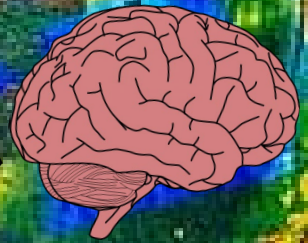
The effect of age on memory as measured by memory games.



Memory Games

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All photographs and figures by Neve Sirois

BACKGROUND RESEARCH/PURPOSE:

Memory is the faculty by which the mind stores and remembers information. Short-term memory is the information that a person is currently thinking about or is aware of. Short-term memory is the type of memory I will be testing in my experiment. In this experiment I will be testing various ages' memory though 3 different memory games.

The reason why I wanted to do this experiment is because I have seen myself and my family not having the best short term memory. Therefore I wanted to test others' short term memory to see if I was or was not the only one with the questionable memory.

Alzheimer's is a brain disorder that slowly destroys memory and thinking skills. This disorder mainly affects older people. Right now there is not a cure for Alzheimer's. Through research I have learned that matching games can improve visual memory, attention to detail, short term memory, and pattern recognition.

TESTABLE QUESTION:
What age range has the best memory?

HYPOTHESIS:
I predict the age range 20-35 will have the best memory because the brain will be in it's prime. The 20-35s will most likely not be distracted like the 5-12s and 13-19s would, because their brains are still developing, nor forgetful like the 36-55s, 56-70s, and 71-95s because their brains have more stress and are worn out.

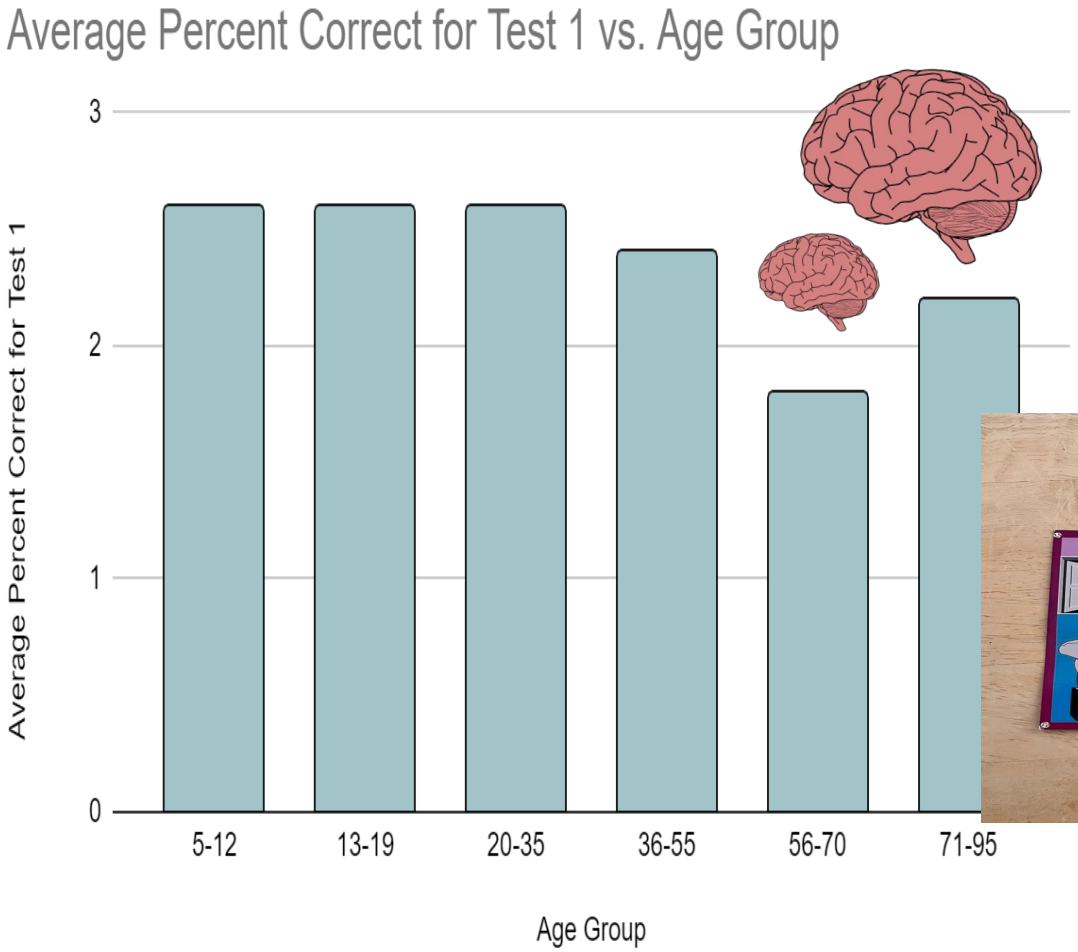
MATERIALS:
My materials for this project are 3 cups, 1 ball, memory card/questions, matching cards, and 30 people of various age groups.

