

# Lab Report: Psychological Experiment

## Research Question:

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How does colour affect memory?

When a person is presented with a list of words, will words that are in a different colour be easier to memorize?

## Hypothesis:

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Colour improves a person's memorization. The words that are in a different colour will be easier to memorize than words that are not. (black)  
(red)

## Variables:

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- **Independent Variable:** The colour of the words
- **Dependent Variable:** How many words the subjects are able to memorize in a minute
- **Extraneous Variables:** Subjects who have better memories than the other subjects

## Method:

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**Sample:** the people used in this experiment range from the ages 12-55 and are of all sexes.

### Materials:

- Writing utensil
- Piece of paper
- Timer

**Part 1: List A (list with words only in black)**

1. Give the subject a piece of paper and a writing utensil.
2. Give the list of twelve words only written in black (also known as List A) to the subject and have it face down so they cannot see the words.
3. Tell the subject they have one minute to memorize the list and one minute to write down all the words they possibly can.
4. Tell the subject to start and to flip the paper.
5. Start the timer.
6. After one minute pause the timer.
7. Take away the list.
8. Tell them to write down all the words that they memorized.
9. Start timer.
10. Stop timer after 1 minute and collect paper.

**Part 2: List B (list with 11 words in black and 1 in red)**

1. Give the subject a piece of paper and a writing utensil.
2. Give the list of twelve words with 11 words written in black and one word written in red (also known as List B) to the subject and have it face down so they cannot see the words.
3. Tell the subject they have one minute to memorize the list and one minute to write down all the words they possibly can.
4. Tell the subject to start and to flip the paper.
5. Start the timer.
6. After one minute pause the timer.
7. Take away the list.
8. Tell them to write down all the words that they memorized
9. Start timer.
10. Stop timer after 1 minute and collect paper.

**Part 3: List C (list with 6 words in black and 6 words in red)**

1. Give the subject a piece of paper and a writing utensil.
2. Give the list of twelve words with six words written in black and six words written in red (also known as List C) to the subject and have it face down so they cannot see the words.
3. Tell the subject they have one minute to memorize the list and one minute to write down all the words they possibly can.
4. Tell the subject to start and to flip the paper.
5. Start the timer.
6. After one minute pause the timer.
7. Take away the list.
8. Tell them to write down all the words that they memorized.
9. Start timer.
10. Stop timer after 1 minute and collect paper.

Data Collection:

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Quantitative Raw Data:

Part 1: List A	
Subject number-Age	Number of words memorized
1-15	7
2-45	5
3-45	7
4-12	4
5-17	7
6-17	5
7-17	5
8-19	8
9-25	6
10-22	7
11-15	6
12-16	5
13-49	5
14-55	7
15-17	7
16-17	6
17-18	7
18-34	5
19-32	6
20-18	6

Part 2: List B			
Subject number- Age	Number of black words memorized (out of 11)	Number of red words memorized (out of 1)	Total words memorized
1-15	2	1	3
2-45	5	1	6
3-45	6	1	7
4-12	4	1	5
5-17	7	1	8
6-17	6	1	7
7-17	5	1	6
8-19	6	1	7
9-25	5	1	6
10-22	3	1	4
11-15	6	1	7
12-16	4	1	5
13-49	5	1	6
14-55	6	1	7
15-17	5	1	6
16-17	6	1	7
17-18	6	1	7
18-34	5	1	6
19-32	5	1	6
20-18	3	1	4

Part 3: List C

Subject number- Age	Number of black words memorized (out of 6)	Number of red words memorized (out of 6)	Total words memorized
1-15	4	2	6
2-45	3	5	8
3-45	1	3	4
4-12	2	2	4
5-17	2	4	6
6-17	3	2	5
7-17	3	3	6
8-19	3	4	7
9-25	2	3	5
10-22	2	3	5
11-15	1	1	2
12-16	1	3	4
13-49	2	3	5
14-55	4	2	6
15-17	2	3	5
16-17	2	4	6
17-18	1	2	3
18-34	2	2	4
19-32	3	3	6
20-18	2	3	5

## Conclusion:

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In conclusion, colour improves a person's memory. My hypothesis was correct, as the words in the list that are in a different colour were easier to memorize than the words that were not.

The data represented that in Part 1: List A the average amount of words memorized were: 6.05/12. In Part 2: List B the average amount of words memorized was: 6/12. With 20/20 of people being able to memorize the word in red. In Part 3: List C, the average amount of words memorized was: 5.1/12. The average amount of words people were able to memorize in red was 2.8/6 while the average amount of words people were able to memorize in black was 2.25/6. With these findings I was able to see that people did quite well with Part A as it had the highest average. Part C had the lowest average. This could possibly be due to the fact that the list of words was more difficult or that people simply lost interest.

In summary, when presented with one word in red people were easily able to memorize it as it stuck out compared to the rest of words that were in black. When the amount of red words was increased to 6, people were generally able to memorize more red words than black words but never higher than 5/6 words. The reason that colour helps a person's memory is that "Colour has been found to influence memory performance by increasing our attention level and arousal".<sup>1</sup> As previously stated this experiment proves this as the data showed that more people remember red than they do black.

Some sources of error in this experiment were that I only used 20 people for my sample. This is not the preferred amount of people as a larger number would have made my conclusion more accurate. Therefore the limited amount of people used in my experiment affected the accuracy of my conclusion.



## Reflection:

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Throughout this experiment I have learned a few things about how to do a psychological experiment and what to expect. First of all the experiment must be ethical. My experiment was very ethical as it was simple and caused no emotional or physical distress on the subjects. It followed the guidelines of an ethical experiment for example: all laws were followed, the experiment only proceeded when there was consent and the subject's dignity was protected. Second of all I learned that people easily lose interest and that they must be kept stimulated throughout the experiment to achieve accurate results. For example, while conducting my experiment if people became unfocused it easily led them to memorize less of the words on the list they were presented with. To keep someone focused, while timing them I let them know how much time they had left while either memorizing the words or recording them. Last of all, I learnt that people are very interested in the mind and therefore getting someone to join in on your experiment isn't hard. People love to know about themselves and how good they are at something.

Something else I found very intriguing about this experiment was that everyone has their own little way of memorizing things. For example, when trying to memorize the list of words that was given some people would try and memorize the first letter of each word. Other people liked to repeat the words over and over again out loud while others liked to create a short story using the words listed.

## Reference:

1. Mariam Adawiah Dzulkifli and Muhammad Faiz Mustafar (2013) *The Influence of Colour on Memory Performance: A Review*  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3743993/>