilitate arousal and awareness, but it then became apparent that this was a key therapy in eliciting major functional changes and re-emergent skills, often before they were reliably present in other therapies. It may be described that Wendy displayed an obvious recovery bias towards her previous musical skills.

It should be noted that without functional brain imaging of Wendy’s musical neural correlates, it is beyond the scope of this case to draw finite conclusions as to why Wendy’s brain displayed such a strong bias towards musical recovery. However, based on existing evidence it is possible to hypothesise that Wendy’s pre-morbid daily piano playing from childhood had resulted in protective neuroplastic changes compared to what could be expected in a non-musician (Omigie & Samson, 2014). While obviously not performing at her pre-morbid level, she was able to execute complex musical tasks despite being severely impaired in non-musical areas. Additionally, Wendy’s return to musical functioning was observed to precede return of functioning in non-musical domains. Again, it is beyond the scope of this article to postulate the recovery relationship between her neurological musical and non-musical functions, however this finding does add greater weighting to Omigie and Samson’s
(2014) hypothesis that musical expertise may result in an increased likelihood of retained function and enhanced recovery following brain injury via increased capacity for alternate neural pathways to functionality. It may be possible that Wendy’s pre-morbid musicality and her engagement in keyboard playing post stroke stimulated her brain to recruit alternate intact neural pathways to access language, motor and other cognitive skills (Omigie & Samson, 2014).

Post discharge from the rehabilitation facility, Wendy did not continue with music therapy in the community. However, Wendy’s remarkable response to music therapy in the early stages of recovery through to discharge raised questions about the ongoing role of music in the chronic phase of stroke recovery (6+ months post stroke) to maintain skill recovery. Given that current evidence supports: a) beneficial brain changes through participation in enriched environments in late stage recovery following stroke (Janssen et al., 2012), b) neuroprotective music-induced brain changes in musicians (Omigie & Samson, 2014), and c) potential positive effects of musical training on recovery of other cognitive functions (Merrett et al., 2013), it is worth considering a music education aligned model of long-term rehabilitation as a unique opportunity to stimulate the brain in alternative ways to achieve greater functioning, not just in musical abilities, but across the spectrum of human functioning.

Conclusion

Rehabilitative therapies post stroke target the restoration and compensation of function (Gutenbrunner, 2011), typically in the motor and communicative domains (Plant & Tyson, 2018). For individuals with pre-morbid musical expertise, it is becoming increasingly apparent that the assessment and rehabilitation of musical skills should be considered a priority. Music therapists working with individuals with acquired neurological conditions who have pre-morbid musical experience should be mindful of cases like Wendy in their approach to therapy and expectations/goals for recovery. Wendy’s recovery bias towards musical functioning highlights the increased potential for pre-existing musical skills to be targeted as a gateway to access other functional skills. Further systematic exploration would add weight to this shift in clinical practice. Finally, whilst an early exploration, this case points towards the need for a subtle expansion in the focus of rehabilitative music therapy interventions for stroke survivors, away from the sole use of music-based interventions in hospital to address non-musical recovery, and towards the utilisation of targeted music therapy interventions to address music as a unique and valuable recoverable skill both in hospital and throughout the recovery trajectory.

References


In plain language:
For families living in rural and remote areas, access to music therapy services facilitated by a qualified music therapist may be difficult or even impossible to find. The use of music therapy via video conferencing is an area of growth which seeks to address this need. This article outlines the Connected Music Therapy Teleintervention Approach (CoMTTA) and how it was applied across three different models for children with hearing loss and their families. The participant feedback and discussion sections highlight the need for further practitioner research within this field, particularly focused toward group work in order to develop this approach.

The Connected Music Therapy Teleintervention Approach (CoMTTA) and its application to family-centred programs for young children with hearing loss

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Abstract
The use of real-time video conferencing platforms in providing health and therapeutic services is increasing, bringing potential access, financial, and time advantages. Music therapy services are beginning to enter this space and are exploring the efficacy of interventions delivered through these platforms. Due to an opportunity to undertake a collaborative teleintervention project with children with hearing loss and their families, a need was identified to consider how this technology could be used in group settings. This led to the development of the Connected Music Therapy Teleintervention Approach (CoMTTA) which incorporates the following four areas: 1) delivery models; 2) session plan framework; 3) technology practice features and 4) additional considerations. In this paper, the features of CoMTTA are detailed and explored through the description of implemented delivery models, the author practitioners’ observations, and evaluative feedback received from participating families and collaborating service provider staff. Benefits highlighted by this initial implementation of CoMTTA include accessibility to services not available to families in their location, reduced isolation experienced by families in rural and remote areas, and an observed high level of parent/carer-child interaction and parental skill development. Challenges range from technological issues encountered by service providers and families, through to potential obstacles in the development of the therapeutic relationship caused by communication difficulties, further impeded by the hearing difficulties experienced by the children. It is recommended that further practitioner research be undertaken within this field, particularly focused toward group work in order to develop this approach.

Key Words: teleintervention, telehealth, music therapy, family-centred, children, hearing loss

Introduction
The provision of healthcare and therapeutic services via real-time video conferencing platforms is an area of current interest to health and government bodies, and includes a focus on delivery within a number of international regions (Hufton, 2016; Mauco, Scott, & Mars, 2018; Olson & Thomas, 2017). Advantages to the utilisation of online health and therapy delivery models may include increased reach and level of comfort for
clients, and greater access to expert service provision. There is also the potential for a decrease in travel time and delivery costs for clients and funding bodies (Blaiser, Behl, Callow-Heusser, & White, 2013; Jennett et al., 2003). A range of potential challenges and implications for clients using telehealth services are being noted in the literature with regards to accessing practitioners, operating the technology, developing therapeutic rapport, and issues with payment for services. In addition, there are considerable ethical and privacy issues to be considered (Kaplan & Litewka, 2008; Wootton, 1996).

The provision of music therapy via video conferencing platforms is an emerging field of practice, requiring collaboration and investment by service providers and clients to navigate the challenges inherent in this form of service delivery. There is currently scant literature on this topic within the music therapy profession, and writings specifically on the use of video conferencing approaches in group-based family-centred programs are even more limited. Due to this, a need was identified to develop models of delivery and practice considerations to implement a collaborative project in providing group-based music therapy programs to children with hearing loss and their families via teleintervention. This led to the development of the Connected Music Therapy Teleintervention Approach (CoMTTA) which is outlined and explored within this article.

Background

Overview of teleintervention. The terms telehealth, telemedicine, telepractice, teletherapy and ehealth are used within the literature in what appears to be an interchangeable way to describe the application of online technology to providing health or therapy intervention services for clients with specific health issues or developmental focus areas. Service providers and funding bodies have adopted terms that reflect the needs of their practice, based on discipline areas, population groups and geographical regions (Fatehi & Wootton, 2012). The term “teleintervention” (TI) is most often referred to within the literature in relation to early intervention services that are provided to children with hearing loss via the application of information and communication technology (ICT) platforms (Havenga, Swanepoel, Le Roux, & Schmid, 2017; McCarthy, Muñoz, & White, 2010). Throughout the main body of this article, the term TI is used due to the focus population being children with hearing loss.

Positive outcomes of TI, including increased levels of family engagement in psychoeducational programs and self-reported reductions in mental health symptoms for people with post-traumatic stress disorder, have been reported (Miyahara, Butson, Cutfield, & Clarkson, 2009; Turgoose, Ashwick, & Murphy, 2017). Furthermore, evidence exists indicating no statistical differences in client satisfaction during psychological therapies delivered via face-to-face and TI modes within a randomised control trial with veterans (Turgoose et al., 2017).

In some cases, there have been unexpected reported benefits of TI over face-to-face delivery. For example, in one article on teleintervention for children with hearing loss it is stated that “the most significant benefit reported by families was that TI facilitated family engagement during sessions and put the family in the driver’s seat” (Blaiser et al., 2013, p. 6). This statement suggests that when the therapist is in a different geographical location to the family, the parent/carer potentially has more of an opportunity to
direct the course of the sessions by playing the lead role in facilitating the therapeutic activities and strategies.

Challenges with the technological aspects of facilitating TI are also evident (Jang-Jaccard, Nepal, Alem, & Li, 2014; Olson & Thomas, 2017). Disruptions and problems encountered during TI can have a negative impact, particularly with clients who are difficult to engage (Wooitin, 1996). Latency, the delay between auditory/visual signals from one end being received at the other, is a significant challenge, particularly when using interventions that seek to achieve synchronous interaction and involvement (Baker & Krout, 2009; Lightstone, Bailey, & Voros, 2015; Willis, 2018).

The Australian context. The provision of online therapeutic and healthcare services in Australia has been influenced by world trends, current research, and national government funding policy changes, resulting in an increase in the use of TI delivery models (McGilvray, 2013; Moffatt & Eley, 2010). The distances from many rural towns to capital cities within Australia make access to basic and specialist or allied health services prohibitive, and as a result evidence suggests poorer health for rural and remote Australians (Frost & Sullivan, 2015).

The advantages of TI for Australians living in outlying areas can be seen as twofold. First, participants can potentially experience benefits through direct telehealth consultations with health professionals, and second, the quality of face-to-face consultations in rural and remote areas may improve given local health professionals can receive upskilling through various telehealth programs (Moffatt & Eley, 2010). Challenges experienced by Australian-based practitioners providing health and therapy services to clients are similar to those reported globally, perhaps with increased barriers globally, perhaps with increased barriers regarding internet connectivity (McGilvray, 2013). However, with the ongoing rollout of the National Broadband Network (NBN) across Australia, and other ICT advances, it is predicted that these difficulties will be reduced over time (Jang-Jaccard et al., 2014).

Australian data indicates the high potential of TI approaches for children. For example, Fairweather, Lincoln, and Ramsden (2016) describe a project on the delivery of speech-language teletherapy services to children attending educational services in rural and remote Australian locations, with an emphasis on the role that teletherapy can play in providing equity of health services. Through a mixed methods approach, the researchers examined the “effectiveness, feasibility and acceptability” (p. 594) of this delivery method, finding that several positive themes emerged including the practicality and convenience of teletherapy and the learning benefits that took place for the children participating.

Music therapy and teleintervention. There are a small number of music therapy studies that have examined and reported on the use of video conferencing technology to conduct sessions with clients. Baker and Krout (2009) investigated the participation of an adolescent with Asperger's Syndrome undertaking a songwriting intervention via video conferencing. This study highlighted the unexpected benefit of increased social interaction and engagement during the video conferencing sessions in comparison to face-to-face delivery. This was evidenced by more instances of eye contact, laughing, and smiling. In addition, the authors observed a higher level of creative output and longer periods of engagement by the participant during the video conferencing sessions. Social
connection is also a goal within a current group singing telehealth research project being carried out by The University of Melbourne for people with quadriplegia (Willis, 2018). In addition, a case study involving video conferencing technology in delivering remote music therapy services to a military veteran, addressing symptoms of post-traumatic stress disorder, indicated its efficacy in achieving treatment outcomes and allowing the music therapists to work collaboratively with other professionals (Lightstone et al., 2015). Presentations by Fuller and McLeod (2016; 2017) at Australian and international music therapy conferences highlighted how the use of TI with young children with hearing loss and their families improved access to music therapy and facilitated social connectedness.

**Music therapy and hearing loss.** Young children with hearing impairments have considerable obstacles to overcome in order to be well placed to meet age appropriate developmental milestones. There is a growing body of literature on using music therapy to develop auditory, speech/language and emotional skills with people with hearing loss (Gfeller, 2007; Gillmeister & Robbins Elwafi, 2015; Radbruch, 2001; Salmon, 2008; Ward, 2016). The importance of carefully planning activities to meet the specific needs of children and being aware of the challenges some may experience with multi-layers of sound is highlighted (Gfeller, Driscoll, Kenworthy, & Voorst Van, 2011). Within Australia, there are a range of organisations, educational institutions and music therapists in private practice that are delivering group and individual music therapy services to people with hearing loss (Jack et al., 2016).

**Family-centred music therapy.** The family-centred approach across the lifespan has been well represented in the music therapy literature in recent years (Creighton, 2011; DeLoach, 2018; Freeman, 2017; Jacobsen & Thompson, 2017; Teggelove, Thompson, & Tamplin, 2018). In adopting a family-centred approach, the music therapist is seen as a collaborator with the family members, where the delivery of each session is tailored to the individual needs of the families within the group. The interactions between the parent/carer-child are prioritised over any therapist-child interactions and the awareness of the importance of not disrupting attachment is at the fore (Ettenberger, Rojas Cárdenas, Parker, & Odell-Miller, 2017; Jacobsen & Killén, 2014). This family-centred philosophy underpins the development of an innovative approach which will now be outlined.

