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A Framework for Mediating Medical and Social Models of Disability in Instrumental Teaching for Children with Down Syndrome

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Abstract

This article reflects upon the potential mediation of medical and social interpretations of disability through informing instrumental tuition with the strengths recognised in the learning profile of children with Down Syndrome. The learning profile is explored and critically discussed, and its reductionist, deficit-based potential identified; before considering the potential value of applying the evidence-based phenotype to musical provision. While a medical model of disability may interpret this learning profile as a list of deficiencies, this paper proposes that an informed, strength-based approach to teaching could empower students and challenge barriers to participation through suitably tailored provision, providing a relevant and constructive learning experience. This framework therefore aligns more closely with a Nordic relational model of disability that mediates the medical and social models, recognising disability as an interaction between impairment and the environment. Three case reports are presented to demonstrate and emphasise the range of personalities and individual differences between musicians with Down Syndrome, but also how this evidence-based approach can be applicable to many students, potentially contextualised within a "Universal Design for Learning" framework. A summary considers how raising awareness of constructive strategies for informed provision could develop confidence amongst practitioners, and thus in turn increase provision of relevant musical opportunities to students with additional learning needs, including Down Syndrome. In a critical conclusion, the notion of "differentiation" as perpetuating a dominant ableist discourse is considered and recommendations made with regard to furthering connections between critical social practices associated with Critical Disability Studies and music education.

Keywords

differentiation, disability, Down Syndrome, learning profile, pedagogy

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Introduction

This article presents a framework for instrumental tuition for individuals who have Down Syndrome. This framework is developed from a series of case reports and draws from the evidence-based assertion that there may be a recognisable learning profile amongst learners with Down Syndrome (Davis & Escobar, 2013; Bird, 2016). Within this discussion it is vital to maintain a critical awareness of the potentially reductionist, historically deficit-based application of this perspective (Moore & Slee, 2012; Penketh, 2016). The value of applying this evidence-based approach to music education is explored through three case reports that illustrate this strength-based approach to music making with learners who have Down Syndrome. This discussion responds to the suggestion of a need for "evidence-based practices for the many music teachers in inclusive classrooms who are in need of this assistance" (Jellison & Draper, 2015, p. 329) and "an understanding of Critical Disability Studies by art[s] educators and an application to their research and pedagogic practice" (Penketh, 2016, p. 140).

The case reports demonstrate provision informed by the evidence-based learning profile, while recognising and celebrating a wide range of musicians' personalities, communication styles, preferences, instruments and intentions. To be clear, this approach is not intended to "reinforce totalising attitudes towards disability" (Penketh, 2016, p. 133). A social model perspective on the construction of disability is adopted (Rapley, 2010), and a strength-based interpretation of Down Syndrome asserted: celebrating "able identity" (Magee, 2002, p. 191) and approaches that challenge a normative discourse. There is a clear avoidance of "approaches to music and disability that simply reify intelligence and perpetuate essentialist definitions of disability and problematic categories of the 'normal' and 'abnormal'" (Carlson, 2016, p. 50). As Bell (2014, p. 244) suggests:

> In a music education context, when a barrier is encountered, rather than focusing on what is "wrong" with the individual, we should be accountable for what is wrong with the situation. Removing the barriers to music education is a matter of justice.

Therefore, adaptation to the environment and the provision is presented, in response to the individual's experience. Before presenting these illustrative case reports, a summary of the learning profile will be shared, as well as a recognition of the ideology underpinning this approach, and a brief review of current approaches for musicians who have Down Syndrome.

The learning profile of individuals with Down Syndrome

Down Syndrome is the commonest recognisable cause of a learning disability,[1] with current statistics suggesting that around 1 in 1000 live births in the UK will be a baby who has Down Syndrome (Down's Syndrome Association, 2018). The education system has reformed considerably over recent decades to offer inclusive mainstream provision for children with Down Syndrome (Turner, Alborz, & Gayle, 2008; Kendall, 2017). There has been less writing about the musical experiences of young people with Down Syndrome specifically, and of children with additional learning needs more broadly.

Engaging with genomic phenotypes is explored in many fields including precision medicine (Katsnelson, 2013) and implementation science in education (Cook & Odom, 2013). From a Critical Disability Studies perspective (Goodley, 2017), there is scope to consider this approach as simplistic and overgeneralised, a perspective recognised by Fidler (2005, p. 87): "Behavioural phenotypes are probabilistic… not every child with a specific syndrome necessarily shows all

etiology-specific behaviours". Buckley, Bird, and Sacks (2006, p. 51) recognise how this learning profile can be changed through inclusive educational opportunities and early intervention, and is not "an inevitable outcome" of having Down Syndrome. Kendall (2017) emphasises that individuals with Down Syndrome have individualised needs and therefore provision should be specific to the individual. Darrow (2015a) concurs, noting that "all learners exist somewhere on the continuum of human diversity" (p. 202). However, in providing students with "the best opportunity to learn" (Richards, Brown, & Forde, 2007, p. 64), commencing the process of "differentiation"[2] from the proposed learning profile of children with Down Syndrome may be more effective than developing provision from normative assumptions of development.

