Hard-to-find classics 1:
Carmichael, Hogan & Walter (1932)

Reference

Introduction
This great study was based on some earlier research by JJ Gibson who criticised the Gestalt approach to psychology. From his investigations using the method repeated reproductions of visual forms similar to that used by Bartlett (1932), Gibson concluded that “…the nature of the change found in a reproduction depends on the manner in which it was apprehended.” When his participants apprehended (ie perceived) the images in different ways, eg as ‘Gothic’ or ‘irregular’, this affected the way they reproduced them. Carmichael et al wanted to investigate this effect systematically.

Carmichael et al’s study links to several useful concepts that appear in GCSE and A level specs:
• priming
• perceptual set
• schemas
• reconstructive memory
• effects of context
• effects of expectation
• effects of words on memory

Aim
To demonstrate whether speaking a word when a picture is presented affects recall of the pictures.

Procedure
This was a laboratory experiment with an independent measures (between participants) design. 95 participants, 35 male and 60 female, were divided into two experimental groups and a small control group (9 participants).

The participants were shown 12 pictures. The timing of the presentation of pictures was controlled by a rotating disc divided into 30 segments. As the disc rotated it alternately revealed pictures and blank segments to the participants, ending in 7 blank segments before the sequence repeated. As each blank segment appeared, the experimenter said ‘The next figure resembles…’. This was followed by a word from either List 1 (for 48 participants) or List 2 (for 38 participants). The control participants did not hear any verbal labels (so were like Gibson’s participants). Lists 1 and 2 were experimental conditions.
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At the end of the sequence of 12 pictures the participants were asked to reproduce all the pictures they had seen in any order. If necessary, the sequence was repeated until a drawing had been produced for every picture. The drawings were then assessed for their likeness to the original in terms of:
1. being almost identical
2. differences in line lengths or curves
3. differences in proportions of parts of the figure
4. omissions or additions
5. being almost entirely different (e.g., inverted).

This rating was done without reference to the word lists and independently by two raters. Where they disagreed the decision was discussed and a third rater’s opinion was taken if agreement couldn’t be reached. This was rarely necessary.

Carmichael et al’s main analysis, as described below, used only those reproductions falling into category 5. These were then compared to the word list. This was the dependent variable.

Participants were also asked “Will you tell me how you performed this task?” Their replies were noted down.
Findings

Reproductions by participants who heard a word list tended to look like the words they had heard. Of more than 3000 reproductions they assessed, 905 reproductions were in category 5.

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage of drawings</th>
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<tbody>
<tr>
<td>List 1</td>
<td>73% of the drawings resembled the word spoken</td>
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<tr>
<td>List 2</td>
<td>74% of the drawings resembled the word spoken</td>
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<tr>
<td>Control</td>
<td>45% of the drawings resembled one of the words in List 1 or 2</td>
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These results show that the spoken words affected the participants’ reproductions of the drawings.

Conclusion

Memory for pictures is reconstructed. The verbal context in which drawings are perceived affects later reproduction because when the figure is redrawn the memory of the word alters the way the picture is represented.

Comments

By using a control group who did not hear either list, Carmichael et al could be sure that the drawings were not simply distorted because the stimulus picture was ambiguous. The certainty of the influence of the words was confirmed by the use of two lists which influenced the drawings different ways, clearly indicating the role of the verbal labels in distorting recall.

However, when Prentice (1954) tested the effect of verbal labels on recognition, the results suggested that verbal labels did not affect recognition although recent evidence from Kunen & Duncan (1983) supports Carmichael et al’s original findings.

Questions

1. The central figure below could have been used in Carmichael et al’s study. Look at the verbal labels and explain each of the two reproductions.
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2. If Carmichael et al’s fifth figure had been described as resembling ‘two oranges’, how might it have been recalled?

3. Look at the original figure and reproductions below. Suggest possible verbal labels for Reproduction 1 and Reproduction 2.

Reproduction 1
Reproduction 2

Ideas for practicals

1. Draw a new set of ambiguous figures and devise two alternative word lists. Replicate Carmichael et al’s study.

2. Compare the effect of two word lists, one list which does resemble the figure in each case and one list where the words do not resemble the figures.

3. Compare the effect of a word list to just reading the words. This is a different control group, which Carmichael et al did not use.

References


<table>
<thead>
<tr>
<th>Reproduced Figure</th>
<th>Word List 1.</th>
<th>Stimulus Figure</th>
<th>Word List 2.</th>
<th>Reproduced Figure</th>
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<td>Crescent Moon</td>
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