Research Based Benefits of Studying Music (Hallam, S., 2015)

**Transfer of Learning**

* Perceptual processing of sound
* Fine motor skills
* Emotional sensitivity
* Conceptions of relationships between written materials, sounds, and memorization of extended information (Norton et al., 2005; Schellenberg, 2003)
* Intelligence and attainment
* Self-regulatory and metacognitive skills (Hallam, S., 2015)

**Aural Perception and Language Skills**

* Sharpens the brain’s early encoding of sound (Hyde et al., 2009; Pantev et al., 2001; Patel &

Iverson, 2007; Tallal & Gaab, 2006)

* Enhanced performance on a range of listening and aural processing skills (Schlaug et al., 2005)
* Phonological skills – encoding and identification of speech sounds and patterns (Lamb & Gregory 1993; Lipscomb et al., 2008)
* Contributes to language development and literacy (Hallam, S., 2015)

**Development of Literacy Skills**

* Correlation between music activities and literacy skills, both verbal and auditory working memory (Roden et al., 2014a; 2014b)
* With children experiencing difficulty reading, rhythmic skills seem to have the greatest impact (Douglas & Willatts, 1994; Huss et al., 2011; Strait, et al., 2011a; 2011b)
* Reading notation may have a direct transfer to reading text (e.g. Butzlaff, 2000; Forgeard et al., 2008)
* Development of pitch and rhythmic skills support fluent reading and enhance comprehension (Hallam, S., 2015)

**Aural and Visual Memory**

* Long term positive effects on auditory memory (Aleman et al., 2000; Fujioka et al.,2004)
* Children with musical training have significantly better verbal learning and retention abilities (Ho, et al., 2003)

**Spatial reasoning and mathematical performance**

* Active engagement with music impacts spatial reasoning (Pietsch & Jansen, 2012; Sluming et al., 2007)
* Intervention studies with children show musical concepts support understanding of fractions (Courey et al., 2012)

**Intellectual Development**

* Retrospective study found enhanced performance from musicians on a range of intellectual skills (Schlaug et al., 2005)
* Intervention studies with children suggest music impacts IQ scores, particularly elements related to spatial reasoning (Schellenberg, 2011a)

**Executive Functioning and Self-Regulation**

* Playing a musical instrument, particularly in an ensemble requires many sub-skills associated with executive functioning: sustained attention, goal directed behavior, and cognitive flexibility (Diamond, 1990; 2002; Lezak, 2004; Zelazo, 2004)
* Neuroscience show differences of musicians and non-musicians’ frontal cortex – area of the brain implicated with the regulation of attention (Gaser & Schlaug, 2003; Sluming et al., 2002)

**Creativity**

* Musicians score higher on tests of creativity (Simpson,1969; Wolff, 1979; Kalmar, 1982; Kiehn, 2003)

**General attainment**

* Correlation studies show children who experience musical training have advantages across all school subjects except sport, even after general intelligence is controlled for (Harrison, 1990; Klinedinst, 1991)
* Research of disadvantaged groups show music activities affect aspirations which enhance motivation and subsequent attainment (Qa Research, 2012)

**Music and Personality**

* Musicians with high levels of conscientiousness (Kemp, 1996; Marchant-Haycox & Wilson, 1992)
* More open to new experiences (Corrigal et al., 2013)

**Educational Motivation and Re-engagement of the Disaffected**

* Positive attitudes and better attendance (Davalos et al., 1999; Eccles & Barber, 1999; Taetle, 1999; Miszak, 2010)
* Potential for enhanced self-efficacy, self-esteem and self-concept, improvement in mood, reduced anger, increased motivation and improved behavior (Anderson & Overy, 2010;

Bittman et al., 2009; Woodward et al., 2008)

**Social Cohesion and Inclusion**

* Cohesion in classes in schools can be enhanced through extending music making activities leading to better social adjustment and more positive attitudes (Hove & Risen, 2009)
* Group music making contributes to feelings of social inclusion (Minguella & Buchanan, 2009)
* Wider cultural experiences, explore new ideas, places, and perspectives (Lichman, 2006; Lichman & Sullivan, 2000)
* Encourage tolerance and development of social ethics (Humpal, 1991; Jellison et al., 1984)

**Pro-social Behavior and Teamwork**

* Supports cooperation, pro-social behavior, belonging, relationships, collaborative learning, social advancement, group identity, solidarity, taking turns, teamwork, and helping others (Bergerson & Motto, 2013; Creech et al., 2013; Huron, 2001; 2003; Kirschner & Tomasello 2009; 2010; Kokosaki & Hallam, 2007; 2011; Majno, 2012)

**Empathy and Emotional Intelligence**

* May increase the development of empathy and emotional sensitivity in children (Cross et al., 2012)

**Psychological Wellbeing**

* Beneficial effects on physical health and wellbeing (Rickard & McFerran, 2012)
* Increased sense of self-worth, enhanced social skills, and wider social networks (Bailey & Davidson, 2002; 2003; 2005)
* Sense of accomplishment
* Enhanced determination and persistence
* Better able to cope with anger and express their emotions more effectively (Creech et al, 2013)

**Personal Development and Self-beliefs**

* Positive impact on self-esteem
* Positive impact on self-confidence (Welch et al., 2010)

**Music and Health**

* Reduction of stress and anxiety when listening (Fukui & Yamashita, 2003; Kreutz et al., 2004; Mockel et al., 1994) and when actively making music (Beck et al., 2000)

**Physical Development**

* Neuroscientific research – extensive instrumental music training affects the anatomy of the brain with greater gray matter volumes in motor-related areas (Elbert et al., 1995; Hyde et al., 2009; Pascual-Leone, 2001)
* Learning an instrument improves fine motor skills (Schlaug et al., 2005)

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