**Method**

**Context.** The development of the Connected Music Therapy Teleintervention Approach (CoMTTA) transpired as a result of a collaboration between a service provider that supports children with hearing impairment, and a family-centred music therapy program. The service provider approached the authors to deliver music therapy to their rural and regional clients via TI. The service provider had already been utilising TI in providing listening and spoken language therapy, and educational support to their clients. In addition, they had previously collaborated with the author practitioners in providing face-to-face music therapy group sessions in their various metropolitan-based centre locations. The developed teleintervention music therapy models were applied to four different situations based on the needs and locations of the clients; the locations and availability of the music therapists; and the preferences of the service provider factoring in their program requirements, budget and practice experience.
In each delivery format, the sessions were conducted by a Registered Music Therapist (RMT) with the Australian Music Therapy Association, supported by a Listening and Spoken Language Specialist (LSLS) from the service provider. The video conferencing platform used in all models was Lifesize®, which combines both software and hardware in a cloud-based video conferencing system. The hardware used by the TI host included a conference room camera, microphone base and large screen. Participants joined the TI sessions by accessing the downloaded software on their own computer or other device (Lifesize Inc., 2018).

Families referred all had a child with hearing loss and were currently receiving services from the provider to support goal areas such as listening, language, social skills, daily living skills and literacy skills. Some of the focus children attending had received cochlear implants or hearing aids. Written consent was obtained from the collaborating service provider for the following participant and program information to be published in a de-identified format. Consent from the participants for their contributions to be shared anonymously for the purpose of building the music therapy professional knowledge-base was made verbally to the collaborating organisation staff. In addition, participant consent is implied through the voluntary provision of their written responses on the feedback form at the end of the program. As the evaluation of this project was focused on program quality assurance, approval from an ethics committee was not sought.

**Design.** Evidence-based practice (EBP) as outlined within current literature informed the development of CoMTTA. The three key areas that form EBP are: high quality research and literature; the practitioner’s practice knowledge; and the client’s own values and resources. In some literature on EBP, information from the practice context is included as a fourth key area (Hoffmann, Bennett, & Del Mar, 2013; Saunders, 2015). These key areas are balanced in importance, with no single area being elevated above the other areas (Kitson, 1998; Rycroft-Malone, 2004). For this project, information was integrated and interpreted from the key literature and research areas including teleintervention, music therapy, hearing loss, and family-centred practice. The authors’ practitioner knowledge was utilised given their extensive experience in providing group music therapy using a family-centred approach. The musical preferences, areas of interest, cultural backgrounds and values of the parent/carer-child dyads were integrated into the project planning and evolved as the weeks progressed, as was the information provided by the collaborating service provider with regards to therapy approach and philosophy, and symptomatology of this population group. In addition, a resource-oriented approach was taken with regards to respecting each family’s knowledge, their goals for music therapy sessions, and their personal and collected resources that they contributed to the music-making (Rolvsjord, 2010). Therapists strived to balance their input and the session structure framework while supporting participants to have agency over the outcomes of their music therapy experiences.

CoMTTA was developed around the theme of connection. It provides family members (e.g. parent/carer-child dyads) with the opportunity to connect through developmentally targeted music therapy activities. Families connecting with each other is seen as another focus, given that in remote locations it may be difficult for them to
interact with others who are also experiencing the challenges of having a child with hearing loss. The connection of families who live in rural and remote areas to music therapy services facilitated by a qualified music therapist is also seen as a beneficial outcome.

CoMTTA was developed with the following focus areas: 1) delivery models; 2) session plan framework; 3) technology practice features and 4) additional considerations (Figure 1).

Figure 1. The Connected Music Therapy Teleintervention Approach (CoMTTA) focus areas

1) CoMTTA delivery models. Specific models of delivery were identified and developed for families with young children (Table 1). These allowed for different configurations of the location of families, service provider staff and RMTs, as well as an option for delivering sessions both face-to-face and via TI.

2) CoMTTA session plan framework. The session plan framework (Table 2) is viewed as a guide for music therapist practitioners utilising the model, and it is envisaged they will apply an “improvisational attitude” (Arnason, 2003, p. 133), following the lead of the participants as opportunities arise. The overarching goals within this framework are to encourage positive parent/carer-child interactions and support early learning and child development as further delineated in Table 2. Additional goals identified by families and/or service providers will also guide the interventions used within this framework. Within parent/carer-child programs, the authors also believe that due consideration should be given to how parent/carer-child fun can be achieved through shared music-making. The expression of enjoyment by both the child and parent/carer is seen as a cogent contributor to maximising interaction, engagement and
weekly attendance, therefore this is intentionally woven throughout the session plan framework. Other session plan elements include: flow; repetition and variation; transitions; instruments and props; and dialogue. This session plan framework was developed to be utilised across each of the three models of CoMTTA, with the music therapist facilitating an adapted delivery as required.

Table 1.
CoMTTA delivery models

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop</td>
<td>The music therapist facilitates a one-off TI music therapy workshop from one location in a teleconference enabled space, while families are together with the service provider in another location.</td>
</tr>
<tr>
<td>Weekly</td>
<td>The music therapist facilitates weekly TI music therapy sessions across a 6 to 8 week period, with each family in their own homes in various locations across regional areas, while the music therapist is located in a teleconference enabled space.</td>
</tr>
<tr>
<td>Mixed</td>
<td>The music therapist facilitates weekly music therapy sessions across a 6 to 8 week period. The first and final sessions are delivered face-to-face at the service provider facility. Remaining sessions are delivered via TI with the music therapist located in a teleconference enabled space, and the families together in another location.</td>
</tr>
</tbody>
</table>

Table 2.
CoMTTA session plan framework

<table>
<thead>
<tr>
<th>Activity</th>
<th>Objectives and Skills Examples</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greeting Song</td>
<td>Social interaction; joint attention; verbal and non-verbal communication skills</td>
<td>Children are encouraged to greet each other and adults in the group</td>
</tr>
<tr>
<td>Action Songs</td>
<td>Fine motor; crossing midline; cognitive function; rhythmic regulation; interaction</td>
<td>Props and supported visual aids may be utilised as required</td>
</tr>
<tr>
<td>Musical Instruments</td>
<td>Creativity; auditory discrimination; bilateral coordination; fine motor; turn-taking</td>
<td>Instruments utilised include maracas, bells, sticks, whistles and recorders</td>
</tr>
<tr>
<td>Dancing/Movement</td>
<td>Gross motor; rhythmic regulation; coordination; social interaction; expression</td>
<td>Children and adults are encouraged to dance/move rhythmically and freely</td>
</tr>
<tr>
<td>Drumming</td>
<td>Imitation; bilateral coordination; volume control; cognitive concepts; exploration</td>
<td>Drums with and without beaters are utilised within structured and improvised activities</td>
</tr>
<tr>
<td>Familiar Songs</td>
<td>Verbal expression; sequencing; turn-taking; interaction; cognitive concepts</td>
<td>Props may be utilised, including soft toys, scarves and visual supports</td>
</tr>
<tr>
<td>Relaxation Time</td>
<td>Attachment and bonding; self-regulation; body awareness; emotional concepts</td>
<td>Children are encouraged to sit and engage with their parent/carer</td>
</tr>
<tr>
<td>Goodbye Song</td>
<td>Social interaction; self-regulation; auditory attention and discrimination</td>
<td>Children are encouraged to farewell each other and adults in the group</td>
</tr>
</tbody>
</table>
3) CoMTTA technology practice features. The technology practice features chosen for use and consideration within the delivery of CoMTTA can be categorised into two areas: before program considerations, and during session considerations. These areas are described within Table 3 below.

Table 3.
CoMTTA technology practice features

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Technology Practice Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Program</td>
<td>- Families are asked to conduct an online ‘speed test’ at the proposed time of program on 2 or 3 days, and email the results to the host organisation</td>
</tr>
<tr>
<td></td>
<td>- Families are given information regarding considerations for the location of their computer screen during sessions</td>
</tr>
<tr>
<td></td>
<td>- The music therapist has an orientation to the equipment approximately one week prior to the program or workshop starting date</td>
</tr>
<tr>
<td></td>
<td>- Enrolment form/survey link and other information is sent to families via email prior to the program starting</td>
</tr>
<tr>
<td>During Sessions</td>
<td>- Prior to the session starting, the screen for the music therapist is set to gallery view so that all participants can be viewed on screen</td>
</tr>
<tr>
<td></td>
<td>- At the start of the first session, families are encouraged to try the different views available on the video conferencing platform being used</td>
</tr>
<tr>
<td></td>
<td>- An action plan is discussed to follow in the event of internet issues arising</td>
</tr>
<tr>
<td></td>
<td>- A brief explanation on how to use the ‘mute’ functionality of the software is given, and this is tested with each family</td>
</tr>
<tr>
<td></td>
<td>- In considering audio load, the music therapist is aware of the layering of sounds, and attempts to balance vocal and guitar/keyboard volume level</td>
</tr>
<tr>
<td></td>
<td>- In considering video load, the music therapist is aware of minimising fast, large repetitive movements and considers the angle and focus of the camera in the planning and set-up of the sessions</td>
</tr>
<tr>
<td></td>
<td>- The co-facilitator models playing instruments and creating body percussion rhythms prior to the activity starting, and then plays very softly or pretends to play once everyone joins in</td>
</tr>
</tbody>
</table>

4) CoMTTA additional considerations. In delivering group music therapy sessions for families with young children via TI, additional approach considerations included: the provision of instruments/props; the use of aided visual supports; the delivery of dialogue/narrative by the music therapist; the role of the co-facilitator; and the provision of an online portal providing resources for families.

For the workshop model, the collaborating service provider was responsible for supplying the instruments and props needed for the group. This equipment may be made, purchased or borrowed for use. For the weekly model, a list of instruments and props was provided to families well in advance of the first session, giving them time to make, purchase or borrow the required items (Table 4). In addition, an information page with suggestions for the smooth running of the sessions was provided to families. For the mixed model, a full music therapy kit that included instruments, props and visual
aids was supplied by the music therapy provider.

Consideration was given to the use of aided visual supports, specifically with regards to a session schedule. As the TI experience involves both audio and visual streaming, a flip-book photo schedule was used by the music therapist for the workshop and weekly models, and the same schedule was provided within the kit for the mixed model.

Within each model the collaborating organisation provided a staff member to assist in the facilitation of the music therapy sessions. The co-facilitator assisted mostly by modelling actions and demonstrating the playing of the percussion instruments. Spoken interactions from the co-facilitator were utilised when modelling or role-playing, though these were kept to a minimum in most cases.

Another aspect to family-centred practice is that the use of music by families throughout their weekly routines is encouraged (Jacobsen & Thompson, 2017). In order to support families and build capacity for them to utilise music at home, a password-protected online family portal was developed with song lyric sheets, audio visual song recordings, craft templates and general music therapy information provided.

All models required additional considerations to be made as relevant to the specific participant group. In utilising CoMTTA with children experiencing the developmental and social challenges associated with hearing loss, specific consideration was given to activity delivery. For example, a method to promote hearing skill development identified by the service provider was to give opportunities for the children to hear a sound or a descriptive word before seeing an object or picture. Songs used in sessions were therefore modified or created to meet this need. Due to the potential communication issues between the music therapist and the participants with hearing loss, information was also gathered from the service provider and relevant literature with regards to the most effective way to approach speaking with participants during the delivery of the sessions (National Center for Hearing Assessment and Management, 2018; Salmon, 2008). Music therapists facilitating these programs were required to be highly intentional regarding their verbal and non-verbal communication. This included their use of pitch, the timing and pace of their spoken words, the number of words they used, the spacing between questions and replies, and their use of facial expressions and gestures.

