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ORIGINAL RESEARCH ARTICLE



A theoretical framework for the use of music therapy in the treatment of selective mutism in young children: Multiple case study research

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ABSTRACT

Introduction: Selective mutism (SM) is an anxiety disorder that affects some children when they begin school. If left untreated the long-term impact can include complex, debilitating mental health conditions. The usual presentation is lack of speech in the education setting, contrasting with confident speech at home. Prevalence is estimated at 0.7% but can be three times higher for children who are immigrant second language learners. There is some evidence to suggest that music therapy is helpful but a deeper understanding is needed. This study aims to develop a new theoretical framework for the use of music therapy for young children with SM.

Method: The paper reports on multiple case study research of music therapy for six children with SM aged 3–5. Template analysis combining inductive and deductive enquiry is used to revise and develop the framework.

Results: The six case studies describe contrasting *paths into speech*. Four key domains – Approach; Therapeutic Process; Interconnected Elements of Music Therapy; Context – were necessary to clinical practice across cases, and are presented in detail in the final theoretical framework. Music therapists bring many useful skills, with musical communication established as an empowering tool for alleviating SM.

Discussion: The framework provides the theoretical basis for comprehensive guidance for music therapy with young children with SM. An open, flexible, multi-modal approach, integrating teamwork and considering transdisciplinary practice, is indicated. The need for SM training for music therapists and the potential role of music therapy on the care pathway for SM is demonstrated.

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KEYWORDS Selective mutism; anxiety; multiple case study research; music therapy; children; transdisciplinary practice

Introduction

Selective mutism (SM) is an anxiety disorder whereby people are consistently unable to speak in specific situations (APA, 2013). SM most commonly occurs in children first entering the school system. Children with SM typically use normal speech at home but find it impossible to speak in school due to anxiety about speaking in that setting. SM should have persisted for a month before diagnosis and should not be due to lack of

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knowledge of a language. Any immigrant children learning a second language at school should be closely monitored after a month of silence to distinguish whether lack of speech in either their first or second languages is anxiety-related. Studies estimate prevalence of SM in younger children at around 0.7% (Bergman et al., 2002), noting that this is likely to be an underestimate (Cline & Baldwin, 2004), with rates higher amongst girls than boys in a ratio of approximately 3:2 (Kristensen, 2000; Steinhausen & Juzi, 1996). Awareness and understanding of this potentially debilitating condition are poor (Kovac & Furr, 2019), with children and adults with SM often being misunderstood as stubborn or controlling.

Diagnostic labelling of SM invokes ongoing controversy and debate as to whether it is an accurate description of the condition. Originally named “Aphasia Voluntaria” (Kusmaul, 1877) SM was renamed “Elective Mutism” by Swiss psychiatrist Moritz Tramer in 1934. Tramer felt that there was an element of choice, albeit perhaps unconscious, in who the person is able to talk to. From 1967, academic writers (Reid et al., 1967) gradually started using the term “Selective Mutism”, though without specific explanation, and it was formally adopted by the American Psychiatric Association in 1994. The implication of choice is misleading because many, if not all, children and adults with SM are desperate to speak (Roe & Phil, 2011).

Anxiety about speaking in specific settings is understood to be the most prominent causal factor in the development of SM (Anstendig, 1999; Cohan et al., 2008). Other factors such as a family history of shyness or SM (Steinhausen & Adamek, 1997), social phobia (Black & Uhde, 1992), social and general anxiety, childhood communication issues or developmental delay (Kristensen, 1997; Manassis et al., 2003) and more recently autistic features and behavioural inhibition (Muris et al., 2021) contribute to the current conceptualisation of SM having a multifactorial aetiology (Cohan et al., 2006; Muris et al., 2021). It has been highlighted that SM often remains hidden owing to poor awareness and the nature of this condition (Keen et al., 2008), although awareness is increasing in the UK through the work of the charity Selective Mutism Information and Research Association (SMIRA).

Second language learners

The stress associated with being an immigrant second or additional language learner can also be a causal factor in SM. Elizur and Perednik (2003) noted prevalence rates for SM were three times higher, at 2.2%, in children with immigrant backgrounds compared to children in general, as noted elsewhere (Cline & Kysel, 1987; Steinhausen & Juzi, 1996). An assumption that a “silent period” (Gibbons, 1985) is common in second language learning is challenged in later research (Roberts, 2014), which finds “limited empirical support” for this stage. However, it has been suggested that SM should be considered in children learning a second language when mutism is prolonged, disproportionate to second language knowledge and present in both languages alongside an anxious presentation (Toppelberg et al., 2005).

Overview of treatments for selective mutism

Early diagnosis (Schwartz et al., 2006) along with provision of effective early intervention is a priority (Busse & Downey, 2011; Hung et al., 2012) as SM can become increasingly entrenched as a child becomes older and may evolve into generalised anxiety disorder and social phobia (Cline & Baldwin, 2004; Forrester & Sutton, 2015).

Pharmacological treatment

Selective Serotonin Reuptake Inhibitors (SSRIs) prescribed for anxiety disorders have been used to treat SM, more commonly in the US than the UK (Manassis & Avery, 2013). There is some evidence to suggest that SSRIs may be helpful for persistent or severe SM that has not responded to other treatment but further research is needed (Carlson et al., 2008; Kaakeh & Stumpf, 2008; Manassis & Avery, 2013).

Behavioural/cognitive behavioural interventions

Behavioural interventions for SM view failure to speak as a way of avoiding anxiety connected with speaking. In their review Cohan et al. (2006) concluded that behavioural techniques were successful interventions for SM and continue to be the dominant approach (Howe & Barnett, 2013; Jacob et al., 2013). Cognitive behavioural therapy (CBT), employing techniques such as psychoeducation, relaxation techniques, exposure and cognitive restructuring, has been successfully used to treat SM (Fung et al., 2002; Ooi et al., 2012; Reuther et al., 2011). Involving parents in their children's treatment has evolved as a key ingredient in some behavioural strategies. Ale et al. (2013) describe two detailed case studies using systematic graduated exposure with parents delivering exposure tasks. In an investigation of a conjoint behavioural consultation framework, involving parents as active participants, Mitchell and Kratochwill (2013) concluded that a manualised approach would further assist in supporting school-based approaches for SM.

