PSYCHOLOGY: RESEARCH INVESTIGATION REPORT

Comparison of the relative sensitivity of recall and recognition as measures of retention

Abstract

The measures of retention, recall and recognition, were investigated to determine which measure is more effective when attempting to recall newly learnt information. A sample of 97 participants, who were neither illiterate or had a cognitive impairment, responded to a simple memory task. The data was gathered as 15 nonsense syllables were learned and then either recalled without any retrieval cues or recognised among a list of fifteen other distracters. It was found that participants in the recognition condition produced significantly more nonsense syllables than those in the recall condition.

Psychologists have developed three methods for determining what and how much information has been stored in memory, known as measures of retention. Recall is the least sensitive measure of retention as it using no or minimal cues. Recognition is a more sensitive measure of retention as it requires the identification of the correct information from amongst a number of alternatives. Participants in condition A were to list as many nonsense syllables as possible in any order, without the aid of any retrieval cues (free recall), whereas participants in condition B were asked to identify as many nonsense syllables as possible from a list of distracters.

Nonsense syllables are a trigram with a vowel between two consonants that have no meaning in the English language. Nonsense syllables were used so that no meaningful associations could be made in the mind of the learner, which may enhance or decline their ability to recall.

This study was conducted to replicate previous research findings on the measures of retention; that recognition is a more effective method than recall. While this investigation focussed only on remembering nonsense syllables, recognition has been deemed more effective in real-life situations such as a multiple choice test or a police line-up. It was hypothesised that participants in the recognition condition would reproduce considerably more nonsense syllables than those in the free recall condition.

Method

Participants

There were 97 participants, 50 males and 47 females, who took part in this research investigation. The age range was 16 years, two months to 62 years, six months and the mean age was 36 years, eight months. Participants were mainly from rural Victoria and were selected as a convenient sample.

Materials

The materials used to gather the data included a list, ‘List A’ containing 15 nonsense syllables such as ‘quv’, ‘vok’ or ‘giy’. For participants under condition A, a blank sheet was given for them to write down nonsense syllables, with only the instructions listed at the top of the page.

For participants under condition B, ‘List B’ was given, for which the instructions were also outlined at the top of the page, containing the 15 nonsense syllables from ‘List A’ randomly placed among 15 other ‘distracter’ nonsense syllables.

Procedure

The participants were briefed on the purpose of the investigation and were told of their participation rights. Participants conducted the study separately in a quiet area, free of any distractions. Both participants were given List A for 2 minutes to learn the 15 nonsense syllables and immediately after the two minutes were up, List A was removed by the experimenter.

CONDITION A – Recall: Participant 1 was given the blank sheet, which outlined the participant to write down in any order as many nonsense syllables as they could remember from List A. They had up to two minutes to complete this task.

CONDITION B – Recognition: Participant 2 was given List B and the participants were to circle the nonsense syllables evident in List A from amongst the 15 other distracters. They had up to two minutes to complete this task (not the entire two minutes may be needed).

Results

The memory tests were collected and separated according to gender and recall or recognition condition. The total number of responses for each measure of retention were gathered and scored out of 15. The range of the data, mean value and the mean as a percentage were calculated and are presented in the following graphics.

