EMOTION AND MEMORY RECALL

By: Briana Woody, Angelia Harmon, Lauren Barthelette, Ashley Ritter
Recall of Pleasant and Unpleasant Words in Depressed Subjects

- John McDowall
- Depressed subjects recalled more negative words than positive words
- Only when they didn’t have to rate the positive words and could selectively process the mood congruent words

General area of study for emotional content and memory
Affective Valence of Words Impacts Recall from Auditory Working Memory

- Positive, negative, and neutral words were presented simultaneously on three speakers (recall center and then the sides)
- More positive and negative words recalled from the center speaker than neutral
- Less words remembered from side speaker because of emotional interference
Joint Effects of Emotion and Color on Memory

- Christof Kuhbandner and Reinhard Pekrun
- If memory is enhanced for positive and negative information (compared to neutral), could color enhance this?
  - Red (warning) - negative info
  - Green (security) - positive info
Results from the Memory and Color Study

- Red enhanced memory for negative words and
- green enhanced memory for positive words
The Influence of Emotional Meaning on the Recall of Words Processed for form or self reference

- Michael Bock
  - 12 negative words
  - 12 positive words
  - 12 neutral words

Words were flashed on a screen one by one
Told to do 2 tasks but not instructed to memorize
(pronounce-ability and emotional content ratings)
Arousing words were recalled better than those which were less arousing.

There were significantly more positive and negative words recalled than neutral words.
Participants

- All over 18 years
- Range was 19-54 (M= 23.57, SD= 7.24)
- Total of 28 people, 17 women and 11 men
Materials

- Three sheets of paper with either positive, neutral, or negative words on each
- A different sheet of paper to recall the words
- Pen or pencil
- Three note cards with either 1, 2, or 3 on each
- Timing device
Procedure

- Independent Variable - Emotional Content of the Words
  - Three level: Positive, Neutral, Negative
- Dependent Variable - Memory Recall
- Random order of conditions
- 30 seconds each time
## Results

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Content</td>
<td>Mean</td>
</tr>
<tr>
<td>Positive</td>
<td>6.07</td>
</tr>
<tr>
<td>Neutral</td>
<td>5.57</td>
</tr>
<tr>
<td>Negative</td>
<td>6.29</td>
</tr>
</tbody>
</table>

*Note. Each condition included a total of 28 participants.*
Results

Repeated measures ANOVA
Mauchly’s Test concluded that sphericity was violated
\[ \chi^2 (2) = 13.44, \ p < 0.05 \]

<table>
<thead>
<tr>
<th>Within Subjects Effect</th>
<th>Mauchly's W</th>
<th>Approx. Chi-Square</th>
<th>df</th>
<th>Sig.</th>
<th>Epsilon^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotion</td>
<td>.596</td>
<td>13.440</td>
<td>2</td>
<td>.001</td>
<td>.712</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
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<td></td>
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Results

Therefore, the degrees of freedom were corrected using the Greenhouse-Geisser estimate of sphericity ($E = .71$)

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<tr>
<th>Greenhouse-Geisser</th>
<th>Huynh-Feldt</th>
<th>Lower-bound</th>
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<td>.500</td>
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Results

Results show that there was not a significant effect of emotional content of words on word recall

\[ F (1.43, 38.47) = 2.02, \ p > 0.05 \]

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotion</td>
<td>Sphericity Assumed</td>
<td>7.524</td>
<td>2</td>
<td>3.762</td>
<td>2.022</td>
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<td></td>
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<td>5.280</td>
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<tr>
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<td>Lower-bound</td>
<td>7.524</td>
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<td>7.524</td>
<td>2.022</td>
</tr>
<tr>
<td>Error(emotion)</td>
<td>Sphericity Assumed</td>
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<td>54</td>
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<td>100.476</td>
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<td>Huynh-Feldt</td>
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<tr>
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<td>Lower-bound</td>
<td>100.476</td>
<td>27.000</td>
<td>3.721</td>
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</tr>
</tbody>
</table>
Discussion

- Theory of emotional content affecting word recall has been supported by many studies. Since our results did not support that theory, we'll discuss flaws/limitations.

- Effects of mood on memory (McDowall, 1984).
  - Did not try to manipulate or control for participant’s mood.
  - Participants knew the experimenter, so may have been in a “neutral” mood at the time, allowing them to recall neutral words better.

- Word length effect (Baddeley, Thomson, & Buchanan, 1975).
  - The words we used came from Bock’s (1986) study, but we translated them from German to English. In German, they had equal number of syllables; in English, they did not.
  - Positive ($M = 2.25$, $SD = .97$) and negative ($M = 2.67$, $SD = .98$) lists had more syllables than neutral list ($M = 1.75$, $SD = .97$).
  - Word length effect says that words with fewer syllables are easier to recall than words with more syllables, mitigating the emotion effect.
Discussion

◦ How words were presented to the participant.
  ◦ Other studies gave the words one at a time on a monitor or through a speaker and the participants didn’t have long to memorize them.
  ◦ Each emotional type was given in a separate list instead of randomized order in a single list, which may have been so distinctive a learning experience that they could better recall it.

◦ In general:
  ◦ Sample was largely female, so can’t analyze differences between males and females well.
  ◦ Only had 28 participants, which was mostly effective for this within-subjects design, but would need to be expanded upon in future studies.