Internationally there are some notable variations in the way behavioural approaches are delivered. Intensive SM “bootcamps” in the U.S. (Selective Mutism Center, n.d.), and online CBT in Australia (Spence et al., 2008) address some of the practical, geographical demands of travelling to therapy sessions. Research on intensive methods in the US shows significant gains in speaking frequency (Klein et al., 2017).

In the UK, the Selective Mutism Resource Manual (Johnson & Wintgens, 2016) is a widely recommended practical guide to assessment and behavioural treatment. Key techniques are:

Anxiety reduction: creating a pressure-off, enabling environment through ensuring the team around the child has a good working understanding of how to support a child with SM;

Stimulus fading/sliding in: a conversational partner, such as a parent, shifts speech into a situation where it is absent, in small steps, by slowly introducing a manageable amount of anxiety represented either by a new person or space;

Shaping: speech is slowly elicited with a key worker using activities such as non-verbal communication and action-rhymes, sound-making, singing, humming, speech sounds and words;

Generalisation: the development of confident speech across all settings (Johnson & Wintgens, 2016).

Arts therapies

Arts therapies contribute to the treatment of SM, including dramatherapy (Oon, 2010), expressive play and art therapy (Fernandez et al., 2014) and arts therapies combined with behavioural techniques (Jackson et al., 2005; Moldan, 2005; Powell & Dalley, 1995). Cline and Baldwin (2004) state that music therapy “could have much to offer” but note the literature is sparse. In peer-reviewed case reports, Amir (2005) describes the music therapy process with “Shiran” who begins vocalising

with a dramatic scream, while Schulz and Sarimski (2011) employs behavioural techniques perhaps more than music therapy resources. In non-peer-reviewed clinical case reports, loud playing (Mahns, 2003; Monti, 1985; Sekeles, 1996) and the use of oral instruments (Trondalen, 2001; Von Moreau, 2005) are described as key elements.

This literature suggests both potential in exploring music therapy as an intervention for SM and a gap in research investigating the process of music therapy for this population. In a single case study of music therapy for a young child with SM (Jones, 2012) a theoretical framework was developed describing this therapeutic process (see supplementary material 1). This preliminary framework is used as the theoretical basis for the study reported here.

Aim

This research study aims to develop a revised theoretical framework fully describing the process of music therapy for young children with SM, guiding practice and informing future research. The study asks:

What are the main ingredients of music therapy that appear useful for children with SM?

How do the therapy narratives from the multiple case studies enrich or challenge the preliminary framework?

Method

Study design

Investigating the complex, active processes of multiple music therapy cases requires research tools that encompass the whole therapeutic process and context whilst also providing a pragmatic clinical evidence base of “how to get things done” (McLeod, 2010). This study takes a multiple case study approach grounded in key principles described by case study researcher Yin (2009), in psychotherapy research (McLeod, 2010), and in the established tradition of music therapy case studies and research (Aldridge, 2005; Bruscia, 1991; Hadley, 2003; Meadows, 2010). Explanatory multiple case studies (Yin, 2009) allow for theory to be developed, and key elements of an intervention that appear to have significant potential for a particular clinical need, to be thoroughly explored and analysed as to their relevance and utility.

Six case studies of school-based music therapy were delivered by the first author. The impact of the lead researcher also being the therapist is reflected on in the discussion.

Eligibility criteria

Children aged 3–5 in nursery or reception classes in an inner-city borough in the UK, identified by school staff as presenting with SM and confirmed as likely SM in parental interviews (Johnson & Wintgens, 2001), were included in the study. Formal diagnosis

of SM was not required for referral to the study as SM can be treated if recognised by school staff. Children were excluded if they were receiving support for learning difficulties, a disability, or emotional or behavioural issues.

Recruitment strategy

A presentation was given to the Special Educational Needs Coordinator (SENCo) network in the borough to introduce the study, and all SENCos at nursery and primary schools were asked to refer children to the study. Parents were given information about the study and invited to give written informed consent for their child's participation. Two assessment sessions were offered to all children in the study. Children assessed clinically as likely to engage with therapy received ongoing sessions.

A pilot case was used to test procedures which were judged by the authors as satisfactory and remained unchanged for the main study. Pilot study data were included in the main study.

Ethical considerations

Written, informed consent to their children's participation in the study was given by parents. Ethical approval for all procedures and consent processes was given on November 8, 2013 by the Music and Performing Arts Departmental Research Ethics Panel at [blinded] Anglia Ruskin University.

Clinical approach

Education about SM was provided by the first author to the parents and staff team supporting the child, with a particular emphasis on reducing pressure on the child to speak whilst offering plenty of opportunities for self-expression (Johnson & Wintgens, 2001), reinforced in weekly handover discussions with staff.

The general therapeutic stance was open, flexible and pragmatic to explore and identify the structures and techniques best suited to this population. Therapy was theoretically underpinned by the work of Stern (1974, 2010), and Malloch and Trevarthen (2009) who identified how the musical qualities of pre-verbal, early communication help build the emotional relationship with primary caregivers. The main approach in the sessions was interactive and playful but always guided by the child's emotional presentation in the room. The focus was on reducing anxiety and not leaving uncomfortable silences. Aspects of psychotherapeutic thinking such as containing and reflecting were utilised in the musical therapeutic relationship, balanced with an awareness of social and political context found in Community Music Therapy (Pavlicevic & Ansdell, 2004; Stige, 2002). Weekly individual sessions of music therapy were provided in the most appropriate space in the child's school. Sessions were term-time only with breaks for school holidays. A wide range of instruments were available in each session with novel additions such as a didgeridoo and toy karaoke machine to support specific therapeutic goals or needs. Therapy was child-led but incorporated typical music therapy structures such as Hello and Goodbye songs, interactive musical improvisation, known songs such as nursery rhymes, dramatic play and expressive movement. Length of session was guided by the child but was around 30 minutes.