SAFETY:
Make sure to not group people together when the experiment is done, because of covid restrictions. Have people wear masks when taking tests, to make sure they do not pass on germs, or catch covid.

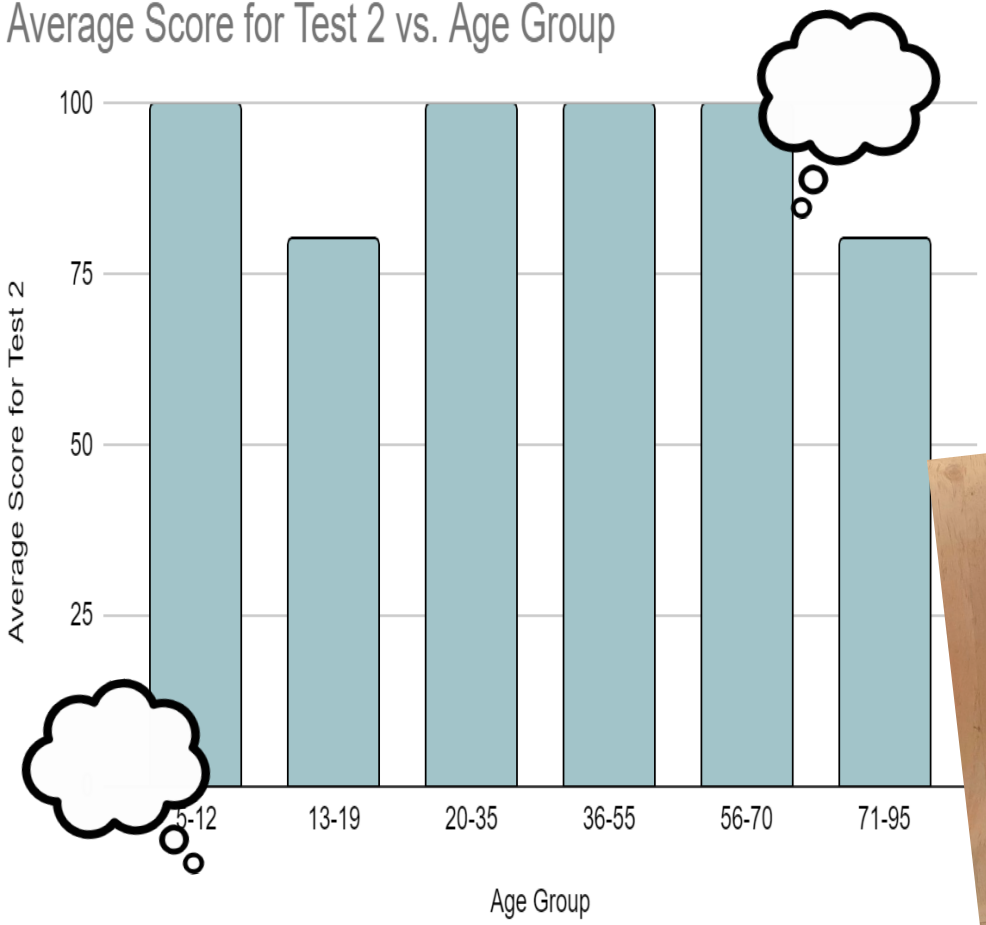
PROCEDURE:

1. Find a quiet and open area with no distractions.
2. Show the subject a memory card for 15 seconds, then take the card away. Then ask them 6 questions regarding the memory card.
3. Next have the subject memorize which cup has the ball, then move the cups around.
4. Finally have the subject play a regular card matching game. There are 8 matching cards.
5. When all is done calculate the scores and put it into the data.
6. (Do this process as many more times as you like to.)

