# The Mozart Effect: An Artifact of Preference

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# About the Authors

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# Abstract

*“The “Mozart effect” reported by Rauscher, Shaw, and Ky (1993,1995) indicates that spatial-temporal abilities are enhanced after listening to music composed by Mozart. We replicated and extended the effect in experiment 1: Performance on a spatial-temporal task was better after participants listened to a piece composed by Mozart or by Schubert than after they sat in silence. In Experiment 2, the advantage for the music condition disappeared when the control condition consisted of narrated story instead of silence. Rather, performance was a function of listener’s preference (music or story), with better performance following the preferred condition.” (Nantais & Schellenberg, 1999, pg. 370)*

# The Original “Mozart Effect”

- By Rauscher, Shaw, and Ky
- 1993 and 1995
- 36 Participants
- Listened to Mozart sonata or silence/relaxation tape

# Introduction

- There are many claims saying listening to Mozart improve spatial and temporal abilities have become mainstream
    - The Georgia governor budgeted for every new infant to get a cd player or cassette player
- If listening to music can improve thinking in other ways it would be very beneficial for humanity
    - Some thought listening to classical music could improve many different types of thinking benefiting many tasks including airline pilots and engineers
    - The idea that other forms of thinking could be improved would provide evidence against the idea of modular intelligence (multiple intelligence)

# Introduction

- Previous Findings
    - o There have been findings showing that listening to classical music improves mental abilities in the short term but that some long term effects have been found
    - o There have also been findings showing increase in spatial and temporal functioning in the long term
    - o Exposure to music in the form of music lessons is also said to improve spatial and temporal functioning
    - o It is mentioned that the media has brought these ideas up but has not done a good job to explain them to the public

# Introduction

- Previous Findings
    - o The Trion Model by Rauscher, Shaw, and Ky states that what we call the “Mozart effect” excites the brain causing similar brain activity to when the brain is doing spatial and temporal functions and that this is the reason for this phenomenon
    - o The purpose of this study was to provide a more complete explanation of this phenomenon
    - o Stough, Kerkin, and Bates tried to replicate the Rauscher,Shaw, and Ky study but failed
        - This could be accounted for by giving the participants a different task from raven’s advanced progressive matrices instead of special tasks from the Stanford-Binet intelligence scale

# Introduction

- Postman later did a study showing that the Mozart effect is similar to priming
    - o Priming most simply put is a memory effect where exposure to one stimulus positively influences the response to a later stimulus
    - o The Mozart effect seems to be similar to priming
- Later studies show that the Mozart effect is only obtainable with spatial and temporal tasks
    - o In the case of the Mozart effect this is a little different because it is passive listening to Mozart instead of active and it is not obvious why passively listening to a Mozart sonata influences the same areas of the brain as spatial and temporal tasks

# Introduction

## Experiment 1 Introduced

- The goal of this study in experiment 1 is to recreate and expand on the study done by Rauscher, Shaw, and Ky in 1993 to 1995 showing that listening to Mozart has a positive effect on spatial and temporal tasks
- This was done by having half of the experimental group listen to Mozart and the other half listen to Schubert before doing a pf&c task
- The control group sat in silence before doing the same task

# Introduction

## Experiment 2 introduced

- Experiment 2 was to see if the increase in performance was actually due to the participants of the tests preferring the conditions that test was given in
    - In the Rauscher, Shaw, and Ky study a possible explanation for the better performance after listening to Mozart might have been because the participants were more comfortable after listening to Mozart which is comfortable and more exciting and arousing then sitting in silence or listening to a relaxation tape which would be exceptionally boring
        - The idea here is to test to see if the experimental group are doing better on the pf&c because they listened to arousing music and went into the task happy while the control group are doing worse because they are going into it bored and uncomfortable after sitting in silence.
    - In experiment 2 our control condition involved listening to a short story because all other similar studies have used a control group with repetitive music or silence where the participants have always preferred the Mozart condition

# Methods

- Participants: 84 undergraduates in total
- Participants were involved in two conditions the music & control
- The conditions were on seperate days within two weeks
- Participants took a PF&C task of 34 items after a ten minute listening period of either Mozart, Suhbert, Silence or a Story
- Participants had a maximum of one minute to complete each question
- Each session averaged about 25 minutes

# Methods: Experiment One

- Experiment 1 included 56 participants
- Control condition: participants sat in silence for ten minutes wearing headphones
- Half of the participants listened to Mozart, and the other half listened to Schubert for ten minutes
- Participants took a PF&C task

# Methods: Experiment Two

- Experiment 2 included 28 undergraduates
- Control condition: participants listened to ten minutes of a short story (“The Last Rung on the Ladder”)
- All participants listened to Mozart in the music condition
- After a ten minute listening period, participants took a PF&C task
- After both conditions, participants were asked which one they preferred

# Results

- Experiment 1 revealed that spatial-temporal task scores were higher after listening to Mozart and instead of silence
- Not only was Mozart's music effective, but so was work by Schubert
- Experiment 2 revealed that the “Mozart effect” did not occur when subjects listened to a story instead of silence
- Subjects preferences to either the story or music affected performance
- When subjects were in their preferred condition, their performance on the spatial task increased

# Figures, Tables and Charts

- Table 1
- Experiments 1 AND 2

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

| | | Condition | | | |
|---|---|---|---|---|---|
| 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) |

*Note.* Standard deviations are given in parentheses.

# Figures, Tables and Charts

- Table 2
- Experiment 2

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

| | | Condition | |
|---|---|---|---|
| Preference | *n* | Mozart | Story |
| Mozart | 13 | 14.62 (2.40) | 13.23 (2.35) |
| Story | 15 | 11.60 (4.29) | 12.67 (3.37) |

*Note.* Standard deviations are given in parentheses.

# Discussion

- Purpose
- Mozart Effect?
- Experiment 1 vs Experiment 2
- Possibilities
- Other Factors?

# References

Nantais, Kristin M., Schellenberg, E. Glenn. (1999). The Mozart effect: an artifact of preference. *Psychological Science, Vol. 10, No. 4,* (pp. 370–373).