Faculty Showcase ’07

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Sponsored by Academic Technology at Simmons College

The Generation Effect for Perceived and Imagined Pictures

Goals

- Design, conduct, and analyze an experiment in cognitive science.
- Observe and measure the generation effect, which demonstrates that learning is more successful when people generate information actively instead of receiving it passively.
- Investigate whether original, creative imagery can enhance the generation effect and improve people’s ability to distinguish between memories for perceived and imagined events.

Project Overview

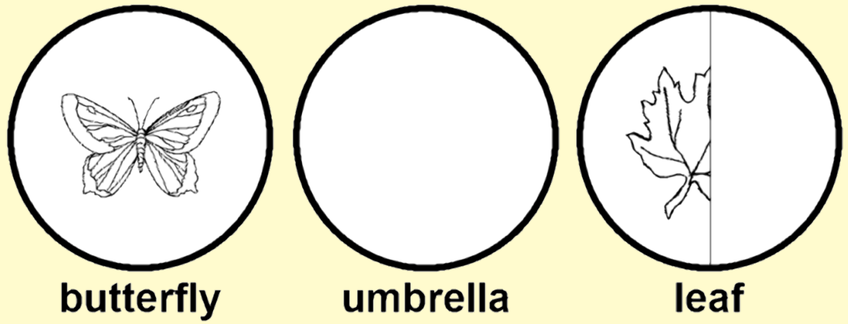
Students conducted a psychological experiment using E-Prime, a software package installed on Simmons computers allowing the presentation of multimedia stimuli and the collection of responses with millisecond precision.

The experiment allowed them to study the *generation effect*, a phenomenon of memory that has important real-world ramifications, particularly in education.

Participants saw the names of objects appear on a screen. There were two kinds of objects: perceived and imagined. For each perceived object, the name appeared beneath an illustrative picture. For each imagined object, participants generated a mental image.

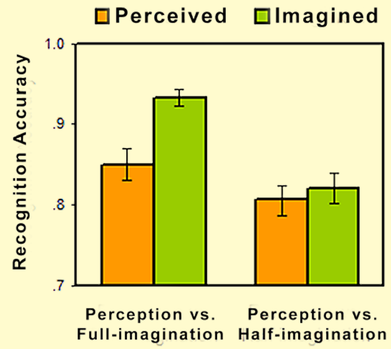
In the Full-Imagination group, participants saw a blank space above the name of each imagined object, and mentally generated a picture based on their own creative impulses.

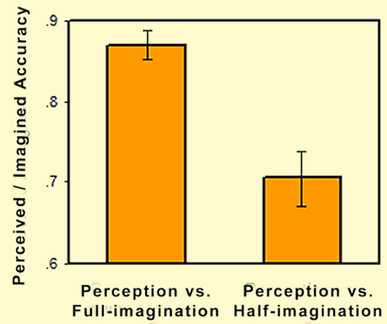
In the Half-Imagination group, participants saw a half-picture above the name of each imagined object, and mentally completed it. In this condition, the process of imagination was less original.



In a subsequent memory test, the names of the previously perceived and imagined objects appeared on the screen along with other object names. Participants pressed keys to indicate whether they recognized each object, and if so, whether they had perceived or imagined it.

Recognition accuracy was better for imagined objects than for perceived ones, and this effect was larger in the Full-Imagination group. In addition, participants in the full-imagination group were more accurate in identifying whether they had perceived or imagined each object (a judgment known as *reality monitoring*). These results extend the generation effect, demonstrating that it is not the act of imagination alone that produces superior memory, but the degree to which elaborative, creative processes are involved.





Applications Beyond

This research illustrates the importance of active mental participation in learning, regardless of content area. Traditional passive strategies like reading and note-taking are simply not as powerful for learning as thinking of your own ideas and using mental imagery. Both memory and comprehension improve with the creative act of “generation.”