Table 4.
List of instruments/props for weekly model

<table>
<thead>
<tr>
<th>Item</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument to Shake</td>
<td>Maraca, egg shaker, rattle</td>
</tr>
<tr>
<td>Instrument to Tap</td>
<td>Rhythm sticks, clave, chopsticks</td>
</tr>
<tr>
<td>Instrument to Bang</td>
<td>Drum, tambour, tambourine, pots/pans</td>
</tr>
<tr>
<td>Instrument to Blow</td>
<td>Recorder, horn, party whistle, harmonica</td>
</tr>
<tr>
<td>Fabric Prop</td>
<td>Scarf, ribbons, sarong, tablecloth</td>
</tr>
<tr>
<td>Toy Prop</td>
<td>Teddy bear, stuffed dog/rabbit, soft doll</td>
</tr>
</tbody>
</table>

**Implementation**

CoMTTA workshop model. The first model involved conducting a one-off workshop via TI with families who were attending a residential weekend in another capital city (1600 kilometres away). At the residential venue there were five service provider staff members present with ten families in a room with a large TV screen, camera and speakers. Two RMTs
co-facilitated the workshop from a TI-enabled space provided by the collaborating organisation. In addition to the previously outlined CoMTTA session plan framework goals, songs for undertaking daily routines such as getting dressed and brushing teeth were included. The RMTs utilised puppets and visual aids (which were held up close to the camera for ease of viewing), and incorporated dancing and movement songs that required no instruments or props. The session lasted approximately 45 minutes.

**CoMTTA weekly model.** The weekly model involved the provision of six weekly sessions in a block with facilitators in one location, and each family participating from their own home in various locations. Two blocks were held with different families involved each time. In each weekly session, the music-making lasted approximately 45 minutes. A parent or grandparent for each child joined in the weekly sessions in order to provide functional support, operate the technology hardware/software and model music-making participation. When present, siblings were also included and provided group members with further opportunities for social skill development.

Each session commenced with open welcoming dialogue and ended with the RMT and LSLS facilitating a brief reflective discussion with the families on what had occurred during the session.

**Program 1.** The first of these programs was run from the service provider’s northern centre location and was facilitated each week by an RMT and an LSLS. The families attending this program comprised of: a 3-year-old female and her grandmother; a male aged 2.5 years with his mother and male sibling aged 6 months; and a 5-year-old female with her mother and male sibling aged 3 years. All families attended on most weeks and activities delivered followed the CoMTTA session plan framework (Table 2). A unique activity to promote hearing skill development emerged within the context of the music-making during Program 1 and was also used within Program 2. The created song “What’s That Sound?” supported this goal. The lyrics are as below:

**What’s That Sound?**

*Hey, hey, what’s that sound?*
*Hey, hey, what have we found?*
*Hey, hey, listen dear*
*Can you tell me what you hear?*

This simple song was played on guitar by the RMT using a bouncy 4/4 rhythm in the key of D and delivered utilising cadences, tempo and melodic intonation to elicit engagement.

It is interesting to note that during the final session of this weekly model, the 3-year-old girl was unwell with a cold. Her grandmother reported that although she was sick, she was still insistent on attending her music therapy session. She could be seen via the TI screen to be coughing and was perhaps less animated than previous weeks, but appeared pleased that she could still join in the music-making. In face-to-face programs, attendance in this situation would not have been possible.

**Program 2.** The second program was run from the service provider’s central centre location and was facilitated each week by an RMT and an LSLS. Four families registered for the program, comprising of one interstate family, one family from a regional area and two locally based families. The children with hearing impairments ranged in age from 2 to 4.5 years. They were accompanied by either one or both parents and other siblings. On average, 2-3 families participated each week.

While the session plan framework was generally followed (Table 2), targeted music activities that utilise well known traditional
children’s songs were included in various modified formats throughout this program. For example, the verses of the action song “If You’re Happy and You Know It” were changed to promote the development of listening and attention skills, and to provide opportunities for family interactions such as through tickling and cuddling. In another instance, a family pet was incorporated into the singing of “Old MacDonald Had a Farm”. The other children and parents were observed to enjoy this moment as evidenced by finger pointing to the screen, smiles, and laughter. Modifications to the session structure were made in the moment based on requests by families. For example, the children of one family had made ribbons to dance with during the week, and so a dancing song was incorporated into the session in place of another movement song previously planned.

CoMTTA mixed model. The third model involved both face-to-face and TI formats across a five-week program. The RMT was physically present in the therapy room with families for weeks one and five, while all other sessions were conducted via TI with the families meeting in one physical location together and the RMT facilitating from another location. The LSLS was present face-to-face with the families each week to operate the equipment, assist with the instrument kit, and to model each activity.

A total of ten families attended the program, however attendance fluctuated considerably, with no family attending for all of the five weeks. Four families attended one session only, and just four families experienced both face-to-face and TI formats. The session followed a similar structure each week (Table 2), with some slight variations in songs used. In week two the visual display at both locations did not work. The session went ahead with only audio communication available. Several new families attended this session, and some families did not return in subsequent weeks. The equipment functioned properly with both visual and audio working for the remaining TI scheduled weeks.

Participant Feedback

Feedback from participants and staff involved in each of the CoMTTA models was obtained either through incidental verbal feedback or from evaluation forms completed in hard copy or online. The evaluation form consisted of closed questions utilising a Likert-type scale (Likert, 1932) and a series of open-ended questions to elicit participants’ experiences and suggested improvements.

The workshop model sought incidental verbal feedback from the staff at the conclusion of the session. The staff indicated the families engaged well in the workshop, playing instruments, performing actions, attending to questions, and singing along with the familiar songs.

Families who participated in the weekly models were emailed a link to complete the evaluation form online. Feedback included a comment about the audio difficulties, with one mother saying that “muting helped the quality of the sound.” Another parent noted the challenge of meeting the individual needs of clients within a group setting (with the added aspect of TI). One parent expressed a wish for more families to join in the program to allow for increased modelling opportunities across the group of children. One mother said “It is a six-hour round trip for us to our local [service provider centre]. We would not have otherwise participated in music therapy if it were not via teleintervention.” She also stated that the program had encouraged her to use music with her children more often: “My girls have been singing and dancing at home a lot more. I have been encouraging singing and
sings.” Another parent indicated that she felt her daughter engaged in the sessions more and was less self-conscious than she would be in a face-to-face group setting. Feedback from the staff included this comment: “The therapists were really flexible and receptive with ways to integrate auditory verbal strategies into [the programs].”

For the mixed model, families noted the challenges that arose due to the technical difficulties in week two. Several parents found having access to the instruments, props and visual aids that were provided motivated their child’s participation. Both staff and families indicated they found it difficult if a song was unfamiliar to them, with one mother explaining that known songs enabled them to participate more easily. One mother with a 2-year-old commented that her child participated more fully in the face-to-face sessions rather than via TI.

Discussion

The application of CoMMTA highlights numerous benefits and challenges in the three models, as evidenced by the experiences and observations of the RMTs and feedback received from staff and participating families. One of the key goals of CoMTTA is to encourage parents/carers to engage with their children. With the RMT not being physically present in the room, the level of parent/carer-child interaction and hands on music-making was observed by the RMT and LSLS to be high, particularly in the weekly model. Through modelling and modification of the session structure, the RMT was able to support parents in using resources available to them. The examples in the weekly model of families incorporating a family pet and homemade props into the session reflects the resource-oriented focus inherent in this approach. This observation is echoed by Blaiser et al. (2013) who found the use of TI increased parents’ participation and skill development. During the session, parents had opportunities to practice valuable skills which may have increased their confidence in being able to implement music activities with their child throughout the week. Parents’ reports of using songs more often as a result of participating in the TI program support this. It is not clear if the same extension of skills occurred with families in the workshop and mixed model, however the high level of parent/carer participation during sessions was noted by the RMTs in comparison to their practice experience in face-to-face group sessions. The role of TI in promoting more extensive parent/carer-child interaction and parental confidence in using music warrants further investigation.

One of the main benefits of utilising TI approaches is increasing accessibility to therapeutic services for clients, particularly for those in rural and remote areas. This notion is supported by the comments made by parents who indicated they would not be able to access music therapy services for their child had it not been for the availability of this TI program. It is interesting to note that in Program 2 of the weekly model, several families from the same capital city as the service provider also participated. This highlights that accessibility issues can also affect those living in reasonably close proximity, compounded by transport issues and the families’ schedules. Additionally, the instance of the sick child attending the weekly program highlights a potential advantage of TI over face-to-face models where illness may prevent attendance.

CoMMTA focuses not only on each individual families’ accessibility to music therapy, but also connection with other families. This is particularly pertinent to
families in the weekly model who are physically isolated from other families. The desire for connection is referenced by one mother’s comment about wanting more families to be involved. The level of engagement and relationship between the families may be influenced by the number of families participating in TI sessions. While the capacity of the technology allowed for a greater number of participants, with increased family numbers, the visual display of each family would have been smaller and potentially more difficult to see, and the opportunity to contribute to discussions may have been reduced. Further investigation into the use of TI in group interventions is required to determine the optimal number of participants to balance the need for the families’ connection with each other, thus reducing their sense of isolation, as well as the therapeutic effectiveness of interventions.

The strength of the therapeutic relationship between music therapist and families in group music therapy is one factor influencing the effectiveness of these interventions (Bruscia, 2014; Mössler et al., 2017). Significant differences were observed in the extent to which the therapeutic relationship was developed in each of the CoMTTTA models. There were more opportunities for establishing the therapeutic relationship in the weekly model due to smaller group size, and the ability to interact and be responsive to each family directly. In contrast, the development of the therapeutic relationship was compromised in the workshop and mixed models as there was limited to no dialogue with the families, and little to no direct eye contact. This did not appear to significantly impact the effectiveness of the workshop model or the establishment of therapeutic rapport, as the level of family participation was observed to be high. However, in the mixed model, the sense of distance between the RMT and families during TI sessions was compounded further by technical issues and fluctuating attendance of families. The experience may have differed if attendance was consistent across all sessions, with the foundation for building a therapeutic alliance laid in the first face-to-face session, and subsequently built upon in the following TI sessions.

The comment made by the mother about her child participating more in face-to-face formats than via TI confirms another difficulty with connection and engagement. In face-to-face group therapy sessions, RMTs rely significantly on being able to respond ‘in the moment’ to what is happening in the room. Latency issues with TI can interrupt the flow of a session when there are pauses to receive auditory and visual feedback, reducing the immediacy of response. This produces a sense of distance, particularly in group settings, which may impact attention, focus and strength of therapeutic rapport. These identified variables and issues warrant further implementation of these models to evaluate efficacy where the RMT is remotely conducting sessions with a group of families attending together in another location.

The failure of the visual display encountered in week two of the mixed model highlights one of several significant challenges in using TI in a therapeutic session. This may provide context and reasoning for the fluctuating attendance of families to this model. Visual and audio quality at times made even basic exchanges difficult, requiring patience and persistence from all parties. The picture quality sometimes froze or became pixelated. On occasions, the sound became distorted, dropped out or was cacophonous when all participants were playing instruments. The significance of sound quality
issues is even greater in this context of working with children with existing hearing impairments. To address this, the strategy of families using the microphone mute function on their computer or device was implemented for both weekly model programs. Families were advised to keep their microphone muted except when they needed to speak, sing or play their instrument for the group. The parent feedback indicated that it was effective in decreasing the extraneous sounds and improving sound quality. Having parents/carers present with their child to help reinforce any messages that may otherwise be lost due to sound quality is imperative to enhancing communication. As TI approaches are increasingly used in personal and professional spheres, and as improvements are made in TI technologies, it is anticipated the current challenges may be reduced. Such changes will result in the ongoing refinement and development of CoMTTA and other related approaches.

**Conclusion**

The increasing use of video based conferencing platforms in delivering health and therapeutic services presents opportunities and challenges for music therapists who wish to enter this field of practice. The opportunity to develop, implement and evaluate CoMTTA in using teleintervention to deliver group music therapy to children with hearing loss and their families has provided further insight into the benefits of this approach and the difficulties that may be faced.

The one-off workshop model enabled parents to practice skills in using music with their children in a group setting. The implementation of two weekly models highlighted benefits of accessibility to services and reduced isolation experienced by families in rural and remote areas. Furthermore, staff observations and family feedback suggested that the level of parent/carer-child interactions was high, as parents/carers were required to be ‘hands on’ in facilitating their child’s participation in music-making. Challenges with regards to clear visual display, sound quality and latency needed to be managed and worked through by both the families and therapists to reduce interruptions to the flow and experience of the sessions. The delivery of the mixed model met the most challenges, with technical failures and subsequent fluctuating attendance interrupting the development of therapeutic rapport and family engagement in therapy. Further uses of this mixed model are needed to identify if the technological difficulties and specific group context and make-up solely contributed to less engagement and participation, or if this model in itself is not conducive to effective therapeutic outcomes.