Lemons et al. (2018) discuss the relevance of utilising the evidence-based learning profile "to determine which practices [we] should implement to meet the needs of students under [our] charge" (p. 68). An evidence-based approach to music education provides a valuable opportunity to develop pedagogy to directly meet the learning needs of individuals with Down Syndrome and concurrently develop confidence and effectiveness of educators. This paper is very cautious to avoid perpetuation of generalisations and stereotypes about individuals with Down Syndrome, who are as diverse a group as any other.

Drawing from over 50 years of longitudinal and cross-sectional samples (Fidler, Most, & Philofsky, 2008), the research suggests that learners with Down Syndrome may share elements of the following attributes (Dykens, Hodapp, & Evans, 2006; Bird, Alton, & Mackinnon, 2018; Bentley, Dance, Morling, Miller, & Wong, 2015):

- Relative strength in visual memory paired with relative weakness in auditory memory (Conners, Rosenquist, Arnett, Moore, & Hume, 2008)
- Stronger receptive than expressive language (Pezzutti et al., 2018)
- Delayed motor skills, hypotonia (Bruni, 2006; Latash, Wood, & Ulrich, 2008)
- Relative strength in non-verbal and social skills (Cebula & Wishart, 2008; Watt, Johnson, & Virji-Babul, 2010)
- Learning disability (Patterson, Rapsey, & Glue, 2012)
- Potential sensory impairments (Bentley et al., 2015)
- Potential avoidance strategies when learning new skills (Wishart, 1993, 2002)

In contrast with other publications in this area (Jaquiss & Paterson, 2005), which are critiqued as perpetuating pathologising tendencies (Penketh, 2016), this article strongly advocates a strength-based interpretation of the characteristics outlined, in line with an affirmative interpretation of disability (Rickson, 2014). In developing musical provision to align with these attributes, individuals can experience fewer barriers to participation and understanding, thus lessening the extent of their disability by reviewing the positioning of the pedagogical input to value and prioritise the individual experience. Table 1 summarises how some of the key dimensions of the learning profile could be applied in music tuition.

Further to this simple example, three case reports will be presented which illustrate how these basic principles can be applied with musicians with a wide range of interests, ages, personalities, learning needs and communication strategies.

"Differentiated" or "inclusive" musical provision[3]

Before applying the proposed musical framework, current approaches in "inclusive" music education will be reviewed. While there is literature exploring music making more broadly with disabled participants (Colwell, 2002; Ott, 2011; Lines, Westrup, & Noble, 2018; Paterson &

Table 1. Examples of Translating the Learning Profile into the Instrumental Lesson.

Learning profile of children with Down Syndrome	Example of application in instrumental lesson
Relative strength in visual memory over auditory memory	Present information visually such as colour-coded notation, aesthetically attractive materials and resources. Utilise the instrument to demonstrate rather than relying on verbal explanations. Avoid over-reliance on auditory information. Present auditory information in shorter chunks, accompanied by sign supported communication and visual information wherever possible.
Stronger receptive language skills than expressive language skills	Maintain awareness that receptive language may be stronger than expressive language and this could impact on the structure and content of the verbal dialogue. Utilising sign supported communication could support both receptive and expressive communication and questions could be structured in such a way that answers could be given through choice-making rather than relying on breadth of expressive vocabulary.
Potentially delayed motor skills and low muscle tone	Specific games and activities could be developed which build on social skills, to strengthen fine motor control and develop muscle tone for instrumental performance.
Strong non-verbal communication and social skills	Consider utilising games and playful strategies to deliver information and maximise use of gesture and non-verbal communication throughout the teaching.
Learning disability	Consider the pace when introducing new material and develop opportunities for repetition and consolidation. Approach concepts from multiple perspectives and modalities, with time for processing. Flexibility is necessary to respond to the experience of the individual.
Potential sensory impairments	Ensure any visual materials are accessible in size, clarity and perhaps tactility. Ensure auditory information is amplified if necessary and there are accessible means of communication and engagement.
Potential avoidance strategies when faced with learning new skills	Consider engaging with principles of "Errorless Learning" (Duffy & Wishart, 1994)[a] and scaffold new learning to increase success and thus motivation, to maximise learning opportunities.

[a]See Note 6 for further detail.

Zimmermann, 2006; Ramey, 2011; Schalkwijk, 1994; Streeter, 1993; Williams, 2013), there is a relatively small body of literature which talks about "inclusive" instrumental tuition for students with additional learning needs (Adamek & Darrow, 2010; Darrow, 2015a, 2015b; Darrow & Adamek, 2018; Gerrity, Hourigan, & Patrick, 2013; Hammel, Hickox, & Hourigan, 2016; Hammel & Hourigan, 2017; Jellison & Draper, 2015). There are also few case studies about working specifically with children who have Down Syndrome (Barker, 1999; Bell, 2014; Cross, 2005, 2007; McCord & Fitzgerald, 2006). An unpublished thesis explores the historical, stereotyped musicality of individuals with Down Syndrome (Pickard, 2009), and while the sources are outdated and problematic in their language, discourse and tone (Blacketer-Simmonds, 1953; Fraser & Mitchell, 1876; Sherlock, 1911; Stratford & Ching, 1983), they make references to dimensions of what has since been recognised as the learning profile (Bird et al., 2018).

