

Learning a Musical Instrument Can Benefit a Child with Special Educational Needs

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Paper in press: *Psychomusicology: Music, Mind and Brain*, May 2018

Introduction: Although group studies provide a strong case for the efficacy of music learning during childhood^{1,2,3}, understanding variability in responses to musical interventions is particularly important when considering children with special educational needs. Such children often achieve statistically outlying test scores, for example on measures of cognitive ability, often resulting in their exclusion from group studies. This is unfortunate given the promising results from studies specifically targeting participants diagnosed with learning difficulties associated with developmental disorders^{4,5,6}. The provision of music lessons in mainstream schooling presents unique challenges for music teachers trained to work with typically developing children in mainstream schooling. Though music lessons may not be thought of as therapeutic per se, the notion of transfer effects of skill specific learning resonates in the educational context.



Methods: This mixed methods case study explores outcomes related to musical learning in a child with complex special educational needs in a mainstream school. CB is a boy who was eight-years-old at the start of the study, and who was diagnosed with co-morbid Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, Sensory Processing Difficulties, Dyslexia and Dyspraxia during the study. Music lessons were subsidised by a local charity and the school in the West Midlands. Individual differences are compared with music training group (19 children aged 7-9 years, first learning instrument over one academic year).⁷

Quantitative Measures

- **Musical Aptitude** – Primary Measure of Musical Aptitude (Gordon, 1986)
- **IQ** – Wechsler Abbreviated Scale of Intelligence (Wechsler, 1999)
- **Auditory Verbal Memory** - Children’s Memory Scale (Cohen, 1997)
- **Motor Abilities** – Movement Assessment Battery for Children (Henderson, Sugden & Barnett, 2007)
- **Socio-emotional Wellbeing** - Behavioural Assessment System for Children – Teacher and Parent Reports (Reynolds & Kamphaus, 2004)

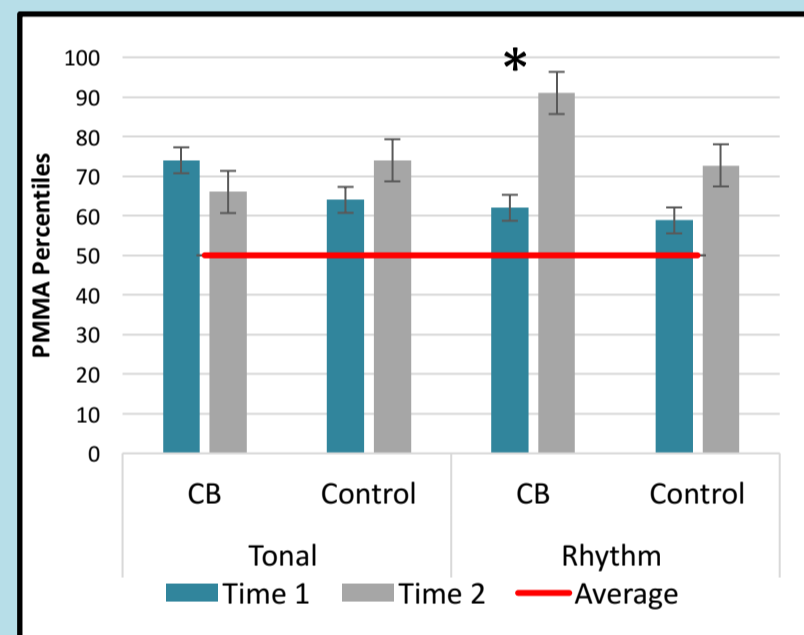


Figure 1. Musical Aptitude (PMMA).