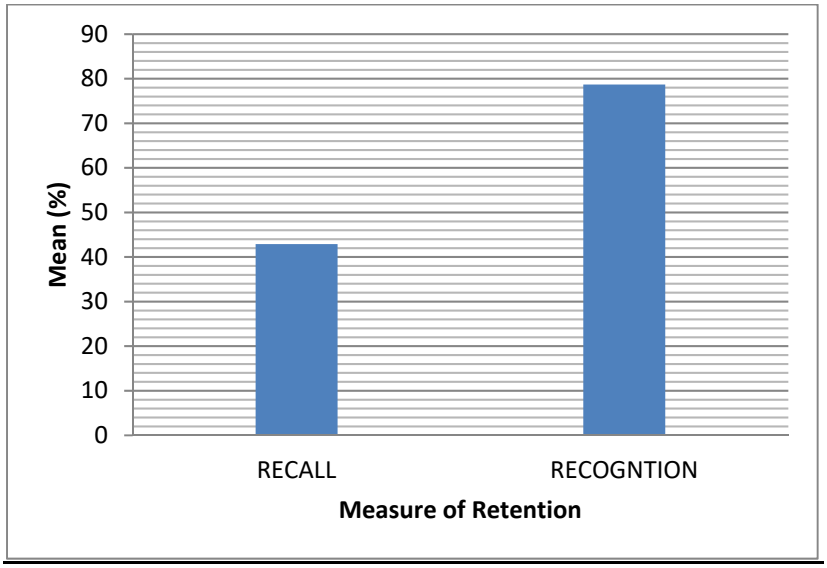
Table 1

Range, Mean and Mean (%) of recall and recognition statistics

	RECALL	RECOGNITION
Range	3-12	6-15
Mean	6.4	11.8
Mean (%)	43%	79%

Figure 1

Comparison of mean percentage of recall and recognition results



The range of the recall group score was 3 to 12, the mean was 6.4 and mean percentage was 43%.

The range of the recognition group was 6 to 15, the mean was 11.8 and mean percentage was 79%.

Discussion

The hypothesis that the recognition task would produce significantly more nonsense syllables than the recall task was strongly supported.

The results supported previous research findings that investigated the disparity in recall and recognition as the mean number of items retrieved for each conditions is consistent with the mean values of this experiment. The hypothesis of this investigation was similar to Biddle's (2003) where recall and recognition were used to test episodic memory retrieval. It was hypothesized that a greater number of words would be retrieved using recognition than recall.

Contrary to this outcome, the results of Biddle's experiment proved inconclusive; there was no significant difference between the number of words that each group were able to retrieve. Recognition was favoured over recall in the results, but the difference was not significant enough to support the hypothesis (Biddle, 2003).

A flaw occurred when collating the data as scores of 14 and 15 were found for the recall condition. These values are very unlikely for this measure and time limit of two minutes that was allowed for the participants to learn the nonsense syllables in. The scores may have been entered into the incorrect condition and would notably alter the mean of the recall condition and were categorically rejected from the results.

These findings can be generalised to others and real-life situations as it has been found that people undertaking recognition tasks perform better than on recall tasks. For example, students often perform better on multiple choice questions than on short-answer and people are more likely to be able to identify a person from a group photo than if they were asked to describe them.

Further research is not warranted from this investigation as these results have been replicated by numerous studies in the past. It has been conclusively found through the results of this research study that recognition is a more effective measure of retention for reproducing information than recall.

References

van Iersel, Bradley, Coon, Houlihan, Koerner, Montalto, Rossborough, & Stone. (2005). *Nelson VCE Psychology Units 3 and 4.* Southbank: Thomson Nelson.

Biddle, J. (2003) Recall versus Recognition: A study of the superior means of episodic memory retrieval, Charles Sturt University.
csusap.csu.edu.au/.../RECALL%20VERSUS%20RECOGNITION.doc, 15/09/10

Appendices

Appendix A: 'List A'
Appendix B: 'List B'
Appendix C: Recall condition sheet
Appendix D: Experimenter script
Appendix E: rough draft of report

APPENDIX D

Experimenter Script

You have been invited to take part in a simple task investigating memory. You will be given a list of nonsense syllables to remember. Nonsense syllables are a group of three letters, a vowel between two consonants, which has no meaning in the English language.

You have the right to withdrawal from the research task at any time and have all your data removed from the investigation.

You are entitled to full anonymity and you and your results will not be identifiable in any way.

This task will not cause you any physical harm or psychological distress. If at any point during the task you feel uncomfortable you may choose to cease to participate.

There will be no lasting ill-effects from this research task and you will have the opportunity to access the results and conclusions when published.