The Mozart Effect

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Abstract

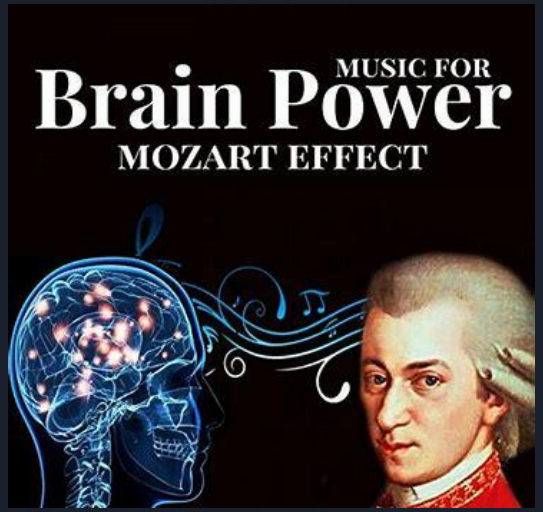
The “Mozart Effect” shows that spatial-temporal abilities and cognitive abilities are heightened while listening to music that is composed by Mozart.

In the First Experiment, performance on a spatial-temporal type task (The PF&C Test) was worse when sitting in silence than when the subjects were listening to a piece composed by Schubert or Mozart.

In the Second Experiment, the control setting, instead of silence, consisted of a narrated story. Spatial-temporal function depended completely on preference. With better performance following the preferred condition.

Introduction

Spatial-Temporal reasoning refers to the ability to picture and imagine how objects fit together to form different patterns. (Puzzles, Origami, Mathematics)



Implications: - Possible performance boost for people in the workplace (pilots, engineers, ect…)

- Proof against contemporary theories of modality and multiple intelligences

Introduction

Spatial-Temporal Performance improves only temporarily from (10-15 minutes), although long-term improvements in spatial-temporal reasoning have also been reported

The main purpose of this experiment was to find an explanation for the short-term performance improvement

- The Mozart Effect

  - Similar to transfer and priming effects

Methods

Apparatus: Participants were presented stimulus and had their response recorded through a Power Macintosh computer in a customized Psyscope software. Participants were presented stimulus through stereo signal on lightweight headphones in a sound attenuating booth.

Stimuli: Participants in Experiment 1 were presented ten minute listening periods of either Mozart's Sonata for two in D major or Schubert Fantasia four hands in F minor. In Experiment 2 all participants were presented with Mozart as well as "The last rung on the ladder" by Stephen King.

Procedure

Experiment 1: 56 undergraduate participants were recruited and placed in front of a Power Macintosh computer. Each student participated in two conditions (Music and Control) within a maximum of two weeks. Participants were presented either Music for a ten minute increment or silence for a ten minute increment as a control. Afterwards participants were presented with 17 PF&C (Paper folding and cutting) items in ascending difficulty for 1 minute increments.

Experiment 2: 28 undergraduate participants were recruited. Experiment 2 is almost identical to Experiment 1 except for two details, all participants were exposed to Mozart for the music condition, and the control for Experiment 2 was the presentation of ten minutes of "The last rung on the Ladder". After both trials were concluded the participants were asked which condition they preferred more.

Results

Experiment 1: ANOVA was used to examine performance as a function of condition, musical piece and testing order. Scores on the spatial- temporal task was greater after listening to music than sitting in silence. A main effect of testing order showed performance improved between the first and second setting. Additionally, it was discovered that Mozart and Schubert were equally comparable in performance improvement.

Experiment 2: ANOVA examined effects of conditioning and testing order and revealed a reliable order effect; performance improved from the first to the second session. Main effect of condition was not significant. The Mozart effect disappeared when the control condition consisted of a story rather than silence. Afterwards participants selected their prefered condition, as predicted overall level of performance were better in a participant's preferred condition.

Discussion

The results found in Experiment 1 concluded that the improved performance on the spatial-temporal task had nothing to do specifically with Mozart. The results theorized the improvement could be from listing to a wide range of music during the classical or romantic period.

The results found in Experiment 2 that listening to a story instead of sitting in silence enhanced performance on the spatial-temporal task. Positive stimulus can improve performance. Another result would be the participants did better on the task if they chose which condition they prefered.

Two probabilities 1. Improved performance after listing to enjoyable stimulus 2. Decrease performance on dull stimulus.

Mood and arousal could have affected performance as well.

References

Nantais,M.K. & Schellenberg,E.G. (1999).The Mozart Effect: An Artifact of Preference. *American Psychological Society,10,(4), 370-373.*

Table 1. Mean number of items correct in Experiments 1 and 2

Experiment	N	Music		Control	
1	28	Mozart	12.75 (3.38)	Silence	11.89 (3.59)
	28	Schubert	12.36 (4.05)	Silence	11.04 (4.61)
2	28	Mozart	13.00 (3.80)	Story	12.93 (2.91)

Table 2. Mean number of items correct in Experiment 2 as a function of listeners preference

Preference	N	Mozart	Story
Mozart	13	14.62 (2.40)	13.23 (2.35)
Story	15	11.60 (4.29)	12.67 (3.37)