It is evident that more rigorous investigation and use of CoMTTA is required to test and validate the applicability of this approach. Areas for further investigation include the benefits and disadvantages of each model, the optimal group size, and the most effective use of technology.

**Acknowledgements**

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References


Music therapy teaming and learning: How transdisciplinary experience shapes practice in a specialist school for students with autism

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In plain language:

This article describes the results of interviews with a team of music therapists in a transdisciplinary specialist school for students with autism. Participants described a number of benefits and challenges in working alongside and sharing knowledge with staff from different training backgrounds. Themes of this study are drawn together to show how music therapists may make positive contributions to specialist school communities, and how developing long-term relationships with colleagues helps them to shape their own practice over time.
Music therapy teaming and learning: How transdisciplinary experience shapes practice in a specialist school for students with autism

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Abstract
Music therapists are often members of teams within multidisciplinary, interdisciplinary and transdisciplinary frameworks, and occasionally, also form discipline-specific teams. Whilst research literature on collaboration between music therapists and other professions is growing, there is a lack of understanding around the varied experiences of music therapists in transdisciplinary teams. It is vital that music therapists are aware of the challenges and benefits of collaborative practice to promote professional growth and develop practice alongside colleagues. This study is set at a transdisciplinary, specialist school for students with autism. To explore the lived experience of the music therapy team and the factors informing their practice, a qualitative, phenomenological approach was taken, with data collected through semi-structured interviews. Results revealed three professional issues for music therapists in transdisciplinary teams: 1) supporting students in non-music therapy programs, 2) building collaborative and trusting relationships with support staff, and 3) the benefits and challenges of working in both group and individual programs. Implications for transdisciplinary team leaders were: 1) the preferred styles of professional learning, 2) the importance of peer support in building resilience, and 3) the value of diversity and creativity in the collaborative team space. Viewing these themes through a systems theory lens revealed interactive, yearly practice cycles, highlighting the professional responsibilities of each group necessary to ensuring an innovative, collaborative and supportive team culture. The findings of this study begin to illuminate the experience of music therapy teaming and learning, and how music therapists may make positive contributions within a transdisciplinary school setting.

Key Words: Transdisciplinary, music therapy, special education, autism, special school system, music therapy team

Background to the Setting
This study is set in an independent, transdisciplinary school in Australia for students with moderate to severe autism and intellectual disability, and who need significant support to engage in school life. To meet the complex needs of this student cohort, a team of music therapists, occupational therapists, speech therapists, teachers and support staff combine skills and knowledge...
across discipline boundaries. In this transdisciplinary model, music therapists facilitate specialist programs and also coach staff in using music to increase student engagement. The music therapists constantly move across different spaces, teams and roles, and therefore need to sustain a large number of relationships with colleagues. Maintaining an openness to learning is a necessary professional quality for the transdisciplinary music therapist in this setting.

**Literature Review**

Recent workforce surveys have revealed that 44% of music therapists worldwide (Kern & Tague, 2017) and 48% of Australian music therapists (Jack et al., 2016) work with people with autism. Additionally, 22% of Australian music therapists (Jack et al., 2016) and 13% of music therapists around the world (Kern & Tague, 2017) work in schools. Literature around music therapists working in teams is still focused predominantly on multidisciplinary and interdisciplinary models (Ayson, 2011; Guerrero, Turry, Geller, & Raghavan, 2014; Magee, 2014; Spring, 2010; Robinson, 2015), whereas research and writing on transdisciplinarity from the perspective of the music therapist is less common (O'Hagan et al., 2004; Twyford & Watson, 2008). A shift to team-based service delivery is a current trend in early intervention (King et al., 2009; Luscombe & Dibley, 2014), schools (Cross, 2007; Savage & Drake, 2016; Zaretsky, 2007), and some Government funding models in Western Countries, such as the National Disability Insurance Scheme (NDIS) in Australia (NDIS, 2014). Therefore, it is valuable for professionals to understand how they can operate and thrive within a transdisciplinary framework.

The meaning of the terms multidisciplinary, interdisciplinarity and transdisciplinarity may vary from country to country. Choi and Pak (2006) describe multidisciplinary as drawing on the knowledge from each discipline but remaining within professional boundaries; interdisciplinarity as coordinating links between the disciplines; and transdisciplinarity as transcending the boundaries of disciplines. Reasons for adopting a transdisciplinary model may relate to the complex needs of populations that require a high level of support (Wheeler, 2003), but also where teams need to work closely together, understanding how their colleagues work and, as a result, transforming their own practice in the process (Bock Hong & Reynolds-Keefer, 2013; Twyford & Watson, 2008).

Music therapists employed in specialist schools collaborate with a range of professionals, support workers, administrators, families and carers (Strange, Odell-Miller, & Richards, 2016). Being part of a team can increase collective self-esteem and foster higher levels of personal accomplishment (Hills, Norman, & Forster, 2000; Kim, 2012). Warren and Rickson (2016) revealed that a need for validation and connection with other professionals was important to music therapists, and that this could come through reciprocal professional communication between disciplines and with other music therapists. This ability to collaborate effectively in teams is mandated within the Australian Music Therapy Association Professional Competencies policies (AMTA, 2009), and is often highly valued by music therapy employers (Spring, 2010). Therefore, it is important to address this competency as part of music therapy training (Jack et al., 2016). Twyford and Watson (2008) describe some of the benefits of collaboration including greater consistency.
of interventions, a holistic understanding of client needs, a greater knowledge base to draw on, a deeper understanding of the roles of other team members, reduced feelings of isolation, and emotional support during challenging times. However, collaboration requires commitment, and many factors may impede its success along the way, such as communication style, a lack of flexibility or openness to learning, a fear of losing one’s professional identity, a lack of relevant university training and the adequate allocation of time (Davis, 2007; King et al., 2009; Twyford & Watson, 2008).

Music therapists are obligated to engage in ongoing professional learning throughout their careers as a requirement of most credentialing associations. However, some music therapists report difficulty with accessing research literature (Waldon & Wheeler, 2017) and may look instead to their course training and work experience for information to develop their practice (Geist, 2016). In this regard, a transdisciplinary model may offer opportunities for professional growth. Transdisciplinarity involves professionals from different disciplines loosening their specialist boundaries and utilising shared knowledge and skills so to enable role release when working alongside and apart from each other (Twyford & Watson, 2008). However, little is known about how music therapists work in transdisciplinary teams, and even less about how they experience working in music therapy teams. No research literature was found exploring the experiences of music therapy teams in schools. However, research on how teachers and nurses learn from each other in teams of professionals with varying levels of experience and skill has shown that both formal and informal learning are important in gaining contextual workplace knowledge (Hunter, Spence, McKenna, & Iedema, 2008; Sun, Loeb, & Grissom, 2017). These studies show that the flow-on effects from this interpersonal learning are improved outcomes for students and patients, as well as improved feelings of effectiveness and satisfaction for staff (Dickerson, 2017; Ronfeldt, Farmer, McQueen, & Grissom, 2015).

In order to explore these themes within a transdisciplinary setting, two research questions guided this qualitative study: 1) What is the lived experience of a music therapy team in a transdisciplinary specialist school for students with autism? and, 2) What are the key factors informing the practice of a music therapy team in a transdisciplinary specialist school for students with autism?

**Method**

As this was a case exploration of a specific, specialised setting, a qualitative method, drawing influence from a descriptive phenomenological methodology was chosen to address the research questions (Husserl, 1931; Giorgi, 2009). Through phenomenological interviewing, Author 1 gathered descriptive data from the participants, and engaged in an analysis process based on descriptive phenomenology (Giorgi, 2009), the phenomenological microanalysis method (McFerran & Grocke, 2007) and the iterative stages of the phenomenological approach (Finlay, 2014). To encourage participants to freely describe their experiences, the interviews were loosely structured around five open-ended questions, with prompts and clarifying questions used to draw deeper levels of detail and reflection (Ritchie & Lewis, 2003). Given that there is scant literature describing the experience of transdisciplinary teams, this study was designed as an initial exploration focusing on...
individual descriptions contextualised within a specific transdisciplinary setting. Further, the music therapy team in this setting has been established for over 20 years, and these four music therapists therefore have a rich perspective to offer. The following questions were used to guide the interviews:

- Can you tell me what led you to study music therapy and how you came to work at this school?
- Can you describe your experience of working in a transdisciplinary specialist school for students with autism?
- What informs you in your practice?
- What sustains you in your practice?
- Can you tell me about an experience at this school that has held real meaning for you?

Each interview lasted between 48-52 minutes, and recordings were made on an iPad using the app QuickVoice Pro, and on a laptop computer using the program Acala Audio Recorder.

Author 1 was in the dual role of researcher and music therapy team leader, and so it was important to consider the issue of power in the interviews, and acknowledge her own researcher position in order to openly listen to the participants’ descriptions of experience as distinct from her own. Researchers may engage a phenomenological attitude to describe lived experiences, as phenomenology is understood to be a “process of retaining a wonder and openness to the world while reflexively restraining pre-understandings” (Finlay, 2008, p. 1). Phenomenological methods were therefore appropriate for managing the subjective connections between Author 1 and the team (Finlay, 2009). Berger (2015) and Ledger (2010) describe a number of potential benefits in being an insider to research including having easier access to participants, a potential for greater buy-in from previously established relationships, a head-start in knowledge of the context, and the possibility of understanding the more nuanced reactions of participants. The blurring of boundaries and the possibility of imposing values and beliefs however is a risk of insider research (Ledger, 2010). Author 1 took several reflexive measures (Finlay, 2014) to address this including bringing assumptions into consciousness through the writing of an epoché, recruitment of participants via a third party to minimise pressure, member checking of data by the participants, and cross-checking of the data analysis with the supervisor, Author 2.

Purposeful sampling was used (Creswell & Plano Clark, 2011), and on this basis, the participants were all Registered Music Therapists with the Australian Music Therapy Association and currently employed at the school. Ethics approval was sought and received from the Human Research Ethics Committee through the University of Melbourne (HREC ID 1648068.1). All four members of the music therapy team agreed to participate in the study. After the interviews, they selected the pseudonyms ‘Bella’, ‘Grizelda’, ‘Louise’ and ‘Sally’ for de-identification in the results. At the conclusion, all participants reviewed the study results, and agreed to have them published in the public arena.

Descriptive data from the interviews was analysed using the following steps. Whilst these steps are listed roughly in order, the process was iterative, and movement backwards and forwards between the steps was necessary to ensure an accurate and reflective analysis of their experiences. Since Author 1 led the analysis, this section will be presented in first person to
Step 1. Seeing afresh and transcribing the interview. This involved spending time reflecting on my own pre-assumptions and leadership role, and receiving support from Author 2 in order to assume a “phenomenological attitude” of curious inquiry (Finlay, 2014, p. 122). Interviews were transcribed word-for-word including pauses and thinking words. The full transcript was then forwarded to each participant so they could remove any statements or add further information if they wished.

Step 2. Dwelling with the data and identifying key statements. For this step, the first interview transcript was read through several times to become familiar with the content and recall how each statement had been expressed in terms of tone, body posture, eye contact and pace. All the interviewer questions were then removed, and all participant text that was not directly related to the questions being asked. Each of the four interviews revealed between 44-63 key statements.

Step 3. Creating structural meaning units (SMUs). Here began a process of conventional content analysis, drawing categories from the data itself (Hsieh & Shannon, 2005). Each statement was categorised literally according to what the participant was talking about (McFerran & Grocke, 2007). Several iterations in this process resulted in the emergence of 14 SMUs.

Step 4. Creating experienced meaning units (EMUs). At this stage, I began searching for more abstract meanings, necessitating a re-shuffling of key statements and a fresh approach. This stage involved the first imaginative variation (Moustakas, 1994). Here each statement was carefully read and reflected upon, this time considering the implicit meanings behind what the person was trying to say.

Step 5. Langaging the individual distilled essences. In this step, the EMUs were combined into a narrative. Cross-checking was carried out in consultation with Author 2, (Reiners, 2012) and I also approached the participants for their opinion of the essence created (Colaizzi, 1978). Participants were asked the question: “Does this meet with what you meant to say in the interview, and if not, how does it differ?” Participant feedback therefore shaped the final flow of the essences.

Step 6. Explicating the whole through identifying group themes. Here commonalities across the descriptions of participants were sought through the “rather messy process” of explication (Finlay, 2014, p.131). For each EMU, the implicit meanings behind the description were again considered. A reflexive process of collaboration between the Authors resulted in 13 group themes with contextual knowledge enabling a deeper understanding of the language used by participants and its meaning.