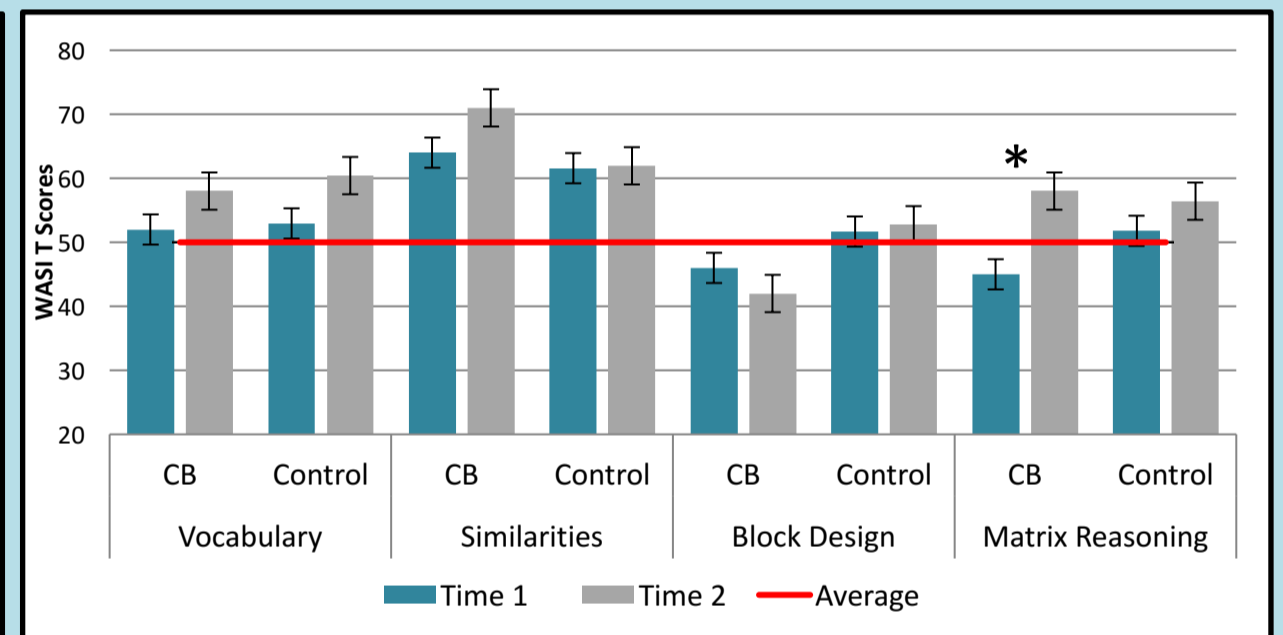


Figure 2. Facets of intelligence (WASI). Error bars = Standard errors

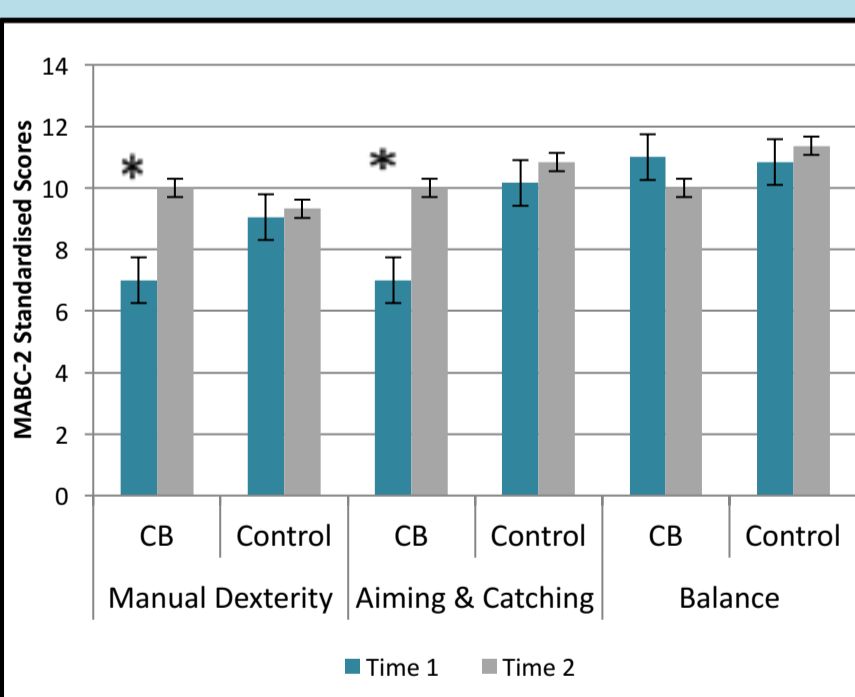


Figure 3. Motor Abilities (Movement-ABC 2).

Summary of Results: At baseline CB obtained a high musical aptitude score and an average IQ score. However, his scores on tests measuring motor abilities, memory, executive function, and social-emotional skills were low. Post-testing revealed large improvements in CB’s fluid intelligence and motor skills, though no change in other measures. Teacher/parent reports suggested a decline in social-emotional functioning, though musical progress was slow but good. Comparing CB’s scores to a group study provided some contextual generalizability, but also illustrated specific areas in which CB’s learning difficulties impacted on his musical learning and, potentially, vice versa.

Conclusion: This case study reveals how musical learning can provide amelioration for some impairments of developmental disorders, specifically in terms of the positive effect on motor development. The mixed methods approach helps us understand how important the interaction between the opportunities provided by the school and the engagement of the family were in this case. Similarly, the flexible and sensitive teaching approach, and the relationship with the student, especially engaging the student in finding appropriate solutions to learning obstacles, was crucial. CB played a solo in the end of year music festival and is still playing the tenor horn.



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References: ¹Forgeard et al.(2008); ²Hallam (2010); ³McPherson, G., Davidson, J., & Faulkner, R. (2012); ⁴Finnigan & Starr, (2010); ⁵Overy (2003); ⁶Thaut (2008); ⁷Rose, D., Jones Bartoli, A., & Heaton, P. (2017).