

## Experiment : Cuing on Recall

### Introduction :

Memory is the process of maintaining information over time (Maitin, 2005). Memory is the term given to the structures and processes involved in the storage and subsequent retrieval of information. Memory is essential to all over lives. without a memory of the past, we cannot operate in the present or think about the future. we would not be able to remember what we did yesterday, what we have done today or what we plan to do tomorrow.

Without memory, one cannot learn anything.

Memory is involved in processing vast amount of information. This information takes many different forms. Ex - Images, sounds or meaning. For Psychologists the term memory covers 3 important aspects of information processing. Stages of memory are:

- Encoding
- Storage
- Retrieval

#### a) Memory Encoding -

~~When information~~ comes into our memory system (from sensory input), it needs to be changed into a form that the system can cope with, so that it can be stored.

**b) Memory Storage :-**

This concerns, the nature of memory store i.e where the information is stored, how long the memory lasts for (duration), how much can be stored at anytime (capacity) and what kind of information is held. The way we store it affects the way we retrieve it. There has been a significant amount of research regarding the difference between 'Short Term Memory' (STM) & 'Long Term Memory' (LTM).

**c) Memory Retrieval -**

This refers to getting information out of storage. If we can't remember something, it may be because we are unable to retrieve it. When we are asked to retrieve something from memory, the difference between STM and LTM become very clear. STM is stored and retrieved sequentially. For example if a group of participants are given a list of words to remember and then asked to recall the fourth word on the list, Participants go through the list in the order they heard it in order to retrieve the information. LTM is stored and retrieved by association. This is the reason one can remember the purpose of their daily chores.

There are many ways and research regarding ways of retrieval and organization of information and

cueing method is one among them.

Cued recall is the retrieval of memory with the help of cues. Such cues are often semantic. Cued recall differs from free recall in that a cue or word is presented that is related to the information being remembered. This aides in the process of memory retrieval. Some examples of cued recall, are the names of the categories in which words were originally grouped or the presentation of related words. For instance, in remembering the word feather, the word bird may be used as a cued recall.

In cognitive psychology, a recall test is a test of memory of mind in which participants are presented with stimuli and then, after a delay, are asked to remember as many of stimuli as possible. Memory performance can be indicated by measuring the percentage of stimuli the participant was able to recall. An example of this would be studying a list of 10 words and later recalling 5 of them. This is the 50 percent recall. Participant's responses also may be analysed to determine if there is a pattern in the way items are being recalled from memory.

for example, if participants are given a list consisting of types of vegetables and types of fruit, their recall can be assessed to determine whether they grouped vegetables together and fruits together. Recall is also involved when a person is asked to recollect life events, such as graduating high school, or to recall facts they have learned such as the capital of Karnataka.

Recall or retrieval of memory refers to the subsequent reassessing of events or information from the past, which has been previously encoded and stored in the brain. In common parlance it is known as remembering. During recall, the brain "replays" a pattern of neural activity that was originally generated in response to a particular event, echoing the brain's perception of the real event. In fact, there is no real solid distinction between the act of remembering and act of thinking.

These replays are not quite identical to the original though otherwise we would not know the difference between the genuine experience and the memory but are mixed with an awareness of the current situation. One corollary of this is that memories are not frozen in time and new information and suggestions may be incorporated into old memories over time.

Thus remembering can be thought of as an act of creative reimagination.

Because of the way memories are encoded and stored, memory recall is effectively an on the fly reconstruction of elements scattered throughout various areas of our brains like books on library shelves, or even as a collection of self-contained recordings or pictures or video clips, but may be better thought of as a kind of collage or a jigsaw puzzle, involving different elements stored in disparate parts of brain linked together by associations and neural networks. Memory retrieval therefore required re-visiting the nerve pathways the brain formed when encoding the memory and the strength of those pathways determines how quickly the memory can be recalled.

A 'cue' is defined as a signal, which elicits behaviour based on previous experience. In recall experiments, many errors are caused by retrieval problems. It has been demonstrated by experiments that the problem of recall is related only to storage but also the way information is stored. This will facilitate recall when proper cues are given.

The cued-recall procedure is a form of memory

testing that incorporates particular cues for recall of specific information. In a typical cued recall experiment, the to-be-recalled (TBR) information consists of words in a study list. The cues are reminder that have been carefully selected based on their relationship to the TBR, words, through figures, colours etc can also be used in most cases one cue is given for each target word though in some cases more than one cue may be given for the same target word.

Experiments have shown that recall depends on the following factors:

1) The type of material:

The material used is usually verbal because it is easy to work with and easy to organize into categories.

2) The number of items per cue - the effect of list length is less prominent in cued recall than in free recall.

3) The rate of presentation. If the items are presented slowly and there is more time available between successive items. The number of items recalled is greater. The rate of presentation in many experiments is 2 to 3 seconds per item.

- 4) The mode of study - If for example, the subject thinks of the meaning of the words rather than letters, recall will be better.
- 5) The nature of the cue - that is whether a cue is another word, a geometric pattern, a different colour etc.

With the above background, the following experiment aims to study the relative efficiency of cued recall and free recall. It is based on an experiment conducted by G. Wood to measure cued recall and free recall.

Purpose : To study the effect of cueing on recall.

Hypothesis : Cueing has a positive effect on recall.

#### Variables :

Independent Variable - The presence of cues in the second series.

Dependent Variable - The number of words correctly recalled in each list.

#### Controls / Precautions :

- 1) The time of exposure is limited to 2 sec per word.
- 2) A 5 min rest pause is given between Series to avoid fatigue.

**Plan:** Compare recall under the 2 conditions of free and cued recall - each given in a separate series.

**Material:**

- 1) Two lists of words of thirty words each where:
  - a) The words in list A are selected randomly.
  - b) The words in list B are selected in such a way that they fall into 5 categories with six words in each category.
- 2) Plain response sheet for recall of list A.
- 3) Response sheet with names of 5 categories printed on them for recall on list B.
- 4) Stop clock.

**Procedure:**

Series 1 - Free Recall - Instruct the subject that experimenter will present a list of words verbally. The subject has to listen carefully so as to recall them later. Present list A in an even tone at the rate of 2 seconds per word. Then, give the subject the plain response sheet and ask them to recall the list. Allow three minutes for recall.

**Series 2: Cued Recall-** Present List B in the same manner as List A. Then, give a subject the response sheet with the names of the 5 categories and ask the subject to write down as many words from the list as he/she can recall. Allow three minutes for recall.

#### Instructions to the Subject :

- 1) Find the number of words correctly recalled from each list separately.
- 2) Calculate the difference = Series 2 score - Series 1 Score
- 3) Calculate the mean and SD for the group.

#### Points of Discussion :

- a) Discuss whether cueing has had a positive effect on recall.
- b) Discuss variations in the group if any.

Table 1- Number of words recalled by the subject.

Name	Series I (Free Recall)	Series II (cued Recall)	Difference II-I
MKR	11	18	$18 - 11 = 7$

