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# Benefits of Learning Music for Children from Low Socioeconomic Backgrounds

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## An Eskadenia Chamber of Music Case Study

The Queen Rania Foundation For Education and Development

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This paper covers the benefits of learning to play a musical instrument for children from low socioeconomic backgrounds. It looks at the context of learning to play a musical instrument in Jordan and music education at public schools. The paper presents research on neurological benefits; academic benefits; and, personal and social benefits. It presents the Eskadenia Chamber of Music as a Jordanian case study of providing music education for children that would otherwise not afford it, as well as similar international case studies. The paper points to the wealth of research that reveals the positive impact music education has on closing the learning and social gap between children from low and high socioeconomic backgrounds. It also presents recommendations for advancing the Eskadenia Chamber of Music in Jordan.

#### Report Disclaimer

This report is not intended for publishing. Findings may be used to brief and discussed with international and local donor organizations, if applicable, in order to try to secure assistance for public schools in the form of music teachers, in-kind donations, building in-schools chambers of music, subject to obtaining the Queen Rania Foundation's prior written approval.

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## Executive Summary

The Eskadenia Chamber of Music is a Corporate Social Responsibility project by Eskadenia Software; it is a free music instruction project for children who would otherwise not be able to afford music lessons. This study was commissioned by Eskadenia Software to highlight the value of learning to play a musical instrument and to document the Eskadenia Chamber of Music's model in its early stages. This summary provides a synopsis of the content within each section of the report.

### Jordan and the music education context

An outline of the status of music education within the public school education system and universities in Jordan is provided. It reveals that although there is an existing national music curriculum, which was developed by the Ministry of Education in partnership with the National Conservatory of Music and the Jordan Music Academy; music education is still neglected, undervalued and is not implemented in its fullness in the schools. Less than 10% of public schools opt for music lessons and the majority does not conform to the curriculum, but only prepare students to participate in the school song festivals (singing competitions between schools). Furthermore, at the university level, very few students enroll into music education and many may not play an instrument to a proficient level on completion; in the academic year 2012/2013 only 66 students graduated from Jordanian universities in music.

There was a consensus between all the representatives of music institutions in Jordan that were interviewed for this report, that the situation of music education in Jordan is poor. This sad reality is particularly troubling when considered in light of the wealth of evidence on how music education supports an individual not only personally but also in their academic achievement (as reflected in 'The Benefits of Learning Music' section of this report). Music could be of great value to Jordanian school students who are underperforming in international tests and, most recently, in the national upper secondary school examinations (Tawjihi exams) where only around 40% of students passed.

### The benefits of learning music: A literature review

This section refers to studies conducted over the past 10 decades that have revealed the role music education plays in developing well rounded individuals, with higher academic performance in language and mathematics, as well as the profound personal edification it contributes to. There is also evidence that music education can contribute to closing the academic and social gap between high and low socioeconomic background children.

Four subsections are included: neurological benefits of learning to play a musical instrument, with a particular focus on children from low socioeconomic backgrounds; the benefits in relation to self-expression and behavior; and, benefits on general learning in school.

The intensity and complexity of playing a musical instrument is unrivaled by any other enrichment activities that children participate in. A key to yielding the best results is consistency of training over a significant period of time; and one of the most significant impacts is on the frontal lobe of the brain which is responsible for higher mental functions including: concentration, planning, judgment, emotional expression, creativity and inhibition.

### The Eskadenia Chamber of Music: a Jordanian case study

The Eskadenia Chamber of Music at Al Hussein Cultural Center is presented as a case study from Jordan that provides free music instruction to children from low socioeconomic backgrounds. It addresses the inspiration behind the initiative, the model's current status and the future plans. It officially opened in 2014 and has 11 students learning to play the piano at no cost. Three case studies reflect how students and parents are benefitting, including things like music being a medium for them to positively channel their energy and express their emotions. The Eskadenia Chamber of Music's future plans to support public schools by renovating and equipping their own chambers of music is also covered. It is reflected that this could be a valuable step in supporting the Ministry of Education to implement their existing music curriculum and to instill the value of music in Jordanian culture and heritage.

### Examples of similar models internationally

Four international and regional models, that provide free music education to school aged children from low socioeconomic backgrounds, are covered in this section. A brief overview is given on each model: their specific target groups, program elements and fast facts. Models include: the Harmony Project in the USA, which specifically targets children from gang zones in Los Angeles and provides them with free music education 5 hours a week on the condition that they complete school; M'Lisada in Uganda which attracts, rescues and nurtures orphaned children off the streets of Uganda and teaches them music; The Edward Said National Conservatory for Music in Palestine, which has a mission of teaching and promoting music to Palestinians to strengthen their national identity; and, finally, El Sistema in Venezuela which has been teaching music to children in the slums of Venezuela for almost 40 years.

### Recommendations

Based on the research conducted for this study, from speaking with public sector officials, beneficiaries and understanding similar international and regional case studies that have been operating for a number of years; a set of recommendations were included to support Eskadenia Software in advancing instrumental instruction for children from low socioeconomic backgrounds. One such recommendation that would be useful in the next stage is to support the Ministry of Education's schools that already have opted for music and host music teachers. It has also been evident from talks with the Ministry of Education's relevant department that they would be willing to discuss such initiatives.

## Introduction

Music is all around us and is a part of us; spoken language has a rhythm, the human heartbeat has a rhythm, even the way our auditory cortex in the brain is laid out is in order of pitch, much in the same way that a piano is. Playing music is one of the distinguishing features that separate humans from animals because it uses higher mental functions (e.g. consciousness, abstract thinking and creativity). While music is personal and intimate it is simultaneously social, as one student from the Harmony Project - a community music program - says, music is a dialogue where I can play something on my cello and hear something back from another instrument like the violin; it could be the same melody but different notes.<sup>1</sup>

Furthermore, every object has 'a natural set of frequencies at which it can vibrate by virtue of how it's constructed and what it's made of' whether that object is land or our bodies.<sup>2</sup> When we hear music every part of our bodies has the capacity to vibrate to the sound. Evelyn Glennie a musician who lost her hearing at age 12 writes that 'hearing is basically a specialized form of touch'. She 'managed to distinguish the rough pitch of notes by associating where on her body she felt the sound, with the sense of perfect pitch she had before losing her hearing. The low sounds she feels mainly in her legs and feet and high sounds might be particular places on her face, neck and chest.'<sup>3</sup>

Children from low socioeconomic backgrounds frequently do not get exposed to the arts and music in the same way their richer counterparts do. Their lives are lacking the enrichment activities that make a person's life more beautiful and that 'can connect people more deeply to the world and open them to new ways of seeing and creating a foundation to forge social bonds and community cohesion'.<sup>4</sup> Arts is not limited to creativity, a form of self-expression and something to do in one's spare time, it has a profound impact on the structure of the brain, improves language skills, some mathematical skills, emotional intelligence, abstract thinking, concentration and attention. Strong music programs in schools can help close the gap that has left many children behind simply because they are less fortunate to have parents that can afford music education even if public schools can't provide it.

In Jordan over 14% of the population live below the poverty line, equating to about 119,000 households;<sup>5</sup> with about 476,000 children.<sup>6</sup> A further 255,000 households sit immediately above

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<sup>1</sup> (PBS Newshour) [Harmony Project](#)

<sup>2</sup> (Mannes, 2009) [The Music Instinct: Science and Song](#)

<sup>3</sup> (Glennie, 2003) [How to Truly Listen](#); (Glennie, 1993) [Hearing Essay](#)

<sup>4</sup> (Smith, 2009) [Edutopia](#) based on (McCarthy, Kevin F.; Ondaatje, Elizabeth H.; Brooks, Arthur; Szanto, Andras, 2005) [Rand Corporation](#)

<sup>5</sup> (United Nations Development Program, 2013) [Jordan Poverty Reduction Strategy 2013](#), based on 2010 statistics

the poverty line and are at risk of falling into poverty.<sup>7</sup> Children from low socioeconomic backgrounds are at a higher risk of engaging in risky behavior (e.g. smoking, taking drugs, being absent from school without permission, and engaging in antisocial behavior) than children from higher socioeconomic backgrounds.<sup>8</sup> Research has revealed that as children grow, biological differences develop in the brains of children from low socioeconomic backgrounds whose mothers have low maternal education, when compared to children from wealthier backgrounds with more educated parents; these differences include, for example, noisier neural activity that limits their ability to filter out irrelevant noise, which in turn reduces their ability to learn.<sup>9</sup> However, learning to play a musical instrument has proven, both through academic research and empirical evidence, to positively impact children's brain development translating into better academic performance, behavior, communication and teamwork. Contemporary scientific research on the brain and music including research by Northwestern Auditory Neuroscience Lab,<sup>10</sup> demonstrate the positive impact of music on mood, academic performance and behavior. Furthermore, there are various case studies across the globe that have revealed the power of music on spiritual healing, confidence and releasing of potential (e.g. El Sistema youth orchestra in Venezuela, M'LISAD in Uganda, Harmony Project for high risk students in Los Angeles).

This research paper addresses the benefits of learning to play musical instruments (and particularly classical music) on children from low socioeconomic backgrounds. The first section presents an overview of the reality of music education in Jordan. The second section outlines the methodology used for this research paper. The third section reviews the evidence of the benefits of learning to play a musical instrument on individuals, with a particular focus on children from low socioeconomic backgrounds. The fourth section looks at the Eskadenia Chamber of Music as a case study from Jordan. The fifth section of this paper reviews four international and regional case studies on free music education programs. Lastly, there are recommendations for the development of the Eskadenia Chamber of Music as a Jordanian model for music education based on the extensive research of this paper and in light of the Jordanian context.

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<sup>6</sup> Considering the average family size of a poor family is between 7.4 and 4.1 children. 118,995 households multiplied by 4.1 to extract the estimated total number of children living in poverty, based on statistics from the Jordan Poverty Reduction Strategy, 2010.

<sup>7</sup> (United Nations Development Program, 2013) [Jordan Poverty Reduction Strategy](#)

<sup>8</sup> (Goodman & Gregg, 2010) [The Joseph Rowntree Foundation](#)

<sup>9</sup> (Skoe, Krizman, & Kraus, 2013)

<sup>10</sup> (Northwestern University) [Northwestern Auditory Neuroscience Lab](#)

## 1. Methodology

Both primary and secondary research methods were used for this paper.

Primary research: one-to-one interviews with the first batch of The Eskadenia Chamber of Music beneficiaries, their parents and the music instructor. Questions were semi structured with the aim of discerning the benefits to the children and the attitude of parents before and after. The music instructor was interviewed with the purpose of understanding the Eskadenia Chamber of Music model and the teaching method, as well as gaining insight on student progress and challenges.

Interviews were also conducted with officials from the Ministry of Education, the National Conservatory of Music and various Jordanian universities teaching Music Education at BA and MA level. These supported in understanding the overall status of music education in Jordan, which can be found in the section on Jordan and the Music Education Context.

Secondary research: include reviewing existing academic literature on the benefits of learning to play a musical instrument; and, identifying and summarizing examples of how learning music has been seen to benefit disadvantaged children internationally. To ensure the validity and reliability of the secondary sources used, they include: official Jordanian national reports on the state of disadvantaged children, poverty and data on music education in schools and universities; academic journals (e.g. music education journals) to review the existing scientific evidence of the benefits of learning to play music; and, broadsheet newspaper articles and video material from trustworthy news agencies to reveal existing international models and relevant case studies.



## 2. Jordan and the music education context

Jordan's public education system is compulsory and free between grades 1 to 10, and although there is a national music curriculum, it is optional and less than 10% of public schools officially teach music.<sup>11</sup> In other words, of the 1.1 million children enrolled in public schools (68% of total students)<sup>12</sup> many may not learn to play an instrument unless their parents can afford private lessons. Furthermore, culturally music education is not perceived to be an integral part of society and is seen as a luxury, simply a hobby or contradicting to perceptions of what is right. There was a consensus between all the representatives of music institutions in Jordan that were interviewed for this report, that the situation of music education in Jordan is poor. For example national orchestras are usually funded by governments and although this was the case in Jordan in the past, due to financial constraints it is now supported through a combination of private and public funding.<sup>13</sup>

### Music education at Jordan's public schools

The Ministry of Education's (MoE) national music curriculum is for grades 1 through 10 and was developed in 1992 by the National Conservatory of Music. The curriculum for grades 6 through 10 was improved by the Jordan Academy of Music in 2002. There are currently only around 350 public schools out of 3,545<sup>14</sup> (around 10% of public schools) implementing this due to a lack of interest in music by school principals and communities and a lack in funding assigned to this. The MoE has stated that all schools should be implementing the national music curriculum. However, there is a shortage of printed textbooks for grades 1 through 10 and a limit on hiring teachers, which does not permit all schools to implement the curriculum.<sup>15</sup>

### The curriculum

The curriculum framework was updated in 2014 (although the actual music books were not updated due to a lack of prioritization and funding for music). It is broken down into four modules for each school grade: theory of music; reading and writing music; practical singing or playing an instrument; and, history and musical awareness. There is a focus on both Western and Eastern musical styles, introducing students to the world of music and prominent figures in it. National Jordanian songs and musical heritage is rooted in the curriculum, where relevant.

