

Music and Memory

The Island Research Project - Statistics 101B

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Introduction

Abstract

The goal of this research project is to find whether there is an effect of music on islander's memoriation ability. The research is conducted using the open platform **The Island**¹.

Conjecture

From many publication references², we found that music seems to have a positive effect on human being's memory. Different types of music tend to have various effects. In addition, the effect of music on memory varies among individuals, and the time it takes for the treatment to take effect also varies from one individual to another. *Therefore, our research project focuses on analyzing the effect of music on the islanders using a Latin Square design.*

Experiment

Design

The design that we have chosen to use in this project is Latin Square.

Time music	20 min	30 min	40 min	50 min	60 min
Age 1 (10-20)	A	B	C	D	E
Age 2 (21-30)	E	A	B	C	D
Age 3 (31-40)	D	E	A	B	C
Age 4 (41-50)	C	D	E	A	B
Age 5 (51-60)	B	C	D	E	A

Figure 1: Latin Square Design

- Held-constant variables:
 - gender: female,
 - region: one town
- Nuisance factors:
 - age: 10-20 years old, 21-30 years old, 31-40 years old, 41-50 years old, and 51-60 years old,
 - time between treatment and memory test: 20, 30, 40, 50, or 60 minutes
- Treatment:
 - type of music: no music (A), type 1 (B), type 2 (C), type 3 (D), or type 4 (E)

¹The Island: <http://island.maths.uq.edu.au>

²See Reference section.

Cause-and-effect diagram for music and memory

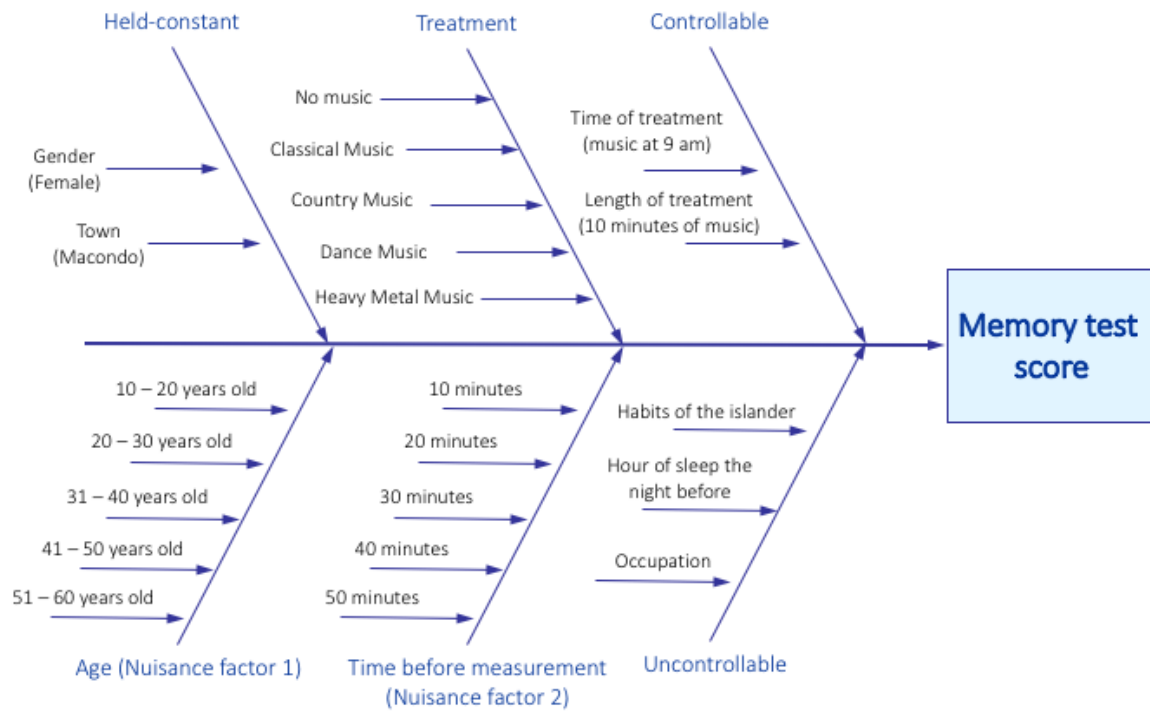


Figure 2: Cause-and-effect Diagram

Participants

Sample size determination

Sample selection

Data Analysis

Analysis of Variance (ANOVA)

Assumption checking

Graphical analysis

Conclusion

References

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