Which Screen and Text Colors Help Retain Information?

This experiment tested which pair of colors helped participants retain information best.

Background Research

The research conducted for this experiment was to gain knowledge on the science behind the experiment. That science is the effects that color has on the human mind and its influence on memorability. The science behind color and retention ability is that color can increase a human's attention levels which leads to one being able to retain more information. The more focus there is on the information in color, the more likely it is that this information will be stored and locked in our brains. Also, with color combinations and how they scientifically relate in our brains is that some colors, such as red and blue, are the best for enhancing cognitive skills and improving one's brain function. This is because color is used to develop pattern recognition, memory, and also for absorbing new information so one can be guided to compare and better recall/understand information. This is an important topic to know about because it could help people better understand humans and the psychology behind how we all think. It affects people because by knowing color theory and the way colors can affect your mind, mood, and way of thinking, it could prove to be beneficial for things such as meditating or studying.

Hypothesis, Question, Variables

Scientific Question:

Our scientific question is does the color of the computer screen and text affect a person's ability to retain information?

Hypothesis:

Our hypothesis is that a test with a pink background and yellow text color will help people retain information the best.

Independent Variable:

The color of the screen and text.

Dependent Variable:

The number of words people are able to remember from each list.

Control Variables:

The people we are testing, location, what device we are testing people on, number of words on tests, amount of time given for studying.

Procedure

1) Create 5 different word lists of 10 words for participants to review on computer
2) Color each list different text and background colors
3) Gather 15-20 participants to review the lists and perform the experiment
4) Start the experiment; have each participant study each list for 30 seconds
5) Quiz participants on how many words they were able to memorize from each list
6) Record the data in chart with each participant for each color changing lists
7) Compare data from each test to see which color combination word list proved best for word retention
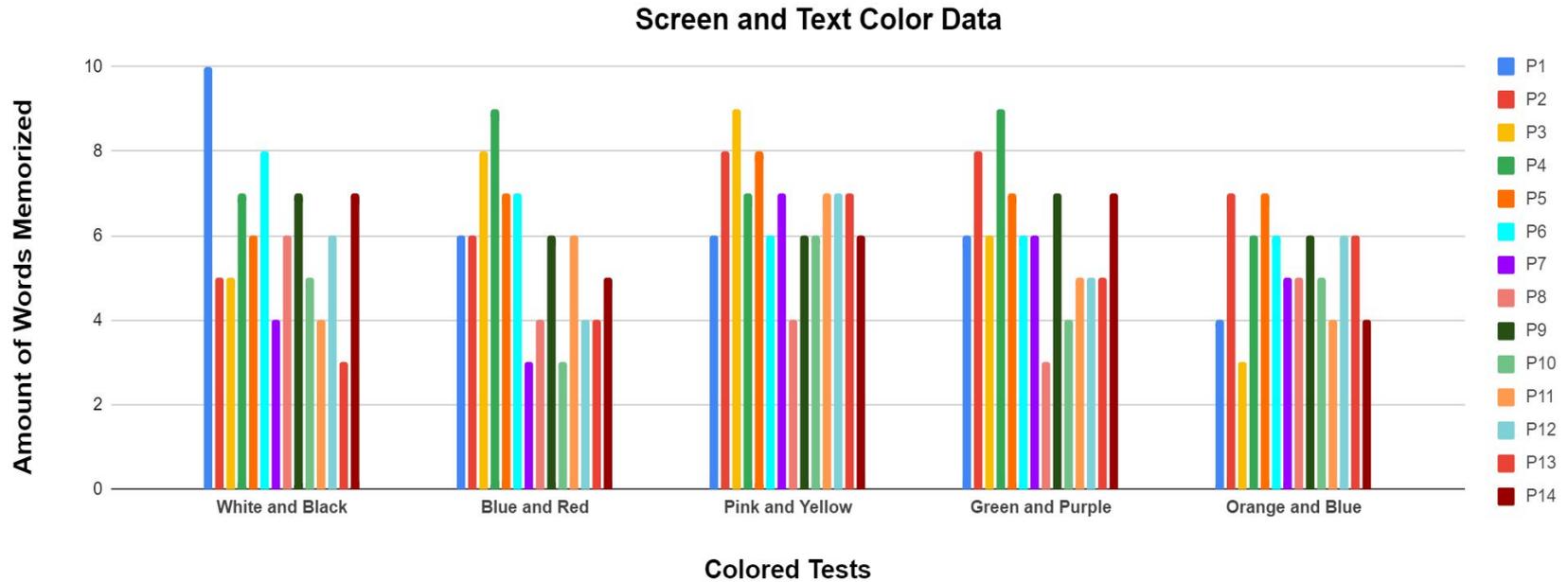
List of Materials

