

**The Development of Advanced Short Term Memory in Musicians**  
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**Jefferson County International Baccalaureate**

### **Abstract**

This experiment will test the theory that musicians have better memory than non-musicians. This experiment is relevant in today's world because if educators know whether or not the implementation of music is beneficial in the education system then they can begin to teach and students can begin to learn more efficiently. The test subjects will observe a list of facts for an allotted amount of time and they will be, without looking at the list, will be required to answer questions based on the facts they just observed. Both the control group and the experimental group will be given the same facts and asked the same questions.

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## **Question, Purpose, Hypothesis, Rationale, Variables**

**Question:** What is the effect of musical experience on short term memory?

**Hypothesis:** If an experimental group, who can read music, is given a list of facts and asked to recall certain details from those facts then they will be able to remember details better than the control group that lacks musical experience

**Rationale:** Learning how to read and play music uses a specific part of the brain that is also responsible for remembering things. According to Ramachandra, Meighan, and Gradzki, evidence shows that musical experience has a positive effect on not only music related subjects but also in topics unrelated to music (541). Music requires one to have good memory because those who play music often have to memorize the sheet music in order to have a successful performance.

**Experimental Group:** The test subjects who are musicians

**Control Group:** The test subjects who lack musical experience (non-musicians)

**Independent Variable:**

**Dependent Variable:**

**Constant:** The "tests" with the same facts and in the same order. the same amount of test subjects per group.

### Material List

Item	Function
1 List of facts	For the test subject(s) to study
10 "answer" papers	For the test subjects to write answers on
A high-lighter	To distinguish between the control group's papers and the experimental groups papers

### Procedure

1. Hand the test subject the list of facts and allow them to study it for 2 minutes
2. After the 2 minutes is over take away the list of facts and hand the questions to the test subjects.
3. Check the accuracy of each answer
4. Use a high-lighter to distinguish between the papers of the experimental group and the control group
5. Calculate the individual and group average
6. Collect and record data

### **List of Facts**

1. A flock of crows is known as a murder
2. An eagle can kill a young deer and fly away with it.
3. There is special spider called the Hobo spider.
4. Banging your head against a wall burns 150 calories an hour.
5. It is illegal to eat mince pies on Christmas day in the United Kingdom.
6. Bikinis were invented by men.
7. Heart attacks are more likely to happen on monday.
8. Billy goats urinate on their heads in order to attract females with the smell.
9. Cherophobia is the fear of having fun.
10. The average person will produce enough saliva to fill 2 swimming pools in one lifetime.

<http://www.thefactsite.com/2011/07/top-100-random-funny-facts.html>

## Questions

1. What is a flock of crows called? \_\_\_\_\_
2. What day are heart attacks more likely to happen on? \_\_\_\_\_
3. What is the fear of having fun? \_\_\_\_\_
4. In what country is it illegal to eat mince pies on Christmas? \_\_\_\_\_
5. What do Billy goats do in order to attract females? \_\_\_\_\_
6. There is a special kind of spider called the Hobo Spider?    True    False  
(circle one)
7. How many swimming pools can a lifetime of saliva fill? \_\_\_\_\_
8. Which gender created bikinis? \_\_\_\_\_
9. How many calories can you burn by banging your head against a wall? \_\_\_\_\_
10. What animal can kill and carry a young deer? \_\_\_\_\_

**Table 1: The effect of musical experience on the number of correct answers**

**Raw Data**

<b>Control group</b>	<b>Test Subject</b>	<b>Number of correct answers (out of 10)</b>	<b>Average out of 100%</b>	<b>High</b>	<b>Low</b>	<b>Range</b>
<b>Non-Musicians</b>	<b>1</b>	<b>9</b>	<b>90</b>	<b>10</b>	<b>6</b>	<b>4</b>
	<b>2</b>	<b>7</b>	<b>70</b>			
	<b>3</b>	<b>6</b>	<b>60</b>			
	<b>4</b>	<b>10</b>	<b>100</b>			
	<b>5</b>	<b>6</b>	<b>60</b>			
<b>Experimental Group</b>						
<b>Musicians</b>	<b>6</b>	<b>10</b>	<b>100</b>	<b>10</b>	<b>9</b>	<b>1</b>
	<b>7</b>	<b>9</b>	<b>90</b>			
	<b>8</b>	<b>10</b>	<b>100</b>			
	<b>9</b>	<b>10</b>	<b>100</b>			
	<b>10</b>	<b>10</b>	<b>100</b>			



**Table 2: the effect of musical experience on average number of correct answers**

**Processed Data Table**

<b>Control Group</b>	<b>Test Subjects</b>	<b>Average Number of Correct Answers</b>	<b>High</b>	<b>Low</b>	<b>Range</b>	<b>Group Average</b>
<b>Non Musicians</b>	<b>1</b>	<b>90%</b>	<b>10</b>	<b>6</b>	<b>4</b>	<b>76%</b>
	<b>2</b>	<b>70%</b>				
	<b>3</b>	<b>60%</b>				
	<b>4</b>	<b>100%</b>				
	<b>5</b>	<b>60</b>				
<b>Experimental Group</b>						
<b>Musicians</b>	<b>6</b>	<b>100%</b>	<b>10</b>	<b>9</b>	<b>1</b>	<b>98%</b>
	<b>7</b>	<b>90%</b>				
	<b>8</b>	<b>100%</b>				
	<b>9</b>	<b>100%</b>				
	<b>10</b>	<b>100%</b>				

## Works Cited

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