The teaching method in the curriculum emphasizes the importance of experiencing music first and to gaining intellectual knowledge second. They do this by incorporating Orff instruments, which include xylophone, mallet and hand percussion instruments developed by Carl Orff a

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<sup>11</sup> (Ministry of Education Official, 2014) Ministry of Education Music Department, interview

<sup>12</sup> (Ministry of Education, 2012/2013) Annual Statistics Report

<sup>13</sup> (National Music Conservatory, 2014) Director of the National Music Conservatory, interview

<sup>14</sup> (Ministry of Education Official, 2014) based on an interview, some directorates share a music teacher between schools.

<sup>15</sup> (Ministry of Education, 2014) based on a letter provided to the Queen Rania Foundation.

German musician and composer.<sup>16</sup> However, according to an official at the MoE, these instruments are expensive and their budget is too little to implement the curriculum to the fullest (a total of around 30,000 JOD a year and they tend to buy a small amount of keyboards with it).<sup>17</sup>

According to an official at the MoE, music education at public schools is underdeveloped; in the schools that have music education, the curriculum is rarely taught and much of the learning consists of singing national, religious, and folk songs. Schools mainly use the music teacher to support in the participation in festivals run by the MoE. Instrumental training is limited due to resources. They also noted that none of the schools have music on their timetable, so if they wanted to give a lesson in music, the music teacher has to coordinate with the art teacher to either take part of or all the art lessons. Officials working at the MoE in the music field are qualified and would like to see music education implemented more seriously in schools. They welcome opportunities for support the existing structure within the schools.

The Islamic Educational College (IEC), a private school in Amman, represents a good example of a school that is implementing the national music curriculum comprehensively within the regular school timetable. They provide children in kindergarten two 45 minute lessons a week and students between grades 1 to 10 one 45 minute lesson a week. They have 11 music teachers for around 4,000 students. Students learn to sing, read notes, and play some wind and string instruments. For talented students that wish to learn to play an instrument they can enroll in the school's extra-curricular program, which is after school hours, and lasts an hour and a half, twice a week. The supervisor of the music teachers at the IEC has observed a difference in students that learn music in comparison to those that do not; they are calmer than other students, especially boys, they are more mature, gentler, speak quietly and are more polite.<sup>18</sup>

## Teachers

As of October 2014 the MoE had 235 music teachers, some of whom teach at more than one school.<sup>19</sup> Irbid has the highest presence of music teachers employed by the MoE at around 58% (137 teachers) of the total public school music teachers, followed by Amman at around 13% (30 teachers). The governorate with the least music education is Ma'an, with only one music teacher. Teachers must hold at least a Bachelors in Music. The purpose of having the music teacher is mainly to prepare the school for participating in the MoE's music festivals<sup>20</sup> that run yearly and as a competition between participating schools.<sup>21</sup>

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<sup>16</sup> (Fakhouri, 2001)

<sup>17</sup> (Ministry of Education Official, 2014)

<sup>18</sup> (Supervisor of Music Teachers, 2014) Islamic Educational College interview with Music Teacher's Supervisor

<sup>19</sup> Ministry of Education, 2014 excel sheet on total number of teacher provided to the Queen Rania Foundation

<sup>20</sup> The 'School Children Music Festival' (مهرجان أغنية الطفل المدرسي) which has a different theme each year e.g. child rights and traffic accidents; 'The Heritage Songs Festival' (مهرجان الأغنية التراثية); and, the 'National

## Music at the higher education level in Jordan

Three universities provide music education in Jordan: the University of Jordan, Yarmouk University (in collaboration with the National Conservatory of Music) and the Jordan Academy of Music.<sup>22</sup> Out of all these universities combined, a meager 0.1% (66) of students graduated from music studies in Jordan in 2012/2013 out of a total of 47,504 graduates. The total of all students in all Jordanian universities pursuing a degree in music education is only 0.1% (396) for the year 2012/2013 out of a total of 249,432 students; and, again only 0.1% (101) enrolled for the first time in 2012/2013 out of a total of 68,798 new students. The university that graduates the majority of music students is Yarmouk University, followed by the Jordan Academy of Music and finally the University of Jordan.

Yarmouk University was the pioneer in music education in Jordan and have links with the National Music Conservatory (NMC) where students take their practical instrumental lessons. They teach both Bachelors and Masters degrees in music, most recently a Masters in music therapy. The Head of the Music Department at the University mentioned that the majority of their students are enrolled on scholarships by the Jordanian Armed Forces and will assume employment in the army's orchestra and some graduates attempt to get public sector teaching jobs. It was also expressed that despite Yarmouk University being one of the first establishments to teach music in Jordan, their role and quality of programs has declined in recent years due to a lack of investment in music and the existence of more institutions teaching music at a higher level.<sup>23</sup>

## Learning status in Jordan

Since 2007 Jordanian student's academic performance in reading and math have been declining based on indicators from international assessments.<sup>24</sup> In late 2013 the Minister of Education, Mohammad Thneibat, announced that 22% (around 100,000) of students in grade 3 could not read.<sup>25</sup> Similarly, in the upper secondary school national assessments in 2014 only around 40% of students passed.<sup>26</sup> A failure to learn the basic skills in reading, writing and arithmetic have high costs to society. Music education, and particularly intensive training on an instrument, has proven over the years to have positive impacts on learning outcomes in language and math, as well as instilling in children commitment, perseverance, confidence, high self-esteem and diligence; qualities that are useful for success in life. In this way, it is an enrichment activity that is worth investing in alongside the necessary measure to improve the learning outcomes of

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Song Festival' (مهرجان الأغنية الوطنية). They run the school children festival yearly and they alternate between the latter two.

<sup>21</sup> (Ministry of Education Official, 2014)

<sup>22</sup> (Ministry of Higher Education, 2012/2013) [Statistics on Student Enrolment and Graduation](#) (Annex)

<sup>23</sup> (Madi, 2014)

<sup>24</sup> Trends in International Mathematics and Science Studies, Program for International Student Assessments, Early Grade Reading Assessment (EGRA), Early Grade Math Assessment (EGMA)

<sup>25</sup> (Minister of Education, 2013) referring to EGRA and EGMA results

<sup>26</sup> (Minister of Education, 2014) last accessed in September 2014

students. The next section will cover in detail the benefits of learning to play a musical instrument on children and is followed by a presentation of the Eskadenia Chamber of Music model, which offers a means to provide such enrichment activities, particularly music instruction, to children who would otherwise never get the chance to play.

### 3. Benefits of learning music: a literature review

Scientific research over the last decade has revealed that music instruction is a powerful tool to help children reach their 'educational, social and creative potential'.<sup>27</sup> Music supports the learning processes by improving cognitive and motor functions.<sup>28</sup> 'Musically trained children can distinguish subtle differences in speech, leading to improved reading, better comprehension and a greater ability to interpret what other people are really saying.'<sup>29</sup> Recent studies by the Northwestern University (USA) on music have revealed a significant difference in the development of brains of children from low socioeconomic backgrounds and with mothers with low levels of education, when compared to children from high socioeconomic backgrounds.<sup>30</sup> Longitudinal research shows that intense music training, over a significant period of time, can contribute to closing the educational gap between children from poor and rich backgrounds.<sup>31</sup>

To better understand how music instruction affects a person's education, social interactions and creativity, it is important to begin by understanding what happens inside the brain when learning takes place in general and how music training affects the brain. Below we shall first address the neurological benefits of learning to play music, then explore the benefits of music on behavior and society, on general learning in school, and in relation to self-expression and social cohesion.

#### The neurological benefits of learning to play music

##### Process of learning in the brain

Neurons are the main building block of the central nervous system (spine and brain) and they are responsible for transmitting information across the body. Each person has approximately 100 billion neurons in the brain, and each one has 'high processing capacity', with around 1,000 connections (synapses) to other neurons.<sup>32</sup> When we learn changes occur in the neuron, particularly the growth of axons and dendrites; these are parts that connect neurons to one another so that they can send and receive information. As we learn, changes in the number of connections occur and these form circuits and networks in the brain that are the foundations of learning. The more a task is repeated the stronger that connection will be. 'Through

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<sup>27</sup> (The Royal Conservatory of Music, 2014) Canada, [Benefits of Music Education](#)

<sup>28</sup> Cognitive skills include: memory, logic and reasoning, attention, auditory processing, visual processing and processing speed.

<sup>29</sup> (The Royal Conservatory of Music, 2014) Canada, [Benefits of Music Education](#)

<sup>30</sup> (Skoe, Krizman, & Kraus, 2013)

<sup>31</sup> Eric Cooper, President and Founder of National Urban Alliance for Effective Education, cited in (Smith, 2009) [Edutopia](#)

<sup>32</sup> (Hallam, The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People, 2010)

combinations of these processes, which occur over different time scales, the brain self organizes in response to external stimuli and our learning activities' also known as brain plasticity.<sup>33</sup>

### Benefits of learning music on the brain

'Not all learning activities and external environments make a big impression; they generally have to be intense, clear, memorable, and relevant enough for the brain to deem them worthy enough to rate a connection.'<sup>34</sup> Learning to play a musical instrument is one of these activities; it is an intensive form of mental training that involves complex coordination. Professor Lawrence Pearson of cognitive neuroscience, studies brain scans of musicians as they perform music; he notes that if you observe a musician perform you will notice that no other task is as complicated and uses as many multiple functions of the brain.<sup>35</sup> Many times each hand is doing something different and so are the feet e.g. playing the piano involves the fingers pressing down on different keys and the feel on the pedals. It's almost like tapping your head and rubbing your stomach.

When music training is enjoyed by the player and practiced over many years, anatomical changes occur in the brain; in functions that are transferrable to general learning. Research by Bezzola, Merillat, and Jancke (2012) has revealed that 'complex real life activities involving skilled movement like music are more likely to yield general learning effects.'<sup>36</sup> The age at which a musician begins training, the duration and frequency of training affects brain anatomy in adults; the best age to start is prior to 7 years.<sup>37</sup> A proficient musician with at least 10 years of musical training is more likely to yield robust transfer of skills across tasks.<sup>38</sup> Having said that, positive effects begin to show after two years of music training in studies on children from low income backgrounds and according to research the effects are long lasting.<sup>39</sup>

### Improved cognitive and motor skills in musicians than non-musicians

Playing a musical instrument is complex both in terms of cognitive and motor functions. It 'taps into many systems in the brain in parallel to one another'<sup>40</sup> for example:

- **Sound processing:** musicians have superior auditory processing to non-musicians, which relates to speech sound as well as musical sound. Their auditory functions are intensively trained leading to higher cognitive levels than non-musicians.<sup>41</sup>

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<sup>33</sup> Pantev, Engeliem, Candia, & Elbert, 2003 cited in (Hallam, The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People, 2010)

<sup>34</sup> (Rodi, 2009)

<sup>35</sup> (Brown, Martineza, Hodges, Fox, & Parsons, 2004)

<sup>36</sup> Bezzola, L; Merillat S; and Jancke L, 2012 cited in (Hanna-Pladdy & Gajewski, 2012)

<sup>37</sup> (Johansson, 2006)

<sup>38</sup> Elbert et al, 1995; Gaser and Schlaug, 2003; Koelsch, 2005; Bangert et al., 2006; cited in (Hanna-Pladdy & Gajewski, 2012) and (Kraus, 2013) [Arts and Human Development Task Force Webinar](#)

<sup>39</sup> (Kraus, Arts and Human Development Task Force Webinar, 2013)

<sup>40</sup> (Hanna-Pladdy & Gajewski, 2012)

<sup>41</sup> (Koelsch, Schroger, & Tervaniemi, 1999)

- **Sensorimotor:** involves the coordination between sensory organs and movement. Music training enhances the integration of both hemispheres of the brain, which researchers have found is crucial to the learning process e.g. when children learn to position themselves and move in relation to their surroundings.<sup>42</sup>
- **Sight processing:** particularly visuospatial aspects which include visual perception of spatial relationships among objects. This is particularly useful for navigating yourself around objects or virtually reconstructing an image in your mind from your surroundings e.g. useful for when you want to give someone direction to a location as you can follow the route in your mind. It is also useful for reproducing drawings and using 'components to construct objects and shapes in your mind and recognizing their dimensions' (2-D and 3-D), this is helpful if you want to glue a broken vase together or put a 3-D puzzle together for example.<sup>43</sup>
- **Memory:** verbal short term memory is better in musicians.<sup>44</sup> It gives people the ability to remember things while their minds are busy with other matters; this is imperative for mental arithmetic and reading comprehension.<sup>45</sup>
- **Speed processing:** the speed at which the brain processes information is increased in musically trained people. Research reveals that this is associated with intelligence. Although there are some studies that reveal that music improves general processing speed, studies do not confirm this; findings are mixed.<sup>46</sup>
- **Attention:** musical training improves functions in the frontal lobe of the brain, which controls things like concentration and in turn this improves attention.<sup>47</sup> Attention, processing speed and working memory are at the center of a skilled musician's performance.<sup>48</sup>

#### Capacity of key areas of the brain improved in musicians

Although parts of the brain that are directly related to playing music are affected by musical training particularly those related to motor and auditory functions, there were also positive changes in other parts of the brain not related to playing music<sup>49</sup> e.g.

