

# Determining the Accuracy of Visual Memory in College-aged People

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## Abstract

Short term memory is important to virtually all daily activity. This study tested the short term memory of 43 college students. When shown slides on a screen with varying numbers of colored squares, individuals were asked to reconstruct the slides on a sheet of paper from memory. This study shows that more squares on a slide leads to greater inaccuracy of reconstruction.

## Introduction

Visual short term memory is the part of our memory preserving some characteristics of our senses pertaining to visual experience. It is said that people can hold up to four items in their short term memory at any given time<sup>1</sup>. However, there is nothing proving that four is the maximum number able to be held.

The hypothesis of this study was that the greater the number of colored blocks in an image, the less accurate subjects would be at reconstructing the image correctly.

## Materials and Methods

- This research was approved by the IRB protocol # 2012.12.11.01
- Microsoft PowerPoint was used to construct the slides needed for this study.
- Participants were shown a total of seven slides with the number of squares increasing by one each slide starting with three squares of different colors. The squares flashed quickly on the screen and the participants then had to reconstruct what they just saw using a gray sheet of paper and colored paper squares.

## Results

Figure 1

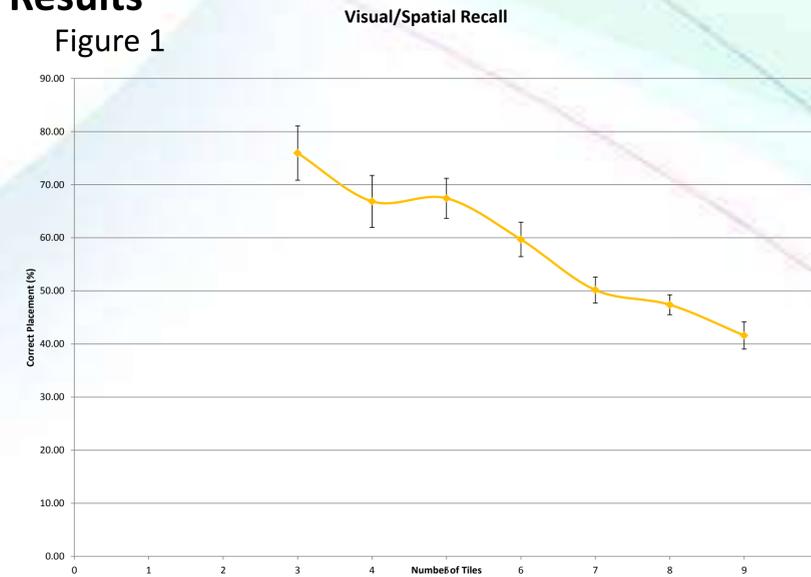


Figure 1 shows the percentage of squares guessed correctly vs the number of squares on each slide. Error bars represent the standard error of the mean. The number of squares guessed correctly decreased as the number of squares increased.

Figure 2

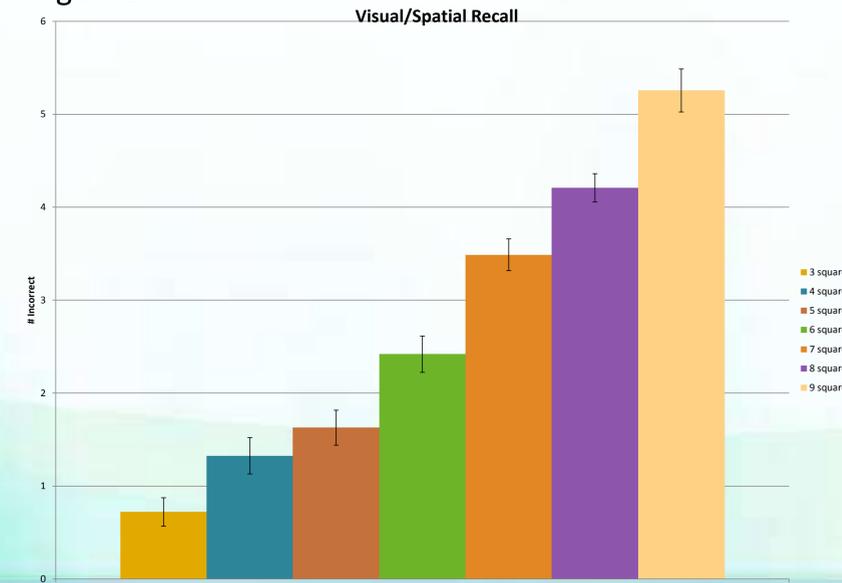


Figure 2 shows the average number of squares placed incorrectly. Error bars represent the standard error of the mean. This shows that the number of squares guessed incorrectly increased as the number of squares on the slide increased.

## Discussion

- This study supported the hypothesis that the greater the number of squares on a slide, the more squares that would be placed incorrectly.
- This supports previous research stating that it is only possible to remember an average of four items at a time.
- One limitation in this study was that the red colored square was pink in the reconstruction due to lack of ink in the printer.
- Follow up research could look at variable times the squares are on the screen to see how time affects the accuracy of reconstruction.

## References

<sup>1</sup>Alvarez, G.A., and P. Cavanaugh. "The Capacity of Visual Short-term Memory is Set by Both Visual Information Load and by Number of Objects." *Psychological Science*. 15.2 (2004): 106-111.

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