A naturalistic timescale was employed; therapy had no set length, lasting either until children achieved confident speech in the sessions which was then generalised into the classroom or it was felt that they were not going to speak or benefit further from the therapy. It was anticipated from clinical experience and the literature that therapy would last between three and 18 months.

Data collection

Parental interviews were undertaken including socio-demographic data and personal history about the child using a structured parental interview (Johnson & Wintgens, 2001). Data from case studies were collected through:

- (1) video recordings of each music therapy session;
- (2) detailed clinical notes made after each session;
- (3) a research diary recording thoughts and insights.

Data were collected from January 21, 2014, to December 12, 2016. Minimal research on music therapy and SM has been published since this date (Hunt, 2020) and no multiple case study research, this study therefore remaining relevant.

Analysis

A modified version of template analysis (Brooks et al., 2015; King, 2012) was used to analyse case studies. The domains of the preliminary framework (Jones, 2012) were used as the template against which data from this study were compared (see supplementary material 1). Thematic analysis and narrative of the therapy process were blended to capture both the important ingredients of music therapy for children with SM and their sequential *paths* into speech. These processes were:

- (1) *Inductive thematic analysis of each case:*
 - (1) Immersion in research data through watching videos of the therapy, and reading the research diary and observational clinical notes made using the Subjective, Objective, Assessment and Plan (SOAP) method (Podder et al., 2020);
 - (2) Open coding of the entirety of the clinical notes, undertaken to ensure that the whole process of each case was included in the analysis;
 - (3) Plotting and clustering codes together to create categories;
 - (4) Producing thematic maps that interpret and connect categories (Braun & Clarke, 2006).
- (2) *Distilling the narrative of each case:* Analytical data reduction and distillation was used to demonstrate the “chain of evidence” (Yin, 2009) through writing summaries and creating data displays of the therapeutic narrative.
 - (1) Meaningful moments (Aigen, 1990; Aldridge, 2005; Jones, 2012; McLeod, 2010) were selected from distilled data and transcribed from video of the case to provide a “chain of evidence”. In this study, Meaningful Moments either:
 - i. encapsulate a distinctive episode in the therapy or

- ii. a nodal moment of significant change, for example, a sudden leap forward into vocalisation.
- (2) Meaningful moments were mined for further insight or themes to include in thematic maps.
- (3) Template analysis:
 - (1) Placing themes and overarching thematic areas on and around the theoretical framework,
 - (2) Noting how themes link to, and do or do not fit the framework,
 - (3) Identifying and describing modifications to the framework.

The therapeutic narrative and choice of meaningful moments were reviewed by the second author for accuracy and relevance to practice.

Results

Table 1 summarises main participant characteristics. The first five cases were children with SM and learning English as an Additional Language (EAL) who had recently migrated to the UK and had not been speaking in school for several months before SM was identified. This was not deliberate but the location of the study in an inner-city borough meant that this pattern of referrals was likely. For the final case a child with SM and English as their first language was recruited. The six children all progressed from having SM to speaking to staff and peers in the classroom environment during the period of music therapy and so all analyses were able to track a process into speech. Children are identified by a pseudonym in the table and in the presentation of themes that follows.

Case study themes

Nine thematic areas were identified in the analysis as indicated in **Table 2**. These thematic areas and their themes are explored below.

Therapist's knowledge of SM, skills and approach including therapy set-up

It was important to have a flexible, SM-informed approach to creating safe and helpful therapeutic spaces. For Tasha, the use of corridor spaces for therapy was ultimately key to sliding speech back into the classroom and Pilar initiated using a soft play area which met her need for physical self-expression resulting in speech. Embracing an open stance and responding positively to playful, “non-musical” initiatives from the children was often an essential component on their path into speech. Mark acted out battle scenes from the film “Star Wars” using “the force” which also involved loud vocalisation through a kazoo (supplementary file 2.1). Analysis highlighted this key role of vocal/oral instruments and equipment. A toy karaoke machine for amplified singing was a turning point for Tasha.

Knowledge about SM increased the impact of music therapy. For example, awareness that naming of known objects is far less anxiety provoking than spontaneous speech production meant that musical “naming” songs – such as Old Macdonald – (supplementary file 2.2) and playful naming activities related to colours could be successfully included in sessions.

Table 1. Summary of background information for the six case studies

Name (all names have been changed to protect the anonymity of the client)	Age Years. Months	School year at start	School year at end	Gender	Ethnicity	EAL	Language(s) spoken at home	Start date	End date	No. of weekly sessions
Daniel	4.4	Nursery	Nursery	Male	Ivorian (Côte d'Ivoire)	Y	English & French	21/1/ 14	24/6/ 14	19
Pilar	5.2	Reception	Year 1	Female	Ecuadorian	Y	Spanish	14/1/ 15	13/7/ 16	49
Tasha	4	Nursery	Reception	Female	Congolese	Y	Lingala & English	6/2/15	15/7/ 16	48
Maria	3.10	Nursery	Reception	Female	Ecuadorian	Y	Spanish & Wareni	11/5/ 15	7/12/ 15	21
Rabiyah	4.10	Reception	Reception	Female	Somali	Y	Somali	7/12/ 15	13/5/ 16	16
Mark	4.5	Nursery	Reception	Male	British	N	English	11/5/ 16	12/12/ 16	16

