

Module 5: BMPF7013F
Artefact Independent Study

Allison Mae Carnes

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Neuro-diversity Affirming Music and Movement Program for Children with Mental Health
Challenges

Music and Movement Program for Children with Mental Health Challenges

Component 1 – Project Portfolio

- **Planned Programme of Study**
- **Critical Review**

Introduction

Helping children thrive emotionally and socially requires approaches that honor their diverse ways of experiencing and engaging with the world (Brown & Sax, 2013). For neurodivergent children—including those with autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), sensory processing disorder (SPD), and other developmental differences—daily challenges such as expressing emotions, processing sensory stimuli, or forming social connections can be complex and overwhelming (Robertson & Baron-Cohen, 2017; Dawson et al., 2009). These experiences are shaped not by deficits, but by distinct neurodevelopmental profiles that influence cognition, communication, behavior, and sensory integration. Effective support must therefore be flexible, strengths-based, and deeply attuned to each child's lived reality. While traditional therapies—such as cognitive-behavioral therapy (CBT), occupational therapy, and speech-language interventions—can offer vital tools, they often rely on structured, verbal, and neurotypical models of behavior (Pellicano et al., 2014; Fletcher-Watson & Happé, 2019). This can result in limited engagement or even emotional distress for some neurodivergent children, particularly when interventions do not reflect their preferred ways of learning, interacting, and regulating (Milton, 2012; Ashburner et al., 2010). In

response, there is increasing advocacy for neurodiversity-affirming approaches that support development through embodied, creative, and relationship-based experiences (Kapp et al., 2013; Turry & Marcus, 2018).

This paper introduces an innovative Music and Movement Program, developed by me, which seeks to bridge these therapeutic gaps. By integrating vocalization, rhythmic expression, and guided physical movement, the program provides a multisensory environment that encourages emotional regulation, self-expression, and developmental growth. It is designed to support a broad range of neurodivergent children—whether they struggle with impulse control, sensory sensitivities, motor planning, or social-emotional regulation—by offering adaptable, child-centered activities grounded in enjoyment and co-regulation (LaGasse, 2014; Rickson & Watkins, 2003).

The program draws from two established therapeutic modalities: music therapy and dance/movement therapy. Research shows that music therapy can enhance effective communication, attention, and emotional regulation in children with diverse neurodevelopmental conditions (Geretsegger et al., 2014; Gold et al., 2006). Meanwhile, dance/movement therapy supports sensory integration, motor coordination, and embodied emotional expression, helping children develop greater body awareness and self-regulation capacities (Koch et al., 2015; Tortora, 2011). Together, these modalities provide a synergistic foundation for engaging children in developmentally meaningful ways without relying on conventional language or compliance-based methods.

This program is designed with sensory inclusivity in mind. Activities are adaptable to individual sensory thresholds, allowing children who are hyper- or hypo-sensitive to sound, touch, or movement to participate comfortably and meaningfully (Baranek et al., 2006; Crane et al., 2009).

The program also incorporates principles of motor learning and body-based co-regulation, supporting children with dyspraxia, ADHD, or executive function challenges (Srinivasan & Bhat, 2013; Piek et al., 2008).

By centering neurodivergent perspectives and prioritizing sensory, emotional, and creative engagement, this Music and Movement Program represents a holistic and inclusive alternative to conventional therapeutic models. Rather than pathologizing differences, it seeks to affirm and build upon each child's strengths, preferences, and potential. As the following sections will explore, this approach offers meaningful opportunities for regulation, relationship, and resilience in neurodivergent children—supporting not just their needs, but their thriving.

Theoretical Influences

The intellectual foundation of the Music and Movement Program is drawn from a combination of theories across the fields of psychology, education, neuroscience, and expressive arts. Chief among these is the field of vocal pedagogy and expressive arts therapy, which asserts that the human voice is not only a communicative tool but also an instrument of psychological and somatic integration (Austin, 2008). According to Austin (2008), the act of vocalization engages deep emotional processes and can be particularly healing when explored within a safe and expressive environment. For neurodivergent children—many of whom may experience alexithymia (difficulty identifying and expressing emotions), speech delays, or sensory defensiveness—voicework offers a multimodal pathway toward self-awareness and interpersonal connection (Kenny, 2006).

Alongside voicework, embodiment theory serves as a conceptual cornerstone. Embodiment theory posits that cognition is inextricably linked to the body and its sensory-motor experiences (Shapiro, 2019). This theoretical lens challenges Cartesian dualism (the idea that the mind and

body are fundamentally distinct) and instead emphasizes how bodily engagement—such as movement and gesture—plays a foundational role in how individuals perceive, learn, and relate (Robinson, 2020). The implications of embodiment for neurodivergent children are significant. Movement-based activities can activate neurological pathways associated with regulation, engagement, and learning, helping bridge gaps between internal experience and outward communication (Lakes et al., 2023; Rudd et al., 2023).

Another key influence is polyvagal theory, developed by Porges (2011), which highlights the importance of autonomic nervous system regulation in social behavior and emotional resilience. Vocalization, rhythmic movement, and breath work directly engage the vagus nerve, enhancing a child's sense of safety and capacity for social engagement. The music and movement elements in the program are explicitly designed to leverage this theory, offering activities that can shift children from states of hyper- or hypo-arousal toward states of calm alertness (Porges, 2011).

Finally, the program is deeply rooted in the neurodiversity paradigm. This paradigm, advanced by scholars such as Singer (1999) and Armstrong (2010), challenges deficit-based models of disability and reframes neurological variation as part of the spectrum of human diversity. The neurodiversity framework necessitates a shift from normalization to accommodation, from correction to collaboration. As such, this program does not seek to change or "fix" children, but rather to offer them empowering tools for self-expression and co-regulation on their own terms.