- **Frontal areas of the brain (frontal cortex):** this area of the brain is responsible for higher mental functions including: concentration, planning, judgment, emotional expression, creativity and inhibition.<sup>50,51</sup>

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<sup>42</sup> (Center for Speech, Language and Occupations Therapy) [Sensory Motor Skills](#)

<sup>43</sup> (Brain Center America) [Visuo-Spatial Skills](#)

<sup>44</sup> (Hanna-Pladdy & Gajewski, 2012)

<sup>45</sup> (Alloway & Alloway, 2009)

<sup>46</sup> (Roden, Konen, Bongard, Frankenberg, Friedrich, & Kreutz, 2014)

<sup>47</sup> (Hyde, et al., 2009)

<sup>48</sup> (Roden, Konen, Bongard, Frankenberg, Friedrich, & Kreutz, 2014)

<sup>49</sup> (Hyde, et al., 2009)

<sup>50</sup> (Nucleus Medical Media)

<sup>51</sup> (Bermudez, Lerch, Evans, & Zatorre, 2008)

- **Inner center of the brain (left posterior peri-cingulate):** located in the limbic lobe of the brain, it is a complex system which controls emotions, behavior, smell, motivation and long-term memory.<sup>52</sup>
- **Rear areas of the brain (left-middle occipital cortex):** controls vision particularly image perception and recognition.<sup>53</sup>
- The **temporal cortex** (one of the main four lobes in the brain) of a musically trained person is typically larger<sup>54</sup> than that of non-musicians. A study in 2002 revealed that the Heschl's gyrus was more than 130% larger in musicians;<sup>55</sup> this is an area of the brain which covers most of the primary auditory cortex and the part of the brain that processes incoming auditory sound, particularly speech. It is also responsible for language and speech production as well as memory association and formation.<sup>56</sup>

### 3.2 Benefits of learning music on the brains of children from low socioeconomic backgrounds

Studies by the Northwestern University reveal that musically trained children from low socioeconomic backgrounds take strides that bridge the academic gap between them and children from higher socioeconomic backgrounds. Children from low socioeconomic backgrounds have a 'lower literacy level and lower cognitive abilities; teenagers from lower maternal education backgrounds are found to have noisier neural activity<sup>57</sup> than their classmates, which means that there is greater neural activity in the absence of auditory stimulation.<sup>58</sup> Furthermore, they receive less linguistic and cognitive stimulation e.g. fewer and simpler words from their parents; and, they have unstructured auditory stimulation as a result of increased noise exposure and this leads to limited opportunities for high quality learning experiences.<sup>59</sup> Studies are revealing the extent to which musical training can support in mitigating these effects. Dr. Nina Kraus is leading on this research from Northwestern University, and their studies reveal that music training improves rhythm and speech recognition in noise i.e. children can suppress irrelevant auditory input. This is important for an improved overall academic performance. Results of the study reveal that noise does not degrade the brain's ability to recognize speech sound in musicians whereas in non-musicians this is not the case.<sup>60</sup>

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<sup>52</sup> (Maddock R.J., Remembering Familiar People: The Posterior Cingulate Cortex and Autobiographical Memory Retrieval, 2001)

<sup>53</sup> (Hyde, et al., 2009)

<sup>54</sup> Larger in terms of grey matter; grey matter is responsible for the cognitive functions of the person. It contains the majority of the brain's neural cell bodies; it is the place that processes information in the brain. In contrast the white matter contains myelinated axons and few cell bodies ([Medical News](#)).

<sup>55</sup> (Schneider, Scherg, Dosch, Specht, Gutschalk, & Rupp, 2002)

<sup>56</sup> (Bailey) [About Education](#), last accessed September 2014

<sup>57</sup> Neural noise, refers to the random fluctuation within the neural network. This limits the amount of sensory information that can be transmitted from one neuron to another, which in turn affects a child's ability to filter out irrelevant noise, reducing their ability to learn.

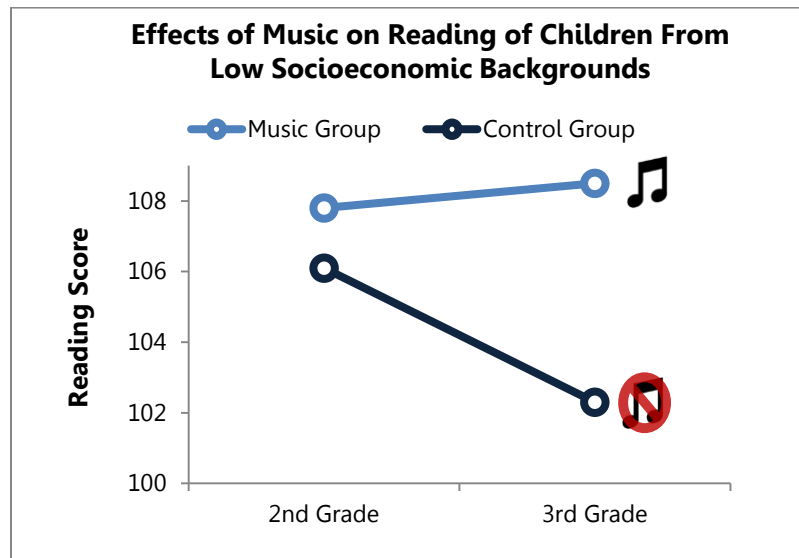
<sup>58</sup> (Skoe, Krizman, & Kraus, 2013)

<sup>59</sup> Evans and Kantrowitz, 2002 cited in (Skoe, Krizman, & Kraus, 2013)

<sup>60</sup> (Skoe, Krizman, & Kraus, 2013)



Another study by Kraus (2013) explores the effects of community music programs such as the Harmony Project in Los Angeles (see section four) that targets children that are at risk of dropping out of school. Children’s reading improved from grade 2 to grade 3 for those in the Harmony Project group; whereas, the students from the control group followed the national trend in the United States, where reading results decline at grade 3 for children from low socioeconomic backgrounds (see figure 1). This has to do with the fact that neural and cognitive resources needed for reading and learning to play a musical instrument overlap.<sup>61</sup>



**Figure 1**

Source: recreated as shown in [Arts and Human Development Task Force Webinar](#), July 2013

### 3.3 Benefits of music in relation to self-expression and behavior

Music is intimate, personal and social. It affects parts of our brain that relate to deep emotions; and provides a medium to expressing them. A wealth of research over the years has supported the relationship between playing music and personal edification as well as social cohesion.<sup>62</sup> Teachers in the UK reported that their students who are learning to play a musical instrument had improved social skills, team working skills, a sense of achievement, self-confidence, self-discipline, and better physical coordination.<sup>63</sup> Similarly in the USA, students involved in group music activities were more likely to support each other, maintain commitment, and bond together as a group.<sup>64</sup>

One of the great benefits of playing music on students is that music is used as a source of support when young people are feeling troubled or lonely, acting as a mood regulator, helping

<sup>61</sup> (Slater, Tierney, & Kraus, 2013) and (Kraus, Arts and Human Development Task Force Webinar, 2013) and (Kraus, et al., 2014)

<sup>62</sup> Sward 1989 cited in (Children's Music Workshop, 1989) (Clift & Hancox, 2001)

<sup>63</sup> (Hallam & Prince, Research into Instrumental Music Services, 2002)

<sup>64</sup> Sward 1989 cited in (Children's Music Workshop, 1989)

to maintain a sense of belonging and community.<sup>65</sup> Music training has the capacity to increase emotional intelligence in everyday life. Emotional cues in music and speech are similar to one another. This is important when a person needs to pick up on emotional cues of a person they are communicating with, whether in school, at work or in the supermarket; allowing them to identify, understand, reason with and manage emotions.<sup>66</sup> Furthermore, a study in 2002 revealed that children who participate in a musical activity, talk more to their parents and teachers.<sup>67</sup> Two independent studies, one on children from low socioeconomic backgrounds<sup>68</sup> and the other on urban black middle-school students,<sup>69</sup> revealed that as well as enhancing overall feelings of confidence and self-esteem; it also increases motivation for studying more generally. Furthermore, despite Swiss schools curriculums decreasing time allocated to language and reading lessons on account of increasing music lesson time, there was no deterioration in student's reading skills and there was 'more cohesion in the classroom, greater self-reliance, better social adjustments and more positive attitudes in the children.'<sup>70</sup>

Researchers agree, however, that the musical learning experience must be enjoyable and rewarding for it to have positive effects.<sup>71</sup> 'Within small music groups trust and respect develop and are found to be crucial to their success. For long-term success rehearsals have to be underpinned by strong social frameworks'.<sup>72</sup>

### 3.4 Benefits of music on general learning in school

#### *Musically trained children tend to have higher IQ results*

There is evidence that children who take music training have better results in IQ tests than children that do not participate in music instruction, even when accounting for family income.<sup>73</sup> One possible reason for why music training is a good indicator of higher IQ is that music lessons are similar to other learning activities, which gives children extra schooling. Although reading or chess could have the same effect, the difference is children tend to enjoy music and practice for longer. Secondly, music trains a host of abilities as mentioned previously e.g. attention, concentration, memorization, reading music, fine-motor skills, and expressing emotions. Another possibility is that because music is abstract in nature (i.e. one tune can be played using different instruments, pitch or speed and a musician can still identify subtle differences) students have to learn to think abstractly, and this supports their intellectual development.

