Serial Position Effects

A phenomenon of memory in which items presented at the beginning and end of a list are more likely to be recalled than items in the middle of a list.

Serial position effects occur when people try to recall items from a list; items at the beginning and end are better recalled than the items in the middle. The improved recall for items at the beginning of a list is called a *primacy effect*. The improved recall for items at the end of a list is called a *recency effect*.[1]

Primacy effects occur because the initial items in a list are stored in long-term memory more efficiently than items later in the list. In lists where items are rapidly presented, the primacy effect is weaker because people have less time to store the initial items in long-term memory. In lists where items are slowly presented, the primacy effect is stronger because people have more time to store the initial items in long-term memory.[2]

Recency effects occur because the last few items in a list are still in working memory, and readily available. The strength of the recency effect is unaffected by the rate of item presentation, but is dramatically affected by the passage of time and the presentation of additional information. For example, the recency effect disappears when people think about other matters for thirty seconds after the last item in the list is presented. It is important to note that the same is not true of the primacy effect, because those items have already been stored in long-term memory.[3]

For visual stimuli, items presented early in a list have the greatest influence; they are not only better recalled, but influence the interpretation of later items. For auditory stimuli, items late in a list have the greatest influence. However, if multiple presentations of information are separated in time, and a person must make a selection decision soon after the last presentation, the recency effect has the greatest influence on the decision. These effects also describe a general selection preference known as *order effects*—first and last items in a list are more likely to be selected than items in the middle (e.g., the order of presentation of candidates on a ballot).[4]

Present important items at the beginning or end of a list (versus the middle) in order to maximize recall. When the list is visual, present important items at the beginning of the list. When the list is auditory, present important items at the end. In decision-making situations, if the decision is to be made immediately after the presentation of the last item, increase the probability of an item being selected by presenting it at the end of the list; otherwise, present it at the beginning of the list.

See also Advance Organizer, Chunking, Nudge, and Stickiness.

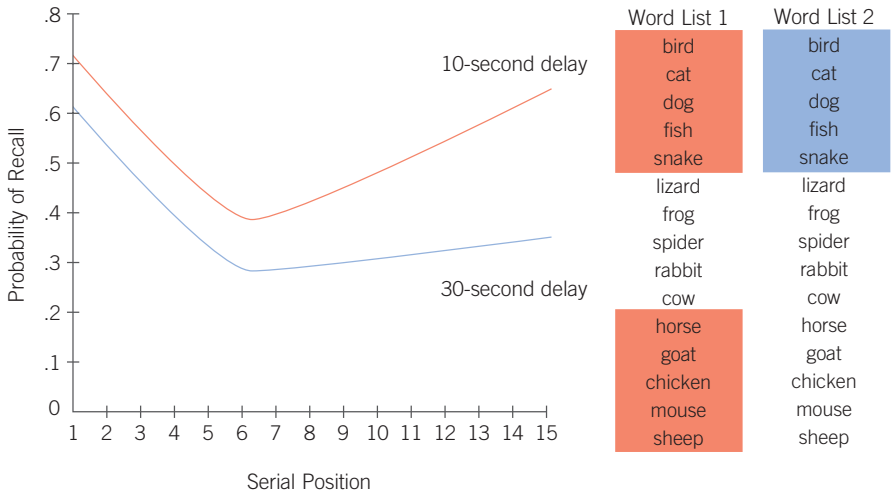
[1] The seminal work on serial position effects is *Memory: A Contribution to Experimental Psychology* by Hermann Ebbinghaus, Teachers College, Columbia University, 1885 (translated by H. A. Ruger and C. E. Bussenues, 1913).

[2] "Storage Mechanisms in Recall" by Murray Glanzer, in *The Psychology of Learning and Motivation* by G. H. Bower and J. T. Spence (eds.), 1972, Academic Press, vol. 5, p. 129–193.

[3] "Two Storage Mechanisms in Free Recall" by Murray Glanzer and Anita Cunitz, *Journal of Verbal Learning and Verbal Behavior*, 1966, vol. 5, p. 351–360.

[4] See "Forming Impressions of Personality" by Solomon E. Asch, *Journal of Abnormal and Social Psychology*, 1946, vol. 41, 258–290; and "First Guys Finish First: The Effects of Ballot Position on Election Outcomes" by Jennifer A. Steen and Jonathan GS Koppell, Presentation at the *2001 Annual Meeting of the American Political Science Association*, San Francisco, August 30–September 2, 2001.

Items at the beginning and end of a list or a sequence are easier to remember than items in the middle. If recall is attempted immediately after the presentation of the list, the primacy effect and recency effect are roughly equal in strength (word list 1). If recall is attempted more than 30 seconds after the presentation of the list, the primacy effect maintains whereas the recency effect quickly diminishes (word list 2).



In a classic experiment, students who read the first sentence rated John more favorably than students who read the second sentence. The early words in the list had more overall influence on impressions than did later words.

John was intelligent, industrious, impulsive, critical, stubborn, and envious.

John was envious, stubborn, critical, impulsive, industrious, and intelligent.

In addition to benefits reaped from the bad design of the butterfly ballot, the Republican ticket of 2000 also benefited from an order effect—being first on the ballot is estimated to be worth between 1 percent and 4 percent of the vote.