Best Practice Influences

The practical design of my Music and Movement Program aligns with best practices drawn from a range of fields including inclusive education, occupational therapy,

trauma-informed care, and universal design. The overarching pedagogical orientation is grounded in inclusive, arts-based education, which emphasizes multisensory, experiential, and participatory learning. Hall (2010) notes that integrating movement and music into educational experiences can enhance engagement and comprehension, particularly for students with diverse sensory and cognitive profiles.

A critical component of this program is its adherence to trauma-informed practices. Many neurodivergent children have experienced sensory trauma, social exclusion, or repeated disciplinary interventions. These experiences can lead to heightened vigilance or shutdown responses that impair learning and relational trust (Craig, 2016). As Craig (2016) outlines, trauma-informed programs must prioritize emotional and physical safety, consistency, and choice. In this spirit, the sessions are structured yet flexible, with visual cues, clear transitions, and options for non-participation or modified engagement.

Another significant influence is sensory integration theory, which underpins many occupational therapy interventions. Developed by Ayres (2005), sensory integration emphasizes the importance of providing children with appropriate vestibular, proprioceptive, and tactile input in order to regulate arousal and enhance focus. This means giving children chances to move, feel, and use their bodies in ways that help them stay calm, feel secure, and be ready to learn (Ayres, 2005). The program incorporates materials such as weighted blankets, textured fabrics, and movement prompts that offer targeted sensory input without overwhelming the participant.

Furthermore, this framework is informed by Universal Design for Learning (UDL). As articulated by CAST (2018), UDL encourages teachers to provide multiple means of engagement, representation, and expression. This philosophy is evident in the program's variety of modalities—visual, auditory, kinesthetic—and its openness to individual adaptation. Each

child is seen as a co-creator in their learning experience, and their responses guide the direction and pacing of the session (CAST, 2018).

Methodological Influences

The research and development process behind this artefact is rooted in practice-based inquiry, enriched by aspects of design thinking and participatory methods. Practice-based research situates the artefact itself as a form of knowledge production (Barrett & Bolt, 2007). By repeatedly testing, reflecting upon, and refining the program, the research process becomes embedded within the act of creation. This methodology allows for the complexities of real-world application—including unpredictability, emotional nuance, and embodied feedback—to inform both theory and design (Barrett & Bolt, 2007).

Design thinking, a user-centered methodology popularized in education and product development, plays a supporting role. Its emphasis on empathy, ideation, prototyping, and feedback makes it particularly suited for working with neurodivergent populations, whose needs may differ from standardized educational assumptions (Schuck & Fung 2023). By observing how children respond to specific movement cues, vocal prompts, or environmental stimuli, the program can evolve responsively (Schuck & Fung, 2023).

For example, an early session with one of my students used a call-and-response vocal warm-up with rhythmic body tapping. One child became visibly dysregulated during the tapping, displaying distress, and I was unsure of the cause. Through post-session reflection and dialogue with a caregiver, I learned that abrupt, repetitive touch can trigger sensory overwhelm for this particular child. In response, the next session replaced tapping with fluid arm movements synchronized to breath and vocal pitch contours—an adaptation that was met with visible calm and increased engagement across multiple participants. This small shift, emerging from

embodied and emotional feedback, catalyzed a broader redesign of the warm-up structure to allow more sensory flexibility and choice.

Finally, participatory approaches ground the work in collaboration and lived experience. Feedback from caregivers, educators, and therapists is solicited throughout the design and testing process, ensuring that the program remains relevant, respectful, and accessible (Fletcher-Watson et al., 2019). This collaborative model acknowledges that neurodivergent children and their communities are experts in their own needs and that any effective intervention must be co-developed with their voices at the center (Fletcher-Watson et al., 2019).

Aims and Objectives

As mentioned previously, my overarching aim of the Music and Movement Program is to design and pilot a sensory-friendly, neurodiversity-affirming curriculum that fosters emotional regulation and expressive communication in neurodivergent children.

In pursuit of this goal, I have created five SMART objectives for myself as I create the program:

1. Develop a structured 30-minute session framework that includes warm-up, exploration, and grounding phases.
2. Incorporate at least three distinct movement modalities (e.g., swaying, stomping, stretching) and three vocal techniques (e.g., humming, pitch glides, call-and-response) into each session, ensuring diversity and engagement.
3. Ensure adaptability of activities across at least three neurodivergent profiles (autism, ADHD, SPD) through trial sessions and facilitator feedback.

4. Conduct a pilot program with a small group of 3–5 children and gather observational and anecdotal data.
5. Evaluate emotional regulation and engagement levels using facilitator journals, child behavior observations, and informal caregiver feedback.

Additionally, I have also drafted aims and objectives for the program itself:

1. Implement and deliver a 16-week program with at least one 45-minute session per week, engaging a cohort of 10–12 neurodivergent children, and track attendance and engagement levels weekly through facilitator logs.
2. Within the 12 weeks, each participant will be offered three modalities (vocalization, movement, and sensory props) per session, with at least 75% of participants demonstrating increased engagement (measured by behavior checklists and/or observational rubrics) by week 12.
3. Collect feedback from caregivers, therapists, and educators after every fourth week (weeks 4, 8, and 12) to ensure the program remains adaptable and responsive to each child's needs, with at least 80% of stakeholders reporting perceived improvement in child regulation or communication.
4. Introduce one new co-regulation activity per week (e.g., call-and-response song, mirroring movement, or breathing rhythm game), and evaluate its effectiveness through

facilitator-child interaction notes and weekly reflection sheets.

5. By the end of the 12-week cycle, compile and analyze pre- and post-program reflections from caregivers and facilitators to assess changes in each child's emotional regulation and self-expression, aiming to demonstrate positive change in at least 70% of participants.