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<sup>65</sup> Zillman and Gan 1997 cited in (Miranda & Claes, 2009)

<sup>66</sup> (Resnicow & Salovey, 2004)

<sup>67</sup> (Broh, 2002)

<sup>68</sup> (Costa-Giomi, 1999)

<sup>69</sup> Marshall, A. T., 1978 cited in (Hallam, *The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People*, 2010)

<sup>70</sup> (Hallam, *The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People*, 2010)

<sup>71</sup> *ibid*

<sup>72</sup> Davidson and Good 2002; Young and Colman, 1979; Murningham and Conlon, 1991 cited in (Hallam, 2010)

<sup>73</sup> (Schellenberg, 2005)

### *Better language and speech*

The strongest evidence of music skills being transferred to non-music skills is in speech and language.<sup>74</sup> This is because many of the skills music enhances are crucial for reading e.g. phonological awareness, speech-in-noise perception, rhythm perception, auditory working memory, and the ability to learn sound patterns. Musical training heightens sensitivity to sound patterns e.g. rhythm, pitch, tempo and engages multiple parts of the brain simultaneously as mentioned above. In the same way speech has a rhythmic pattern that is distinct and this is important for reading.<sup>75</sup> Therefore, a wealth of research and empirical evidence through studies reveals that music is an effective educational strategy for all children, as well as those with language learning difficulties.<sup>76</sup>

Piro and Ortiz (2009) provided evidence that music incorporated in the teaching approach improves children's reading skills. Their study compared 46 children who took piano lessons for 3 consecutive years to a control group which was made up of 56 children. They tested for correlations between learning the piano and vocabulary and verbal sequencing. The music group had better vocabulary and verbal sequencing skills. However, although the intervention group students had been taking piano lessons 2 years before the intervention begun their test results were the same as the control group during the baseline; this is likely due to music taking time to have an effect on other skills.<sup>77</sup>

Furthermore, playing musical instruments increases verbal memory. For example, Chan, Ho and Cheung (1998) found that music instruction enhances the ability of children to learn words. Although much of the research in music and language focus on reading, there are also studies that reveal that music improves children's writing skills. For example, a 1997 study conducted on children from economically disadvantaged homes revealed music instruction improves children's writing skills and print awareness; this study was repeated again in 2001 with the same results.<sup>78</sup>

### *Mathematics and music*

Throughout history it has been thought that there is a strong relationship between math and music. The first recorded study of this relationship was in ancient Greece by Pythagoras, who studied 'musical scales in terms of numerical ratios'.<sup>79</sup> Very rarely do we listen to music and think of the mathematical equations behind it yet Gottfried Leibniz, co-inventor of calculus with Isaac Newton wrote 'music is a secret exercise in arithmetic of the soul, unaware of its act of counting.' Music uses many different mathematical structures, but these structures are

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<sup>74</sup> Lui et al. 2011; Ott et al. 2011; Patel, 2011; Shahin, 2011; Piro and Ortiz, 2009 cited in (Hallam, *The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People*, 2010)

<sup>75</sup> Hallam, 2009 cited in (Hallam, 2010)

<sup>76</sup> (Tierney & Kraus, 2013)

<sup>77</sup> (Piro & Ortiz, 2009)

<sup>78</sup> Standley and Hughes 1997 and Register 2001 cited in (Hallam, *The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People*, 2010)

<sup>79</sup> (University of Surrey, 2012) [The Science Behind the Arts: the Maths Behind Music](#) and (York & Richards, 2009) [Pythagoras and Music](#)

hidden.<sup>80</sup> Despite this relationship there is evidence that not all principals of mathematics improve with music education. Musicians playing from notation use quasi mathematical processes to sub divide beats and turn rhythmic notation into sound. However, 'this is relative to specific skills needed in math not all mathematics'.<sup>81</sup> Rauscher, LeMieux, and Hinton's research supports this; they show that children receiving rhythm instruments (e.g. percussion instrument) scored better on part-whole math problems than children receiving instruction on piano or singing.<sup>82</sup>

Yet 'overall evidence suggests that music training can improve mathematical performance, but the nature of this relationship, the kinds of musical training needed to realize the effect, and the length of time required are not currently understood.'<sup>83</sup>

The National Educational Longitudinal Survey<sup>84</sup> of 25,000 secondary school students (8-12 grades) in the United States has been used by various researchers over the years to analyze the relationship between the arts and music in particular and school attainment. Findings reveal that students with high participation in instrumental training score better on math tests than students without instrumental training (see figure 2). Furthermore, low socioeconomic background students with high involvement in instrumental music training scored better on math proficiency tests than students categorized as average students. This is significant since as all students in high socioeconomic categories scored better than the students in the average category on math proficiency tests.<sup>85</sup> Miksza suggests that music training can help mitigate the negative effects of socioeconomic status on academic achievement. The study further reveals that students who were highly involved in the arts demonstrated consistently better outcomes in achievement, staying in school, and attitudes about school and community.<sup>86</sup>

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<sup>80</sup> (Kung) Professor of Mathematics at St. Mary's College of Maryland, [How Music and Mathematics Relate](#)

<sup>81</sup> (Hallam, The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People, 2010)

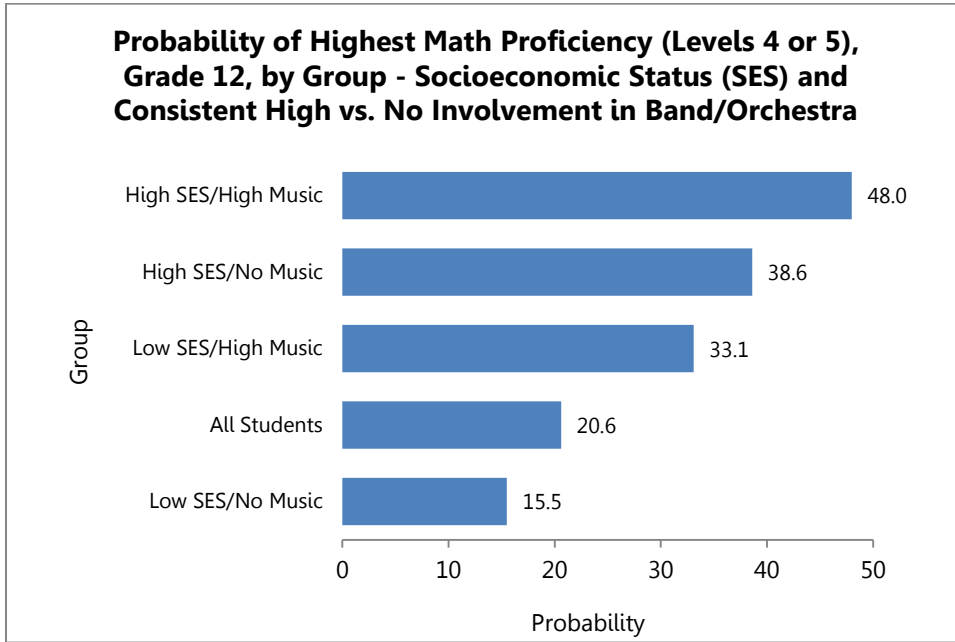
<sup>82</sup> ibid

<sup>83</sup> ibid

<sup>84</sup> This is a study that studies the relationship between involvement in the arts and academic success.

<sup>85</sup> (Miksza, 2007)

<sup>86</sup> ibid



**Figure 2**

Source: recreated as shown in James S. Catterall, Richard Chapleau, John Iwanaga 1999<sup>87</sup>

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<sup>87</sup> (Catterall, Chapleau, & Iwanaga, 1999)

## 4. Eskadenia Chamber of Music: A Jordanian Case Study

### Background

The Eskadenia Chamber of Music (The Chamber of Music) is a Jordanian private sector led initiative that collaborates with the public sector to bring free music education to children from poor backgrounds. It is an Eskadenia Software<sup>88</sup> Corporate Social Responsibility project that officially opened in January 2014. The vision is for music to touch the lives and the spirits of children, particularly those with the least opportunities to access music learning. The inspiration came from the company's executive director, Ms. Doha Abdelkhaleq's, belief in the power of playing music as a form of positive expression and a healing agent for children. She returned to learning to play the piano as an adult as life circumstances prevented her from continuing her music education as a child. The solace that she used to find in music and the desire to progress was cut short and this created in her a deep conviction that music education is a right that every child is entitled to. This drove her to begin this pioneering social and cultural initiative with the aim of instilling music education not only in the lives of children but, ultimately, in Jordan's education system.

The Chamber of Music was established in collaboration with the Greater Amman Municipality, through a financial donation directed towards hosting The Chamber of Music at Al-Hussein Cultural Center (Cultural Center) in Ras Al-Ayn - Central Amman. Amman is the home of the arts and culture scene in Jordan and also hosts the highest number of poor households<sup>89</sup> in the Kingdom. Therefore, for Eskadenia Software this was the prime location to begin this initiative. Furthermore, the Cultural Center itself is close to a large population of children from low socio-economic backgrounds and it has a historical presence in the area for arts and culture. Neighboring residents can attend cultural events showing at the center for free if they are interested and ask to attend; the highest tier in the main theater is reserved for the residents of Central Amman. Furthermore, the halls and theater are rented at no cost to all those wishing to use the theaters.<sup>90</sup> The Director of the Cultural Center, Abdel Hadi Raji Al Majali, shared his enthusiasm to host the Chamber of Music because he appreciates the power of music and it is in line with the aims of the Cultural Center. He noted that the area the Chamber of Music is in used to be a smoker's corner, which has been transformed into a beautiful artistic space where children find refuge and a place where their dreams can come true.<sup>91</sup> The Cultural Center provides the Chamber's students with exposure to this cultural scene and national heritage,

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<sup>88</sup> Eskadenia Software is a Jordanian company that was established in 2000 and provides software products in telecommunications, enterprise, insurance, education and internet application areas.

<sup>89</sup> By calculating poverty through looking at the incidence of poverty i.e. locations that have the largest number of poor households in contrast to using percent incidence of poverty i.e. looking at locations with more than 25% of their population living in poverty. [Jordan Poverty Reduction Strategy](#), 2013.

<sup>90</sup> (Majali, 2014) Director of Al-Hussein Cultural Center, interview

<sup>91</sup> (Majali, 2014) Director of Al-Hussein Cultural Center, interview

while opening opportunities for them to benefit from concerts and further education at the National Conservatory of Music at a later stage.

### **Current Activities**

#### **Free music lessons at the Eskadenia Chamber of Music**

Lessons are available to any child that is passionate about music and is from the Cultural Center's surrounding area, particularly Al-Musdar, Al-Ashrafiyeh, Jabal Al-Natheef, Hay Al-Masarweh and Jabal Al-Taj. Lessons are available in Piano and Oud, and each child chooses their preferred instrument. The Oud is a traditional Middle Eastern instrument and they have been chosen by the founder to ignite interest in traditional instruments and a sense of identity. Music lessons are given once a week and last 45 minutes. During the summer holiday, students attend their lessons during the early hours of weekdays, whereas, during the school terms they either attend lessons in the evening or on the weekend. In most cases they all attend on the weekend because the Cultural Center closes at 15.30 allowing the Chamber of Music to remain open till 17.00.

Students are also expected to practice independently at home between their weekly lessons. Although there is no formal tracking method to ensure practice takes place, the students' parents monitor this and the teacher assesses their progress during the lessons and follows-up with the parents. Where students cannot afford instruments, The Chamber of Music's instructor supports them through her contacts to provide them with an affordable instrument that they can pay off in installments. Since pianos are very expensive, children practice on keyboards, which is acceptable for the first three years of instruction at which point a piano is necessary to rehearse manipulation of musical sound e.g. change in tone of notes or sustaining the sound of notes.

The curriculum being used for the piano lessons is the John Thompson Modern Course and the teacher's style of instruction focuses on creating a safe environment for the students to express themselves but simultaneously provide a strict regime for learning. Some students come with personality and character traits that require considerate means of communication; for example, one of the students loves music and has always asked his parents and the school about taking music lessons, and particularly, the piano but he is extremely shy to play in front of people, and even gets nervous to play in front of his music teacher, which causes him to make mistakes while playing musical pieces and this does not allow him to progress as fast as other students. The music teacher works on adapting her teaching method to accommodate to student personalities and to encourage positive change in them. The Chamber of Music promoted The Chamber on Arab satellite channels like Al Arabiyah and national news agencies e.g. Al Rai. Many of the students found out about the chamber through their school teachers and contacted the chamber directly to arrange for lessons. The instructor found out which level the students are at, their age, their school and the area they live in and arranged for an initial lesson and orientation.

Between January to September 2014, 14 children enrolled at The Chamber of Music all wanting to learn the piano; 12 are committed and attend their lessons as well as practice at home, but 2 of the students chose to stop piano lessons as they felt that it was getting too hard for them. The Chamber of Music maintains contact with the parents of the children for when they are ready to return. All of the children come from low income families that cannot afford enrichment activities for their children, even though all of them attend low fee private schools in Amman's most underprivileged areas. The Chamber of Music prefers to begin teaching students at the age of 8 but they make exceptions for extremely talented children and so their students are aged between 6 and 14 years.

All of the children have chosen the piano as their first choice and as they progress in learning to play and more students join the program the chamber plans to incorporate more instruments based on teacher availability and the demand by students. The aspiration for the Eskadenia Chamber of Music is for more children to enroll in music lessons, to have a buzzing chamber where children pursue their dream, and to form an Eskadenia Chamber of Music band where children can enjoy playing music together, develop team working skills and showcase their talent through musical performances. A further hope is to instill in children a love for Arabic instruments and eastern music, where children can tap into their creativity and heritage.