Step 7. Langaging the global meaning units (GMUs) and the final distilled essence. In this final stage, group themes were gathered into groups of statements conveying related meanings. Through extensive reflection and imaginative variation, I also brought personal knowledge and experience into the larger issues and ideas of the emerging global themes. This resulted in five GMUs. These were then joined together to form a narrative statement (McFerran & Grocke, 2007) that others might read, and possibly find concepts that resonated with their own experience.
Result
The analysis resulted in an individual distilled essence for each participant, with the individuals’ EMUs forming the basis for determining the group themes and final distilled essence. The full individual distilled essences are presented in Appendix A. Here we present the group themes, and the final distilled essence, followed by a discussion placing the themes into context.

Group themes. Table 1 shows the fourteen group themes as drawn from a comparative analysis of EMUs from all participants. For each group theme the number of contributing participants data is also listed.

<table>
<thead>
<tr>
<th>Code</th>
<th>Participants</th>
<th>Group Theme Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/4</td>
<td>Knowledge gained from watching and working alongside other professionals is a key influence on practice</td>
</tr>
<tr>
<td>2</td>
<td>4/4</td>
<td>Their practice is richer by being open to approaches from a wide range of academic and practical resources</td>
</tr>
<tr>
<td>3</td>
<td>4/4</td>
<td>Creativity and diversity of approach within this music therapy team is a valuable resource that develops practice in their transdisciplinary teams</td>
</tr>
<tr>
<td>4</td>
<td>4/4</td>
<td>Trust and support within their transdisciplinary team is crucial to being able to effectively engage students with complex needs</td>
</tr>
<tr>
<td>5</td>
<td>2/4</td>
<td>Using musical material that they personally enjoy brings an authentic energy to their practice</td>
</tr>
<tr>
<td>6</td>
<td>3/4</td>
<td>Their practice is guided by responding to what they sense the student needs in the moment</td>
</tr>
<tr>
<td>7</td>
<td>2/4</td>
<td>They would like more opportunities for individual work in order to develop and sustain more meaningful musical exchanges</td>
</tr>
<tr>
<td>8</td>
<td>3/4</td>
<td>Great satisfaction is drawn from earning trust and connections with students over the long-term</td>
</tr>
<tr>
<td>9</td>
<td>3/4</td>
<td>They also gain great satisfaction from supporting student achievements that make a difference in their lives</td>
</tr>
<tr>
<td>10</td>
<td>2/4</td>
<td>At times, it is challenging to integrate a therapeutic sensibility into a curriculum framework</td>
</tr>
<tr>
<td>11</td>
<td>3/4</td>
<td>Working in a positive and passionate transdisciplinary team is inspiring and motivating</td>
</tr>
<tr>
<td>12</td>
<td>1/4</td>
<td>Working relationships with students are better informed by seeing them in a range of settings</td>
</tr>
<tr>
<td>13</td>
<td>3/4</td>
<td>They are supported and inspired by accessing self-care and supervision outside the school setting</td>
</tr>
</tbody>
</table>

Final distilled essence. The final distilled essence drew the group themes into a flowing, narrative statement capturing the experiences and factors informing the practice of the four participants:

The transdisciplinary practice of these music therapists is strongly influenced by the shared knowledge and experience of their colleagues. Trust and respect within their teams supports them in developing more meaningful working relationships with students. These eclectic music therapists seek out innovative knowledge from a range of academic and practical resources. Observing techniques and methods demonstrated through online videos or in person enables them to confidently apply this knowledge creatively and responsively in their practice. These music therapists find it hard to employ a therapeutic sensibility in targeting
individual social goals when only working with groups, within a pre-determined curriculum, and using musical improvisation with students who have difficulties regulating themselves. They draw additional support and inspiration by accessing self-care and supervision outside the school setting. Transdisciplinary practice brings satisfaction and motivation to these music therapists through developing strong student relationships grounded in trust, meaningful achievements and shared pleasure in making music together.

Discussion
Reflecting further on the individual distilled essences and group themes illuminated three professional issues and benefits for the music therapist in transdisciplinary teams: 1) supporting the students in non-music therapy programs, 2) fostering trusting relationships with support staff, and 3) the nature of working primarily with groups of students rather than individuals within a school curriculum framework. The participants also highlighted three aspects of their practice experience that may have implications for those leading transdisciplinary teams: 1) ensuring that professionals have access to the professional learning that best shapes their practice, 2) encouraging peer support and professional supervision, and 3) fostering a value of creativity and diversity within teams, particularly music therapy teams, for addressing complex issues through collective knowledge and experience.

Professional issues and benefits for the transdisciplinary music therapist. Being part of a transdisciplinary team involves taking on duties and responsibilities not typically seen as part of music therapy practice. Bella described how her working relationships with students are better informed by seeing them in a range of settings and engaged in a variety of activities. She commented that:

“I think it’s something that not every music therapist may get to see if you just come in for the session of music and then you’re gone. But we see our students in many different environments, even going on camp with them, bunking down with them for the night and just seeing how they get through their day. It gives a much deeper understanding” (Bella).

Bolger (2015) proposes that collaborative relationships grow through engaging in a “hangout period” (p. 102) that may not involve music related activities, and she considers that this involvement is essential in supporting buy-in from music therapy participants. Whilst a small number of music therapists write about engaging in extra-musical activities as part of their work (Cobbett, 2009; Derrington, 2012), these do not seem to be for regular and extended periods of time, but rather during lunch or leisure breaks, or as a prelude to a short-term music therapy program. In contrast, the participants in this study were involved across the whole school program and were therefore completely immersed in the student’s day. This immersion potentially gives the music therapist a more rounded understanding of school life for their students, and this knowledge enables them to adapt the music therapy programs to fit with the flow, demands and shifting needs of students across the day.

Participants also commented on how working across the school day also offers chances to transfer skills and joys discovered in music sessions to other times, and to share them with a broader range of people in the
student’s lives. As students with autism can often limit the places and people with which their skills can be seen, the participants described this constant generalisation as a positive outcome for students, families and staff. This aspect of role release is a positive feature of the transdisciplinary model that aims to support more wide-spread use of music in all programs for student engagement in learning and with families in the home environment.

Some participants described the benefits of developing trusting, collaborative relationships with support staff as being equally important to the relationships with professional staff from other disciplines. They described the indispensable role of support staff in music therapy sessions in helping to manage any physical risk from challenging behaviour, and they welcomed their involvement as models and social partners in music-making. A recent qualitative study similarly describes how music therapists may need to work with support staff to manage safety concerns within sessions (Munro, 2017). The importance of trust between the music therapist and support staff became apparent in the participants’ responses, particularly in being able to maintain positive engagement with the students in music therapy sessions.

Alvin and Warwick (1992) refer to the dynamism of therapy assistants being crucial to the success of music therapy programs. Within the context of this study, support staff are encouraged to use exaggerated expressions, gestures and a communicative style that enables greater emotional comprehension and engagement from students. Munro (2017) describes how having good relationships with support staff enables the music therapist to keep the flow of the session moving, rather than stopping and starting to support participants. These sentiments were echoed by one participant.

“You’re singing a song with a student and they’re not holding the microphone properly. I’m in the middle of a phrase of the song and I can’t help them. Having someone who knows exactly what that student needs right now, jumping in and pre-empting what they need. Which makes it so much easier to keep the flow of the music. There’s the odd person who, when you’re with them, you know you are going to have a good session” (Bella).

It appears that for these participants, having a shared understanding of student needs and outcomes with support staff enables them to find positive ways to engage students in music therapy programs. In this setting, the transdisciplinary team approach valued the input of all staff in sessions, regardless of their professional background or qualification.

The participants described how the current philosophy of this school setting promotes group-based music therapy programs ahead of individual sessions, although this has shifted back and forth over time. This philosophy requires that multiple staff participate in sessions, which in turn creates more opportunities for collaboration between different disciplines. The focus on group programs is also linked to students’ social goals, and to budgeting considerations. The participants acknowledged that working in groups had many social benefits for their students, particularly when it came to addressing joint action, synchrony and imitation. However, some participants described frustration in not being able to be responsive at an individual level when the needs of the group could not be put on hold for any length of time. Louise describes this challenge:
“If you’re in a group, and you get that connection with one student and you know you could easily keep going, just with that one person but you can hear it all getting a little bit chaotic, so you have to cut short that moment. And that just breaks my heart sometimes, you have to do that, you have to go back to bringing the class in. I feel that sometimes there are some missed opportunities there” (Louise).

Juggling the needs of the individual and the group can be challenging, particularly when students are unable to wait or occupy themselves whilst another is the focus of individual attention, resulting in disruptions to the group dynamic (McFerran & Wigram, 2007). One participant struggled with her role in facilitating group improvisation for this reason. The participants’ contributions to this theme suggest that while they valued the collaborative philosophy of transdisciplinary practice, this was sometimes at the expense of individually tailored programs. There is a sense that the participants wished to advocate for more balance in group and individual programs, and that a valuable aspect of an intimate therapeutic relationship through music therapy was sometimes missing.

Implications for leaders of transdisciplinary teams. The participants’ descriptions of working in a transdisciplinary music therapy team illuminated the complex layers of transdisciplinary teaming within the specialist school setting, represented by Figure 1. While it is beyond the scope of this paper to discuss each aspect in full, several key aspects are highlighted below (a full description can be found in Arns, 2017).

Figure 1. Teams as learning spaces for the music therapist

![Teams as learning spaces](image-url)
A commitment to professional development by the music therapists became evident through their various self-directed learning strategies. Online learning resources present as highly convenient to busy music therapists (Vega & Keith, 2012), and information presented through case studies and video demonstration were identified by these participants as particularly helpful, as they enabled the music therapist to visualise themselves integrating the information into their practice.

“When you’re quite time poor and a busy person, you need something quick, you need to be able to access the information as quick as you can and use it. So, if it’s really wordy and becomes very academic, I would probably not read as much of it” (Sally).

In terms of team-based learning, Hamilton (2005) found that interactions with professionals from other disciplines can be crucial for building clinical confidence, particularly in the early years of practice. Similarly, the participants in this study spoke of the value of observing music therapists and other colleagues at work and engaging in feedback. These informal conversations and the opportunity to co-facilitate programs with other professionals also provided rich opportunities for learning from colleagues.

Being in constant, close contact with other disciplines led one participant (Grizelda) to describe their resultant learning as “transdisciplinary knowledge” which was experienced as different to that gained from a formal training session. In this sense, a transdisciplinary music therapist’s knowledge is formed through context, skill and experience. It appears important that transdisciplinary music therapists accumulate a broad knowledge base over an extended period of time, and this might result in having the confidence to apply their ongoing learning in their practice. This sentiment is echoed in the ways participants referred to aspects of the role release process, which included role extension, enrichment, expansion, exchange and support (King et al., 2009). Grizelda describes:

“If I came from purely a music therapy approach here, there’d be a whole depth of knowledge from the other disciplines that I’d be missing out on. I think that knowledge gives me a wholistic approach to the student. There’s a lot more tools in my tool kit than there were before” (Grizelda).

It appears that the transdisciplinary music therapist has a great deal to gain from having an outlook that embraces opportunities for learning, both at formal and informal levels, alongside colleagues from a range of training backgrounds. Actively pursuing opportunities to learn from and take on roles from other disciplines, as well as releasing aspects of the music therapy role to others, has the potential to offer role enrichment to all members of the transdisciplinary team (King et al., 2009) and ultimately, to the students in their care. In reflecting on the views of these participants, it appears that transdisciplinary teams may promote greater commitment amongst staff to implementing new ideas and approaches.

Whilst the value of peer support is commonly mentioned in transdisciplinary literature (Bock Hong & Reynolds-Keefer, 2013; King et al., 2009; Twyford & Watson, 2008), the role that professional supervision plays in supporting team members is not often discussed. All four participants commented on how peer support from their colleagues, as well as professional supervision accessed outside of the school, shaped and sustained their practice. Within the music therapy team discussions, the participants appeared to value
being able to discuss difficult work-place issues, and they felt supported by hearing a variety of fresh perspectives. They also differentiated between the peer support within their transdisciplinary teams and the music therapy team in subtle ways. For example, one participant who was struggling with the demands of the job, described how she looked to the music therapy team particularly for trusted peer support. Here, the unidisciplinary team may be particularly important in providing more specific discipline-based support.

