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# The Effects of Viewing Sexual Films on Memory Performance

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**ABSTRACT:** This research aims to study contextual memory under different emotional stimuli. Participants were asked to watch films on mute. These films were pre-categorized as different emotions (happy, neutral, arousing, negative, and sexual). At the same time, they were presented with neutral words on an mp3 player auditorily. In the end, they were asked to recall as many words as possible. The words recalled were then matched with the scenes it belonged to and calculated for statistical significance. An ANOVA revealed statistical significance across films, most significantly when comparing negative to neutral films, and negative to sexual films. This suggests sexual stimulus can enhance memory performance.

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## Introduction

Context memory is defined as the peripheral or background information associated with time, people, or thought related to an event. One distinguishing feature of this research is not the memory performance on sexual content, but memory performance under emotional influence. More importantly, this research reveals memory performance using sex as an emotional stimulus. Finding the correlation of sex as an emotional stimulus and memory performance in comparison to other emotional stimuli can increase understanding of memory for post-traumatic events that are sexually-related such as rape and sexual abuse.

Previous studies have found the correlation between arousal and memory performance. Researchers such as Otani et al. (2007) and Anderson and Shimamura (2005) have found that general arousal actually increases memory performance. The Anderson and Shimamura study found that a generally arousing film clip (car chasing film clip) enhanced context memory, while negatively arousing film clip (hospital film depicting an arm amputation) reduced context memory. Cognitive function was also found to be affected by an individual's sexual desire. In a study done by Conaglen and Evans (2006), cognitive processing was examined in response to sexu-

al and non-sexual pictorial stimuli. The study found that people with lower sexual desire completed the picture recognition task more quickly, and sexual content of the pictorial stimuli delayed cognitive processes (Conaglen and Evans, 2006). Although the terms sex and arousal are often linked together, their physical properties are different. Basson (2006) demonstrated that people can be aroused without feeling the sexual desire.

Although arousal is often linked to sexuality, there has yet to be a study on the association between memory performance and sexuality. In addition, exploring in the field of sexuality is a step to elimination of social stigma and misconceptions. Since arousal is memory enhancing, and sex is often linked to arousal, these past evidence gave rise to the hypothesis that sexual film clip is also memory enhancing.

## Method

### *Participants*

Fifty two students (twenty six men, twenty six women) from the University of California were paid or received course credit for participation in the experiment. The participants ranged between 19-30 years old.

### *Stimuli and Design*

Two minute films characterized as neutral film, positive film, negative film, arousal film, and sexual film were presented to participants (total film

watching time is approximately ten minutes).

The neutral film was a commercial cooking video of someone mixing a batter (with face not shown in film). The positive film displayed penguins running and jumping onto glaciers in a playful manner. The negative film portrayed a surgical arm amputation. The arousal film showed a car chasing scene in which a car is driven through city streets and pedestrian sidewalks. The sexual film depicted a heterosexual couple fore-playing and having intercourse. The neutral, positive, negative, and arousal films were used in the Anderson and Shimamura (2005) study, and was originally developed by Fredrickson and Kahneman (1993). The sexual film was rated in the Shimamura Laboratory by graduate students and faculty.

The films were recorded on video-cassettes and presented on a combination TV-VCR player with the audio on mute. To reduce primacy and recency effects, there were five versions of the same videos, with each film rotating to become the first and the last film.

Memory performance was assessed using a word list composed of 60 neutral words not associated with the film clips. The word list was recorded on an mp3 voice recorder by a female voice.

### *Procedure*

In study phase, participants watched the four films with audio on

mute. Concurrently, they listened to words presented on the mp3 player. No break was given in between films. Participants were instructed to pay attention to both the films and the words. They were told that a memory test will be given, but they were not told about the nature of the testing.

After viewing all four films, participants were administered a free recall test for words presented auditorily from the mp3 player. Participants were given as much time as needed to recall the words. They were instructed recall as many words as possible and make their best guess if they did not remember. The recalled words were then matched with the appropriate films for statistical analysis.