**Case study one:**

Mark is one of the Chamber of Music's first students having enrolled in November 2013, before the official opening. He has always wanted to learn to play the piano, it is his favorite instrument and since beginning to play he's progressed quickly onto the second piano book. He walks into the Chamber of Music and is almost running towards the piano with excitement. As a result of the availability and the consistency of the music lessons Mark's mother, Fadila, said that music has given him a sense of achievement. 'He likes to play in front of people, when my neighbor comes over he signals to me to tell her that he's learning to play so that he can perform the latest piece he's learnt. He's also become gentler and more sensitive in the way he communicates. He had an argument with his brother once, but what was unusual was that straight after he went to his room shut his door and began to play, and this struck me at the time'. Mark said that although he doesn't want to be a professional musician but rather an architect, his favorite hobby is playing the piano saying that 'it makes my life full'. Mark has the support of both his parents, Fadila said that she herself loves music and wants all her children to play an instrument because 'it gives them peace and is a form of expression or escape when they feel down or happy.' However, not all her children are interested in music like Mark is. Fadila says that it wasn't easy at the beginning because of their financial circumstances they couldn't afford to buy a keyboard for Mark to practice on, which meant he was going to his weekly lesson unprepared. The music teacher at the Eskadenia Chamber of Music was able to find them a reasonably priced second hand keyboard and they were able to pay for it in installments. His mother said: 'I hope that he would reach advanced levels in playing and to continue. We will continue to support him however we can.'



**Case study two:**

Joseph is 9 years old and when asked about why he is taking piano lessons at the Eskadenia Chamber of Music his eyes lit up and with a smile he boldly said 'I love music'. His mother said how passionate he has been about music from an early age and that he used to sing at home. When he began attending school he would ask his teachers about learning to play instruments, particularly the piano, and music notes but the school did not provide instrumental music lessons. Unfortunately, Joseph's family could not afford to send him to private music lessons. In late 2013, however, the school heard about the Eskadenia Chamber of Music and told Joseph's family about it. He started piano lessons in November 2013 and is steadily progressing.

His piano teacher said that he is dedicated to learning but that when he first started lessons he was struggling to play anything correctly. 'It was difficult, other students that started at the same time were ahead of him but slowly I realized that he was extremely shy and would play better when I wasn't looking or pretended to do something else.' Joseph's mother said music has had a positive impact on his personality; he is slowly coming out of his shell and has started to express himself saying: 'I've even noticed that he is more confident in his abilities and himself, he expresses himself more, telling me what he feels or thinks; this is unusual for him.' 'His teachers at school have told me that he is participating more in class, I've noticed that his memory is better, and he has been studying independently. Music training is having a wonderful impact on him. He takes one lesson a week at the chamber and spends 30 minutes practicing on his keyboard every day after finishing his homework. Although he may not be progressing as quickly as other students, he is fulfilling his passion and it's bringing out the real Joseph'.

**Case study three:**

'I love the piano; I used to see people playing at church and wished I could play like them. Whenever I got a chance I would ask anyone that could play to teach me and they used to try but it wasn't enough and I wasn't getting anywhere with it'. Rana was persistent about learning and even raised the issue of starting music education at school by speaking to the head of grades 7 to 12 who regretfully told her that this was not possible. One of her teachers heard about the Chamber of Music and told her about it. Rana pursued this until she got the number and started taking lessons in late May 2014. 'I'm very happy that I'm learning music and learning it in the best way. My teacher teaches me correct techniques and to read notes. This makes me very happy'. Rana's father, Albére, said that she has always asked him to enroll her in Piano lessons but he hesitantly admitted that financially this was something the family could not afford. 'I encourage Rana to learn the piano because I want her to gain life skills, the more educated she is the more equipped she will be for life.' Rana is very proud of what she's learnt so far that she expressed she's been playing in front of her friends. Albére very sincerely expressed his gratitude to Eskadenia Software and the Cultural Center for making it possible for him to see his daughter's dream come true.

## Bringing The Chamber of Music into public schools

The plan is to set up small music rooms in public schools in East Amman, with the aim of making quality music education accessible to children and to help reverse the neglect of arts education in such schools. Each of the school-based music rooms would be linked to the Eskadenia Chamber of Music at the Al-Husseini Cultural Center. This is particularly useful in conservative communities that prefer their daughters to receive all their education within the school. Initially, these school-based music rooms will be set up in public schools in Amman, particularly the area surrounding the Cultural Center (i.e. Al-Musdar, Al-Ashrafiyeh, Jabal Al-Natheef, Hay Al-Masarweh and Jabal Al-Taj).

By the end of 2015 seven public schools are expected to have music rooms; some of which will be funded by Eskadenia Software. Eskadenia would like to see music rooms set up in 100 to 200 public schools in Amman within the next 5 to 7 years and is looking for partners to help fund such a vision. With knowledge of the proven track record that music education has on children, Eskadenia Software hope to demonstrate the power that quality music education can have on the child, the school, and their community. This is in an effort to embed music education in the public education system as a crucial element of learning in schools.

For this project to succeed in spreading music education at the public schools, a solid partnership with the Ministry of Education is essential, as well as bringing the community together: philanthropists, private companies and civil society alongside Eskadenia Software themselves to support the building and/or equipping of these classrooms, the supply of quality teachers and the provision of instruments.

Schools that are eligible for this program are public schools<sup>92</sup> that are willing to commit to music education and willingness to demonstrate the effects of music education within their school to support Eskadenia Software in lobbying for greater support of music education by the financial donors and the MoE. The school leadership is crucial for the success of these school based music rooms. One such school that has this leadership and will is the Shifaa' Bint Ouf Public School for Girls at Jabal Al-Natheef, which at the time of writing this report (October 2014), was the first school in the process of establishing a music room. The Shifaa' Bint Ouf School for Girls is a public secondary school (grades 7-12). The school actively employs drama in their classes and school performances where the principal, Ms. Manal Kadoura, sees music as a great addition to the school's extra-curricular activities. She went on to share that music is an excellent form of expression as well as a productive form of channeling a child's energy saying that Jordanian girls, especially, 'experience oppression [and] many times they face abuse at home, particularly in families where there is a step father or brothers who are overly protective.'

One of the main challenges that the Shifaa' Bint Ouf school expects to face is that the MoE has placed a limit on hiring music teachers; one solution is to explore options of sharing the existing

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<sup>92</sup> See recommendations section on supporting schools with existing music structures, willingness and teachers.

music teacher at the directorate of Amman.<sup>93</sup> Therefore, there is a reliance on Eskadenia Software to provide music teachers. Schools that participate in music education should be given orientation on the benefits of music education and they should be encouraged to use the national music curriculum in the classes. For students that want instrumental instruction it may be possible to have a professional music teacher attend the school once a week to give 30 minute private instruction or utilize existing teachers within schools that are qualified to teach specific instruments.

## Conclusion

The Eskadenia Chamber of Music at the Al-Hussein Cultural Center provides a space, within a nationally renowned establishment, for children from low socio-economic backgrounds to find refuge and fulfill their dreams of learning to play a musical instrument. Furthermore, the ambition is to extend the reach of The Chamber of Music by working with public and other private sector partners to set up music rooms in public schools themselves. Although this is rather ambitious considering the shortage of public school music teachers and the limited capabilities of the Ministry of Education, through long-term commitment, and some creative approaches, this vision can be achieved. A number of considerations must be taken into account: firstly, there needs to be a considerable amount of support in establishing school based music rooms in public schools (e.g. collaboration with the MoE, private sector, public sector and the community). Secondly, selecting the right students that are committed to learning an instrument is crucial as well as following through with them until they reach higher levels. Perhaps the most important challenge to address is the shortage of quality music teachers for the upscaling of such a project, unless schools with existing structures are targeted only.<sup>94</sup> This model aims to exemplify the power of music and this is its strength. Through a combination of explaining the benefits of music and illustrating its power in poor Jordanian communities, there is a strong argument that can be made for music education to be embedded in the public education system.

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<sup>93</sup> Ministry of Education, 2014 excel sheet on total number of teacher

<sup>94</sup> Despite the existence of 235 music teachers in Jordan, the Ministry of Education has a limited employment of music teachers and very few students graduate from music education in Jordan. In the long run, there will be a shortage of music teachers and if this model is to succeed this needs to be considered.

## 5. Examples of Similar Models Internationally

The idea of music training for children from low socioeconomic backgrounds to open a world of expression, healing and empowerment is fairly new to Jordan; but there exist examples from across the globe of how music education is revolutionizing the lives of orphaned children on the streets of Uganda, poor children living in the slums of Venezuela, drop-outs and at-risk children from the USA, as well as children in Gaza. Each of these projects reveals the power that music has had in creating a positive change in children, their homes, education, society and their country as a whole. One of these projects has even expanded beyond its country's borders and is being enjoyed by audiences internationally, becoming a national heritage and a source of pride.

This section of the report discusses four of these case studies, outlining their background, challenges and impact.

### Harmony Project (USA)

The Harmony Project is a free 'music based mentoring and life-skills training program', targeting low-income children and their families. They mainly operate in Los Angeles and in recent years have expanded to include independent Harmony projects across the USA. Many of the children they target are at a high risk of abuse, injury, criminal activity; drug abuse; and dropping out of school leaving them with limited opportunities for their future. The Harmony Project addresses this by engaging them in rigorous after school music activities, of at least five hours each week, on the condition they continue their school education.<sup>95</sup> There is a heavy emphasis on commitment, education and giving back. Students must be committed to their own learning and development; on their part the harmony project is committed to them throughout their entire childhood until they graduate from secondary school. They ensure that all their students remain enrolled in school, supporting them with university application and essays; and, they encourage them to give back in the form of volunteering at the Harmony Project office or by mentoring younger students.

Their intensive year round program includes 10 sub-programs that build essential skills which help children throughout their life and assists in breaking the cycle of poverty.

### Programs:<sup>96</sup>

- **Instruments:** all students get instruments that they may take home to practice on while they are students of the Harmony Project.

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<sup>95</sup> (Harmony Project) [Meet Our Students](#)

<sup>96</sup> (Harmony Project) [Harmony Project Programs](#)

- **Lessons:** classes appropriate to their progress, 'children that demonstrate superior progress or require special attention receive private tutoring.'
- **Ensembles:** 'all students enroll in an ensemble and all levels of ability participate'.
- **Juries:** 'all students are assessed for musical progress and character at the end of each semester'.
- **Performances:** ensembles and orchestras that hold concerts throughout the year.
- **Musical outings:** at least twice a year they arrange for students to attend classical music concerts.
- **Musicianship classes:** develop the fundamentals of music for success in their instrumental studies where they study: reading and writing music, rhythm and pitch.
- **Peer mentoring:** older, more advanced students give younger students semi-private lessons on a weekly basis to help them develop their music skills and overall progress. In return they receive private lessons with a professional teaching artist that helps them develop their teaching skills. At the end of each semester mentor and mentee hold a recital where they play together. Later these mentees become mentors.<sup>97</sup> This develops their leadership skills and instills in them a close connection to the project and a personal interest in its success.
- **Enhanced family support:** they provide a social services coordination person that is a resource to teachers and families with regards to education, health insurance enrolment, school issues and more.
- **University scholarships:** are open to all students that have graduated from secondary school and have been enrolled for more than 3 years.

As well as providing music education, the Harmony Project programs are research based. Numerous universities in the USA have conducted research on the Harmony Project's students, assessing the impact of music on their mood, behavior, academic performance, language, brain, 21<sup>st</sup> century skills and the effects of music education on drop-out reduction.<sup>98</sup>

**Fast facts:**

- The founder, Margret Martin, started this project with 36 students and \$9,000 in 2001;
- It has now grown to serve over 1,600 with revenue of \$2.3 million in 2014.
- It has expanded to Miami, New Orleans, Tulsa, and Ventura, and continues to grow.<sup>99</sup>
- It grew from one program site in Los Angeles to 14, four of which are in gang reduction zones.
- The average graduating senior has spent six years in the project.
- Over the past four years 93% of their seniors went to university.
- The majority of their students (46%) are aged 6-10 years old.

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<sup>97</sup> (Harmony Project) [Peer Mentorship Program](#)

<sup>98</sup> (Harmony Project) [About Us](#)

<sup>99</sup> (Harmony Project) [Affiliates](#)

- It costs around \$1,500 to sponsor a student each year.
- The largest share of their revenue comes from foundations and partners (62%) followed by individuals (33%), 2% corporations and 2% government.<sup>100</sup>

In their most recent survey, 83% of parents said their children's grades have improved, 82% said their behavior has improved and 84% said their mood has improved. One of their students, Tiffani W. aged 13 said: 'I go over my scales and old songs for extra practice. I started studying the same way and got an A in Science.'<sup>101</sup>

### **M'Lisada (Uganda)**

M'Lisada stands for Music-Life Skills, and Destitution Alleviation and uses music to 'attract, rescue and nurture' orphaned children off the streets of Kampala in Uganda. It was set up by a group of young orphans that begun their journey as a brass band in 1996.<sup>102</sup> M'Lisada begun as a result of the passion and perseverance of a 12 year old orphan named Segawa Bosco, who was living on the streets of Kampala with his three younger sisters. He heard children at a private school playing brass band music and wanted to learn to play. So he asked the administration at the school to teach him, they refused but he did not give up, he continued to persist by going to the school every day until eventually they agreed to teach him and eight of his friends on weekends and holidays. Within a few months they could play enough to support themselves and found a sponsor to support them with two rooms that they lived in and stored their instruments; wanting to help other street children like themselves they opened these rooms to desperate children and gave them a chance towards something better.