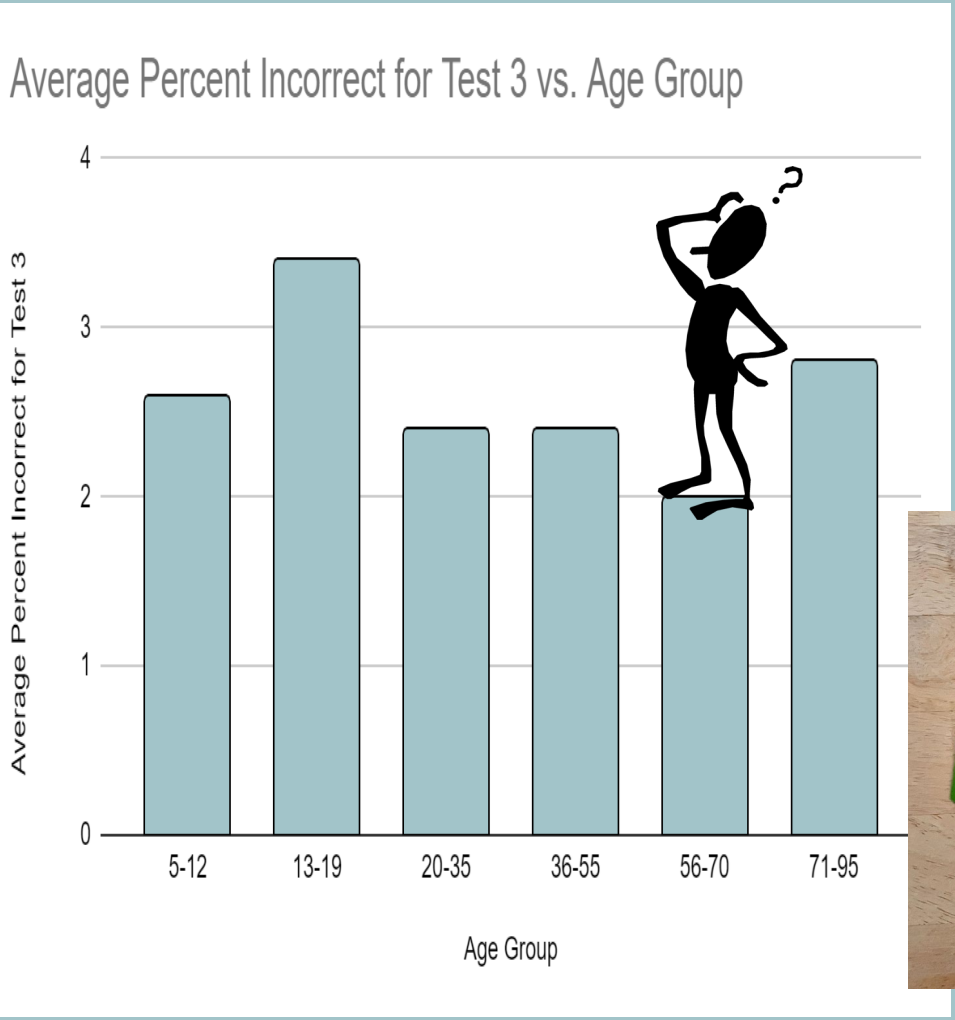
Age group of 5-12 year olds	Age group of 13-19 year olds	Age group of 20-35 year olds	Age group of 36-55 year olds	Age group of 56-70 year olds	Age group of 71-95 year olds
6 Test 1- 1/6 Test 2- 100% Test 3- 1 wrong	13 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	22 Test 1- 2/6 Test 2- 100% Test 3- 1 wrong	51 Test 1- 1/6 Test 2- 100% Test 3- 3 wrong	67 Test 1- 3/6 Test 2- 100% Test 3- 1 wrong	88 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong
12 Test 1- 2/6 Test 2- 100% Test 3- 5 wrong	16 Test 1- 3/6 Test 2- 100% Test 3- 2 wrong	29 Test 1- 5/6 Test 2- 100% Test 3- 2 wrong	53 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	61 Test 1- 0/6 Test 2- 100% Test 3- 2 wrong	80 Test 1- 3/6 Test 2- 100% Test 3- 5 wrong
9 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	14 Test 1- 3/6 Test 2- 0% Test 3- 3 wrong	31 Test 1- 2/6 Test 2- 100% Test 3- 3 wrong	49 Test 1- 4/6 Test 2- 100% Test 3- 2 wrong	60 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	74 Test 1- 1/ 6 Test 2- 100% Test 3- 3 wrong
7 Test 1- 4/6 Test 2- 100% Test 3- 2 wrong	15 Test 1- 2/6 Test 2- 100% Test 3- 4 wrong	24 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	42 Test 1- 3/6 Test 2- 100% Test 3- 3 wrong	62 Test 1- 3/6 Test 2- 100% Test 3- 3 wrong	76 Test 1- 3/6 Test 2- 0% Test 3- 2 wrong
10 Test 1- 4/6 Test 2- 100% Test 3- 3 wrong	18 Test 1- 3/6 Test 2- 100% Test 3- 5 wrong	32 Test 1- 2/6 Test 2- 100% Test 3- 4 wrong	43 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong	63 Test 1- 1/ 6 Test 2- 100% Test 3- 2 wrong	72 Test 1- 2/6 Test 2- 100% Test 3- 2 wrong



