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The Mozart Effect

Links between music and human intelligence date back to the classical discoveries of Pythagoras. One of the most recent discoveries is called the *Mozart Effect*.¹ A term that has been made popular in print and broadcast media, the Mozart Effect has renewed parents' interest in classical music education.

Dr. Frances Rauscher and her colleagues discovered that after listening to Mozart's sonata for two pianos in D Major K 448 for 10 minutes, college students scored 8-9 points higher on spatial-temporal IQ scores than they did in periods of no relaxation instruction or silence. The IQ-enhancing effect did not last longer than 10-15 minutes. Some psychologists were unable to reproduce the effect while others confirmed the IQ boost. Rauscher had stressed that the Mozart Effect was limited to spatial-temporal reasoning and that no benefits should be expected in general intelligence. An explanation for the results obtained after listening to the music may lie in the manner in which music and spatial imagery are processed within the brain. PET and functional magnetic resonance scanning have shown that listening to music activates a wide distribution of brain areas. The results of various

types of tests involving spatial-temporal reasoning have shown that the prefrontal, temporal and precuneus regions of the brain are involved in music processing.

In studies of pre-schoolers aged 3-4 years, it was determined that



Mozart

children given keyboard music lessons for six months, studying pitch intervals, fingering techniques, sight reading, musical notation and playing from memory, performed 30% better than other children of the same age group who were given computer lessons for six months or those who were given no specialized training. Again, the improvement was limited to spatial-temporal reasoning, and there was no effect on spatial recognition. The effect lasted unchanged for 24 hours, and the longer duration was attributed to the length of the exposure to the music and the elasticity of the young brain. It is generally

Thomas Hally

recognized that the improvement in spatial-temporal reasoning in children after piano training accounts for their eventual higher mathematical ability.

E. Glenn Schulenberg, of the University of Toronto at Mississauga, offered Toronto-area 6-year olds free weekly voice or piano lessons at the Royal Conservatory of Music. A third group of children in the study was given weekly drama lessons, while yet another group of 6-year olds received no classes during the study. Before the study began, the children's IQs were tested using the full-scale Wechsler Intelligence Scale for Children (WISC). Following the test, the children began their first year of grade school and were sequestered into their various assigned groups. During a time between first and second grade, the youngsters were re-tested. All of the students showed an increase in IQ of at least 4.3 points on average. Schulenberg attributed this increase in IQ to "just going to school," nothing more. Yet an added boost to IQ scores was displayed by children taught either piano or voice. Children in these two groups had a 7-point gain in IQ from the previous year. In other words, 2 to 7 points higher than the children placed in the drama or no-lesson



groups.

The increase in IQ was small, but significant in that the research in the Canadian study showed that the music effect (“Mozart Effect”) was, according to Rauscher, valid for general intelligence and not spatial-temporal intelligence alone. Rauscher’s previous work had tended to focus on spatial-temporal intelligence and exclude the possible effect of IQ enhancement to general intelligence. Rauscher is convinced that understanding music, particularly the ability to translate symbols into sound, might be transferrable to other abilities since they share similar neurological pathways. Both Rauscher and Schulenberg agree that music lessons should be available to children as a part of their school curriculum.

Dr. Gordon Shaw, a colleague of Dr. Frances Rauscher, believes that music is a window into higher brain functions. He is certain that music can help us understand how the brain works and he shows how music may positively affect how we reason and create. In his book, *Keeping Mozart in Mind*², Shaw gives the reader a thorough look at over 25 years of his personal research on music and the brain, and includes key information from an earlier book as well as the works of other scientists.

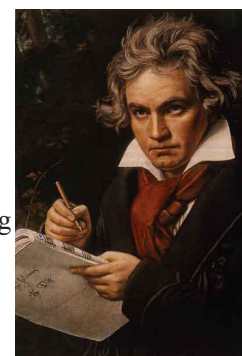
Physician and biologist Lewis

Thomas conducted a study on the undergraduate majors of medical school applicants.³ He found that of the students who applied for medical school, those with music backgrounds were in the highest percentile of majors admitted, with a full 66% of music majors who had applied being accepted—the highest percentage of any group! In comparison, only 44% of the biochemistry majors who applied were admitted. In a separate study of 7,500 university students, it was revealed that music majors had the highest reading scores of all majors, including English, biology, chemistry and mathematics. A study conducted at the University of Texas⁴ that looked at 362 first semester students found that music majors or those with music backgrounds were able to handle anxiety, alcohol-related problems, and were, in general, emotionally healthier than their non-musical peers. They also had more self confidence before and during examinations.