Today, M'Lisada is a 'highly regarded' orphanage in Nsambya Parish with a mission to reduce the number of children on the streets, by providing them with a home, an education and protection. They have the capacity to house 75 children aged between 7 and 17 years old a further 80 come from the streets daily for showers, food, counselling, music lessons and a safe place to play. However, due to a lack of space and finances, these children have to return to the streets each night.

**Education:** M'Lisada believe that an education helps break the cycle of ignorance and poverty and so all their children are enrolled in schools and vocational training such as music, arts and crafts, mechanics and farming. Scholarships are available for children wishing to go on to university. Children are monitored and evaluated regularly for class performance, conduct, and extra-curricular activities.

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<sup>100</sup> (Harmony Project, 2013/2014) [Annual Report](#)

<sup>101</sup> (Harmony Project) [Meet Our Students](#)

<sup>102</sup> (M'Lisada) [About Us](#)

**Activities** that the children take part in include:

**Music:** almost all their children perform in their brass band, jazz band, cultural dance, drama, and acrobatics. Some children sit for and pass the Associated Board for the Royal School of Music (ABRSM) exams on a yearly basis.

**Athletics:** they teach them life skills and develop their talents through team sports. Children love football and this has been used as an entry point into their lives as well as a medium for sharing important messages. Other activities include, martial arts, baseball and IT classes.

**Arts and Crafts:** their children produce cards, wallets, bags, baskets and jewelry, which is then sold at crafts exhibitions and their music concerts. They also produce and sell drama and cultural dance performance costumes.

**Programs:**

- Healthcare: All children are taught about basic hygiene, sex education, drug abuse, and HIV prevention.
- Reaching children: skilled staff regularly visit the streets and slums of Kampala to identify vulnerable children and their needs. They rehabilitate them and eventually, where possible, try to reunite them with their families.
- Economic Programs: individuals, corporations and governmental organizations hire the M'Lisada bands. Their youth also raise funds through soap production and sales, craft sales and athletic competitions. This supports M'Lisada's work with orphaned children.
- Empowerment: they do community work e.g. street cleaning, helping the elderly. They are closely aligned with the 'Mummy Foundation' which promotes respect for women. They also have a M'Lisada Junior Court, that is made up of children which meet up weekly to preside over misconduct. It includes a judge, a jury of children and lawyers.
- Sustainability: they bought eight acres of land where their children have an opportunity to learn new skills that they could depend on for their future. Some of the children have taken part in the initial planting, and have reaped the reward by seeing tangible results. They hope to build a vocational school and a new children's home in this location.

**Fast facts:**

- They serve over 200 street children.<sup>103</sup>
- M'Lisada's social workers alongside community leaders interview the children and their advocates that are applying for admission to M'Lisada.

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<sup>103</sup> (M'Lisada Children's Center, 2012) [Annual Report](#)

- The home is funded by both local and international corporations and individual donors. M-Lisada makes additional money from musical events performed by the children, and from sale of liquid soap and crafts.

### **The Edward Said National Conservatory of Music (Palestine)**

The Edward Said National Conservatory of Music (ESNCM) is a Palestinian Non-Governmental Organization established in 1993, with a mission to ‘teach and promote music to Palestinians wherever they are to strengthening their cultural and national identity’.<sup>104</sup> It was set up by five musicians and music teachers that were initially asked to conduct a study on the state of music in Palestine in 1990 by the Welfare Association. They concluded that there was an urgent need for music education not only because it is an ‘educational tool crucial for character development and psychosocial wellbeing’; but also because of the Israeli Military Occupation imposing constraints on expressions of cultural identity, in arts, music, or politics.<sup>105</sup> These five musicians set out to form the ESNCM to fill this gap and to facilitate access to quality music education.

Students learn traditional Arabic music or classical Western music. They accept children as young as 6 to 8 depending on the instrument and the teacher and there is no upper limit to student’s age. Before enrolling students they assess their natural ability and ask them to submit their preferred instruments in order of preference. In some cases children may not get their first choice instrument due to limited places or compatibility of age.<sup>106</sup>

Although the ESNCM is not a strictly free music education program for all children, it has scholarships that all students are eligible to apply for and are given out based on financial need. Alongside this there are specific programs that bring music to children in remote and deprived areas of the West Bank, giving them the chance to learn music.

### **Programmes**

They provide two main programs for music students to choose from: the regular program and the amateur program. The regular program involves intense music training that includes chamber music, ensemble lessons and instrumental training of 45 to 60 minutes depending on the level of the student. The amateur program is for students that love music and want to enjoy it without sitting for tests, taking theory or progressing with music professionally; it consists of instrumental training for 30 minutes. A broad range of courses are provided: chamber music; instrumental training; group playing; introduction to oriental music; introduction to Arabic Music learning; Maqam (Arabic and Turkish

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<sup>104</sup> (The Edward Said National Conservatory of Music) Mission and Goals, accessed in 2014

<sup>105</sup> (Al Sahel Company for Institutional Development and Communication, 2011) Impact Assessment: the ESNCM Music Programmes; (a document not made public but available at ESNCM upon request).

<sup>106</sup> (The Edward Said National Conservatory of Music) [Who Can Apply](#), accessed in 2014



modal systems); piano literature; and, theory course and ear training. Different courses are included depending on which instrument the student plays and which program they are enrolled in (regular or amateur).

The following programmes are specific to children that cannot afford or access quality music education, where the above programmes and courses are available to them.

### **The sponsorship programme**

Provides music education for children from low and middle income families; it continues to support them so that they become musicians or music teachers to work at the ESNCM or other national music institutions. Around 500 students learn music each year across all its branches. Depending on students' financial situation, scholarships cover 25% to 100% of tuition fees. Since 2012, the Ministry of Education has been covering the full tuition fees of fifty students from public schools as regular students<sup>107</sup> at four of the ESNCM's branches in Bethlehem, Jerusalem, Ramallah and Nablus.

### **Free music education at the Gaza Music School**

Established in 2008 it offers free music education to children in Gaza. This branch is firmly grounded in the rights of children<sup>108</sup> to relax, play and participate in a wide range of cultural activities; and, is a place of expression and artistic freedom. 185 children have been enjoying music at the Gaza Music School, more than half (54%) of whom are girls.

### **The outreach and choirs programme**

This program brings music to children in remote and deprived areas of the West Bank to learn music, where they would otherwise not have this chance. Teachers from the ESNCM commit several hours weekly to travel to schools and refugee camps and give music lessons to students enrolled in the outreach program. Students are given a free instrument to practice on; many students have returned these after having bought their own.

Some activities include the Naghamat Amal program for 40 Palestinian refugees in Lebanon to learn music at the Lebanese National Higher Conservatory of Music. In 2014/2015 they will launch an Orchestras in Refugee Camps project, to provide music education to 100 children in four refugee camps in Palestine- Shu'fat in Jerusalem, Balata in Nablus, Aqbet Jabr in Jericho and Al Dheisheh in Bethlehem.

Each year hundreds of children take part in music and singing activities through the choirs of the ESNCM's branches. Choirs are established in public schools in the Northern West Bank, the traditional

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<sup>107</sup> Students of the regular music program at the ESNCM, which consists of instrumental and theoretical music training making them eligible for a university education in music once completed.

<sup>108</sup> As enshrined in the UN convention of the Child.

Palestinian songs through the Al Sununu Choirs in UNRWA schools which are part of a regional project targeting children in Palestinian refugee camps in Lebanon, Syria, Jordan and Palestine and implemented in partnership with Rostropovich Vishnevskaya (ARV) based in Paris, France.

**Fast facts:**

- It started off with 40 students, four music teachers and 1 volunteer director in Ramallah in 1993; and has now grown to over 888 students in 5 locations (Jerusalem, Bethlehem, Ramallah, Nablus and Gaza).<sup>109</sup>
- They have 6 established orchestras and a 7<sup>th</sup> to open in 2014, which play in Palestine, the Middle East and internationally.
- They have instilled in youth an appreciation for Arabic music and western music alike. The Palestinian Youth Orchestra plays Vivaldi with a Middle-Eastern twist, playing well known classical pieces with a personal character as inspired by Nigel Kennedy, a violinist.<sup>110</sup>
- They have an online library of music sheets and live streaming of classical music, which students are encouraged to use to listen to music they are learning to play.<sup>111</sup>

**El Sistema (Venezuela)**

El Sistema is an intensive youth music program, founded in 1975 by economist and pianist Jose Antonio Abreu. His vision was to use musical excellence to create positive social change, through teaching classical music to Venezuela's most in need children with the least resources. Access and excellence are closely related in El Sistema, where they try to bring in as many children as possible, for as long as possible, and as young as possible; and, although they focus on children from low-income families; no one is turned away regardless of their previous musical experience or financial situation. Two of their five values are that 'every child has the right to a life of dignity and contribution, filled with beauty'; and that 'every child can experience and express music and art deeply, can receive its many benefits, and can make different critical life choices as a result of this learning'.<sup>112</sup>

The main learning tool is ensembles and group instruction, which instils a 'group minded ethos', so a student's 'primary association is that they are an ensemble member rather than a violinist'. Students are immersed in music from as early as 2 years old, lessons last two to three hours a day, six days a week and include retreats and intensive workshops.<sup>113</sup> Although children are taught intensively, El Sistema's approach nurtures a 'powerful intrinsic motivation' in them to learn, be committed and enjoy music through utilizing the artistic flow experience.<sup>114</sup> Students across Venezuela are taught

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<sup>109</sup> (Al Sahel Company for Institutional Development and Communication, 2011) Impact Assessment

<sup>110</sup> (BBC Proms, 2013) [BBC report on Palestine Strings](#).

<sup>111</sup> (The Edward Said National Conservatory of Music) [Library](#), last accessed 2014

<sup>112</sup> (El Sistema) [Guiding Principles](#), last accessed 2014

<sup>113</sup> (El Sistema) [El Sistema in Venezuela](#), 2014

<sup>114</sup> (El Sistema) [Guiding Principles](#), last accessed 2014

through the national music curriculum, which introduces students to international classical music composers, Latin American composers and Venezuelan folk musicians.

El Sistema includes children with cognitive impairments, visual impairments, hearing problems, motor problems, autism and learning difficulties. They have also been teaching music to youth in juvenile centers; using music training to humanize prisons, under the tutelage of the Ministry of the Interior and Justice.<sup>115</sup>

### **Elements of the system**

**Nucleo:** these are teaching centers often located in poor and violent neighborhoods. Each nucleo is independent of the other and has its own feel but they are strongly connected through the national leadership organisation which provides financial resources, tools and unifies the vision. These become safe havens not only for the students but for their families and the community as a whole, where they use the centers for events other than music too.

**Instruments:** each child is given a free music instrument during their participation in the programme.<sup>116</sup>

**Music Instruction:** there are three levels of instruction a week, including: the ensemble, section work and private lessons.<sup>117</sup> Children attend lessons six times a week that last three to four hours each day. Students take instruction from the same teacher in their personal and group lessons and this crucial for consistency and assists in progressing quickly.

**Progress in the program:** students enroll as young as two years old, where they are introduced and familiarized to music, how to keep their bodies active while playing an instrument and rhythm. Their parents accompany them to these lessons. When they turn five they pick up their first instrument usually a recorder or percussion, they join a choir to build their ensemble skills. By age 7 they choose their first wind or string instrument. Students can change their instruments but this is not encouraged.

**Curriculum:** The entire curriculum starts with simple arrangements of big pieces. As a student progresses this develops. They use a national curriculum with an established musical sequence. However, local leaders at the different nucleos across Venezuela can customize their program. If a local experiment produces good results it becomes part of the national program.