Note: EAL = English as an Additional Language

Table 2. Combined thematic areas and themes

Thematic areas	Themes
1. Therapist's knowledge of SM, skills and approach including therapy set-up.	<ul style="list-style-type: none"> • Session frequency and length • Openness and responsiveness • Incorporation of speech and language therapy ideas • Equipment • Session space • Mistakes made/lessons learned
2. The music of music therapy	<ul style="list-style-type: none"> • Always keen to attend • Musical engagement • Musical self-expression • Musical conversations, communication, relationship
3. Oral/Vocal	<ul style="list-style-type: none"> • Oral/Vocal features for each child • Features and uses of oral instruments and "props". • Oral-musical conversations • Singing • Vocal equipment and props • Other vocal expression • Humour and laughter
4. Physical	<ul style="list-style-type: none"> • Frozen physical presentation • Physical action • Mouthing and mouth-related behaviour • Lump in throat, "Globus sensation"
5. Dramatic play/imaginative play	<ul style="list-style-type: none"> • Imaginative play in the case studies
6. Emotional	<ul style="list-style-type: none"> • The therapeutic relationship • Anxious presentation • Immediate positive emotional impact • Building confidence • Increased happiness • Emotional issues related to SM • Non-SM-related issues • Emotional improvements
7. Generalisation of speech	<ul style="list-style-type: none"> • Creating a supportive environment • Introducing friends into sessions • Transdisciplinary working
8. The environment around the child	<ul style="list-style-type: none"> • Challenging school environment • Complex school and home environment • Chaotic to calm environment • The therapists' engagement with the environment around the child
9. Power	<ul style="list-style-type: none"> • SM as disempowering • Speech as empowering • Exploration and use of power

Challenging the frequency and length of sessions emerged as an issue from the second case onwards. This was evidenced by: children increasing their musical activity towards the end of sessions; children verbally articulating that they wished to attend music therapy more frequently; the extension of session times leading to increased vocalisation and speech which dramatically improved the trajectory of progress.

The music of music therapy

All children in the study indicated that they were keen to attend music therapy. This was expressed through skipping to sessions, appearing keen and smiling a lot at the beginning of sessions and later by verbalising positive feelings about attending.

There was evidence that the children accessed the therapeutic relationship through the medium of music. Anxiety, counter-balanced with natural curiosity or enthusiasm was a feature of much of the initial musical engagement in therapy. Pilar had a dramatic transformation from an anxious, “frozen” start (supplementary file 2.3), contrasting with noisy cymbal crashes by the end of the first session (supplementary file 2.4). By the end of their second session of music therapy, dramatic, loud self-expression was a prominent feature for all six children who otherwise spent their time at school in silence. Music was also used as an accompaniment to dramatic play in sessions.

Musical improvisation played a key role for Tasha, Rabiya and Daniel, and for the other three was important albeit less prominent. For Tasha and Rabiya sung improvisation was an essential ingredient. Interactive musical communication employing elements such as turn-taking, following the child’s lead and “same time” playing, often felt like we were having a distinct musical conversation or dialogue.

Oral/vocal

The oral and vocal components of music therapy provided a vital connection to the voice for the children. Table 3 summarises key features and progressions from oral to vocal to verbal expression.

A broad range of oral instruments were used including a recorder, swanee whistle, kazoots, mouth organs, a didgeridoo, train whistle and an ocarina. Vocal props included a toy karaoke machine, an echo microphone, a talking parrot toy (which repeats what is said into it), walkie-talkies, bubbles, a cup telephone and an old mobile phone.

Vocal equipment and props provided an important role in therapy sessions as a way of both encouraging, and enhancing or exaggerating the use of voice. The karaoke machine using the harmony setting was particularly supportive for Tasha. Rabiya used microphones as a way of partially hiding her mouth, both disguising and supporting her use of voice when answering questions before using her voice on its own. The echo microphone was helpful in eliciting and supporting vocalisations for Maria, Mark and Pilar.

Table 3. Oral/vocal elements

Name	Summary of role of oral/Vocal elements
Daniel	Delighted discovery of recorder. Lots of recorder/swanee whistle generally and vocalising through it as well as blowing.
Pilar	Loud recorder. Kazoot. Oral instrument conversations. Giggling, laughing, speech sounds. Slow creep towards speech.
Tasha	Early use of kazoot. Long expressive sung improvisations. Singing, laughing, vocalising prior to speech.
Maria	Blowing train whistle leads to giggling. Blowing bubbles. Loud laughing, roaring. Panting, exclaiming. Shrieking & screaming.
Rabiya	Oral instruments in 1st session. Mouth organ. Kazoot goes home. Kazoot singing. Singing into mics. Use of songs prior to speech. Use of didgeridoo as a tool for speech.
Mark	Picks up but can’t play mouth organ, recorder, kazoot and echo mic in 1st session. Plays mouth organ, recorder and swanee whistle then vocalises into echo mic in session 2. Loud kazoot battle in session 4.

Kazoos were a powerful resource in these cases as they require vocalisation to produce a noise. Children initially anxious about sound production took kazoos home to practice on, resulting in successful use in subsequent sessions. Kazoos were an important part of the path into speech for Tasha, Rabiya and Mark. The didgeridoo was another instrument that was helpful in playfully encouraging vocal and verbal production for Pilar and Rabiya. The close parallel between musical turn-taking and verbal conversations was very apparent.

The role of singing varied widely across case studies. For Tasha and Rabiya it was vitally important both for expressive free improvisation and as part of their individual paths into speech. Tasha appeared to “warm-up” her voice through improvised singing in sessions 11 and 12 prior to using words in session 13. Rabiya progressed swiftly from improvised singing to known songs, which provided the opportunity for speech through naming animals and colours in sessions 3 and 4. For other children singing was less important and other vocal expression preceded speech (see Table 4).

Humour and laughter is an important cross-cutting theme, combining emotional, physical, vocal and communicative components, which played a pivotal role in the emergence of vocalisation and speech for some children. In session 13 Pilar giggled and mouthed words, in session 14 laughed and made speech-like vocalisations, in session 15 laughed loudly and said the word “take”. In session 36 Pilar started talking after almost continual giggling and laughing (supplementary file 2.5). Maria appeared aware of the significance of giggling in her therapy process when she put her hand in front of her mouth whilst giggling in session 4. In session 5 Maria’s laughing became shouting and exclaiming.