The world’s top academic countries place a high value on music education, with Hungary, The Netherlands and Japan leading the way in scientific achievement. This emphasis on music education throughout the academic life of young people seems to contradict the United States’ heavy focus on math, science, vocabulary and

technology.

It should be emphasized that this link between higher intelligence and music education is most readily observed in music making and not just passive listening. Actually, taking part is what causes the boost in brain power.



Beethoven

Finally, top business executives agree that arts and music education programs help repair weaknesses in school curricula and better prepare workers for the 21st century.

(Footnotes)

¹ The term *Mozart Effect* was coined by the media in response to a study by Dr. Frances Rauscher and Dr. Gordon Shaw and their colleagues of the University of California at Irvine in 1993.

² Gordon L. Shaw, *Academic Press*, 84 *Theobald's Road (London, WC1X 8RR, UK 2004, 2000)*.

³ “The Case for Music in the Schools,” *Phi Delta Kappan*, February, 1994

⁴Source: *Houston Chronicle*, January 11, 1998.

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Kate

international project **CONVERGENCE 2009**
- Photographer of the Year

If you have a camera, a dash of flair, some imagination, some photographic skills and are a current member of any Mensa chapter in the world, this could be you!

Guido Jaxens, from Mensa Belgium became Photographer of the Year 2008 with his amazing shot, *Spooky Beach*. Now it's your chance to win the title for 2009!

The theme this year is *The World Through My Eyes*. You are limited only by your eyes - and your imagination!

Most national Mensas will be running a national competition, so you also have a chance of becoming your National Mensa Photographer of the Year. The rules, entry address and closing dates will be available from your national committee. The three finalists from each national Mensa competition will be entered into the International segment of the competition.

If you are a Direct International Mensa, or if your country is not running a national competition this year, you may enter one photograph directly into the International segment. It must be received by the International Executive Director or one of the committee members listed below by August 15.

Good luck! All enquiries to MensaPhotoComp@gmail.com

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**Meeting of the International
Board of Directors (IBD), 2009
September 10-13**

Gothenburg, Sweden. All members welcome.
More info at <http://ibd2009.mensa.se/>

To access the Members'-only area of
www.mensa.org:
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international calendar

July 1-5, 2009 United States US Annual Gathering - "AMFM AG -The AG About Mensans and For Mensans" in Pittsburg, Pennsylvania. <http://www.ag2009.us.mensa.org>

July 17 - 26, 2009 Mensa Bulgaria's MY Camp. Young Mensans (over 18 years old) worldwide are invited to join us for 10 days of challenges, activities and fun. Enquiries to mycamp2009@mensa.bg; registration at <http://mycamp2009.mensa.bg>

July 25 - August 1, 2009 Mensa France Summer University in the French Alps at La Toussuire, near Saint-Jean de Maurienne. Info: Jean-Marc Baggio jmbaggio@wanadoo.fr

July 29 - August 2, 2009 EMAG in Utrecht, Holland. Details at <http://www.mindmeeting.eu>

August 5-9, 2009 Denmark Braindance - Sankt Helene Conference Centre, in Tisvilde, 60 km north of Copenhagen, Denmark. Details and registration: <http://braindance.mensa.dk>

August 28-31, 2009 Scottish Mensa Annual Gathering, Orkney. Overseas members will be able to book on-line at www.mensa.org.uk. Click on 'Mensa Events' on the home page. Alternatively, contact Rowena M Love for more details at orkneymag09@googlemail.com

September 11-13, 2009 Mensa Calgary Regional Gathering, Banff. More info at www.mensabanffrg.com. or contact Patricia Almost at almostp@shaw.ca

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