**Performance and Orchestras:** Children are encouraged to perform so as to take away from the stigma and to instill in them that music is to be played and appreciated by people. Orchestras are the backbone of El Sistema; the orchestra is meant to reflect a model society where competition is

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<sup>115</sup> (Booth, Fundamental Elements of Venezuela's El Sistema which Inform and Guide El Sistema inspired Programs, 2013) [Fundamental Elements of Venezuela's El Sistema](#)

<sup>116</sup> (Wakin, 2012) [Fighting Poverty, Armed with a Violin](#)

<sup>117</sup> (El Sistema) [El Sistema in Venezuela](#), 2014

replaced with cooperation and investment in a common goal. Often each nucleo has one or two orchestras.

**Peer Teaching and Mentoring:** students are encouraged to help each other through teaching roles and mentoring roles early on in joining the program; it becomes a constant impulse to help one another improve their excellence in music.

**Multi-year continuum:** they provide a progression plan for their students from early childhood to adulthood. Students that are 'most gifted and committed, are provided intensive and accelerated training at academies, which then prepares them for learning at the national conservatory of music, to cultivate them as teachers and leaders in communities for the highest level orchestras.'<sup>118</sup>

**Citizen/Artist/Teacher/Scholar (CATS) teacher model:** students see their teachers active in their community to advance the work of the nucleo and social improvements, perform in class and in orchestras, students also see their teachers as learners, experimenters. Seeing their teachers in this light instructs them on how to participate fully in life. Many of the teachers are previous students of El Sistema and becoming a teacher is seen as a great accomplishment.

**Parental involvement:** When a child first joins the programme, El Sistema teachers instruct parents on how they can support their child throughout their learning progress. They work with parents of children as young as 2 to 3 years old, involving them in the learning and ensuring they are aware of the level of commitment required of them. If a student gets into a youth or city orchestra they are provided with a **stipend** so as to ensure their parents don't pull them out to work.

**Fast facts:**

- It started with 11 students from the slums of Caracas and has now grown to serve over 4 million students across Venezuela.
- 200 youth orchestras, 60 children's orchestras, 125 youth orchestras.<sup>119</sup>
- 270 music centers and instrumental training program.
- Currently reaches about 500,000 young musicians annually; plans to expand and serve 1 million.<sup>120</sup>
- 70% of the participants live below the poverty line.
- The vast majority of the budget comes from the Venezuelan federal government.<sup>121</sup>
- For every \$1 the Venezuelan government invests into El Sistema, their economy gains \$1.68.<sup>122</sup>
- El Sistema inspired similar programs in over sixty countries.

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<sup>118</sup> (El Sistema) [Guiding Principles](#), last accessed 2014

<sup>119</sup> (Booth, El Sistema First Observations, 2008)

<sup>120</sup> (El Sistema) [El Sistema in Venezuela](#), 2014

<sup>121</sup> (Booth, El Sistema First Observations, 2008) [El Sistema First Observations](#)

<sup>122</sup> (Inter-American Development Bank) cited in the [Atlanta Music Project](#)

**Further Models to take note of:**

- The Song Room: a not for profit music and arts program for disadvantaged children in Australia. They work in partnership with schools across the country.<sup>123</sup>
- Hong Kong Virtuoso Chorus: a not for profit choir training young children from poor socioeconomic backgrounds that would otherwise not be able to enjoy music.<sup>124</sup>

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<sup>123</sup> (The Song Room) [About Us](#)

<sup>124</sup> (Sieh, 2012) [South China Morning Post](#)

## 6. Recommendations

- In order to ensure sustainability of the effort and work that Eskadenia would like to undertake in public schools, it is crucial to involve the Ministry of Education from the early stages before carrying out interventions in their schools. It may be useful to establish a memorandum of understanding with them so that all Eskadenia's work is supported by them and to ensure the sustainability of music in schools and investments made for the long run.
- Perseverance will be fundamental for the success of the program; many similar international programs took decades before they got noticed and their impact was felt.
- Similar to studies conducted by the Harmony Project, that assessed the intense music instruction had on their students, a longitudinal study of some of the students would build a strong case for Jordanian music education in the long run.
- All schools and principals that participate need to be realistic about the quality of the music teachers to yield real, positive and lasting benefits of learning to play a musical instrument. Orientation and a briefing prior to signing up would be beneficial.
- For school-based chambers of music, it would be useful to integrate cheap instruments such as the recorder and percussion as an introduction to students in the school and to give everybody the option of accessing music education. Students with a particular talent can then pursue instrumental training. Many school systems internationally use this and even the music specific programs such as el Sistema. This familiarizes children with musical instruments, the beat and teaches them to take care of their instruments early on.
- Students in the chamber should be encouraged to play together in ensembles; this has proven to have huge effects on team skills, their confidence levels and social interaction, as well as patience to play when it's your turn to play. A higher impact would be yielded through a combination of playing together and playing individually.
- Teacher training on pedagogy will greatly enhance the benefits on the learner and the overall impact of the project. Alongside this the consistency of the teacher is also important; it will negatively affect the learner if their music teacher changes regularly. Consistency is key to developing quickly.
- Travelling teachers between schools; there is no need for a permanent teacher within a school. In many cases, the Ministry of Education's directorates allow for the sharing of music teachers between a number of schools under their jurisdiction for the purpose of participating in the Ministry's yearly music festivals. This could be further developed alongside the ministry.
- A wealth of scientific evidence points towards the strong relationship between music and improved academic outcomes, higher functional abilities and a deep emotional, spiritual experience that renews ones soul. However, the evidence also points towards the importance of consistency in yielding greater results and the quality and intensity of the musical training.

For Eskadenia Chamber to present a real impact there needs to be consistency with the students and baselines conducted with later evaluations on impact.

- Target schools with existing teachers and willingness to have music lessons as the basis for the model. They may be mainly in the north and central of Jordan but this is a good start and will more likely have better and long lasting results.

## Annex

## Students Admitted to University for the Year 2012/2013

Students Admitted to Universities by Field 2012/2013	
Education Science & Teacher Training	5,416
Humanities, Religion	7,675
Fine and Applied Arts	1,051
Service Trades	915
Law	1,411
Social & Behavioral Science	1,849
Commercial & Business Administration	14,879
Mass Communication & Documentation	813
Physical Education	1,007
Natural Science	3,532
Mathematics & Computer Science	5,931
Medicine	1,495
Dentistry	484
Pharmacy	2,645
Paramedic - Medical Science	3,452
Engineering	13,489
Architecture & Town Planning	1,086
Agriculture	1,246
Veterinary Medicine	422
<b>Total of all students</b>	<b>68,798</b>

Students Admitted to Fine and Applied Arts 2012/2013				
	University of Jordan	Yarmouk University	Jordan Academy of Music	Total
Music	15	66	20	101
Drama	17	75	20	92
Visual Arts	94	108	0	202
Graphic Design	0	166	0	417
Interior Design	0	0	0	214
Plastic Art	0	0	0	25
Applied Arts	0	0	0	0

There are other universities that teach other forms of art but only the ones that teach music were included in this table. For the full tables visit the [Ministry of Higher Education's](#) Website.



**Current Students Enrolled by Field for 2012/2013**

<b>Current Students Enrolled by field 2012/2013</b>	
Education Science & Teacher Training	20,374
Humanities, Religion	27,545
Fine and Applied Arts	4,571
Service Trades	3,110
Law	5,328
Social & Behavioral Science	7,959
Commercial & Business Administration	62,799
Mass Communication & Documentation	2,033
Physical Education	4,582
Natural Science	11,074
Mathematics & Computer Science	20,491
Medicine	6,428
Dentistry	2,190
Pharmacy	8,262
Paramedic - Medical Science	12,088
Engineering	41,164
Architecture & Town Planning	4,420
Agriculture	4,692
Veterinary Medicine	322
<b>Total of all students</b>	<b>249,432</b>

<b>Current Students Enrolled in Fine and Applied Arts for Bachelors 2012/2013</b>				
	University of Jordan	Yarmouk University	Jordan Academy of Music	<b>Total</b>
Music	34	249	113	396
Drama	48	210	0	258
Visual Arts	295	283	0	578
Graphic Design	0	415	0	1,457
Interior Design		0	0	1,384
Plastic Art	0	122	0	122
Applied Arts	0	376	0	376

There are other universities that teach other forms of art but only the ones that teach music were included in this table. For the full tables visit the [Ministry of Higher Education's](#) Website.

**Graduates for the Year 2012-2013**

<b>Graduates by Field for the Year 2012/2013</b>	
Education Science & Teacher Training	4,413
Humanities, Religion	5,780
Fine and Applied Arts	1,021
Service Trades	242
Law	919
Social & Behavioral Science	1,427
Commercial & Business Administration	12,386
Mass Communication & Documentation	508
Physical Education	753
Natural Science	1,810
Mathematics & Computer Science	3,915
Medicine	798
Dentistry	308
Pharmacy	1,461
Paramedic - Medical Science	2,903
Engineering	5,962
Architecture & Town Planning	636
Agriculture	668
Veterinary M.	29
<b>Total of all students</b>	<b>47,504</b>

<b>Graduates of Fine and Applied Arts for the Year 2012/2013</b>				
	University of Jordan	Yarmouk University	Jordan Academy of Music	<b>Total</b>
Music	3	25	38	66
Drama	6	18	0	24
Visual Arts	43	0	0	43
Graphic Design	0	0	0	0
Interior Design	0	0	0	0
Plastic Art	0	70	0	70
Applied Arts	0	120	0	120

There are other universities that teach fine and applied arts but only the ones that teach music were included here. For the full tables refer to the [Ministry of Higher Education's](#) website.

## Bibliography

- Al Sahel Company for Institutional Development and Communication. (2011). *Impact Assessment of the ESNM Music Programs*.
- Alloway, T. P., & Alloway, R. G. (2009). Investigating the Predictive Roles of Working Memory and IQ in Academic Attainment. *Journal of Experimental Child Psychology, 106*(2010), 20-29.
- Bailey, R. (n.d.). *Temporal Lobes*. Retrieved September 2014, from About Biology: <http://biology.about.com/od/anatomy/p/temporal-lobes.htm>
- BBC Proms. (2013). *East West Harmony: Palestinian Strings and Nigel Kennedy*. Retrieved October 2014, from Youtube: <http://www.youtube.com/watch?v=hIG0TO-IIOs>
- Bermudez, P., Lerch, J. P., Evans, A. C., & Zatorre, R. J. (2008). Neuroanatomical Correlates of Musicianship as Revealed by Cortical Thickness and Voxel-Based Morphometry. *Cerebral Cortex, 18*, 1583-1596.
- Booth, E. (2008, June). *El Sistema First Observations*. Retrieved October 2014, from Eric Booth: <http://ericbooth.net/el-sistema-first-observations/>
- Booth, E. (2013, January). *Fundamental Elements of Venezuela's El Sistema which Inform and Guide El Sistema inspired Programs*.
- Brain Center America. (n.d.). *Brain Functions: Viso-Spatial Skills*. Retrieved October 2014, from Brain Center America: <http://www.braincenteramerica.com/visuospa.php>
- Broh, B. A. (2002). Linking extracurricular programming to academic achievement: Who benefits and why? *Sociology of Education, 75*, 69-96.
- Brown, S., Martinez, M. J., Hodges, D. A., Fox, P. T., & Parsons, L. M. (2004). The Song System of the Human Brain. *Cognitive Brain Research, 20*(2004), 363-375.
- Catterall, J. S., Chapleau, R., & Iwanaga, J. (1999). *Involvement in the Arts and Human Development: General Involvement and Intensive Involvement In Music and Theatre Arts*. The Imagination Project. University of California .
- Center for Speech, Language and Occupational Therapy. (n.d.). *Sensory Motor Skills! What are they and Are they even Important?* Retrieved October 2014, from Center for Speech, Language and Occupational Therapy: <http://cslot.wordpress.com/2012/03/13/sensory-motor-skills-what-are-they-and-are-they-even-important/>