Table 4. Other vocal expression

Name	Examples of vocal sounds	first speech
Daniel	n/a	(in classroom after 1st session)
Pilar	S5 “ah”, S14 “ah” “uh oh” “raah” loud exclaiming “eee” “aha”, S17 “Bop”, S18 “shhh” “ding dong” S24 “ay ow” “uh oh” & laughing, panting & vocalising “aah” with her running	(very gradual) S24 “yeah” S25 “me” S32 “yes, yay, flash, yep” S36 “no” many times S39 “do your homework” S46 chats throughout session
Tasha	S13 Blows into the mic also “hmm” “yer” & squeaks and coughs S15 Clicking noises with her mouth prior to speaking later in session S21 Coughing & “tired” vocal sounds	S13 “no” spoken at very end of session S22 Names colours as part of game
Maria	S6 Roaring like a lion. S7 Lots of exclaiming “aah” “uuh” “aooh” “uh uh” “uh oh” screams, & many other vocal sounds S8 “aaahohoh” “aah” “hnn” “ha” “he” “unn” “uuhhnn” “huh” “oohp” shrieks	S7 “Hello” “No” & “Yes” S8 “no” many times. Later expressive full sentences
Rabiya	n/a (uses singing prior to speaking)	S3
Mark	S1 “hm” & coughs S2 “hm hm” “mmmm” S3 “oh” “Hm hm hmmmmm” + heavy breathing sounds S7 Gun sounds S8 “Tsch, tsch” “khooo” – play fighting noises	S8 Whispers “Ghostbusters”

Physical

In many of the cases children presented with a “frozen” physical appearance both in therapy and in school, typical of children with SM (Johnson & Wintgens, 2016). Tasha sat in the same place for the whole of the first session moving only minimally to play some instruments. Pilar was initially similar but became more physically active after an improvised game of “musical football”. Both Pilar and Mark experienced initial difficulties producing sounds on the instruments which mirrored the physical and emotional components of SM.

Conversely, strong physical gestures and movements were later an important feature of the therapy process for Pilar, Maria and to a lesser degree Mark. Imaginative physical games were an essential component of Pilar’s therapy as words started to emerge in session 32. In session 9, Maria engaged in over-exuberant dancing then made a “slide” from cushions and scarves accompanied by expressive vocalisations and ultimately a few words: “yes”, “yeah” and “no” (supplementary file 2.6).

All the children engaged in silent mouth movements, often referred to as mouthing (Kearney, 2010), to varying degrees immediately or a few sessions prior to vocalisation or speech. Daniel did this mouthing in his first session and then spoke to two nursery staff after the session. Pilar engaged in mouthing in session 13 and then made speech-like vocalisations in session 14. Mark engaged in a lot of mouthing in sessions 1–6 before whispering in session 8, followed by a lot of speech in session 9.

Dramatic play/imaginative play

Imaginative or dramatic play was an important feature of the therapy for four of the children. Pilar employed puppets to engage in a lot of imaginative play early in her therapy process. Magic and transformation appeared to be an important theme in her play narrative. For Tasha, the novelty and humour involved in puppet play in session 13 seemed to provide the final crucial ingredient for eliciting speech (supplementary file 2.7). Imaginative and dramatic play, involving “Star Wars” battles and, later, superheroes in pair work was key to supporting Mark in a successful therapeutic journey. The use of puppets appeared to give Maria permission to explore feelings of frustration and personal power.

Emotional

For all children, the emotional impact of having SM seemed profound but once their SM had reduced or gone this impact appeared lifted. There was also an overriding, urgent sense of their need for effective therapy and then, once successful, a palpable feeling of relief and happiness.

The therapeutic relationship emerged in the analysis as being of great relevance for these children with SM. All children presented as either anxious, “frozen” or significantly affected in other ways by their communicative isolation at nursery or school, as manifest in absent, impoverished or challenging peer relationships. Maria was highly anxious and isolated in her classroom environment but through an open and responsive therapeutic relationship had a means of communicating and relating. She was fascinated by the therapist’s interest and attention to her actions and sounds, particularly when the musical communication was very clear, such as in “same time” drumming or closely reflective playing.

There was a feeling of intensity about therapy for Maria who seemed to transform her anxiety into energy through laughing, dancing and physical movement, and then literally sliding into speech by exclaiming, shouting then bursting into speech and suddenly becoming talkative. Tasha also had an anxious, “frozen” presentation and flat affect. She regularly protested about going back to her classroom after sessions. Once Tasha began to speak in the sessions, she started to describe her feelings saying that she felt “horrible” (session 20) and “scared” (session 21). All children appeared to experience an immediate positive emotional impact as reported in the therapist’s clinical notes of discussions with class teachers.

Communicative confidence increased within therapy sessions and was also noted by the children’s class teachers within the classroom environment. Daniel and Mark spoke to their nursery teachers after their first session of music therapy. Pilar’s class teacher noted an increase in speech with peers after seven sessions. After singing in session 11 Tasha was reported to have spoken to a teaching assistant in her classroom. Tasha and Rabiya’s class teachers also noted increased smiling and laughing.

Poor peer relationships were an issue for Maria and Tasha. Tasha shared her feelings about her desperate need for friendships in the sessions and so group work was developed to meet this need and support speech generalisation. Later in Rabiya’s therapy process, the sessions appeared to provide a safe space for her to verbally express some angry feelings. These were mainly directed towards the therapist who aimed to contain and process these feelings (supplementary file 2.8).

Generalisation of speech

Providing information to staff and family to help create a “pressure-off” environment was a key technique in each case. The degree to which schools absorbed and applied this approach appeared to make a dramatic impact on the speed in which speech was generalised (see supplementary file 3). This was most clearly seen with Mark who moved from a nursery class where he was under pressure to speak, to a reception class with an excellent approach where his speech generalisation progressed rapidly. The “sliding in” technique was employed for Tasha with two peers – or “conversational partners” – being successfully introduced into her session. Transdisciplinary teamwork with a Speech and Language therapist (SLT) was then used to hand over the important aspects of the group and duplicate the session at other times in the week. The SLT then slowly “slid” the group down the corridor towards and then into Tasha’s classroom.