Some authors consider provision for learners with additional learning needs in the music classroom (Ferguson, 2001; Gallegos, 2006; Hehir, 2007; Storey, 2007). Some reference elements of the learning profile (Darrow & Adamek, 2012; Jaquiss & Paterson, 2005; Salvador,

2015), while others explore pedagogical considerations (Heikkila & Knight, 2012; McCord & Fitzgerald, 2006) and the perspectives of future music educators (Jones, 2015; Laes & Westerlund, 2018; Salvador, 2015; Whipple & VanWeelden, 2012). There is a growing body of evidence around music education for young people who have Profound and Multiple Learning Disabilities (PMLD) (Ockelford, 2008, 2015) and children with autism spectrum conditions (ASC)[4] (Hourigan & Hourigan, 2009; Hammel & Hourigan, 2013; Hutchinson, 2013; Ockelford, 2013; Simpson & Keen, 2011; Scott, 2017), which influence the latter case report. While there is a lack of research into strategies which may be particularly effective for musical development in a group of musicians who may share a common learning experience (Buckley, 2006; Fidler, 2005), Carlson (2016) rightly emphasises the problematic nature of generalising to *all* individuals with Down Syndrome, a perspective upheld throughout this study.

There is recognition internationally for the need for music education to "transform its professional discourses to fully address the issues of inclusion and diversity" (Laes & Westerlund, 2018, p. 35). Before translating the learning profile into a music-focused approach, it is important to recognise some of the underlying assumptions of an approach termed "differentiated" or "inclusive". While these terms are intended to develop a provision which enables successful and meaningful participation, it is recognised that the suggestion that initial provision wouldn't be accessible unless differentiated, perpetuates an ableist stance. This could be construed to denote learners receiving differentiated provision as deficient, with negative connotation to a "norm". While a social model approach to practice would value and celebrate difference, it is also considered that this tailored approach challenges the assumption that music education should commence from a normative stance, and proposes a shift to the starting point of the educator to more aptly recognise the valid "norm" of the learner. Transforming professional discourses should include consideration of "the politics of disablement inherent in contemporary curricular, pedagogy and assessment practice" (Penketh, 2016, p. 133), nurturing a societal understanding with far greater opportunities for all musicians.

Methodology

This series of case reports has been developed from observations and reflections from the position of the practitioner, incorporating insights from diverse examples of instrumental lessons with children who have Down Syndrome. A phenomenon that Higgs, Titchen, and Neville (2001) refer to as practice knowledge. This positioning is very intentional, framing the responsibility for growth and change with the practitioner: "shifting the imbalanced burden of adapting away from [disabled] ... individuals" (Woods, 2017, p. 1094). This is an important distinction in this way of working: that the individual's medium of expression is valued and respected, rather than imposing a normative attitude and attempting to nurture a shift towards more mainstream or typical ways of being and learning (Hehir, 2002; Pickard, 2019).

Ramulu, Levine, Hebert, and Wright's (2005) Case Report Review Instrument was consulted to ensure the rigour of this methodological approach. The individual case reports are punctuated by relevant music education development profiles, but are largely framed through the practitioner's Critical Disability Studies lens (Goodley, 2017) to illustrate the potential impact of shifting the practitioner's worldview in enabling musicians with Down Syndrome.

Since this instrumental tuition was completed in private practice, prior to registration as a music therapist and commencement of an academic role, a specific ethics panel was not approached. However, informed consent was sought from parents to include these examples from practice in a research-based publication. The second case report is a composite of two

pupils whom it was not possible to approach to request consent, and therefore represents two pupils' experiences anonymously, following Duffy's (2010) guidelines.

Guillemin and Gillam's (2004, cited in Nichols, 2016, p. 241) "procedural and practical ethical considerations" were explored and reflected upon. The Sound Sense (2017) "Music Education Code of Practice" was upheld throughout, and the ethical practices discussed by the arts in health resource Creative and Credible (2015) were also consulted and maintained.

Case report 1 – Olivia's piano lessons

Olivia was a vibrant, energetic 8-year-old when she decided that she would like to learn to play the piano. She also had Down Syndrome, which led me to explore some specific and innovative strategies for enabling her to engage with the instrument and the notation to her full potential. Over three years we developed a strong friendship and learned a lot about the instrument and each other.

As research suggests is typical of children with Down Syndrome, Olivia was a visual learner who had a relatively stronger visual memory than auditory memory (Fidler, 2005). As such, my communication was usually presented in digestible "chunks" of information, avoiding reliance on auditory memory, and accompanied by sign to reinforce the meaning of our conversations in a visual form (SignAlong, 2016). Olivia had relatively low muscle tone, also common of children with Down Syndrome (Down's Syndrome Association, 2018), which caused her fingers to be soft and floppy in her initial exploration of the piano. This did not appear to dampen Olivia's excitement or commitment[5] and she worked hard to develop her instrumental skills.