Expected Learning Outcomes

By engaging in the Music and Movement Program, children are expected to demonstrate a range of developmental gains grounded in research across music therapy, movement-based intervention, and neurodevelopmental theory. One anticipated outcome is enhanced body awareness and motor coordination, fostered through structured movement sequences and rhythmic repetition. Dance/movement therapy has been shown to improve motor planning and physical integration in neurodivergent populations, supporting children's capacity for intentional movement and spatial orientation (Koch et al., 2015).

In addition, the program encourages greater capacity for vocal expression as a means of emotional communication. Voicework in expressive arts therapy provides a powerful outlet for self-expression and emotional regulation, particularly for children with limited verbal language or heightened emotional sensitivity (Austin, 2008). Co-regulated activities, such as mirroring movements or synchronized vocal play, are designed to strengthen relational engagement and build trust through shared rhythms and gestures, processes well-documented in the field of developmental movement therapy (Tortora, 2011).

Observable improvements in self-regulation are also expected, as the rhythmic and sensory-rich nature of the sessions aligns with polyvagal theory, which links auditory and bodily

stimuli to autonomic nervous system regulation (Porges, 2011). Finally, the program aims to support an expanded non-verbal communication repertoire—including gestures, sound cues, and expressive movement—which can serve as meaningful alternatives to spoken language for children with sensory or communicative differences (Geretsegger et al., 2014)

Activities and Assessment Criteria

Each session is divided into four phases: warm-up, exploration, emotional expression, and grounding.

The warm-up phase includes breathwork, vocal trills, and gentle stretching to transition into embodied awareness. The exploration phase invites children to experiment with pitch, rhythm, and tempo, often mirroring the facilitator or responding to musical prompts. In the emotional expression phase, sensory materials (e.g., colors, textures) are paired with vocal dynamics to help children externalize internal states. Finally, the grounding phase uses slow movements, deep breaths, and weighted props to support emotional closure and integration. Resources for this program include visual choice boards, soft scarves, resistance bands, live and recorded music, and environmental adaptations such as low lighting and reduced noise.

Assessment criteria for this program are qualitative and formative. Progress is gauged by the child's voluntary participation, signs of regulation (e.g., reduced stimming, increased eye contact), and emotional expression. Facilitator notes, caregiver interviews, and reflective journals will capture these outcomes. A successful session may be one where a child hums along, initiates mirroring, or returns from a dysregulated state using program tools.

Timescales and Review Dates

The program's development is structured over five months (January-May). Month 1

(January 2025) involves finalizing the theoretical framework and conducting a literature review. Month 2 (February 2025) is focused on session design and initial prototyping. In Month 3 (March 2025), facilitator-run test sessions refine the approach. Month 4 (April 2025) is dedicated to field testing with a small group. Finally, Month 5 (April and May 2025) involves synthesis, evaluation, and formal documentation of the artefact.

Key check points for myself include:

- End of Month 2: Design review to ensure SMART objectives are on track.
- End of Month 4: Feedback synthesis from trial sessions.
- End of Month 5: Final evaluation comparing aims and observed outcomes.

Conclusion

This Music and Movement Program stands as both a pedagogical tool and a research artefact. It synthesizes theories of embodiment, voicework, neurodiversity, and trauma-informed care into a flexible, creative, and human-centered curriculum. Through a commitment to inclusivity, co-regulation, and artistic expression, the program honors the innate strengths of neurodivergent children. It neither seeks to normalize nor to standardize; rather, it offers an imaginative, supportive space where movement and sound become bridges to connection, safety, and joy. As such, it holds promise not only as a site of therapeutic engagement but also as a model for future neurodiversity-affirming arts practices.

Critical Review

Concrete Experience

When I first approached Module 5 and had the idea of developing this Music and Movement Program for neurodivergent children, I brought with me a solid foundation of professional experience in early years education and creative facilitation. I was an ABA Therapist (also known as Registered Behavioral Technician) for several years before becoming a voice teacher. I have worked with children with a wide range of neurodivergences, from autism to ADHD and sensory processing challenges. This has equipped me with practical tools for engagement, especially with students experiencing sensory processing differences. My approach has always been drawn from my experience in this field—focusing on what “works” to keep children engaged and calm—but I haven’t previously taken the time to explore the deeper theoretical underpinnings of why certain strategies were effective. This module invited me to shift from a purely intuitive stance to a more analytical and research-informed practice, marking the beginning of what Mezirow (1991) might call a perspective transformation. In the preparatory stages (Component 1), I began to explore theoretical frameworks such as polyvagal theory (Porges, 2011), embodiment (Shapiro, 2019), and neurodiversity-affirming practice (Kapp et al., 2013). These frameworks offered language and legitimacy to practices I had previously adopted informally—like using rhythmic vocalization to support co-regulation, or allowing children to move freely rather than insisting on compliance.

Polyvagal theory gave me a lens for understanding the observable emotional responses I had previously read only as “meltdowns” or “inattention.” I now understood these behaviors as adaptive nervous system responses, aligning with Porges’ view that safety and co-regulation are prerequisites for engagement. Similarly, embodiment theory helped me reframe movement and

voice not as precursors to “real learning,” but as central modes of knowing and expression—especially for children who may not rely primarily on verbal or linear cognitive processing (Shapiro, 2019). By incorporating my experiences in this literature, I began to see my past professional strategies as more than practical “hacks.” They were situated within broader paradigms of inclusive, relational, and sensorimotor-informed learning. This opened the door to a more deliberate and theoretically grounded design process for the artefact.

Reflective Observation

As I started to connect theory to my past practice, I noticed several areas of misalignment. For example, while I had always used music and movement intuitively to help children self-regulate, I hadn’t fully appreciated the role of predictable rhythm in creating nervous system safety (Porges, 2011). I also realized that I had sometimes prioritized structured routines for my own sake, rather than focusing on the student’s individual sensory needs. This was particularly clear when reading about sensory integration and co-regulation through shared movement (Robinson, 2020). It made me question some of the assumptions I had made—for example, that group participation was always the goal, or that stillness was a sign of success. Growing up in the musical theatre and dance world, I was always told that if the children “behaves” (acts in a way that is most convenient for the adult), that means you are a good teacher and you are doing a good job. This stage of reflection helped me see that some of my previous strategies, though well-intentioned, may have unintentionally limited children's autonomy or overlooked their sensory thresholds.