**Result and Discussion**

An ANOVA with film type as the independent variable and the number of words recalled as a dependent variable revealed a significant effect of memory performance on films ( $F[4, 200] = 5.52, p < 0.001$ ). There was a significant difference in recall between negative and neutral films ( $t[51] = 3.5, p < 0.01$ ).

As displayed in figure 1, participants did show a higher memory recall performance for words presented during the happy, arousing, and neutral films, respectively. Participants did show a significant lower recall performance for words presented during the negative (amputation) film.

Sexual film was analyzed as slightly different from happy film ( $t[51] = 1.96, p < 0.056$ ). Interestingly, there was a significant difference between sexual and negative films ( $t[51] = 2.089, p < 0.05$ ). The memory recall performance from words presented during the sexual film was significantly more compared to negative film. This can suggest that sexual, arousal, happy, and neutral emotions can lead to better

memory performance compared to negative emotion.

Surprisingly, there is a trend in memory performance males and females. Males were able to recall most from happy film, then neutral, sexual, arousal, and last being negative film. However, females showed a complete different trend. Females were able to recall most from arousal, then happy, neutral, sexual, and last being negative. In males, the percent of words recalled

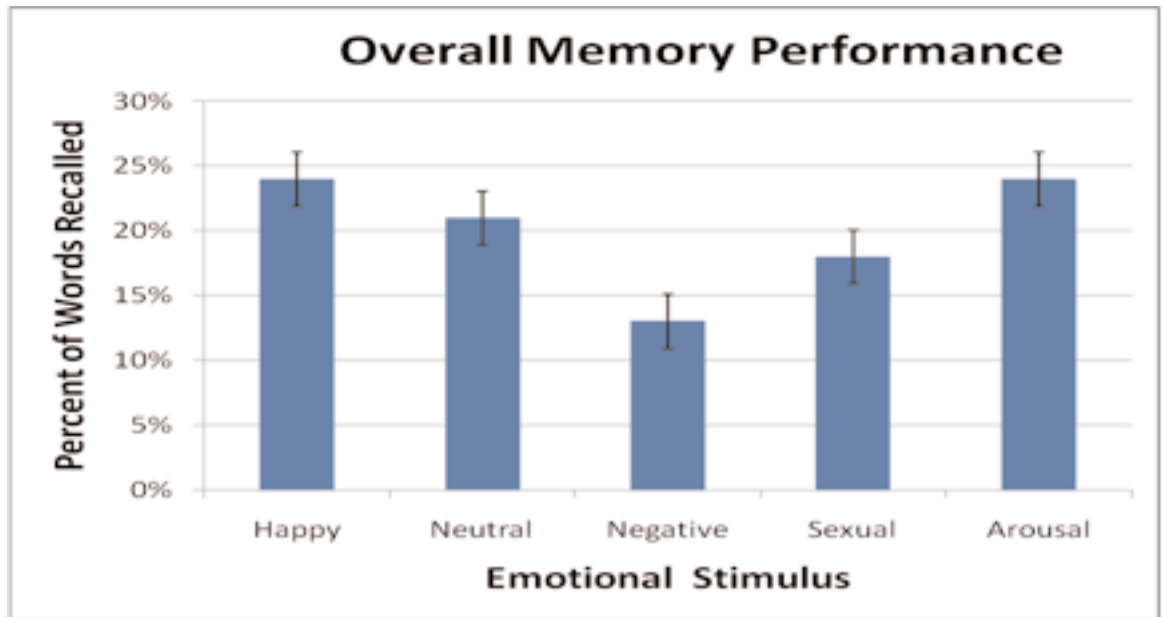


Figure 1: Words recalled (out of 100%) under emotional influence.