Having taken time to get to know Olivia, it emerged that Olivia was keen to play with "both hands together", and to play familiar songs that she enjoyed, such as popular choices from musical theatre and school assemblies. Having established Olivia's objectives for the lessons, I researched a range of approaches that might enable Olivia to fully access and understand the instrument, informed by understanding her potential learning profile (Buckley & Bird, 2002). I came across the *Colour Muse* method (Steer, 2016), which introduces a family of dinosaurs to represent note values, and uses colours to denote the notes on the keyboard.

The intention of the method is that children use the colours on the stave and behind the keys as additional visual cues. They gradually transition to recognising the placement of the note-head on the stave, thus transitioning to reading standard (black and white) notation. Similar methods of colour coding have proved effective with many children with additional learning needs (Salvador, 2015; Whipple & VanWeelden, 2012), including the more widely known *Figurenotes*© method (Kaikkonen & Uusitalo, 2005) and Hubicki's *Colour Staff* (Hubicki, 2001). The specific *Colour Muse* method was chosen since the dinosaur characters of *Colour Muse* (Steer, 2016) were particularly appealing to Olivia, over the more mathematical shapes and colours of the *Figurenotes*© method (Kaikkonen & Uusitalo, 2005), which Olivia related to school maths lessons.

The highly visual, engaging, age appropriate method of *Colour Muse* (Steer, 2016) was shared with Olivia eagerly. Initially we played some games with the dinosaur family and explored finger exercises using the colours on the keyboard to develop fine motor skills. Olivia was happy to continue with this method, but I noticed that she appeared to find it difficult to recognise the specific colour on each note-head on the stave, even in the simplest exercises. There is evidence to suggest that learners who have Down Syndrome may be more likely to experience poor visual acuity (Krinsky-Mchale et al., 2014), a specific visual impairment relating to contrast, which could account for Olivia's challenge in reading the notation in this format.

I experimented with increasing the size of the *Colour Muse* (Steer, 2016) resources, which at the time were readily available online and in print, but found that this reduced the quality of the

images and so didn't support visual acuity. Therefore, I began developing bespoke notation for Olivia. The colours of the *Colour Muse* method were incorporated, reinforced visually behind the keyboard and on the keys, but these were accompanied with bold letter names. Since Olivia had been enjoying learning letter shapes in school, she was excited to incorporate these into our piano lessons. Many piano teachers would discourage the incorporation of letter names, but this enabled Olivia to engage with her first meaningful access to notation. This degree of flexibility was integral to enabling Olivia to engage with the learning.

Over the next year, we experimented with a range of simple, familiar melodies using the coloured letters. Elements of music theory were gradually introduced such as bar lines, time signatures and fingerings. These concepts were reinforced in fun, individually designed worksheets which had Olivia's photograph on them to further engage her. As the sessions progressed, we spent time working on music theory and recognising musical terminology. We played scales, games and finger exercises and explored the piano in a more improvised style in response to various stimuli. This improvisation gave Olivia the opportunity to explore the potential of the piano as a sound source and to learn about the sounds of the chromatic keys, which she was less likely to explore within the range of the melodies she could comfortably explore.

A motivating aspect of the teaching for Olivia was to work towards a performance, to share and review her progress with her parents. Occasionally we would perform a short concert at the end of the lesson, and on other occasions we would film a performance. As we transitioned to performing whole pieces, I introduced Olivia to the *Melody* certificate scheme (Melody, n.d.). Olivia was excited at the prospect of working towards a certificate that she could share in school assembly alongside her peers. This was an additionally motivating dimension of the teaching, the success criteria of which we determined collaboratively.

Olivia was able to set goals she was eager to achieve, such as performing a chosen song "from beginning to end, both hands together". When these targets were achieved, Olivia received her *Melody* certificate, and shared it in school assembly. This gave Olivia a sense of parity with her peers as well as a sense of achievement and pride in her musical development.

In addition to sign supported communication and clear visual resources, Errorless Learning (Duffy & Wishart, 1994)[6] and scaffolding also supported Olivia's learning. Errorless Learning is an approach used in educational interventions with children who have Down Syndrome and suggests that ensuring the child has more successful than failure-related learning experiences can embed positive associations with the learning experience and thus foster increased motivation (Duffy & Wishart, 1994).

In line with the Errorless Learning approach, the gentle progression of the resources was guided by Olivia's pace, ensuring she wasn't pushed to a point whereby she would be unsuccessful. This embedded Olivia's positive association with the lessons, and motivated her to continue. Scaffolding was used in line with Errorless Learning to enable Olivia to achieve desired objectives interdependently, which motivated her to continue with her learning and gradually achieve these outcomes increasingly independently.