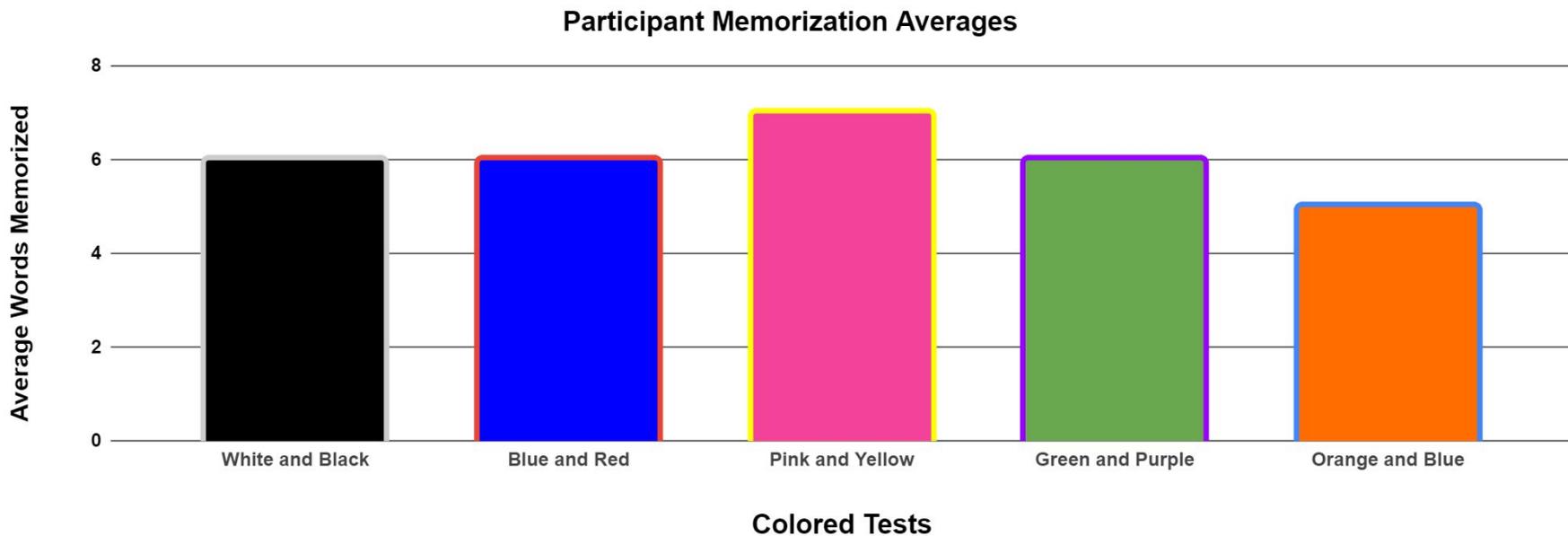: Computer

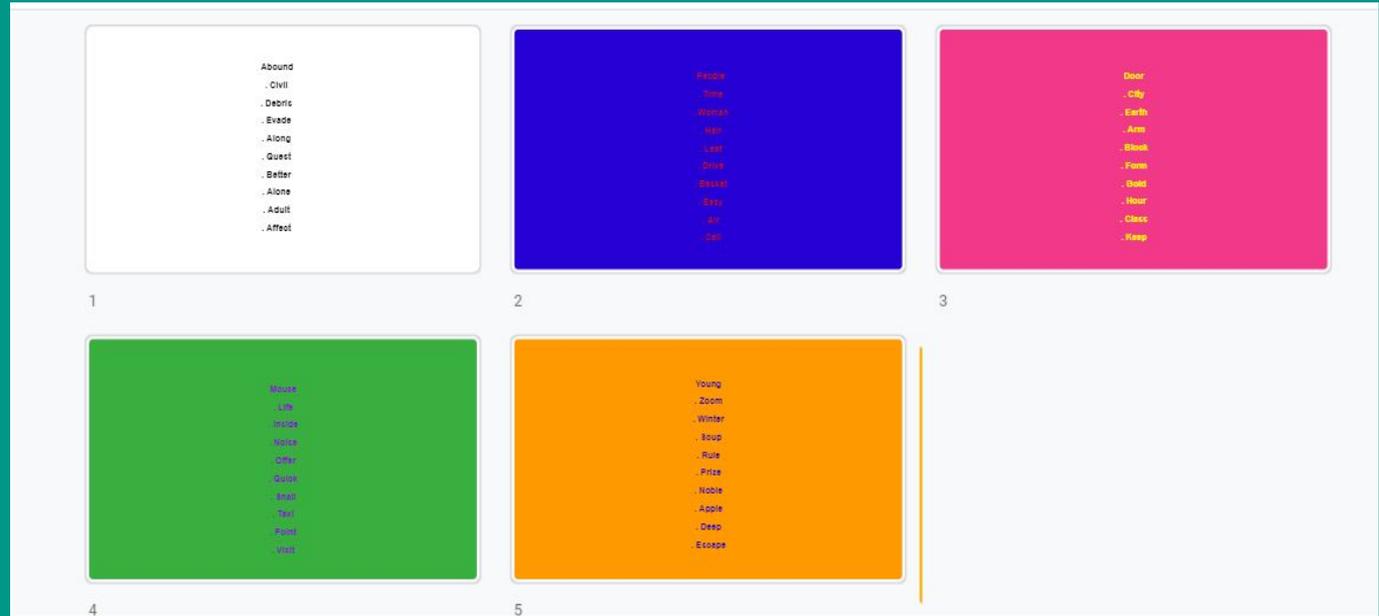: Humans/ Participants

: Data table

: Writing Utensil

Data Table with Data
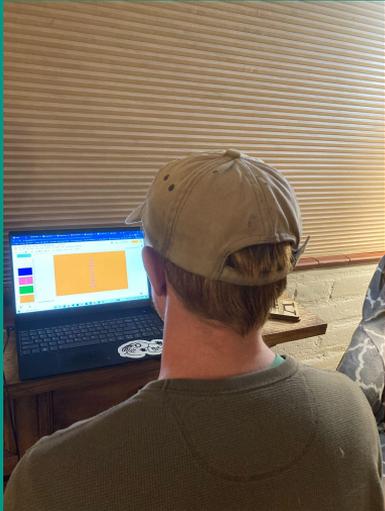
Tests: Amount of Words Memorized

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14		Average
White and Black	10	5	5	7	6	8	4	6	7	5	4	6	3	7		6
Blue and Red	6	6	8	9	7	7	3	4	6	3	6	4	4	5		6
Pink and Yellow	6	8	9	7	8	6	7	4	6	6	7	7	7	6		7
Green and Purple	6	8	6	9	7	6	6	3	7	4	5	5	5	7		6
Orange and Blue	4	7	3	6	7	6	5	5	6	5	4	6	6	4		5

Graph of All Data

Final Averages Graph

Participant Memorization Averages

Average Words Memorized vs Colored Tests:
- White and Black: 6
- Blue and Red: 6
- Pink and Yellow: 7
- Green and Purple: 6
- Orange and Blue: 5

Pictures of Experiment

Participant reviewing orange and blue list

Analysis Paragraph

In the trials, some participants were tested in different homes/environments, but each were controlled and quiet while subjects were being tested. During the trials, some participants would list words that weren't on any of the lists, but sounded similar, which shows how some people were trying to use association strategies for aid with memorization. Also, others demonstrated that by saying the words aloud during the 30-second study period, it proved to be a useful and helpful tool. It was interesting how color didn't seem to play in as a factor when it came to helping participants memorize the words, however when the red and blue colored test appeared, multiple subjects seemed to have a reaction to the colors and stated that they were bright/strong to look at. The averages of the amount of words memorized by participants for each colored test were: 6 words for the white and black test, 6 words for the blue and red test, 6 words for the green and purple test, 5 words for the orange and blue test, and 7 words for the pink and yellow color test. The pink and yellow colored test had the highest average for words memorized out of a 10 word list given to participants to memorize for 30 seconds.

Conclusion