Abstract Conceptualization

Building on these insights, I’ve identified new areas of learning that I’m now exploring further in Component 2. One key shift has been moving from a behavior-focused lens to a

regulation-focused one. I've become interested in how shared rhythmic experiences—such as call-and-response songs, movement mirroring, and breath-led transitions—can support emotional safety and communication without relying on verbal language. I've also started to shape a key research question: How can co-regulated, rhythmic music and movement experiences support self-expression and nervous system regulation in neurodivergent children? This question draws on embodiment theory (Shapiro, 2019), the polyvagal framework (Porges, 2011), and neurodiversity-affirming pedagogies (Fletcher-Watson et al., 2019). I'm also curious about how participatory design methods can ensure these practices are inclusive, especially for non-speaking or sensory-avoidant children. These concepts have become central to the theoretical backbone of my artefact.

Active Experimentation

Based on this conceptual development, I've begun testing out ideas through a small-scale prototype of the Music and Movement Program. This includes weekly sessions that are loosely structured to allow for flexibility, using rhythm, vocalisation, and sensory props to co-create experiences with children rather than deliver content to them (or at them). In preparation for Component 2, I've also started shaping my action research methodology. I'm planning to use a qualitative, practice-based approach that combines facilitator reflection journals and semi-structured interviews with caregivers and co-facilitators. This will allow for rich, contextual insights into how children respond across time.

To support this, I've created an inclusion/exclusion criteria focused on children aged 3–6 with a confirmed neurodivergent profile, while excluding participants where music and movement could cause distress or dysregulation. My literature review was conducted via search terms such as “music and autism,” “embodiment in early childhood,” “neurodiversity and

education,” “polyvagal theory and regulation,” and “co-regulation in early years.” I’ve balanced peer-reviewed journal articles (e.g., *Autism, Early Child Development and Care*) with grey literature, including practitioner blogs and community initiatives. This mix has allowed me to stay rooted in lived experience while maintaining academic rigor (Barrett & Bolt, 2007).

This action plan is really the heart of what I’m doing. Every session in the prototype is like a small experiment, and I make changes as I go based on what I see happening in real time. I’ve also set up regular check-ins with co-facilitators and carers, so we can talk about what’s working and what’s not. This keeps the process flexible, collaborative, and most importantly, centred around the kids and their needs.

Component 2

Evaluate: Project Report

Introduction

This critical evaluation explores the impact of applied learning on both professional practice and organisational objectives through the development and implementation of a Music and Movement Program for neurodivergent children. The artefact emerged from an interdisciplinary synthesis of behavioural science, somatic and vocal pedagogy, and neurodiversity-affirming practices. Its creation was deeply embedded in experiential learning and reflective cycles that responded dynamically to learner feedback and organisational needs. By grounding the program in lived experience and theoretical knowledge, this work contributes to a growing shift within early intervention and inclusive education toward embodied, holistic approaches. Applied learning—learning through action and reflection—has long been recognised as a powerful mode of professional development (Kolb, 1984). When embedded in a cycle of experience, reflection, conceptualisation, and experimentation, learning becomes not only

personally transformative but organisationally strategic. This evaluation draws on Kolb's experiential learning model, but also goes further by using the "Know That, Know How, Know What" framework (Nelson, 2013) to explore the layers of knowledge informing the artefact. These three modes of knowing allow for a granular analysis of how theoretical (know-that), procedural (know-how), and factual/conceptual (know-what) knowledge intersect and influence the development and efficacy of applied practice. The Music and Movement Program arose in response to both a gap and an opportunity within an existing behavioural intervention setting. Traditional approaches in this environment—rooted in Applied Behaviour Analysis (ABA)—often emphasise compliance and discrete trial training at the expense of autonomy, creativity, and self-expression. While ABA remains a widely implemented modality in autism intervention, it has received sustained critique from autistic adults and researchers for its sometimes mechanistic and normalising assumptions (Bottema-Beutel et al., 2021; Kapp, 2020). In contrast, the neurodiversity paradigm, which underpins this artefact, views neurodivergent individuals not as disordered but as possessing valuable cognitive variations (Walker, 2021). The artefact, therefore, embodies a critical response to traditional behavioural approaches, while still drawing from selected ABA principles—particularly in the structuring of reinforcement and data collection—without reinforcing ableist norms. At the heart of the project was a desire to test how embodied and artistic modalities—particularly voice, rhythm, and movement—might support regulation, communication, and relational attunement in neurodivergent children. The program was influenced by polyvagal theory (Porges, 2011), which highlights the physiological underpinnings of safety, co-regulation, and social engagement. Additionally, embodiment theory (Johnson, 2009; Sheets-Johnstone, 2011) informed the program's emphasis on bodily expression and sensory engagement as sites of meaning-making and learning. These theoretical foundations

supported a design process that was deeply reflective, iterative, and situated within an understanding of the children not as subjects of intervention but as co-participants in meaning-making. From an organisational perspective, the artefact offered both a critique and an enhancement. It operated as a form of practitioner-led inquiry—a bottom-up innovation grounded in frontline practice. By piloting the program within a team accustomed to more rigid behaviourist methods, the artefact prompted critical dialogue about the nature of “learning” and “progress.” The program also aligned with organisational goals to increase client satisfaction, improve engagement, and diversify service offerings, while challenging the underlying philosophies that inform how success is measured. The evaluation that follows considers how applied learning shaped this development process at every level. Using the "Know That, Know How, Know What" framework, I critically analyse the theoretical underpinnings, the practical and embodied techniques employed, and the core factual and conceptual knowledge that informed the artefact. This structure allows for a nuanced view of how different forms of knowledge—academic, professional, embodied, and ethical—interweave in practice. Ultimately, this evaluation not only assesses the efficacy of the program itself but also reflects on how the process of creating and applying the artefact has transformed my own professional stance. Moving from a primarily behaviourist approach to one that integrates artistic and neurodiversity-affirming principles has required a reconfiguration of both epistemology and practice. As such, the work demonstrates how applied learning can be a site of both organisational innovation and personal paradigm shift.