The environment around the child

The environment around each child appeared to have a general impact on the progress of therapy (supplementary file 3). In most cases therapy was between 16 and 21 weeks, however Pilar and Tasha’s therapy was 49 and 48 weeks respectively (Table 1). A number of factors contributed to a long therapy process for Pilar including high school staff turnover, poor understanding of SM and how to support it in the staff team, and lack of support for the therapy itself. Despite frequent reminders, Pilar’s family placed continuous subtle pressure on her to speak which probably also had a negative impact. The therapist maintained regular communication with Pilar’s family and staff team, renegotiated a time for therapy when the school were unsure of its value and provided accurate information and resources to build an understanding of SM. Tasha had a complex school environment which appeared under-resourced and unable to support the therapy process until towards the end. Her home life had

multiple challenges including poverty, homelessness and parental separation. Together these factors appeared to negatively impact progress with Tasha unable to resume speaking for many months after the break for the summer holidays.

Power

Power emerged as an overarching theme linking different thematic areas. Children were disempowered by their inability to communicate important aspects of their lives such as safeguarding concerns (e.g. Tasha), and negotiate friendships and play activities (e.g. Maria). Music therapy empowered children to find their musical and then actual voice in sessions. This was celebrated in descriptive, superhero play (Mark, Tasha) and felt in a shift in therapist-client power dynamics (Rabiyah, Tasha). In Tasha's therapy aspects of the group work were handed over to a SLT. When the SLT first supported Tasha's sessions it felt as though we were rescued by a "superhero". Emotionally, the children appeared to harness their inner power and energy. For Pilar and Maria this was through lively physical play, for Mark through imaginative play using the "force" from the film "Star Wars". All children discovered their own communicative strength through loud playing on powerful instruments as well as instruments that empower the voice.

Case narratives

The individual therapeutic narratives or *paths into* speech are evidence of the multiple ways that each child utilised the various elements available to them (see Table 5). These narratives tell different stories through time, yet they contain noticeable similarities. They also highlight the impact of the school and home environment on the therapy process. The therapy features are a distillation of a complex process into the most important aspects that demonstrate the path into speech. For further details of the case narratives see supplementary file 4 and Jones (2019).

Final theoretical framework

The new theoretical framework, re-shaped to accommodate the themes presented above, is shown in Figure 1 (a more detailed version of the framework can be viewed in supplementary file 5). The main domains of the framework are discussed below.

Approach

The research emphasized the importance of a comprehensive understanding of SM. Knowledge of SLT assessment tools and concepts regarding anxiety levels linked to different forms of speech was crucial to the success of the therapy. In addition, the value of creating a team around the child with SM to support and deliver a clear and consistent approach, including parents or carers and staff relevant to the child, was demonstrated. As part of this process it might be important to identify which team members would be appropriate to support the generalisation of speech. To support the therapist, a clinical supervisor experienced in treating SM would assist in problem-solving clinical issues. The cases demonstrated how an open, flexible approach to music therapy, following whichever expressive medium is suggested by the child at any given point, is also essential.

Table 5. Summary of paths into speech

Name	No of sessions	Summary of path into speech	Therapy features	Speech progress
Daniel	19	Atypical – speech in nursery not in therapy	<p>S1 Focussed, musical engagement</p> <p>S4 Loud cymbal crashes and loud drumming</p> <p>S8 Intense overblown recorder</p> <p>S11 Wants to bring a friend in to the session which I declined to do but later felt this was a big mistake</p> <p>S14 Plays cymbal at window for friends to see.</p> <p>S1 Frozen presentation. Warned up playing musical football with shaky eggs. Loud cymbals by end of session.</p> <p>S11 Oral instruments similar to vocal conversation</p> <p>S20 School threatens to discontinue music therapy. Pilar's mother complains. Therapy continues.</p> <p>S22 Guessing animal games and extended sessions as vocalisations occur towards the end of sessions.</p> <p>S31 Sessions in soft play room</p> <p>S37 Feeling of tiredness.</p>	<p>S1 Speech reported in nursery with 2 adults after session</p> <p>S4 Speaking to a friend in nursery</p> <p>S8 Limited speech across all nursery settings</p> <p>S14 Freely speaking to friends, single word responses with adults</p>
Pilar	49	Painstakingly slow path into speech Challenging school environment	<p>S1 Frozen presentation but with clear, quiet musical engagement</p> <p>S7 Playing everything, playing loudly</p> <p>S11 Beautiful singing into microphone</p> <p>S12 More microphone singing</p> <p>S13 Loud xylophone & cymbal</p> <p>S16 Loud singing-extended session, doesn't want to go back to class</p> <p>Summer holidays</p> <p>S17-21 <i>Tricky reconnection, gaps in therapy, homelessness, child protection investigations</i></p> <p>S29 Says "I want some friends to play with me here!"</p> <p>S36 Session interrupted by SLT. Intensive generalisation work planned.</p> <p>S40 Therapeutic group work in MT now.</p> <p>S47 Further emotional work, positive group bonding.</p>	<p>S14 Giggling/laughing + speech-like vocalisations</p> <p>S17 "bop"</p> <p>S18 "shh" "ding-dong"</p> <p>S24 Animal sounds "ay ow" (hello) "yeah" "uh oh"</p> <p>S26 Talking loudly to friends outside of session</p> <p>S32 "Yes, yay, flash, uh, ooooh, yep"</p> <p>S36 Lots of "no"s.</p> <p>S38 Longer sessions help to get speech going. "Sleep", colours, counting, quiet sentences</p> <p>S42 Long sentence chatting.</p> <p>S48 Louder chatting</p> <p>S8 Kazoo conversation</p> <p>S11 Speech reported with a teaching assistant.</p> <p>S13 "no" x3 + other vocalisations</p> <p>S15 Lots of speech at the end of the session</p> <p>S16 Lots of speech</p> <p>S17 No speech for 4 months (after summer holidays)</p> <p>S22 Imaginative game with colour naming.</p> <p>S23 Lots of chatting</p> <p>S24-28 Struggles with speech generalisation</p> <p>S31 Friend T added. Speaks to T.</p> <p>S35 Friend M added. Speaks to M.</p> <p>S37 Intensive transdisciplinary work begins.</p> <p>S47 With SLT – successful "sliding in" to next class teacher and T speaking in front of the whole class</p>
Tasha	48	Long process due to complex school and home environment		

(Continued)

Table 5. (Continued).