“It’s kind of a joy that feeds itself because you’re faced with challenges and you’re challenging yourself in what you feel you can and can’t do, and you get support from the [music therapy] team. So, because you’re supported you can learn better and enrich your work and then you can give back more to the students” (Bella).

Alongside peer support within teams, access to professional supervision is beneficial for gaining professional and personal insight into music therapy practice (Kennelly, Daveson, & Baker, 2016). Furthermore, access to informal networks of support outside of the workplace is recommended in order to prevent burnout and maintain satisfaction in one’s work (Clements-Cortes, 2013). Participants also described the importance of accessing supervision to help them deal with the emotional and physical demands of managing risk and engagement within music therapy practice.

“There are some things that you can discuss within the school environment, but sometimes it’s good to get an objective viewpoint as well. Particularly with kids that I am struggling with, that I’m unsure how to move forward with, because their

behaviours are so unpredictable” (Grizelda).

In this context it appears that accessing professional supervision and creating a culture of peer support in teams may also lead to a greater willingness to share knowledge and loosen discipline boundaries for role release in programs. The leader of transdisciplinary teams has a key role to play in creating a supportive culture through modelling, and providing opportunities for staff to support each other in formal and informal settings.

All participants spoke of the diverse range of skills and training within the music therapy team, and that the eclectic, creative process energised their transdisciplinary practice. Odom and colleagues (2012) noted that a technical eclectic approach, one that synthesizes expertise from a range of models and disciplines, can be effective with children with autism if it is “conceptually grounded, incorporates evidence-based focused intervention practices, and is well implemented” (p. 270). There is a sense that this diversity was a strength of the team, rather than a barrier to creativity and team discussions. When describing the different approaches within the music therapy team, Bella and Grizelda said:

“Everyone has a different interpretation, and a different emphasis in how they would create an activity” (Bella).

“You sort of pull together and you get this really lovely depth of musical experience for the students” (Grizelda).

The participants’ comments on learning from the other music therapists may be imaginatively viewed as a hive mind. Oxford Living Dictionaries (2017) define the hive mind as “a notional entity consisting of a large number of people who share their knowledge or opinions with one another, regarded as producing either uncritical conformity or
collective intelligence”. In this interpretation, the music therapy team, although small in number, share their knowledge and opinions with one another, share the workload of creating resources, and in one sense become a more cohesive group in the process. It is through the sharing of collective knowledge and skills that they are able to draw on the music therapy team as a resource for their students. Together, the music therapy team may then determine how resources and strategies may be released to other members of the transdisciplinary team across the day.

Reflections on the transdisciplinary music therapist through a systems theory lens. Throughout the interviews, participants made various comments about their interactions with colleagues and the broader school system. As a further reflection, Author 1 considered the experiences of the participants alongside her role as a member of the school leadership team. A systems theory approach places emphasis on the interconnectedness of individuals with their environment and their society (Bronfenbrenner, 1979). It is precisely this focus on the relationships between the components of a system, rather than their distinctions, that make systems theory particularly relevant to this final reflection of a transdisciplinary context. Three layers of the system’s yearly cycle were identified, as depicted in Figure 2. Key actions for each layer of the school’s system, as well as the responsibilities and goals of each stage in the process of work across a school year, were considered.

At the beginning of the year, all members of teams plan professional learning based on student need, individual skills and experience, school budget, values and priorities. Within a transdisciplinary philosophy, time to meet, collaborate and consult together is prioritised. During the year, teams participate in these identified external learning opportunities, and continue to collaborate, provide peer support and build trust with each other. Meanwhile, leaders facilitate the ongoing implementation of professional learning and fostering a respectful culture through cross-disciplinary initiatives and provision of additional resource support. Special events often occur, such as arts access experiences and festivals, and these increase the blurring of boundaries between disciplines, since all members of the transdisciplinary team combine knowledge and skills to maximise student engagement in these wider life experiences. At the closing of the school year, teams review the previous 12 months, drawing satisfaction from student achievements and forging stronger professional relationships as a result of sharing knowledge across discipline boundaries. Learnings from the school year then feed forward into the following year, influencing further professional learning and team collaboration needs. The key positive outcome for this transdisciplinary school is the developing of stronger teams through increased professional knowledge, skills and trusting relationships.

When the three layers of this process cycle are combined, they show a complex, interactive system. Systems theory (Bronfenbrenner, 1979) and parallel processes (Smith, Simmons, & Thames, 1989) are useful lenses through which to consider how the layers of a system interact with one another. “When two or more systems – whether these consist of individuals, groups or organizations – have significant relationships with one another, they tend to develop similar affects, cognition and behaviours” (Smith, Simmons, & Thames, 1989, p. 13).
For example, when the school principal is supportive and treats the staff with positive regard, encouraging learning and reflection, this leadership influence flows through the school leadership team, and to the class and therapy team leaders by encouraging them also to set directions in a consultative, positive manner. This positive flow of influence then re-appears in how individual staff treat students, in supportive and engaging ways that respect their rights to make choices and direct their own learning as much as possible. As a member of several teams across programs, the music therapist has a key role to play in sharing knowledge, releasing aspects of their work, and collaborating with all levels of the system to build a culture of respect between disciplines.

**Conclusion**

Music therapists in transdisciplinary teams are faced with a number of benefits and challenges through being involved in multiple layers of professional learning, collaboration and role release. The four music therapists who participated in this study identified several key considerations for their roles within transdisciplinary teams. They found that supporting students in non-music therapy programs actually enriched their understanding of student needs and connected them strongly within teams. They revealed that the transdisciplinary learning that occurs on an interpersonal level by releasing expert boundaries between professionals of the same or differing disciplines, had an immediate and lasting impact on their work. However, there could be disadvantages to working alongside each other in groups for the majority of the
time, as seen in the absence of individual music therapy programs that may be beneficial and necessary for some, if not all students. For music therapists working within teams, it is important to view how the wider school system operates, and to navigate their responsibilities within that system to sustain and grow their practice. This first, exploratory study into a school-based transdisciplinary music therapy team suggests that by actively participating in learning and collaboration within and across disciplines, transdisciplinary music therapists have the potential to make significant contributions towards positive outcomes for students within the specialist school system.

Acknowledgements

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References


Reiners, G. M. (2012). Understanding the differences between Husserl’s (descriptive) and Heidegger’s (interpretive) phenomenological research. *The Journal of Nursing Care, 1*(119). doi: 10.4172/2167-1168.1000119


Appendix A

Individual Distilled Essences

Bella.
Bella experiences working at Giant Steps as a challenging job requiring great stamina, but she feels rewarded by seeing student gains and by having the support of her team. She loves being part of a team that is dedicated to supporting their students and is able to have fun whilst doing it. Due to her role working with students across the day, she sees great value in helping them generalise positive skills and experiences to other settings. Since students can become very bound in routine, she feels it is important for them to work on self-expression through improvisation, but that groups may not always be the best format for working on this goal. Bella reflects on and develops her own practice by observing and speaking to other professionals at the school. She believes her practice is richer by taking on philosophies and strategies from a range of information sources. Creativity and diversity in clinical approach are absolutely essential to Bella in sustaining her ability to meet individual student needs. She also uses her intuition to sense what they need in the moment and adjusts her approach accordingly. It is important for Bella to enjoy the musical material she uses, as she knows it makes her a more effective and authentic music therapist. She draws musical inspiration and opportunities for self-care from outside the school. Being able to build a solid rapport and make deeper connections with students through music gives Bella great satisfaction. She loves seeing her problem-solving efforts result in increased student engagement and achievements made over time.

Louise.
Louise finds Giant Steps to be a challenging job with very high expectations of its staff, however being part of a team of respected music therapy professionals helps her to feel supported in meeting those challenges. Being a part of a diverse team of music therapy professionals informs her practice through planning, researching and creating resources together in a collaborative manner. Additionally, being part of a transdisciplinary team sustains her practice through solving problems together and by sharing the good and the bad days with each other. She experiences working within the school curriculum as fast-paced and highly pre-determined and having a lower capacity for flexibility than her music therapy work outside the school setting, but it also can inform her other work through transferring themed resources to other settings. At times, she finds that working in groups feels more like teaching than therapy, feeling disappointed that opportunities for sustained interaction through improvisation are often missed in the interest of keeping the group regulated. Louise gains the most value from professional learning that is practical in nature and relevant to her work, especially when it helps to push her learning edge. Speaking to Giant Steps staff, her external peer group and other people, as well as watching the work of others in person or online influences how she approaches her work with students. Looking to her own instinct, reflection and observation of student engagement tends to guide her practice in the moment and from week to week. During school term time, Louise sources reading and information from a range of academic and general
online media sources, and despite being time-poor, feels pressure to be reading more. Although she plans to read more in the school breaks, she finds it important to take a complete break from music therapy reading, planning and work at these times in order to sustain her enthusiasm. Louise finds meaning in the connections she has made with students, whether they be large or very small, and in the small but significant gains made by students within a musical relationship that has grown over a long period of time.

Sally.

Sally has experienced working at Giant Steps to be both exciting and challenging and it has allowed her to use her creativity well. She views her team as positive, equal and collaborative and trusts the information she receives when talking to them, even more than written client reports. It has been exciting for her to be part of a music therapy team where her work is understood, but she can occasionally get caught in comparing herself to others. Sally values well-structured professional learning that resonates with her own humanist, person-centred philosophy. She loves to read widely and finds that in her busy life, case studies provide information in a quick, digestible information format more so than theoretical, academic writing. Her practice is influenced by ideas adapted from a range of sources. Watching music therapists in action, either in person or on film, is useful to her as she often finds reading about music therapy techniques to be too vague. She relies on staff to help support student engagement, as she needs to remain aware of issues around personal safety. Building rapport and earning the trust of students has taken time but has also allowed her to be more confident in her practice. Liaising with other music therapy professionals at conferences and at an external peer supervision group provides her with avenues for support. She believes it is important to sustain herself through taking breaks to do things she enjoys, including writing and making music for herself. Sally finds great satisfaction in being in the moment with students, and in seeing their progress, no matter how small. She finds great personal value in using music that she loves in her work and in exploring and learning new music for different applications. Receiving positive feedback from families, students and staff makes her feel like a valued member of the team.

Grizelda.

Grizelda is inspired and buoyed along by Giant Steps staff who are passionate about what they do and have fun while they work. Belonging to a team makes her feel supported on hard days by being willing to solve problems collaboratively and by pitching in to do what needs to be done. She believes that the diversity of experience and approaches in the music therapy team is a real asset to the school and this helps them in sharing the creative load of creating resources. In her work, Grizelda draws on a variety of methods to address student needs, but she needs to critically evaluate them first before implementing into her practice. She places great value on reading for rethinking and clarifying how she works. She also finds that the level of student engagement and energy and their learning style tends to guide her practice in the moment. Grizelda finds value in developing skills through both music therapy and music curriculum, however she can sometimes find it challenging to focus on both, particularly within group sessions. She accumulates and articulates knowledge by collaborating with other professionals in her work. As a result, she believes that the transdisciplinary knowledge she has gained from working alongside
other disciplines has greatly enriched her practice. Grizelda knows that there is a risk of burnout in this kind of work and accesses professional supervision outside of the school to help manage issues, particularly those around personal safety. She finds satisfaction in collaborating on projects that have a positive impact on families and the community outside of Giant Steps, and she feels sustained by seeing the achievements of students and how these positively influence their futures.
Development of Regulative Music Therapy guidelines for early to mid-stage Parkinson’s disease

Williams, E.T.


In plain language:
Idiopathic Parkinson’s disease (PD) is a chronic degenerative neurological disease, the prevalence of which increases with age. Many pharmacological treatments have adverse side-effects and there is a need to explore non-pharmacological treatments that can be tailored to the individual’s requirements. Regulative Music Therapy is a method of becoming aware of oneself by recognising thoughts, feelings and sensations in a non-judgemental way. These are elements central to the technique of mindfulness. Therapies involving mindfulness and music have had some success in treating psychological and physical illnesses. This paper proposes a modified form of Regulative Music Therapy for treating people with Parkinson’s disease. Evidence from the literature together with information collected from an expert interview was used to propose a flexible guideline for further consideration by music therapists in treating people with Parkinson’s disease.
Development of Regulative Music Therapy guidelines for early to mid-stage Parkinson’s disease

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Abstract
Idiopathic Parkinson’s Disease (PD) is a debilitating neurological chronic condition that is more prevalent among older adults. Pharmacological therapies are used with varying success and there are many known adverse side-effects. Studies involving mindfulness-based interventions for PD have reported positive outcomes in alleviating PD-related symptoms, as have music therapy interventions. Regulative Music Therapy is a receptive music therapy method based on the principles of mindfulness, but little is known about its potential as a therapy for treating people with PD. This paper proposes a flexible Regulative Music Therapy guideline for further investigation, adaptation and possible pilot testing by music therapists in the treatment of people with PD. Information from an expert interview was analysed using qualitative content analysis and compared with evidence from the literature on mindfulness as a treatment mode for PD. Key components of this guideline include enabling independent flexible Regulative Music Therapy in the home and facilitating conditions under which participants feel safe, secure and supported in all aspects of the therapy.