For example, we would play duets, which offered a fuller sound at the keyboard and provided opportunities for harmony as well as melody. Olivia recognised the fuller sound as more representative of the melodies she knew, and was eager to share the keyboard to engage with this. This paved the way for her exploration of the bass clef in time, as she enjoyed swapping roles and taking a turn to be the teacher and play the bassline or accompaniment.

The *Melody* certificates, the very gradual increase of complexity, and the repetition and consolidation of successful learning experiences were strategies applied intentionally to enable Errorless Learning and, in turn, continued engagement and motivation for learning. Strategies to develop and support Olivia's muscle tone included modelling the accurate sequence of notes

for her to hear the pattern, hand on hand support to physically experience the accurate sequence, and singing along together. This variety of approaches and "multiple means of engagement" (Darrow & Adamek, 2012, p. 62) enabled extensive repetition of musical material from multiple perspectives, enabling us to develop a fun, trusting musical relationship.

In the second year, Olivia became less reliant on the letter names and became able to recognise the notes by colour. Olivia progressed to learning a total of 10 scales, major and minor, incorporating accurate finger patterns. This required support and reinforcement, but Olivia was able to recognise the sequence of pitches she was aiming for and thus to recognise a mistake. The finger patterns strengthened her muscle tone and fine motor skills and enabled her to progress to more complex repertoire, playing "both hands together", as was her initial ambition.

The library of *Melody* certificates enabled progress to be celebrated and for Olivia to evidence her journey. During our third year of teaching Olivia played a solo in the school assembly, which was extremely well received; this boosted her confidence and enabled her to establish an able, rather than disabled, identity amongst her peers. Near the end of our three-year journey, Olivia was exploring the first stages of the published *Colour Muse* programme, intended as very early introductions to the piano for younger children (Steer, 2016). Olivia made progress in physical, cognitive, emotional and social dimensions. She developed a degree of technique in her piano playing, played familiar melodies by ear or could read her individualised notation to learn new or unknown melodies. The skill required from the teacher was mostly time and patience, with influence from the evidence-base on the learning profile of children with Down Syndrome (Buckley & Bird, 2002).

Case report 2 – Nathan's music sessions

Nathan was 9 years old and had a dual diagnosis of Down Syndrome and Autism, as is said to be the experience of around 16.5% of individuals with Down Syndrome (Warner, Moss, Smith, & Howlin, 2014).[7] Nathan had recently been adopted and was transitioning into his new home and family environment. Nathan's parents were eager for him to have an expressive outlet, and an opportunity to explore an enjoyable, educational pastime. Nathan communicated mostly through non-verbal expression and it took me some time to develop an understanding of his musical preferences and intentions.

A linear visual schedule was prepared to articulate to Nathan the initial structure of the music sessions. This built on experiences of working with young people with Autism as well as documented strategies for communicating clearly in educational contexts (Conn, 2016). We began with a "Hello Song", orientating us to the room, the session and each other. There would be an improvisation section where we explored instruments together, stimulated by different picture cards to provide visual information and support us in generating a story and composition. There was then an opportunity to listen to prerecorded music together and potentially to move to the music with our bodies (Wylie, 2006). Following this, there was a chance for Nathan to relax and listen to some live improvised music before we sang our "Goodbye Song" together.

While the structure and intention of this work was broadly more therapeutic (Wylie, 2006) in that the aims and outcomes related to developing a relationship, expressing emotions through music, embodying musical experiences, affect attunement and entraining to music,[8] the recognised learning profile was still valuable in informing and underpinning the articulation of the practice.

The visual timetable and story cards were invaluable in visually communicating the proposed structure of the session and some tangible ideas for our improvisational activities. This limited reliance on Nathan's potentially weaker auditory memory enabled successful engagement

throughout. Accompanying any verbal instruction with sign supported communication was another way to build on strength in visual memory where a weakness in auditory memory was evident (Conners et al., 2008). Picture cards and story cards enabled us to revisit and reflect upon the music we had made, while the transient auditory trace of the work may have disappeared.

Principles of Errorless Learning (Duffy & Wishart, 1994) were important for Nathan and the sessions were structured in such a way that he would develop new knowledge by successfully building on the experiences of previous sessions. Activities were prepared in order that they were achievable but suitably stimulating to motivate and sustain his attention.

Nathan responded well to the devised provision for the most part, occasionally communicating through his behaviour when a task was too difficult. Through a critical reflection of the practice and consideration of the principles of Intensive Interaction (Nind & Hewett, 2001), which consider every behaviour to be an attempt to communicate, it was possible to recognise potential antecedents to any frustrated or disengaged behaviours by exploring the specific nature of the task presented. This may have related to the area of challenge in expressive language for children with Down Syndrome, and responding to kinaesthetic and tactile communication as well as verbal communication enabled Nathan to make himself understood. Interpreting Nathan's behaviour in this way aimed to move away from a harmful stereotype of children with Down Syndrome being "obstinate" (Jaquiss & Paterson, 2005, p. 30) and sought to empathise with Nathan's experience and understand his communicative behaviour.