Know That: Theoretical, Conceptual, and Best Practice Knowledge

The design of the Music and Movement Program was underpinned by a range of interwoven theories and frameworks, all of which informed its form, function, and delivery.

Drawing on interdisciplinary sources—from neurodevelopmental theory to embodiment, somatic practice, behavioural science, and inclusive pedagogy—this artefact represents a convergence of evidence-informed best practices and a critical stance on traditional intervention models. The use of “know-that” knowledge helped ensure that the program was not simply intuitive or experiential, but rigorously conceptualised and ethically grounded.

Polyvagal Theory and the Science of Safety

One of the central theoretical frameworks shaping the program was Stephen Porges’ polyvagal theory (2011). This theory posits that the autonomic nervous system (ANS) is hierarchical, and that safety and social engagement are biologically rooted in the regulation of the vagus nerve. For neurodivergent children—many of whom experience chronic dysregulation due to sensory processing differences or trauma histories—understanding the mechanisms of co-regulation and state-dependence is critical. The program leveraged vocal toning, rhythm, and predictable sensory input (e.g., rocking, swaying) as tools to support vagal tone, encourage shifts from fight/flight to social engagement, and build relational safety. The “know-that” knowledge from polyvagal theory was not just conceptually interesting—it directly shaped program structure. Sessions began with grounding activities, such as deep humming or soft body percussion, designed to activate the parasympathetic nervous system. These activities were deliberately selected based on their neurophysiological impact, rather than for aesthetic or musical effect alone. By grounding the program in polyvagal-informed practices, I ensured that it aligned with evidence about the bodily foundations of learning and engagement.

Embodiment Theory and Somatic Learning

A second foundational framework was embodiment theory, particularly as articulated by theorists such as Mark Johnson (2009) and Maxine Sheets-Johnstone (2011). Embodiment theory

challenges the Cartesian dualism that separates mind and body, instead proposing that knowledge is fundamentally lived and felt. This was especially relevant in working with non-speaking or minimally verbal children, for whom traditional linguistic or cognitive approaches may be inaccessible or inappropriate. Informed by this theory, the program prioritized kinaesthetic and interoceptive awareness—supporting children in noticing, naming, and shaping their internal states through movement and sound. For example, activities often focused on mirroring body shapes or responding to rhythmic cues through whole-body motion. The theory also influenced my facilitation stance: rather than positioning myself as an instructor imparting content, I took on a role of attuned co-regulator, echoing, amplifying, or softening the children’s expressions through vocal and physical means. In doing so, I treated the body not only as a site of regulation but also as a site of communication and knowledge-making.

Neurodiversity Paradigm and Affirmative Practice

The most critical epistemological lens in this project was the neurodiversity paradigm, which views neurological difference not as pathology but as a form of human variation (Walker, 2021). This framework offered both a critique of the deficit-based assumptions inherent in many early intervention models and a positive vision for how supports can be reimaged. The paradigm argues for supports that honour autonomy, sensory preferences, and communicative diversity—rather than enforcing neurotypical norms. This influenced the artefact in several practical and ethical ways. First, the program was designed to be non-coercive—children were invited, not required, to participate. There was no emphasis on eye contact, compliance, or “correct” responses. Instead, the program fostered self-directed engagement, and valued echolalia, stimming, and other forms of divergent expression as meaningful and valid. This contrasted sharply with typical ABA approaches, which often prioritise shaping behaviour

toward neurotypical standards. The neurodiversity paradigm also informed how success was defined. Rather than focusing on metrics like “following instructions” or “reducing maladaptive behavior,” the program emphasised co-regulation, connection, and engagement. Observational data and practitioner notes focused on indicators such as increased shared attention, vocal play, spontaneous movement, or expressions of joy—all of which are markers of psychological safety and participation, not compliance (Walker, 2021).

Best Practices in Music Therapy and Movement-Based Learning

Although this is not a registered music therapy program, my artefact drew from established music therapy literature and movement-based learning principles, especially those aligned with person-centred and improvisational models (Wigram et al., 2002; Brown & Pavlicevic, 1996). These approaches validate the therapeutic potential of rhythm, melody, and movement for emotional expression, regulation, and relationship-building. In practice, this meant designing sessions that allowed for structured improvisation—offering predictable routines with room for creative deviation. Songs had consistent openings and closings but flexible middle sections to accommodate spontaneous interaction. Movement activities were not choreographed but emergent, often shaped by the child’s gestures, tempo, or vocalisations. This balance of structure and responsiveness reflected best practices in both therapeutic and educational settings, especially for neurodivergent populations. The artefact also engaged with universal design for learning (UDL) principles, ensuring that activities were accessible through multiple modalities—auditory, visual, kinaesthetic—and that children could engage according to their strengths and preferences (Rose & Meyer, 2002). These considerations were guided by the understanding that neurodivergent children often face barriers not due to their neurology but due to inflexible environments.

Reflexivity and Ethical Positioning

Finally, “know-that” knowledge included a reflexive awareness of my own positionality. Coming from a background in ABA and voice teaching, I had to critically interrogate the assumptions I brought to the work. Reflexivity—as advocated by Schön (1983) and Finlay (2002)—required me to examine the power dynamics inherent in intervention, and to shift from a model of “fixing” to one of co-creating spaces of expression. This ongoing ethical reflection was not a separate process from theoretical engagement; rather, it was a critical part of how theory was lived out in practice.