Key Words: Idiopathic Parkinson’s disease (PD), mindfulness-based, neuropsychiatric symptoms, Regulative Music Therapy

Introduction
Idiopathic Parkinson’s disease (PD) is a progressive neurodegenerative condition characterised by motor and non-motor symptoms that impact on function to varying extents. There is no definitive diagnostic test and diagnosis is established through clinical criteria such as rest tremor and loss of postural reflexes. Estimates of incidence and prevalence in published studies differ due to varying data quality, methodological differences, and lack of consistency in case definitions (Dorsey et al., 2007; Jankovic, 2008). Like other chronic degenerative conditions, PD will place increasing demands on healthcare resources as populations age; people are living longer but not always in good health (World Health Organization, 2015). It is estimated that the number of individuals with PD will increase substantially in coming years due to earlier diagnosis, better case ascertainment and longer survival (Dorsey et al., 2007).

The neuropathology of PD relates to the loss of dopaminergic neurons in vulnerable neuronal populations within the brain...
Deficiency in the quantity of neurotransmitters prevents the normal movement of electrical impulses which are responsible for the planning and execution of movement in the body (Schapira & Jenner, 2011; Thümler, 2006). Disturbances in various regions of the autonomic nervous system are also common. Dominant symptoms include abnormally low muscle tone, dizziness, excessive sweating, gastrointestinal disturbances, drooling, swallowing disorders and obstipation (severe constipation). Neuropsychiatric symptoms, in particular depression, but also irritability, anxiety and panic attacks, are common (Chaudhuri, Healy, & Schapira, 2006).

In addition to motor, neuropsychiatric and autonomic nervous system disturbances, people with PD incur psychosocial difficulties and deficits in emotional processing and communication, including social awkwardness and unease in social interaction. Evidence of abnormal processing of emotion in people with PD was shown in a meta-analysis from 1,295 individual participants. The authors reported a robust link between PD and specific deficits in recognising emotion from both the face and the voice, and commented that the deficit was particularly acute with respect to negative emotions (Gray & Tickle-Degnen, 2010).

People with PD seek symptomatic relief through the use of pharmacological medicines. The drug, levodopa, has been commonly used as the main drug of PD treatment for almost fifty years (Tomlinson et al., 2010). However, long-term use of levodopa can result in motor and psychological side-effects about which there has been debate and discussion in the literature. Side-effects include mobility fluctuations (the absence of power to predict sudden ability or lack of ability in terms of movement), hyperkinetic movements, dyskinesia (in which voluntary movement becomes problematic) and dystonia (where muscles are contracted repeatedly causing spasms or postural irregularities) as well as psychological side-disturbances that include disoriented states of mind, hallucinatory psychotic states and depressive moods (Agid et al., 1999; Jankovic, 2002; Thümler, 2006). There is wide variation in the characteristics and symptoms of people with PD, making it important to find forms of treatment that are suited to the individual patient’s clinical and psychosocial needs as well as their specific manifestations and symptoms. Evidence suggests that mind-body interventions may reduce disability associated with PD (Bega & Zadikoff, 2014) although more research is needed in this area (McLean, Lawrence, Simpson, & Mercer, 2017).

**Mindfulness.** Mindfulness is described as “the awareness that arises by paying attention on purpose, in the present moment, and non-judgementally” (Kabat-Zinn, 2013, p.xxv). The Buddha’s 2500-year-old teachings are generally considered to be the original source of mindfulness, however various facets of mindfulness can also be found in other religious traditions and philosophies (Rappaport & Kalmanowitz, 2014). Mindfulness is now an emerging and complex therapeutic field with commonalities across western psychological and psychotherapeutic practice (Khoury et al., 2013). For example, Freud’s 1912 recommendations regarding the need for skilled attention for effective psychotherapy have been compared with the quality of bare attention or open awareness that is one of the goals of Buddhist Vipassana meditation (Rappaport & Kalmanowitz, 2014).
Mindfulness therapy. Mindfulness is commonly applied as part of the intervention known as Kabat-Zinn’s Mindfulness-Based Stress Reduction (Kabat-Zinn, 2003; Siegel, Germer, & Olendzki, 2009). In a meta-analysis of 39 mindfulness-based therapy studies Hofmann, Sawyer, Witt, and Oh (2010) reported strong effect sizes for participants with depression and anxiety disorders. Mindfulness-based interventions have also been used to build and strengthen adaptive coping strategies in the treatment of PD (Fitzpatrick, Simpson, & Smith, 2010). Other studies have demonstrated improvement in relation to depressive symptoms, emotional functioning and cognitive functioning (Cash, Ekouevi, Kilbourn, & Lageman, 2016) as well as PD motor symptoms (Pickut et al., 2015). Although there has been considerable research conducted that demonstrates the efficacy of mindfulness-based therapies, little is known about the integration of mindfulness into music therapy (Cairns & Murray, 2015; Medcalf, 2017).

Music therapy. There is increasing interest in studying the effectiveness of music therapy interventions amongst people with PD. Raglio (2015) reported the outcomes of six randomised controlled trials in which music therapy was used as an intervention for PD. Improvements were found in motor and non-motor symptoms. Most music therapy interventions for PD could be categorised as active music therapy. This term means that the patient is actively involved with an instrument, the voice or both (Eschen, 1996). On the other hand receptive music therapy methods involve hearing, listening to and experiencing various musical genres (Frohne-Hagemann, 1996).

Although little is known about the potential use of receptive music therapy for people with PD, such methods may be beneficial because they can provide respite from the rigours of more physically demanding forms of therapy. In discussing the relationship between practice and rest in physiotherapy for neuro-rehabilitation, Hauptmann (2008) noted that relaxed, well-spaced practice sessions were more effective than massed practice.

Regulative Music Therapy. Regulative Music Therapy is a receptive music therapy approach which originated in Germany. The method was developed by Christoph Schwabe during the 1970s. Schwabe et al. (1987) described Regulative Music Therapy as having “practising characteristics” (p.67) in which people learn by practising how to examine their own behaviour and experiences in ways that allow them to alleviate some forms of depression.

Professional training in Regulative Music Therapy is offered in annual six-month courses under the supervision of Christoph Schwabe at the Academy for Applied Music Therapy in Crossen, Germany. One of the important goals is for the student to achieve personal development through gaining knowledge of one’s self. This is realised by experiencing the therapy from the patient’s perspective. Competence in applying the method is attained by learning from the practical experience of applying the method as a therapist. See Appendix A for more information.

Schwabe’s work is still today regarded as important defining research on the topic. Recent scientific evidence on the effectiveness of Regulative Music Therapy is lacking. However, a study in Germany gives evidence in support of Regulative Music Therapy as an intervention for people with psycho-emotional problems. Wosch and Röhrborn (2009) used a pre-post design to test the effectiveness of three psychotherapeutic
and three music therapy interventions (including Regulative Music Therapy) on in-patients in the German psychosomatic clinic, Erlabrunn, between 2002 and 2008. The outcomes examined changes in alexithymia\(^1\) (primary outcome) and symptoms of various mental disorders (secondary outcome). The common thread across the therapies being tested was \textit{Selbstwahrnehmungsförderung} which means that subjects were encouraged to develop awareness of the self. Patients with borderline disorders showed significant follow-up improvement in alexithymia after group music therapy and significant improvements in other psychological symptoms following individual music therapy (Wosch & Röhrborn, 2009).

A wide range of symptoms and syndromes can be influenced by the therapeutic application of Regulative Music Therapy. Röhrborn, Schwabe and Unger state that the primary indication for Regulative Music Therapy may be syndrome specific and include anxiety disorders and autonomic nervous system disturbances that are common in people with PD (Schwabe et al., 1987). Other PD relevant symptoms that may be alleviated by Regulative Music Therapy are those relating to hypertension, hypotension, functional psychological disturbances such as sleep disturbances, anxiety and concentration disturbances (Schwabe et al., 1987).

The \textit{regulative} aspect of Regulative Music Therapy is achieved through the use of a psychotherapeutic tool referred to as \textit{Wahrnehmung}. This means perception or sensitive observation (Schwabe et al., 1987), which is very similar to Kabat-Zinn’s definition of mindfulness as “the awareness that arises by paying attention on purpose, in the present moment, and non-judgementally” (Kabat-Zinn, 2013, p. xxxv). However, mindfulness and Wahrnehmung are used in different contexts. For example, mindfulness might be employed simply by learning to establish an awareness of the breath or learning a specific physical awareness called a body scan, whereas Wahrnehmung refers to the awareness that is allowed to drift between perceptions that are either cognitive, emotional, mood-based, physical or acoustic by nature “in the spirit of aiming to accept that which occurs” (Schwabe et al., 1987, p. 71). Although the object of awareness and the context differs, it could be argued that the commonality between mindfulness and Wahrnehmung is the non-judgemental application of awareness in a specific therapeutic situation. In the case of Regulative Music Therapy this awareness is practised while listening to an excerpt of classical music selected by the therapist. Therefore, it is possible to view Regulative Music Therapy as a receptive form of Mindfulness-Based Music Therapy.

An important principle of Regulative Music Therapy is that participants are kept informed regarding the fact that they can quietly free themselves from their \textit{practise} posture and leave the room if they so wish. The music used for Regulative Music Therapy has a specific function and hence cannot be randomly chosen but rather selected to suit the current situation and therapeutic needs of the group. Schwabe et al. (1987) state that “calming” (p. 100) classical music can be used to relax the participants whereas music with great contrast, faster tempo and a variety of thematic material (e.g. music in Sonata form) can be used to activate the participants.

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\(^1\) Alexithymia is a disturbance in the ability to be aware of feelings (Taylor & Bagby, 2004).
Schwabe et al. (1987) also note that symphonic music is preferable to chamber music due to the wider spectrum of sounds and colours having a greater potential to “reach the individual” (p. 100). The music also has the function of being an object which participants may voluntarily allow their awareness to rest upon, an object that can be used for the purpose of expanding the ability to perceive a wider variety of cognitive, physical and emotional phenomena (Schwabe et al., 1987). Further information concerning Regulative Music Therapy is given in Appendix A.

As in other professions, music therapists need to be kept abreast of new developments and emerging research (Piet, Fjorback, & Santorelli, 2016; Ruijgrok-Lupton, Crane, & Dorjee, 2018). Synthesised data in the form of therapist guidelines can be useful when investigating and trialling new approaches.

This paper reports a small qualitative study that was undertaken as a first step for gaining insight into the potential application of Regulative Music Therapy as an adjunct treatment for people with PD. The results of this study are used as a basis for a guideline which could be given further consideration for adaptation and possible use by music therapists in treating people with PD.

Methods

Interview. Primary data was collected through a one-on-one expert interview conducted in German. The key informant interviewed was Ruth Breuer, a music therapist with several years of specialised experience both using Regulative Music Therapy and working clinically with PD patients. Ruth Breuer has co-authored articles for Musiktherapeutische Umschau with Karen Isaak (concerning integrated awareness) as well as with Helmut Röhrborn, a co-author of the seminal text Regulative Musiktherapie (1987). She was also involved in the planning of a concept for the implementation of Regulative Music Therapy for the university clinic in Erlabrunn, Germany (Schwabe et al., 1987). Ruth Breuer gave written informed consent for the interview and agreed to review the findings.

The following question was used as a prompt for gathering and assembling data from the interview: “In your opinion as an expert with experience and knowledge of this area, do you think that eight weeks of Regulative Music Therapy could lead to improvements in the mental health of people with early to mid-stage PD?”

This structured interview was conducted by telephone and was approximately thirty minutes in length. The content comprised eleven predetermined questions, the content of which was checked and cleared by an independent expert in Regulative Music Therapy and music therapy research methods. The interview was recorded in its entirety using a dictation application of a Samsung smartphone and then transcribed verbatim. Appendix B includes the interview questions.