The hypothesis for this project stated that the test with a pink background and yellow text would help retain information best. The results did support the hypothesis because the test colored with a pink background and yellow text did in fact have the greatest average of 7/10 words retained by participants. Through research, it was clear that the results occurred this way because these colors enhance cognitive skills and improve brain function. Studies also show that color is used to develop pattern recognition, which supports the hypothesis and results of the pink and yellow test. These results could provide teachers, as well as students, with new colors to use on their study guides or lesson plans as a way to help better retain information.

Over the course of this experimentation, some errors and inconveniences may have altered the results. Some examples of these differences are the difference in houses (the environments participants were tested in), the different people administering the tests, background noise levels, and lighting. Even though these differences could have altered the results, the experiment did not need to be changed and was still a successful experiment. However, if given the chance to do this experiment again, every participant should be tested in the same environment and be advised using the same instructions/methods.

After performing this experiment and reviewing the results, it left the question; What colors bring happiness to the mind? I would like to see if colors that appeal to people could be more useful in study because we could be studying what colors appeal to the human eye. For this experiment I could give a survey of "what are your favorite colors?" to around 15-20 participants and group them together for certain tests based on those survey answers. Another future experiment could be to see what would happen if participants are given music to listen to whilst studying the test. Would the music enhance their retention or decrease it?

References

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