Name	No of sessions	Summary of path into speech	Therapy features	Speech progress
Maria	21	Anxious presentation but intense rapid progress Positive school environment	S1 Anxious presentation. Plays lots of instruments in rapid succession. S2 Cymbal crashes. Doesn't want to finish. S6 Fighting puppets S7 Dancing Summer holidays S10-15 Chatting and playing S16-21 Sessions with a friend.	S3 Humour and laughter S4 Loud laughing S5 Laughing, shouting, exclaiming S6 Roaring/vocalising into the mic S7 Speech-single words S8 Expressive full sentences S9 Lots of speech and generalisation into nursery Summer holidays S10 Talking to new class teacher when I pick her up. S16 Increased confidence in classroom.
			S1 Very positive. Plays oral instruments, likes "same-time" game & smashing cymbals S3 Dance-like. Loud cymbal. Kazoo singing. Doesn't want to leave. S7 Louder and more confident S9 Heartfelt singing. Mic in mouth. S12 Wants to pretend to be my teacher. S15 Sharing abusive/bullying feelings S18 Upset at finishing. Wants to stay forever. Long discussion.	S1 Quiet chuckles S3 Tentative naming of animals in the session S7 Confident didgeridoo conversation S9 Lots of language in session. Talking to friends and teaching assistants (TAs) outside. Class teacher (CT) reports whispering in class. S13 Using a loud voice to CT and friends. S14 "I hate you, I'm joking" (to therapist) S15 "I'm going to beat you up you dumb girl!" (to therapist)
Mark	16	Quick path into speech Chaotic to calm school environment	S1 Quite anxious S2 Oral instruments. "mm mm" vocal sounds S4 Star wars drama. Loud cymbal. Summer holidays S8 Visits therapy room with a friend (Jacob) S9 Pair "superhero" play S13 Musical accompaniment to the drama. S16 Vivid imaginary play – very positive feedback from parents S17 Very positive ending.	S1 Mouth movements. Little vocal sound. Spoke to CT at the end of the day. S4 Vocal conversation with kazoots Summer holidays S8 Audible speech with friends outside and in the classroom. Whispers "ghostbusters" S9 Mark 1st speech 6.48 mins. 20 mins onwards just speech. S10 Both talking throughout the session. S12 Mark is talking to CT, TA and other children. S17 M & J discuss generalisation of their play into the classroom.

Note: S = session

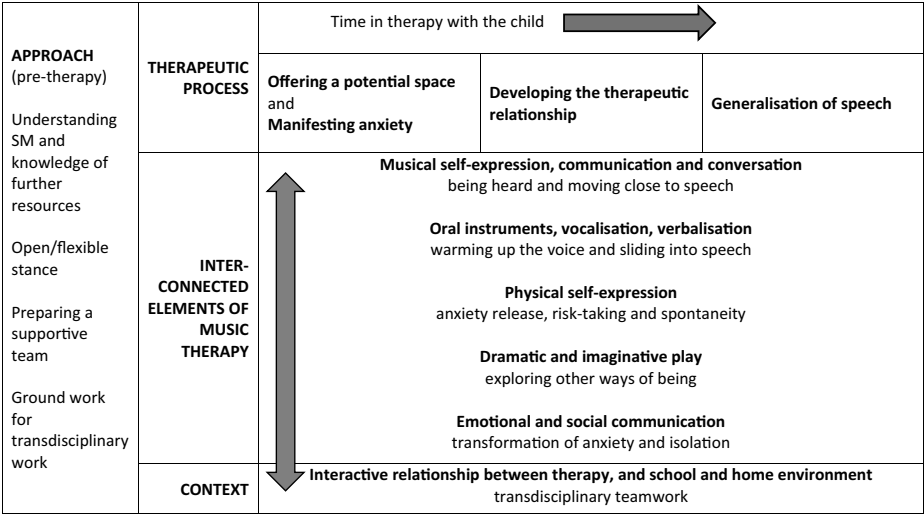


Figure 1. Theoretical framework for music therapy for children with selective mutism

Therapeutic process

The school-based therapy room should be reasonably quiet and free from potential disturbances, and somewhere that the child is relatively relaxed and comfortable. Anxiety reduction is achieved through breaking the isolation of SM and developing the therapeutic relationship using an interactive, playful approach.

A flexible approach to session duration is helpful along with the potential to extend sessions – perhaps up to 50 minutes – and increase frequency of sessions to accelerate the progress of therapy when it has stalled. Breaks in therapy should be prepared for and if possible, additional sessions provided to sustain any progress made. Micro-processes of “warming-up” the voice in each session may be apparent at this stage.

Once a child is speaking in music therapy sessions this speech should be generalised into the classroom through planned teamwork and techniques such as slowly introducing staff or children into the sessions, establishing conversational partners and then sliding speech back into the classroom. Transdisciplinary work sharing techniques such as group duplication may also be helpful.

Interconnected elements of music therapy

Although five elements of music therapy were identified on the new framework as helpful for children with SM, this is a somewhat artificial distinction since these elements frequently overlap and combine in various activities led by the children. Musical and oral/vocal components were the dominant elements offering rich opportunities for engagement.

The research consistently demonstrated that musical communication is a powerful medium through which young children with SM can access therapy and break their isolation. The close connection between musical and verbal conversations, and the vital oral and vocal components within music therapy facilitates development of a path into speech. Singing is an important resource for some children, but others may associate it

more closely with speech and their anxiety response. For children who have been silent in school the need to be heard and listened to is an essential feature of their therapy. Loud playing appears to be a common expression of this need.

Humour and laughter emerge frequently as a multi-purpose component of therapy that simultaneously relieves anxiety and elicits voice. Similarly, physical movement and self-expression appear to help release anxiety, providing opportunities for spontaneity and risk-taking. Dramatic and imaginative play provides an additional creative realm to inhabit, explore and perhaps take on another personality or role.

The four main expressive elements-musical, oral/vocal, physical and dramatic/imaginative all serve the purpose of developing the therapeutic relationship which harnesses a child's inner power, in turn improving self-confidence, assisting both communication and emotional issues. The ability of music therapists to consider and support the emotional aspects of the therapeutic relationship increases the potency of music therapy for children with SM.