Data analysis. The first step in the data analysis involved a qualitative content analysis (Mayring, 2015) of the interview data. Key excerpts were extracted from the transcript and generalised into condensed meaning units. Codes were used to describe the salient aspects of each unit. Table 1 gives an example of this process. The descriptive codes were labelled with the lower-case letter c and a number. Codes were combined into categories which were assigned with the upper-case letter C and numbers for cross reference. For example, descriptive codes c3, c5 and c6 were merged into the category Specific Planning labelled C3,5,6.
The next step involved a literature review which was undertaken to assess the extent to which the qualitative content derived from the expert interview was supported by the literature. Given that Regulative Music Therapy is largely confined to German speaking countries, a search of published literature was conducted in German using the terms Parkinson, Krankheit, Regulative and Musiktherapie inter-changeably in the PsychINFO and PSYNDEX databases. Due to the similarity between mindfulness from Mindfulness-Based Stress Reduction (Kabat-Zinn, 2003) and Wahrnehmung (Schwabe et al., 1987) the search also covered studies involving mindfulness-based interventions for PD. For each category derived from the content analysis, the following questions were posed: Was there evidence of support found in the literature? Was there contradictory evidence found in the literature? Categories supported and not contradicted by the literature were then assembled into a draft guideline for review and confirmation by the expert informant, Ruth Breuer.

Results

Table 2 shows the interview content categories and coded elements which were supported by both the literature and the expert informant.

Table 2. Description of supported categories

<table>
<thead>
<tr>
<th>Composition of categories</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3,5,6: Specific planning</td>
<td>Have specific objectives</td>
</tr>
<tr>
<td></td>
<td>Undertake frequent therapy sessions</td>
</tr>
<tr>
<td></td>
<td>Engage in independent practising of the methods</td>
</tr>
<tr>
<td></td>
<td>Ensure continuation of practise after the session ends</td>
</tr>
<tr>
<td></td>
<td>Participants should not overextend themselves</td>
</tr>
<tr>
<td>C8: Physical and psychological safety</td>
<td>Assisting participants to feel safe</td>
</tr>
<tr>
<td></td>
<td>Explaining voluntary exit and understanding the reasons for this</td>
</tr>
</tbody>
</table>
The categories formed the basis of a flexible guideline for further investigation, adaptation and pilot testing by music therapists in the treatment of people with PD. This guideline is outlined below.

**Proposed Guideline**

**Session parameters:** Specific short and long term objectives for PD participants’ learning of Regulative Music Therapy skills, including an objective for each session, but also overarching objectives for the duration of course. Therapy sessions should ideally take place twice a week, with each session lasting one hour.

**Specific planning:** Regulative Music Therapy for PD can be practised independently and continued privately following completion of the course. The therapist should provide clear explanations regarding informal practice and homework assignments.

**Physical and psychological safety:** Therapists must be careful to avoid participants becoming physically, cognitively or emotionally overextended by the demands of Regulative Music Therapy, and the patient’s subjective feeling of being safe is important. Therapists must be aware that due to neuropsychiatric PD symptoms, participants may need the tenets of Regulative Music Therapy to be explained slowly and repeated often. The traditional *lying down* posture of Regulative Music Therapy practice must be considered as an option only for the able bodied. Those who choose to do this can be offered help in getting to their feet afterwards. Similarly, if a patient has difficulty rising from a chair, support can be offered.

**Physical and psychological safety:** An initial reduction in the duration of the musical practice section of Regulative Music Therapy may help prevent the overextension of participants and with the gradual building of confidence with the method, this section could be incrementally increased and adjusted.

**Physical and psychological safety:** The Regulative Music Therapy voluntary exit must be clearly explained. This means that the participant may break off the practice session at any time if he/she feels unable to cope with the demands made.

**Physical and psychological safety:** Therapists must be very attentive and sensitive towards participants. Due to hypomimia (a reduced degree of facial expression) some participants may not have body language that can be easily interpreted. Others may be uncomfortable discussing their feelings or difficulties they are having with the therapy. In this case, it is recommended that the therapist seeks contact with family members of the patient who may be able to help.

**Discussion**

The lack of reporting of receptive music therapy methods for PD indicates the need for investigation and trialling of safe receptive methods that may be suited to the myriad of symptoms associated with PD. The existing body of evidence on the value of Mindfulness-Based Stress Reduction (Kabat-Zinn, 2003) in regard to mental health disorders, such as depression and anxiety, suggest that mindfulness/Wahrnehmung may be an effective technique for neuropsychiatric aspects of PD. However, the implementation and testing of therapies must be handled cautiously, with flexibility and openness to consider new evidence. It is essential to recognise and allow for individual differences in people with PD, not only between stationary and ambulatory treatment groups but in terms of individuals’ backgrounds in
relation to, for example, age, sex, ethnicity and socio-economic status (Medcalf, 2017; Ramos & Gonçalves, 2016).

In terms of applying the concept of Regulative Music Therapy for PD in a future pilot study, there are many issues to consider. Acknowledging the potential influence of the placebo effect, for example, is of importance for any trials involving PD since there is evidence of the “placebo induced release of endogenous dopamine in the striatum” (Pickut et al., 2015, p. 4). Although a release of dopamine would improve various aspects of health such as motor skills and depression, it would be difficult to accurately ascertain placebo effect induced improvements. Also, trial participants could be asked about their prior knowledge of Regulative Music Therapy because it is possible that prior perception of the method may influence the outcomes.

Follow-up measurements three months after the completion of a trial would also be recommended. Such an assessment is important as a means of determining whether participants have been able to successfully practise Regulative Music Therapy independently. Successful independent practise hinges largely on the organisation of a structured homework program and also on the motivation of individual participants (Jion, 2014).

The advantages of Regulative Music Therapy is that it combines a technique of mindful awareness with receptive music therapy in a structured, established framework. Despite the recent interest in mindful music therapy techniques, such therapies have yet to anchor themselves in clinical settings. Medcalf (2017) noted that while an extensive amount of research supports mindfulness-based therapies, research involving mindfulness and music therapy is still in the early stages. Research efforts that focus on building the evidence base for mindfulness and music therapy are, therefore, needed.

Regulative Music Therapy is not limited to German speaking countries. At the 13th World Congress of Music Therapy in 2011 in Korea, a lecture titled Using Regulative Music Therapy at a college counselling centre in Japan was given by Naoko Moridaira. Subsequently, at the 15th World Congress of Music Therapy in 2017 in Japan, Naoko Moridaira and Issho Fujita delivered a presentation titled Mindfulness-Based Music Therapy and Buddhist Meditation - Dialogue of Regulative Music Therapy and Zen. This highlights not only the connection between Regulative Music Therapy and mindfulness, but also that discussing and comparing similarities and differences between techniques from different cultures is valuable as a potential stimulus for new ideas, and as a means of viewing existing ideas from other perspectives.

The purpose of this paper is to inform a broader international audience of music therapy teachers and practitioners. Publication in an Australian-based journal will contribute to wider international discussion and provide a foundation for future research into potential applications of Regulative Music Therapy for people with PD.

Limitations

Having only one interview can be considered a limitation. However, the informant, an expert in the field, provided in-depth insights and confirmed the relevance of the content analysis. This is a legitimate method used in qualitative research (Baškarada, 2014).

It would have been preferable to have had the opportunity to conduct a follow-up interview. Moreover, a second researcher
could have been used to assist with inter-coder reliability by independently analysing the material using the same method. However, these results provide a basis for further work in this area.

Conclusions

People living with PD are in need of non-pharmacological therapy forms that can treat a wide variety of symptoms. It is necessary to offer a range of therapies to suit the infinitely differing manifestations of PD and the personalities of the individuals involved. The accessible, practical and attractive nature of the musical aspect of Regulative Music Therapy combined with the effectiveness of mindfulness techniques suggest a therapy form that requires further research and investigation for people living with PD.

The proposed guideline allows for participants to learn how to practise the therapy in their own homes independent of the therapist. Subtle modifications to various aspects of the therapy have been suggested to specifically suit people with PD. There is a need for further investigation and research regarding the use of Regulative Music Therapy to relieve motor, neuropsychiatric and psychosocial symptoms associated with PD.

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References


Piet, J., Fjorback, L., & Santorelli, S. (2016). What is required to teach mindfulness effectively in MBSR and MBCT? In E. Shonin, W. Gordon & M. Griffiths (Eds), Mindfulness and Buddhist-Derived Approaches in Mental Health and Addiction (pp. 61-83): Springer. https://doi.org/10.1007/978-3-319-22255-4_4


Appendix A

Regulative Music Therapy Procedure for Groups
A summary of the procedure of Regulative Music Therapy would be:

1. Assumption of Regulative Music Therapy practice position, either sitting comfortably or lying down.
2. Therapist gives brief verbal instructions referring to the session (including the goal of the current level (Stufe)) then plays the music on the stereo (most commonly symphonic music from the 18th or 19th or early 20th century) that has been pre-determined based on the need for patient activation or relaxation.
3. Participants employ Wahrnehmung/mindfulness in relation to their cognition, physical sensations, emotions, moods and acoustic perceptions (music from stereo but also any background noise). This Wahrnehmung could be attempted for the entire duration of the musical excerpt, usually 10-15 min.
4. Participants are encouraged to gently stretch, returning to their normal physical state and subsequently to sit on a chair in the semicircle formed around the therapist’s chair.
5. Group discussion. The therapist asks each patient for input as to their experience of Wahrnehmung during the practice session, describing their perceptions without adding personal interpretation.

Regulative Music Therapy Therapeutic Objectives
Therapeutic objectives are: (a) reduction of patient anxiety, (b) the regulation of psycho-vegetative functioning (influence of psychological states on basic bodily functions), (c) recognition and experience of the psychogenesis of symptoms (of central relevance to Regulative Music Therapy treatment of psychological or psychosomatic disorders but not to PD), (d) influencing of the symptoms, (e) expanding and differentiating between aspects of the Radius of Experience (can assist in altering a negative emotional state), and (f) activation of creative processes (has potential to improve quality of life).

Individual Practice
Regulative Music Therapy is generally practised in a group setting. Schwabe et al. (1987) stated that Regulative Music Therapy group sessions could include individual practise. One of the great advantages of Regulative Music Therapy is that once it has been properly learned, it can thereafter be practised individually without the assistance of a therapist, enabling ongoing benefits beyond regular therapeutic treatment.
Appendix B

Interview Questions for Ruth Breuer

Translated from German

1. Please tell me a little about some of your experiences using Regulative Music Therapy with patients in the hospital in which you worked.
2. Could you tell me something about your everyday experiences with patients with Parkinson’s disease in the hospital in which you were working?
3. Would you say that Regulative Music Therapy is more suited to be used as an intervention for the psychic, motor, or autonomic nervous system disturbances in the context of the treatment of Parkinson’s disease?
4. In your expert opinion and with knowledge and experience in this area, could an eight-week Regulative Music Therapy intervention for participants with Parkinson’s disease lead to improvements in mental health observed by instruments such as the Beck Depression Inventory, the Montgomery Asberg Depression Rating Scale, the United Parkinson’s Disease Rating Scale and the Parkinson’s Disease Questionnaire 39?
5. If following such an intervention, improvements in Parkinson’s disease symptoms can be measured simultaneously with improvements on a scale such as the Freiburg Mindfulness Inventory, could the conclusion be drawn that the symptomatic improvements are a result of the Regulative Music Therapy? Could one then go on to state that one of the core elements of Regulative Music Therapy is mindfulness?
6. One element of Regulative Music Therapy not found in Mindfulness-Based Interventions is the Stufen or steps of progress. Would it be advisable to use the Stufen model in the context of an 8-week Regulative Music Therapy intervention?
7. Is there a reasonable probability that the regular, independent use of Regulative Music Therapy following an intervention such as the aforementioned could enable participants to maintain to some extent the improvements measured?
8. Do you believe that the standard Regulative Music Therapy group discussion could be of benefit to participants despite the prevalence of mild cognitive impairment, depression and speech/language disorders amongst Parkinson’s disease?
9. What aspects of the group discussion would you modify so that it is better suited for people with Parkinson’s disease?
10. How would you optimise the practice component of Regulative Music Therapy so that it can be of greater benefit to those with Parkinson’s disease?
11. Would you expect there to be a higher chance of voluntary exit from a Regulative Music Therapy session as a result of the diversity of the Parkinson’s disease symptoms as there would be for say, participants with psychosomatic disturbances?