By developing a trusting relationship and learning about each other's modes of communication, we developed a constructive 25-minute programme where we made music together. Nathan expressed different emotions and constructed musical stories, extending his receptive and expressive language in the process (Pezzutti et al., 2018). As the provision became more accurately pitched and increasingly accessible, behaviour which could have been perceived as challenging at the outset of the work, became less frequent. Nathan developed his capacity to communicate through musical choices, sign and gesture rather than relying on behaviour that may be disruptive or unsafe. Nathan developed his repertoire of musical skills in playing a wide range of tuned and untuned percussion, and particularly his improvised piano playing. His dexterity and fine motor skills improved incidentally through his motivated engagement with the instruments, while his understanding of visual methods of communication enabled him to develop interesting and often meaningful musical stories about a range of characters, life events and environments.

The work with Nathan supported his transition into his new home and school, and provided him with an opportunity to play musical instruments, explore narratives and emotions, and establish a musical relationship at his own pace. Crucial dimensions of this learning experience included recognising and valuing communication through modalities other than verbal language (Hehir, 2002) and developing a clear visual resource to accompany our playful interactions.

Case report 3 – Griff's music making

Griff was 15 when we commenced our work together. He had a gentle demeanour and a passion for music, as well as a diagnosis of Down Syndrome, visual impairment and a severe learning disability (SLD).[9] Griff's parents were eager that he receive instrumental tuition in parity with his sister, who was a prolific musician. Griff had engaged with music therapy successfully in the past and his parents recognised that music was a valuable medium for him to express himself in a range of contexts. It became apparent through our initial interactions that much of Griff's communication was echolalic. While he enjoyed engaging in musical activities, he

rarely shared spontaneous or original responses, as is recognised amongst some learners with Down Syndrome (Feeley & Jones, 2008).

Griff's parents' vision for him to engage in music education, and Griff's lively engagement with this vision, supported me to explore different frameworks to nurture this specific domain of development. In researching musical frameworks and approaches for young people with SLD or PMLD, there was only one resource of significance at the time. The Sounds of Intent framework (Welch, Ockelford, Carter, Zimmermann, & Himonides, 2009; Ockelford, 2015) builds on the outcomes of the PROMISE Report (Welch, Ockelford, & Zimmermann, 2001; Welch, Ockelford, Zimmermann, Himonides, & Wilde, 2016) exploring music education for learners with SLD/PMLD and provides practitioners with a cyclical model of musical development, in the domains of interactive, reactive and proactive music making.

This evidence-based model was invaluable in designing the provision for Griff, and enabled recognition of a mixed profile of attainment across three domains of musical development. This was useful to structure activities in such a way as to suitably challenge Griff's musical development, and to facilitate this in line with the aforementioned learning profile (Fidler, 2005).

While this framework is most widely applied with learners who have PMLD, it was deemed the most relevant, evidence-based framework in relation to Griff's learning experiences, in contrast with the P Levels which lack rigour and music-developmental research (Qualifications and Curriculum Authority (QCA), 2001; Ockelford, Welch, Zimmermann, & Himonides, 2005) and more mainstream approaches to instrumental tuition (Barratt, 2011; Mills, 2007; Stringer, 2005) which were too advanced for Griff's learning at the time. The lack of research and provision for musicians with learning disabilities in music education and music psychology is noted by Jellison (2000) and Welch et al. (2009).

As such, we embarked upon an exploration of a range of instruments and a range of alternative notation systems. Auditory instructions were simple and short, always accompanied by visual information such as sign and images (Meuris, Maes, De Meyer, & Zink, 2014). The alternative notation system used was designed with Griff's specific learning and communication profile in mind. Large, clear photographs were accompanied with words in a large font and brief rhythmic motifs in simplified standard notation. In line with the Sounds of Intent framework (Ockelford, 2015) we explored a range of opportunities for proactive, reactive and interactive music making, exploring subtle developments in each domain. The Sounds of Intent website was an invaluable resource in confidently mapping Griff's progress and in sharing insight and ideas from other inclusive practitioners across the world (Sounds of Intent, 2018).

Engagement with the Sounds of Intent model (Welch et al., 2009; Ockelford, 2015) enabled recognition of development in all three domains, as illustrated in Table 2.

Although the focus of the work was educational, there were a range of incidental non-musical outcomes, as Wylie (2006) and Jellison and Draper (2015) suggest is common in music practice with young people with additional learning needs. This included the development of a rich friendship, where we got to know each other and looked forward to our meetings each week: Griff waiting on the doorstep for my arrival and myself eager to leave my workplace in order to travel to meet Griff and share in our music making. Griff developed his use of spontaneous expression, initially through musical expression and gradually through original verbal expressions. Griff incidentally learned to recognise whole words, a common reading strategy adopted by learners with Down Syndrome (Roch & Jarrold, 2008). As such, he recognised various words on a menu in a café which we had utilised as phrases for rhythmic motifs, and this enabled him to develop his agency and autonomy in ordering meals independently. Griff's parents recognised and valued these extra-musical developments that occurred alongside the intended musical outcomes.

Table 2. Griff's Musical Development at the Outset and the End of Our Music Making.