Age Group	Average Percent Correct for Test 1
5-12	2.6
13-19	2.6
20-35	2.6
36-55	2.4
56-70	1.8
71-95	2.2



Age Group	Average Score for Test 2
5-12	100
13-19	80
20-35	100
36-55	100
56-70	100
71-95	80



Age Group	Average Percent Incorrect for Test 3
5-12	2.6
13-19	3.4
20-35	2.4
36-55	2.4
56-70	2.0
71-95	2.8

ANALYSIS: In “Test 1” the data says that the 5-12s, 13-19, and 20-25 have a score of 2.6 and are tied for the 1st highest percentage of correctness. The 36-55s have a score of 2.4, leaving them in the 2nd highest percentage of correctness. 71-95s have a score of 2.2 leaving them in the 3rd highest percentage of correctness. Finally the 56-70s have a score of 1.8 leaving them in the 4th highest percentage of correctness.

In “Test 2” the data shows that the 5-12s, 20-35s, 36-55s, and the 56-70s are tied for the 1st highest percentage of correctness. The 13-19s, and the 71-95s are tied for the 2nd highest percentage of correctness.

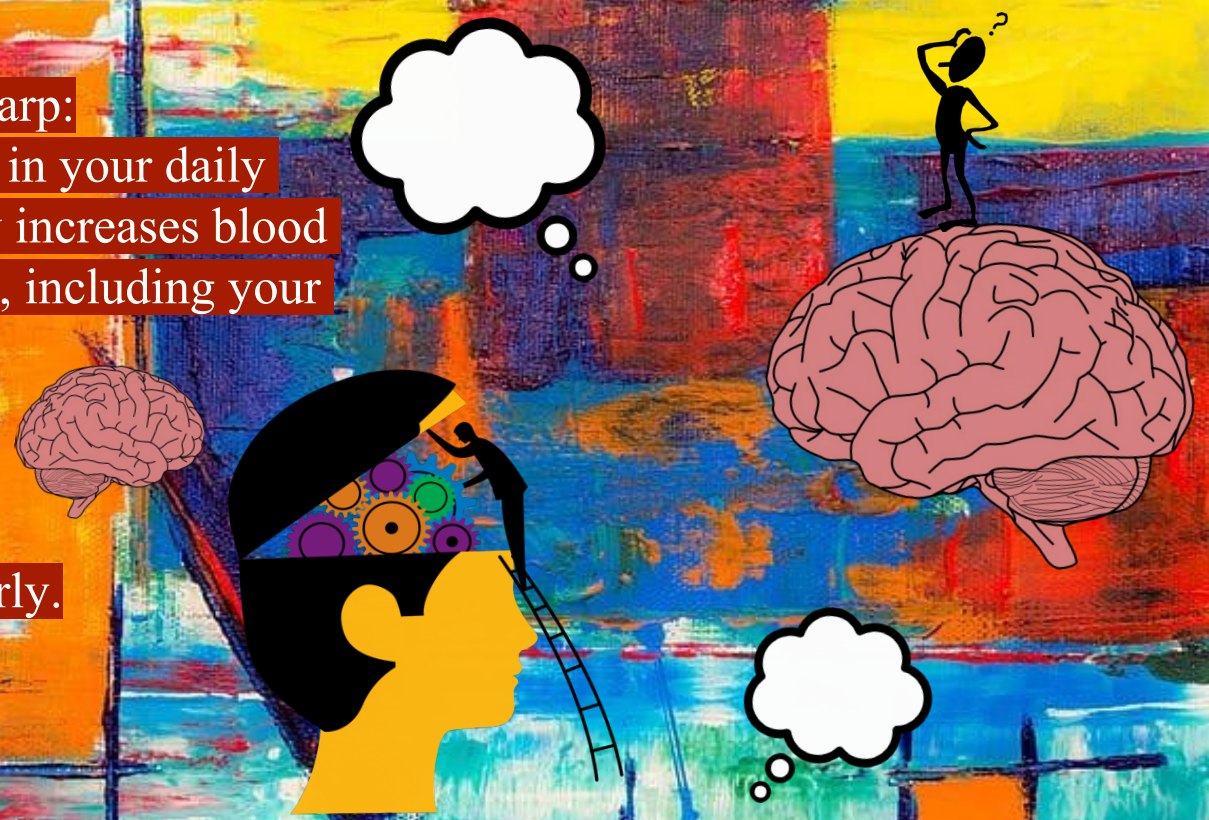
In “Test 3” the data shows that the 13-19s have a score of 3.4, and have the 1st highest percentage of incorrectness. The 71-95s have a score of 2.8, and have the 2nd highest percentage of incorrectness. The 5-12s have a score of 2.6, and have the 3rd highest percentage of incorrectness. The 20-35s, and 36-55s have a score of 2.4, and are tied for the 4th highest percentage of incorrectness. Finally the 56-70s have a score of 2.0, and have the 5th highest percentage of incorrectness.

SOURCE OF ERROR: The first test had a source of error which was that there were too many items to look at in the photo. Most people looked at the fine details, and those details like (color of the pencil, what time it was, the math equations, if the door is open; etc) were not the questions that were asked. Some of the groups were not evenly distributed, ex: some groups had 15 people, and others had 7.

CONCLUSION: In conclusion to my experiment, my hypothesis was somewhat correct. The 20-35s did very well in the experiment, along with the 36-55s, and 5-12s.The 20-35s did not pass everyone in the experiment with flying colors like I hypothesized. If I were to repeat the experiment again, I would have used less people, and as stated in my source of error, even out the groups and use a easier photo to memorize. I had a lot of fun doing this experiment, and I want to thank everyone that contributed their time for my project.

Tips to keep your memory sharp:

- Include physical activity in your daily routine. Physical activity increases blood flow to your whole body, including your brain.
- Stay mentally active.
- Socialize regularly.
- Get organized.
- Sleep well/ get to bed early.
- Eat a healthy diet.



https://www.health.harvard.edu/healthbeat/7-ways-to-keep-your-memory-sharp-at-any-age

https://www.mayoclinic.org/healthy-lifestyle/healthy-aging/in-depth/memory-loss/art-20046518