Know How: Procedural and Embodied Knowledge in Practice

While theory underpinned the artefact’s conception, its development was deeply shaped by practical, embodied, and relational knowledge acquired over years of direct work with neurodivergent children, particularly within behavioural and voice-based contexts. This “know how” involved more than just applying skills; it required adapting in real-time, attuning to moment-to-moment changes, and working from an ethically reflexive stance that privileges the child’s autonomy and sensory experience. In this section, I will critically evaluate the experiential and procedural elements that informed the artefact’s development, including how improvisation, co-regulation, vocal pedagogy, and sensory attunement were applied.

Drawing on ABA Experience with Critical Adaptation

My background as Applied Behavior Analysis (ABA) Therapist provided a strong foundation in observation, reinforcement systems, and data collection. These technical competencies helped me design sessions that were consistent, trackable, and responsive to patterns of behaviour. However, a key shift occurred in how this knowledge was applied. Rather than using ABA principles to shape behaviour toward normative goals, I re-oriented them toward

understanding behavioural cues as communication and adapting the environment accordingly. For instance, when a child began pacing or humming repetitively during a rhythm activity, instead of redirecting the behaviour, I interpreted it as a sensory regulatory action and folded it into the session's flow by mirroring the rhythm or integrating it into a vocal motif. This kind of interpretive improvisation—grounded in both ABA and humanistic practice—reflected a hybrid form of procedural knowledge shaped by experience and reflection.

Procedural Voice Pedagogy in a Neurodiverse Context

My experience as a voice teacher provided another layer of procedural knowledge, particularly around vocal resonance, breath support, and tone matching. In neurodivergent settings, these techniques had to be radically adapted. Traditional vocal training often assumes verbal comprehension, mimicry, and control of motor function. In contrast, many children in this program communicated via non-verbal vocalisations—echolalia, glottal stops, high-pitched tones, or rhythmic humming. Rather than “correct” or shape these expressions, I used vocal mirroring as a core technique—meeting the child's sound where it was and extending it musically. This improvisational voice work functioned as a form of co-regulation and attunement. By engaging in nonverbal vocal dialogue, I was able to enter the child's communicative world, foster trust, and support emotional expression. The knowledge here was embodied and intuitive, developed through trial, error, and years of close listening—not easily captured by formal curriculum, but vital to the artefact's impact.

Designing Through Iteration and Field Testing

The artefact evolved through multiple prototype sessions tested with small groups of neurodivergent children aged 4–8. These field tests were essential in translating theoretical ideals into viable, embodied practice. Each session was followed by structured field notes, which

captured observations on sensory regulation, group dynamics, engagement duration, and instances of spontaneous communication. From this data, I made iterative adjustments—such as reducing auditory complexity in transitions, increasing visual cues, or modifying movement sequences to allow more stimulating-friendly options. The development process was therefore cyclical and dialogic, mirroring Kolb's (1984) experiential learning cycle: concrete experience, reflective observation, abstract conceptualisation, and active experimentation.

An example of this process was in revising the opening ritual. Initially, the session began with a call-and-response song that relied heavily on verbal language. After observing that several children disengaged or became distressed, I restructured the opening around a deep humming sequence combined with rocking. This adaptation drew directly on somatic learning principles and the sensory feedback gathered through experience, showing how procedural knowledge is honed in practice, not just planned.

Movement Practice as Improvisational Listening

The movement elements of the program also evolved from experiential listening—a form of somatic attentiveness to how the children moved through space and interacted with rhythm. Rather than pre-structuring choreography, I used guided improvisation, offering simple rhythmic cues (clapping patterns, stepping beats) and allowing children to shape the response. Over time, I learned to read bodily signals for overstimulation or disinterest and adapt tempo, volume, or spatial arrangement accordingly. My background in physical theatre and somatic practice was extremely beneficial here, particularly in understanding proxemics (use of space), non-verbal mirroring, and kinaesthetic empathy. For example, if a child was spinning repetitively during a drum beat, I could enter their rhythm physically, spinning alongside them or using a scarf to extend the motion into shared space. This ability to respond in real time was not scripted; it was

the result of practised attentional sensitivity, and it is precisely this kind of “know-how” that made the sessions feel safe and connected.

Co-Design with Families and Practitioners

Another key procedural element was co-design with families and educators. Early in the artefact’s development, I conducted informal consultations with parents, teachers, and allied health professionals. Their insights shaped how activities were structured (e.g., duration, sensory load, visual supports) and how success was measured. For example, several parents noted that transitions between activities often triggered meltdowns. In response, I introduced a song-based transition cue—a consistent, soft melody that signalled the end of one activity and invited the next. This iterative co-design was more than stakeholder engagement; it was a recognition that procedural knowledge is collective—emerging not just from the practitioner, but from those with lived experience. By incorporating this shared knowledge, the program remained responsive and contextually grounded.

Ethical and Reflexive Practice in Action

Finally, procedural knowledge also included ongoing ethical reflexivity. Unlike theoretical ethics, this form of reflection emerged during practice: noticing moments of tension (e.g., when a child withdrew or resisted), and critically asking whether the practice was upholding autonomy and honouring neurodivergence. This led to regular adjustments in facilitation style, session pacing, and environmental cues. Such flexibility required not only technical skill, but also an ability to sit with discomfort and ambiguity, hallmarks of mature practice.

Know What: Factual and Conceptual Knowledge in the Artefact

The development of the Music and Movement Program for neurodivergent children was

deeply grounded in a body of factual, contextual, and conceptual knowledge drawn from disciplines including developmental psychology, neurodiversity studies, music therapy, and embodied cognition. In this section, I critically evaluate the core concepts that shaped the artefact, the evidence base they draw upon, and the extent to which they were successfully integrated to meet the artefact's aims. "Know what" in this context encompasses not only facts and definitions, but the critical understanding of what those facts mean within context, and how they were operationalised through practice.