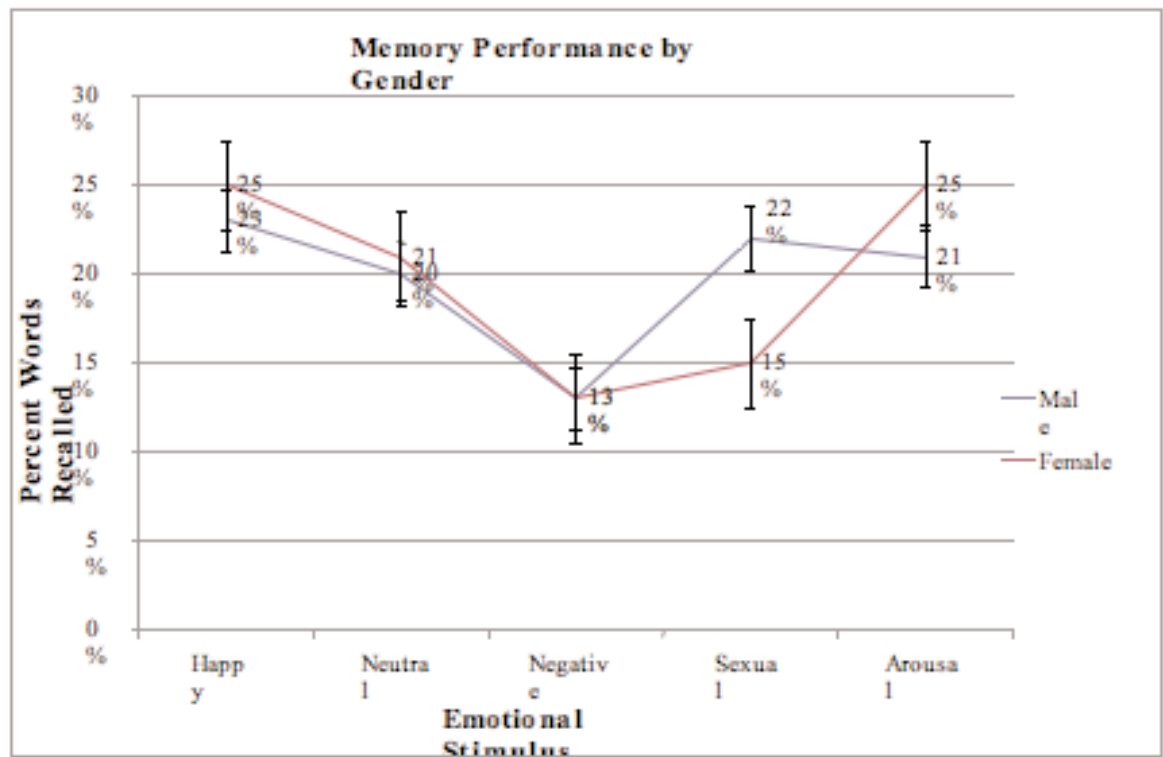


Figure 2: Memory Performance Across Film Types: Gender Comparison

from the sexual films were comparable to the percent of words recalled from the happy scenes. In females, the words recalled from the sexual films were comparable to the negative scenes. However, preliminary ANOVA demonstrated gender to have no significant difference across film types, ( $F[4,200]=1.48$ ,  $p=0.225$ ). A larger subject pool ( $n=100$ ) will help determine whether there is a gender difference in memory performance under different emotional stimuli.

#### Summary

The happy, arousal, neutral films correlated to better memory recall performance. This result corresponded with the Anderson and Shimamura experiment in 2005. The memory performances for those films were significantly different than negative film. In this study, the memory recall performance from words presented during sexual film was slightly less than happy film; however, it was significantly more than negative film.

Thus, the hypothesis was still consistent with the result.

An explanation for the result may be due to a higher amount of attention spent on viewing sexual film, filtering words entering the auditory system.

Another explanation for the result is the trend which showed a gender difference in memory performance across gender. The number of participants ( $n=50$ ) may have led to statistical insignificance for the gender effect across film types. Females overall have better memory performance compared to males, except with sexual film as an emotional stimuli. This result may indicate the difference in perception toward sexual content. Males may perceive sexual content as a more positive subject compared to females. Further research will validate the gender effects on memory performance when sex is a stimulus.

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