Context

One of the most significant outcomes of the study was understanding the impact of the environment around the child on the progress of therapy, an addition to the preliminary theoretical framework. Locating the cases in six different schools meant that the importance of contrasting contexts was made particularly apparent. When the family and school were able to absorb information about how to support their child with SM the response to therapy was positive and rapid. When the creation of a supportive environment was more challenging the therapy process was lengthy and more complex. Moving from an unsupported to a supported classroom environment can facilitate a rapid progress into speech within music therapy and then the classroom. Low staffing levels may also affect progress towards generalisation so searching widely for school staff to engage in transdisciplinary work may be essential.

Discussion

In all six cases children progressed from having SM to speaking in the classroom and other settings. The six successful case studies confirmed how core ingredients of music therapy from the original theoretical framework are helpful for young children with SM. Rich data from the case analysis produced detailed themes that were used to develop a new theoretical framework to inform music therapy practice for children with SM. During the case studies the approach evolved with substantial detail added to the existing domains. New domains, focussed on the approach to therapy and the context in which therapy takes place, were added to the framework.

Prior theory (Jones, 2012) and case studies (Amir, 2005; Mahns, 2003) demonstrated that music therapy already has powerful components to assist children with SM who cannot access therapy through the medium of speech. The foundational work of Stern et al. (1985) and Trevarthen (1974) in underpinning the link between musical communication and speech supports music therapy theory (Pavlicevic & Trevarthen, 1989) and is of central importance for both the preliminary and revised frameworks. Offering therapy through a medium that is both accessible and effective for children with SM is vital.

The preliminary theory (Jones, 2012) was described prior to the recategorization of SM from a disorder of early childhood to an anxiety disorder in the DSM-5 (APA, 2013). The revised theoretical framework reflects the understanding that anxiety about speech causes SM and emphasises the importance of understanding this link prior to commencing therapy. In addition, five of the six children in the study were learning English as an additional language, perhaps reflecting research suggesting SM rates are higher amongst immigrant populations (Toppelberg et al., 2005). The outcome of a more recent study was that bilingualism in itself does not explain higher rates of SM but reiterates the role of anxiety in the development of SM (Starke, 2018).

Although “containment” and “reflection” (Sobey & Woodcock, 1999) were essential techniques in the therapeutic relationship, taking a playful, interactive approach was often key in the reduction of anxiety and development of rapport for these young children. Physical movement remains in this revised theory as another important medium of self-expression and anxiety reduction (Jayakody et al., 2014). Humour and laughter also appear helpful in reducing anxiety, whilst simultaneously warming up the voice and eliciting speech. Neuroscience offers further perspective on this phenomenon by defining laughter as an early social vocalisation and humour as a more complex emotional process (Vrticka et al., 2013) which has the potential for the physiological release of tension (Lefcourt & Martin, 2012). Haire and MacDonald (2019) review humour in music therapy literature across settings noting how it can bring playfulness to interactions and empowerment for the client.

As observed in the case studies, dramatic and imaginative play provides an additional creative realm to inhabit, explore and perhaps take on another personality or role (Kenny, 2006). This aspect of child development may have been hindered by SM in the school environment.

The theme of power is engrained within all domains of the framework, as it was experienced throughout the study at micro (interpersonal), meso (school/home environment) and macro (societal) levels. Offering therapy, through the expressive, accessible medium of music, to children with SM was empowering (Metell, 2015), as has been described in other music therapy practice (Travis, 2013). Children with SM used music to express themselves powerfully and were supported through the therapeutic relationship to access their own inner power and resources. Embracing a well-informed, open and collaborative approach makes music therapy more powerful and empowering (Metell, 2015). Failure to view SM in schools as a disabling condition requiring appropriate support and treatment is, in effect, discrimination with long lasting, serious impacts on a child’s life (Human Rights Act, 2010).

The new domains of approach and context are directly linked as they situate music therapy practice for SM within a wider theoretical landscape, in particular the UK-based manualised treatment for SM (Johnson & Wintgens, 2001, 2016) and international research on care pathways for SM (Keen et al., 2008). Aspects such as creating a multi-disciplinary team, locating the therapy in the place where the SM occurs, and generalisation of speech into the classroom are thoroughly described by Johnson and Wintgens (2001, 2016). Generalisation techniques with peers are also emphasized in a recent music therapy case report from New Zealand (Hunt, 2020). We foreground the importance of future inter-disciplinary collaboration, especially between speech and language therapists and music therapists, through the productive use of transdisciplinary teamwork (Twyford & Watson, 2008).

Strengths and limitations

Multiple case study was a strong approach with which to gain insight into music therapy processes and ingredients that help children with SM. Naturalistic length case studies provided the opportunity to investigate six full journeys into speech rather than intermediate outcomes. The majority of the cases were children from migrant backgrounds with one child being white British. While this suggests that findings may be broadly relevant, further research is needed. Being both the researcher and therapist allowed the first author to articulate and reflect in depth on the therapeutic processes. However, there is a need for independent evaluation of music therapy practice in this area and for larger comparative studies to investigate the specific, unique aspects of music therapy.

Implications for practice and research

Music therapy should be included on multi-modal, multi-agency pathways for SM (Keen et al., 2008). For that to happen music therapists need training and resources to improve their awareness of SM and support a flexible, interdisciplinary approach. A handbook should be developed to guide music therapists to deliver well-informed music therapy for SM as part of a multidisciplinary team approach. The handbook would then form the basis of a programme evaluation (Pawson & Tilley, 2004), seeking to systematically identify how the context around the child impacts outcomes in addition to measuring the effectiveness of music therapy for SM.

Conclusion

This study demonstrates that music therapy is potentially a beneficial treatment for young children with selective mutism. By employing a multiple case study approach, a new theoretical framework was created that sets out the essential elements and stages of the therapeutic process. The study highlighted the importance for music therapists of a thorough knowledge and understanding of selective mutism, including key behavioural approaches and especially the generalisation of speech into the classroom setting. The significant impact of the environment and team around the child on the progress of therapy was emphasised as well as the importance of transdisciplinary work when needed.

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