Understanding Neurodivergence: From Deficit to Difference

A central conceptual pillar was the neurodiversity paradigm (Singer, 1999; Walker, 2021), which reframes neurological difference from a medical-deficit model to one of natural variation in human cognition and perception. Rather than viewing children through the lens of disorder (e.g., autism as impairment), the program adopted the perspective that these children are neurologically distinct, not broken. This view is not just philosophical—it carries practical implications for how activities are framed, goals are set, and success is defined. This conceptual foundation directly influenced the language of the program (avoiding terms like "intervention," "fix," or "normalise") and its pedagogical approach. Activities were not designed to reduce stimming, improve compliance, or enforce eye contact—common goals in traditional therapy—but to support expression, sensory regulation, and relational engagement on the child's terms. Critically, this represents a deliberate shift from a dominant paradigm in educational and therapeutic settings, aligning instead with current best-practice guidance from autistic-led organisations and ethical research frameworks (Milton, 2012; Kapp, 2020). Embedding this conceptual knowledge ensured the artefact was both ethically aligned and epistemically just.

Polyvagal Theory and Co-Regulation

Another critical body of factual knowledge came from polyvagal theory (Porges, 2011), which describes how the autonomic nervous system governs states of safety, connection, and threat. In children with sensory processing differences or trauma backgrounds, the nervous system's reactivity to stimuli can result in chronic dysregulation, leading to shutdowns or fight/flight responses. This knowledge informed key aspects of the program design. For instance, low-pitched vocal tones and humming were used to activate the parasympathetic (vagal) system. Rhythmic, predictable sequences were preferred over sudden changes, promoting a sense of safety and control. Facilitator posture, tone, and movement were intentionally slow, soft, and attuned, embodying co-regulation. Here, the "what" of the nervous system was not abstract: it was made visible in session design and facilitation style. Activities were planned not just for engagement or enjoyment, but to support neurophysiological safety. Moreover, observation of the children's responses (e.g., breath slowing, softening of gaze, increased vocalisation) served as real-time data affirming the program's alignment with polyvagal-informed practice.

Attachment Theory

Another influential framework was Attachment Theory (Bowlby, 1997), which highlights the critical role of secure attachment in emotional and social development. For children with mental health challenges, establishing a sense of safety and connection is essential for emotional regulation. Through the program, I aimed to foster a secure environment where children could express themselves without fear of judgment. This theory reinforced the importance of creating a supportive and non-threatening atmosphere in which children could engage in the exercises and explore their emotions freely.

Rhythmic Entrainment and Musical Cognition

The artefact also drew from research in rhythmic entrainment and developmental music

psychology, which shows that rhythm and movement are deeply intertwined with neural regulation and social synchrony (Thaut, 2005; Trainor & Cirelli, 2015). Concepts such as beat induction, isochrony, and musical mirroring informed the design of activities that scaffolded rhythmic participation without requiring verbal comprehension. For example, the use of steady beat clapping or drum pulses provided children with an external, embodied sense of temporal structure. Call-and-response vocal games supported early communicative reciprocity without placing demands on speech. Movement sequences (e.g., rocking, bouncing, swaying) were tied to musical pulse, enhancing vestibular input and supporting self-regulation.

These musical concepts were not simply imported—they were translated into neurodivergent-affirming contexts. For instance, where typical music education might correct “off-beat” participation, this program welcomed rhythmic divergence as a form of individual expression. Here, “knowing what” music theory says about beat and meter was not enough; it had to be contextualised through inclusive pedagogy.

Embodiment and Sensory Integration

A further set of conceptual tools came from embodiment theory and sensory integration literature (Shapiro, 2011; Ayres, 2005). These frameworks assert that cognition and learning are not purely cerebral, but emerge through bodily, sensory, and motor experience. This is especially relevant in neurodivergent populations where proprioception, interoception, and tactile processing may differ from neurotypical patterns. This conceptual lens led to activities that intentionally targeted multi-sensory pathways, such as scarves, streamers, or textured objects for tactile exploration during movement; body percussion to link auditory and kinesthetic feedback; floor-based activities to ground sensory input and reduce vestibular overload. Crucially, this knowledge also informed what not to include: loud, unpredictable instruments or activities

requiring fine motor sequencing were minimised. The aim was to meet the sensory system where it was, not to train it into typicality. This nuanced understanding of sensory difference ensured the artefact was neurologically congruent, not merely inclusive in appearance.

Measuring Impact and Outcomes

One of the most challenging aspects of this artefact was deciding how to define and measure success. Traditional educational or therapeutic models might assess progress in terms of verbal output, task compliance, or observable social interaction. However, the conceptual knowledge guiding this artefact demanded alternative metrics. Instead, I tracked indicators such as increased, spontaneous vocalisation or gestures; longer durations of co-regulated activity; visible signs of sensory regulation (such as softening posture or sustained, prolonged attention); child-initiated engagement in musical or movement activities. These indicators were informed by both developmental neuroscience and lived-experience accounts from neurodivergent adults who describe their early sensory and relational experiences. Rather than imposing developmental milestones, the artefact sought to document emergence, expression, and engagement—a fundamentally different way of knowing and valuing progress.

Evaluating Goals and Objectives

My artefact's original goals were to create a music and movement program responsive to neurodivergent sensory and communication needs, foster co-regulation and relational engagement, promote expression and agency through vocal and movement-based practices, and align with ethical and inclusive frameworks. After critical evaluation, I truly believe these goals were met. This artefact demonstrated conceptual and practical alignment with neurodiversity, polyvagal theory, and sensory integration. It produced observable outcomes aligned with co-regulation and expressive agency, while staying centered on ethical responsiveness and

avoiding normalizing or corrective practices. However, my limitations included the small sample size, the lack of longitudinal data, and the need for more structured feedback from families to evaluate generalization beyond the session space. These gaps point to areas for future development.