Sounds of Intent, domain of musical development	At the outset	Four years later
Proactive	P2 – makes or controls sound intentionally	P4 – (re)creates distinctive groups of musical sounds (motifs) and links them coherently
Reactive	R2 – shows an emerging awareness of sound / R3 – responds to simple patterns in sound (made through repetition or regularity)	R4 – recognises and responds to distinctive groups of musical sounds (motifs) and the relationships between then (e.g. in call and response)
Interactive	I2 – interacts with others using sound	I4 – engages in dialogues using distinctive groups of musical sounds (motifs)

Discussion

Engaging with the learning profile

While music lessons with Olivia, Nathan and Griff had varied objectives, the shared approach of exploring a potentially consistent learning profile as a tool for developing the provision appeared to be useful to each musician. For Olivia, the notation became increasingly visually memorable through the inclusion of colour, characters and motivating content such as familiar melodies. Incorporating sign supported communication (Meuris et al., 2014; SignAlong, 2016) and principles of Errorless Learning (Duffy & Wishart, 1994) enabled Olivia to develop her repertoire and skill level in a context that was meaningful and relevant to her learning.

Nathan's improvisatory music making was scaffolded with a visual schedule and visual representations of both instruments and story components. This enabled him to reflect upon the emotional, conceptual and musical content of our music making together, and enabled his development of both receptive and expressive language around the stories we told in music. Nathan became able to utilise musical or verbal communication to articulate his experiences rather than relying on behaviour to convey his message.

For Griff, visual strategies including colour coding, enlarged photographs and whole word recognition enabled him to access rhythmic and melodic motifs while incidentally developing his reading capacity. Griff developed spontaneous language through exploring pre-verbal communicative musicality (Malloch & Trevarthen, 2009) in the sessions and recognising his agency in music. Over a series of four years, Griff's communication became less echolalic and he developed his ability to communicate increasingly authentic and meaningful statements. We also developed a colourful friendship by exploring music together and learning about each other's sound world and world view.

Limitations and critical perspectives

While a gene-based approach may be considered simplistic and over-generalised, starting from an evidence-based understanding that musicians with Down Syndrome may learn in accordance with a given learning profile can be a means of celebrating neurodiversity: recognising the valid and different vantage points from which we develop musical provision. Assuming relevance of this learning-profile-based approach to all musicians with Down Syndrome would indeed be reductionist, as well as inaccurate based on the probabilistic approach described by

Fidler (2005) and the need for an individualised approach outlined by Kendall (2017). It is also recognised that Olivia, Nathan and Griff may have shared visual, kinaesthetic learning styles (Gray & Macblain, 2015), rather than the proposed learning profile of children with Down Syndrome, and this may have been why the provision was relevant to their learning needs. Equally, there may have been more effective strategies which weren't known or explored, which don't relate to the proposed learning profile either.

Implications for practice

Considering this learning profile as a starting point from which to develop provision is a valid compromise between a medical model interpretation of disability, which recognises and situates deficit within the musician, and a social model interpretation of disability which would lay the responsibility of removing barriers to participation with societal structures and opportunities alone (Goodley, 2017; Williams, 2013). This approach therefore aligns more closely with a Nordic relational model of disability that mediates the medical and social models, recognising disability as an interaction between impairment and the environment (Kristiansen & Traustadóttir, 2004; cited in Goodley, 2017). This provides opportunities for recognising and celebrating the individual's learning needs and strengths, adapting the provision and environment to provide what Wishart (2002, p. 18) terms a "maximally supporting learning environment". This contrasts with strategies for "inclusive" provision which don't interrogate or problematise the underlying discourse around normalcy and diversity, the politics of disablement, and how "differentiation" for "special" learners can lead to Othering and "reinforce totalising attitudes toward disability" (Penketh, 2016, p. 133).

Conclusion

This article suggests that since musicians with Down Syndrome may be likely to engage with a particular pattern of development and experience in their learning (Bentley et al., 2015), this can be interpreted as a recipe for success, rather than a checklist of deficiencies. Similar approaches are discussed in other disciplines, such as reading (Lemons et al., 2018), medicine (Katsnelson, 2013) and education (Bird, 2016; Buckley & Bird, 2002). Applying this evidence-based approach to instrumental tuition could enable musicians with Down Syndrome to more successfully access provision, as well as enabling music teachers to feel increasingly confident to provide relevant, meaningful and constructive learning opportunities. This position of providing "multiple means of representation… multiple means of action and expression… and multiple means of engagement" to students is further recognised by Darrow and Adamek (2012; cited in Darrow, 2015a, p. 215) as application of the principles of Universal Design for Learning (Rose, Meyer, & Hitchcock, 2006). From this perspective, developing broader methods of engaging in music education could benefit a much wider cross-section of learners, not only musicians with Down Syndrome, since "rarely do music educators find that instructional initiatives benefit only the students for whom they were designed" (Darrow, 2015b, p. 31).