- Children's Music Workshop. (1989). *Music and Student Development*. Retrieved October 2014, from Children's Music Workshop:  
<http://www.childrensmusicworkshop.com/advocacy/studentdevelopment/>
- Clift, S., & Hancox, G. (2001). The significance of choral singing for sustaining psychological wellbeing: findings from a survey of choristers in England, Australia and Germany. *Music Performance Research*, 1(3), 79-96.
- Costa-Giomi, E. (1999). The Effects of Three Years of Piano Instruction on Children's Cognitive Development. *Journal of Research in Music Education*, 198-212.
- El Sistema. (n.d.). *El Sistema in Venezuela*. Retrieved October 2014, from El Sistema USA:  
<https://elsistemausa.org/el-sistema-in-venezuela.htm>
- El Sistema. (n.d.). *Guiding Principles*. Retrieved October 2014, from El Sistema USA:  
<http://www.elsistemausa.org/guiding-principles.htm>
- Fakhouri, K. (2001). *Enriching Artistic Education Curricula and Implementing Strategy in Basic and Secondary Education Cycles in Jordan*. UNESCO.
- Glennie, E. (1993). *Hearing Essay*. Retrieved October 2014, from Evelyn Glennie's Official Website: <http://www.evelyn.co.uk/Resources/Essays/Hearing%20Essay.pdf>
- Glennie, E. (2003). How to Truly Listen. *Ted Talks*.
- Goodman, A., & Gregg, P. (2010). *Poorer Children's Educational Attainment: How Important are Attitudes and Behaviours*. Joseph Rowntree Foundation.
- Govias, J. A. (2012). *El Sistema*. Retrieved October 2014, from Jonathan Govias:  
<http://jonathangovias.com/el-sistema/>
- Hallam, S. (2010). The Power of Music: It's Impact on the Intellectual, Social and Personal Development of Children and Young People. *International Journal of Music Education*, 28(3), 269-289.
- Hallam, S., & Prince, V. (2002). *Research into Instrumental Music Services*. Department for Education and Employment.
- Hanna-Pladdy, B., & Gajewski, B. (2012). Recent and Past Musical Activity Predicts Cognitive Aging Variability: Direct Comparison with General Lifestyle Activities. *Frontiers in Human Neuroscience*, 6(198), 1-11.
- Harmony Project. (2013/2014). *Annual Report*. Retrieved October 2014, from Harmony Project Official Website: <http://www.harmony-project.org/about-us/harmony-project-current-newsletter/>

- Harmony Project. (n.d.). *About Us*. Retrieved October 2014, from Harmony Project Official Website: <http://www.harmony-project.org/about-us/>
- Harmony Project. (n.d.). *Affiliates*. Retrieved October 2014, from Harmony Project Official Website: <http://www.harmony-project.org/affiliates/>
- Harmony Project. (n.d.). *Harmony Project Programs*. Retrieved October 2014, from Harmony Project: <http://www.harmony-project.org/programs/>
- Harmony Project. (n.d.). *Meet Our Students*. Retrieved October 2014, from Harmony Project Official Website: <http://www.harmony-project.org/about-us/meet-our-students/>
- Harmony Project. (n.d.). *Peer Mentorship Program*. Retrieved October 2014, from Harmony Project Official Website: <http://www.harmony-project.org/programs/mentorship-program-history/>
- Hyde, K. L., Lerch, J., Norton, A., Forgeard, M., Winner, E., Evans, A. C., et al. (2009). The Effects of Musical Training on Brain Structural Development: A longitudinal Study. *The Neuroscience and Music III: Disorders and Plasticity*, 182-186.
- Inter-American Development Bank. (n.d.). *El Sistema Venezuela*. Retrieved October 2014, from Atlanta Music Project: <http://www.atlantamusicproject.org/about-amp/el-sistema/el-sistema-venezuela/>
- Johansson, B. B. (2006). Music and Brain Plasticity. *European Review*, 14(1), 49-64.
- Koelsch, S., Schroger, E., & Tervaniemi, M. (1999). Superior Pre-Attentive Auditory Processing in Musicians. *NeuroReport*, 10, 1309-1313.
- Kraus, N. (2013, July). Arts and Human Development Task Force Webinar.
- Kraus, N., Slater, J., Thompson, E. C., Hornickel, J., Strait, D. L., Nicol, T., et al. (2014). Music Enrichment Programs Improve the Neural Encoding of Speech in At-Risk Children. *The Journal of Neuroscience*, 34(36), 11913–11918.
- Kung, D. (n.d.). *How Music and Mathematics Relate*. (S. M. Maryland, Producer) Retrieved October 2014, from The Great Courses: <http://www.thegreatcourses.com/courses/how-music-and-mathematics-relate.html>
- Maddock R.J., G. A. (2001). Remembering familiar people: the posterior cingulate cortex and autobiographical memory retrieval. *Neuroscience*, 104(3), 667-676.
- Maddock R.J., G. A. (2001). Remembering Familiar People: The Posterior Cingulate Cortex and Autobiographical Memory Retrieval. *Neuroscience*, 104(3), 667-676.
- Madi, A. (2014, September). Head of Music at University of Yarmouk. (QRF, Interviewer)

- Majali, A. H. (2014, September 21). Director of the Hussein Cultural Center. (QRF, Interviewer)
- Mannes, E. (Director). (2009). *The Music Instinct: Science and Song* [Motion Picture].
- McCarthy, Kevin F.; Ondaatje, Elizabeth H.; Brooks, Arthur; Szanto, Andras . (2005). *A Portrait of the Visual Arts: Meeting the Challenges of a New Era*. Rand Corporation.
- Miksza, P. (2007). Music Participation and Socioeconomic Status as Correlates of Change: A Longitudinal Analysis of Academic Achievement. *Bulletin of the Council for Research in Music Education*, 41-58.
- Minister of Education. (2013, December). *Ministry of Education: 100,000 Students Cannot Read*. Retrieved October 2014, from Petra News Agency:  
[http://petra.gov.jo/Public\\_News/Nws\\_NewsDetails.aspx?Site\\_Id=2&lang=1&NewsID=134275&CatID=13](http://petra.gov.jo/Public_News/Nws_NewsDetails.aspx?Site_Id=2&lang=1&NewsID=134275&CatID=13)
- Minister of Education. (2014). *Minister of Education Announced Results of Upper Secondary Exams*. Retrieved September 2014, from Al Arab Al Yawm:  
<http://alarabalyawm.net/?p=385222>
- Ministry of Education. (2012/2013). *Annual Statistics Report on Education*. Ministry of Education.
- Ministry of Education. (2014). Official Letter on Music Education. Provided to QRF.
- Ministry of Education Official. (2014, October 27). Music Department at Directorate of Activities. (QRF, Interviewer)
- Ministry of Higher Education. (2012/2013). *Statistics on Student Enrolment and Graduation*. Ministry of Higher Education.
- Miranda, D., & Claes, M. (2009). Music Listening, Coping, Peer Affiliation and Depression in Adolescence. *Psychology of Music*, 37(2), 215-233.
- M'Lisada. (n.d.). *About Us- History*. Retrieved October 2014, from <http://mlisada.org/about-m-lisada/m-lisada-history.html>
- M'Lisada Children's Center. (2012, December 31). *Annual Report*. Retrieved September 2014, from M'Lisada Official Website:  
[http://mlisada.org/uploads/Documents/2012\\_Annual\\_Report.pdf](http://mlisada.org/uploads/Documents/2012_Annual_Report.pdf)
- National Music Conservatory. (2014, September). Director of National Music Conservatory. (QRF, Interviewer)

- Northwestern University. (n.d.). *Northwestern Auditory Neuroscience Laboratory*. Retrieved October 2014, from Northwestern University: <http://www.soc.northwestern.edu/brainvolts/>
- Nucleus Medical Media. (n.d.). *Anatomy and Functional Areas of the Brain*. Retrieved October 2014, from Nucleus Medical Media : <http://www.nucleuscatalog.com/anatomy-and-functional-areas-of-the-brain/view-item?ItemID=1868>
- Omari, S. A. (2014, September 30). Head of Humanities Subjects Division and Textbook at Ministry of Education. (QRF, Interviewer)
- PBS Newshour. (n.d.). *Videos and Photos*. Retrieved October 2014, from The Harmony Project: <http://www.harmony-project.org/about-us/multimedia/>
- Peretz, I., & Zattore, R. J. (2005). Brain Organization for Music Processing. *Annual Review of Psychology* , 89-114.
- Piro, J. M., & Ortiz, C. (2009). The Effect of Piano Lessons on the Vocabulary and Verbal Sequencing Skills of Primary Grade Students. *Psychology of Music*, 37(3), 325-347.
- Resnicow, J. E., & Salovey, P. (2004). Is Recognition of Emotion in Music Performance an Aspect of Emotional Intelligence. *Music Perception*, 22(1), 145-158.
- Robertson, S. (2014, November). *What is Grey Matter?* Retrieved October 2014, from News Medical: <http://www.news-medical.net/health/What-is-Grey-Matter.aspx>
- Roden, I., Konen, T., Bongard, S., Frankenberg, E., Friedrich, E. K., & Kreutz, G. (2014). Effects of Music Training on Attention, Processing Speed and Cognitive Music Abilities-Findings from a Longitudinal Study. *Applied Cognitive Psychology*, 545-557.
- Rodi, C. (2009). How to Build a Better Neural Highway. *The CrossFit Journal Articles*, 1-7.
- Schellenberg, E. G. (2005). Music and Cognitive Abilities. *Current Directions in Psychological Science*, 14(6), 317-320.
- Schneider, P., Scherg, M., Dosch, H. G., Specht, H. J., Gutschalk, A., & Rupp, A. (2002). Morphology of Heschl's Gyrus Reflects Enhanced Activation in the Auditory Cortex of Musicians. *Nature Neuroscience*, 5(7), 688-694.
- Sieh, M. (2012, August). *Reaching Out to Poor Children with Music*. Retrieved 2014 September, from South China Morning Post: <http://www.scmp.com/article/976959/reaching-out-poor-children-music>
- Skoe, E., Krizman, J., & Kraus, N. (2013). The Impoverished Brain: Disparities in Maternal Education Affect the Neural Response to Sound. *The Journal of Neuroscience*, 33(44), 17221-17231.

Slater, J., Tierney, A., & Kraus, N. (2013). At-Risk Elementary School Children with One Year of Classroom Music Instruction Are Better at Keeping a Beat. *PLoS ONE*, 8(10), 1-9.

Smith, F. (2009, January 28). *Why Arts Education is Crucial and Who's Doing it Best*. Retrieved October 2014, from Eutopia: <http://www.edutopia.org/arts-music-curriculum-child-development>

Sukriya, H. (2014, September). Dean of Music Department at the University of Jordan. (QRF, Interviewer)

Supervisor of Music Teachers. (2014, September 22). The Islamic Educational College. (QRF, Interviewer)

Tarzai, M. (2014, September 21). Piano and Oud Music Instructor at Eskadenia Chamber of Music. (QRF, Interviewer)

The Edward Said National Conservatory of Music. (n.d.). *Mission and Goals*. Retrieved October 2014, from The Edward Said National Conservatory of Music: <http://ncm.birzeit.edu/en/page/mission-and-goals>

The Edward Said National Conservatory of Music. (n.d.). *The Library*. Retrieved October 2014, from The Edward Said National Conservatory of Music: <http://ncm.birzeit.edu/en/page/library>

The Edward Said National Conservatory of Music. (n.d.). *Who can Apply*. Retrieved October 2014, from The Edward Said National Conservatory of Music: <http://ncm.birzeit.edu/en/page/who-can-apply>

The Royal Conservatory of Music. (2014, April). *Music Education Benefits*. Retrieved October 2014, from The Royal Conservatory of Music: [https://www.rcmusic.ca/sites/default/files/files/RCM\\_MusicEducationBenefits.pdf](https://www.rcmusic.ca/sites/default/files/files/RCM_MusicEducationBenefits.pdf)

The Song Room. (n.d.). *About Us*. Retrieved October 2014, from The Song Room: <http://www.songroom.org.au/>

Tierney, A., & Kraus, N. (2013). Music Training for the Development of Reading Skills. (M. N. Michael M. Merzenich, Ed.) *Progress in Brain Research*, 207, 209-241.

United Nations Development Program. (2013). *Jordan Poverty Reduction Strategy*. UNDP.

University of Surrey. (2012, December). *The Science Behind the Arts: The Math Behind Music*. *Univeristy of Surrey*.

Wakin, D. J. (2012, February 15). *Fighting Poverty, Armed with Violins*. Retrieved October 2014, from The New York Times: [http://www.nytimes.com/2012/02/16/arts/music/el-sistema-venezuelas-plan-to-help-children-through-music.html?\\_r=0](http://www.nytimes.com/2012/02/16/arts/music/el-sistema-venezuelas-plan-to-help-children-through-music.html?_r=0)



York, J., & Richards, M. (2009). Pythagoras and Music. *Rosicrucian Digest*, 1, 30-35.