Reflective Conclusion: Learning in Action and Looking Ahead

Working on the Music and Movement Program for neurodivergent children has been one of the most meaningful experiences in my professional life so far. It's challenged me, changed how I think about my work, and helped me grow in ways I didn't expect. Using the *Know That, Know How, Know What* framework to evaluate this process has given me the chance to step back and really understand how much I've learned—not just about theory or methods, but about myself as a practitioner, and about what good, inclusive practice looks like in real life. This final reflection brings everything together: the learning, the practical challenges, and the ways this experience will shape my future work, as well as the wider impact it could have on the organisation I work within.

One of the biggest takeaways from this process has been how theory and real-world practice can work together. I started with some strong guiding ideas—things like polyvagal theory, embodiment theory, and the neurodiversity paradigm—and those helped me shape the program in a way that felt ethically solid and grounded in current thinking. But once I actually got into the room with the children, I quickly realised that real-life application is rarely as tidy as theory makes it seem. For instance, I had planned to use slow, steady rhythm to support regulation, based on polyvagal theory. For some children, that worked beautifully. For others, it didn't. I had to stay present, adapt on the spot, and respond to what was actually happening rather than what I expected would happen. This is where the real learning happened—figuring

out when to follow the plan and when to throw it out entirely. It reminded me that while theory is important, it can't replace what you learn through hands-on experience. You need both: theory to guide your intentions and practice to keep you grounded and responsive.

This project also made me look at my own professional identity in a new light. My background in ABA and voice teaching meant I used to focus a lot on goals, structure, and outcomes. But working on this program—especially through the lens of neurodiversity and relational practice—made me pause and ask: Who is this really for? What values am I working from? That reflection led to a big shift in how I see my role. I'm no longer trying to help children "fit in" to typical ways of moving, communicating, or learning. Instead, I'm focused on creating space where they can feel safe, be themselves, and connect with others on their own terms. That doesn't mean I've abandoned my old skills—far from it! I've just started using them differently. For example, my voice teaching background now helps me support vocal play and expression, not correct it. My behavioral training helps me see patterns and engage with children's needs, but without trying to change who they are. It's about supporting, not shaping. This change hasn't just made me a better practitioner—it's helped me align my work more closely with my values, which feels much more fulfilling and sustainable.

From an organisational perspective, I believe this artefact offers a real contribution. Many arts-based programs aren't accessible to neurodivergent children, especially those with higher support needs. This program fills that gap—not just by being available, but by being designed with their unique experiences in mind.

Beyond that, the approach used in the program—especially around co-regulation, predictability, and relational safety—could be useful in other areas of the organisation. Staff training, new program design, and even policy decisions could benefit from some of the principles embedded

in this work. I could train my employees with this program! The fact that this program is rooted in up-to-date theory and best practice also supports my aim to be inclusive, innovative, and evidence-based. It doesn't just meet criteria or do the bare minimum—it raises the bar.

Areas for Improvement

There were many challenges along the way, too. Measuring impact was a big one. A program like this doesn't produce neat, numerical outcomes. It is about connection, confidence, and sensory engagement—all things that are hard to measure without falling back on developmental checklists or compliance-based tools. In the future, I'd like to explore child-led or narrative-based evaluation methods to better capture what success really looks like. Scaling the program is another challenge. The kind of presence, responsiveness, and one-to-one interaction this model relies on doesn't always translate well to larger groups or lower-staffed settings. If we want to offer this more widely, we'll need to create clear guidance and training materials that help other practitioners take the same approach without losing the heart of it. I also realized that more input from neurodivergent people—especially children and their families—would have made the program even stronger. While I based the design on research and my own experience, I want to move toward co-design in future versions. That way, the program won't just be for neurodivergent children—it will be with them.

This project has given me a clearer direction for my future work. I want to continue creating programs that are not only inclusive, but built from the ground up with neurodivergent experiences and needs in mind. I'm also committed to staying reflective in my practice. Using structured tools like *Know That, Know How, Know What* or Kolb's Cycle helps me keep learning and adapting. I don't think learning stops when the project ends—it's ongoing, and I want to keep asking questions, staying curious, and learning from the people I work with. Another next

step is sharing what I've learned—with colleagues, with families, and within the organisation. Whether it's through running training sessions, writing up the approach, or mentoring others, I want to support more practitioners to work in neuro-affirming, child-led ways.

Conclusion

Looking back, Module 5 was not just about designing a program—it was about pulling together everything I have learned, rethinking old habits, and stepping more fully into the kind of voice teacher I want to be. Creating this Music and Movement Program gave me a chance to connect my hands-on experience with research in a meaningful way. Ideas like polyvagal theory (Porges, 2011), embodied cognition (Shapiro, 2019), and neurodiversity-affirming practice (Kapp et al., 2013) helped me understand my past work more clearly and design this project with greater intention. The program itself is not a fixed product. It is designed to evolve, shaped by the children who use it and the adults who support them. In the future, I see it being adapted for different learning environments—classrooms, therapy settings, even community workshops. It could also be used as a training tool for educators and support staff who want to work in more responsive, inclusive ways. What matters most is that it remains flexible and grounded in real relationships and feedback. More personally, this process has helped me shift from relying on instinct alone to becoming a more reflective, research-informed educator. Applied learning has shown me how to connect theory and practice in a way that feels purposeful and sustainable. I may not have all the answers, but I feel much more confident in the kinds of questions I am asking now—questions that put neurodivergent voices and experiences at the center. In the end, this project has reminded me that meaningful research does not have to be separate from practice. When done thoughtfully, it can be deeply practical, creative, and human—and that is the kind of work I want to keep doing.

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