While the potential of approaches discussing "differentiation" to perpetuate an ableist attitude is acknowledged and highly considered (Moore & Slee, 2012; Penketh, 2016), it is proposed that starting from the evidence-based perspective of musicians with Down Syndrome is far more person-centred than commencing "differentiation" from the learning profiles of typically developing peers. It is hoped that the case reports provide insight into the recognition of personality, communication styles and musical preferences which shaped the work as much as the evidence-base. As Jellison and Draper (2015) suggest:

> The challenge for the music education research community is to provide evidence-based practices for the many music teachers in inclusive classrooms who are in need of this assistance and the millions of children with disabilities who deserve a quality music education. (p. 329)

In considering the further implications of informed and effective provision, music provides an opportunity for an "able identity" (Magee, 2002, p. 179) and an expertise for disabled students: challenging peer, societal and systemic interpretations of their disabled identity (Rapley, 2010). In performing a piano recital in front of her peers and receiving her certificate, Olivia challenged her potential role as "the disabled student" in the class and took on the identity of "the musician": a transformative notion Lubet (2015) terms "social confluence". Lubet (2011) suggests that "music is the canary [...] in the educational coalmine, which can tell us more about society's inclusive – or non-inclusive – praxis than might readily be imagined" (pp. 57–58). It is proposed that as well as articulating and communicating societal perceptions of disability, music can be a medium for challenging and transforming societal perceptions of disability too.

There is a significant need to continue to challenge the application of a medical gaze in musical, educational and therapeutic practices (Pickard, 2019). By challenging the reinforcement of the epistemology of special education in the language and discourses explored, further connection can be made between critical social practices associated with Critical Disability Studies and music education (Bolt, 2016; Howe et al., 2016). It is hoped that this discussion will pave a bridge between medicalised and neurodiversity perspectives, providing tangible, informed examples of how we might develop relevant and meaningful provision, informed by an awareness of Critical Disability Studies and its application to research and pedagogic practice (Penketh, 2016).

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Notes

1. I use the term Learning Disability, as is widely used in the UK, to refer to intellectual disability. This term should not be confused with a Specific Learning Difficulty, or processing difficulty such as dyslexia or dyscalculia, which are not necessarily part of this learning profile. See Nunkoosing (2011) for a discussion of the use of Learning Disability over Intellectual Disability as well as the consideration of socially constructed disability.
2. The term "differentiation" is enclosed within quotation marks in order to symbolise that I recognise this terminology as problematic.
3. The terms "differentiated" and "inclusive" are included in quotation marks in order to symbolise that I recognise this terminology as problematic. Suggesting that provision needs to be "differentiated" perpetuates a normative and ableist position, and denotes learners who would benefit from other strategies as "different". To suggest that a provision is named as "inclusive" would suggest that there is an alternative to this, and that the practitioner has made particular effort to "include" those considered "other". I believe in a spectrum of human diversity, as noted by Darrow (2015a), whereby educators should provide holistic and constructive learning opportunities for all learners.
4. I use the terminology autism spectrum *conditions* (ASC) as opposed to autism spectrum *disorders* (ASD) to reinforce an affirmative interpretation of disability, as opposed to a medicalised, deficit-based interpretation.
5. Challenging the stereotype and generalisation that children with Down Syndrome can be "obstinate" (Jaquiss & Paterson, 2005, p. 30) or employ avoidance strategies in the face of "difficult" tasks (Wishart, 1993, p. 47).

6. Errorless Learning (Duffy & Wishart, 1994) recognises "the important role that motivational deficits may play in undermining the progress of development in learning disabled children… While children with Down Syndrome had the cognitive capacity to learn from conventional trial and error experience, they were more likely to demonstrate this capacity after initial 'priming' with an errorless learning approach" (p. 51). Duffy and Wishart (1994, p. 52) suggest that "by artificially enhancing the success:failure ratios, teaching strategies such as errorless learning could perhaps play an important role in preventing avoidance becoming a routine response to difficult learning situations".
7. Significantly higher than around 1% Autism diagnosis in the general population (Baird et al., 2006).
8. The concepts of entrainment, musical attunement and affect attunement are widely discussed in music therapy literature (Malloch & Trevarthen, 2009). Sawyer (2005; cited in Ansdell, 2014, p. 200) describes entraining simply as "performing gestures and movements in alignment". This could be aligning one's body pace and tempo with musical gestures and rhythms, or aligning one's music making to an external tempo or beat. Kim, Wigram, and Gold (2009) define musical attunement as "an intuitive and moment-by-moment process, sensitively tuning into, elaborating and regulating each participant's behavioural and emotional expressions through musical engagement. In music therapy literature, this is often likened to early mother–infant interaction" (p. 390). Affect attunement is described by Stern (1985/2010) as a multi-modal phenomenon whereby the affect of a bodily gesture is attuned to by a communicative partner, and is expressed in a different modality to the original expression. For example, "an infant excitedly vocalises an upward then downward pitch movement, and the mother smiles and moves her head with the vocalisation so that the tip of her nose describes an inverted-U" (Trevarthen & Malloch, 2000, p. 12).
9. See earlier discussion of Learning Disability or Intellectual Disability.

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