

Hand Shape Affects Access to Memories

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Introduction

Autobiographical memories are personal memories from the past that are reconstructed when prompted for retrieval (Dijkstra, Kaschak, & Zwaan, in press). During the reconstruction process, perceptual details that were part of the original experience are reconstructed. Research has shown that when body position during reactivation of the memory was similar (congruent) to the original event, relevant perceptuomotor areas were reactivated and resulted in faster retrieval times of autobiographical memories compared to incongruent body position at the time of retrieval with the original experience (Dijkstra et al., in press). This facilitation was extended to a free recall task two weeks later in which study participants were asked to remember the events they talked about in the lab. Events that were retrieved in body positions congruent with the original event were recalled more often than events retrieved in incongruent body positions (Dijkstra et al., in press).

The present study examined the ways that body posture facilitated retrieval of autobiographical memories in more detail by focusing on two aspects of congruence in position of a specific body part: hand shape and hand orientation. Hand shape is important in the tactile perception and manipulation of objects. We manipulated two aspects of hand shape: orientation (vertical vs. horizontal) and aperture (grip vs. no-grip). We manipulated orientation and aperture to create memory-congruent and memory-incongruent hand shapes. For example, a horizontal-grip shape is congruent with pushing a shopping cart, but inconsistent with doing a karate chop. We predicted that memory-congruent hand shapes would produce faster access to autobiographical memories than memory-incongruent hand shapes.

Method

Twenty-two undergraduate psychology students participated in an experiment in which they retrieved autobiographical memories (e.g., "Tell me about the last time that you walked your dog") either involving a hand shape that was completely congruent with the hand shape that was assumed at the time of the original experience (i.e. horizontal and with grip), an incongruent hand position for orientation (i.e. vertical) but congruent for aperture (i.e. grip), an incongruent hand position for aperture (i.e. no grip) but congruent for orientation (i.e. horizontal), or incongruent for both orientation and aperture (vertical and no grip). Each participant retrieved 36 memories under congruent, part incongruent and complete incongruent conditions. Response times to access those memories were calculated afterward based on the audio recording of the experiment.

Table 1 displays the mean response time of retrieval.

Table 1: Mean RT and (SD) of autobiographical memories

	RT (secs.)
congruent	2.62 (.57)
incongruent	3.29 (.71)

An ANOVA showed that response times of retrieving the memory were significantly shorter when hand orientation and aperture during retrieval of autobiographical events were congruent with those in the original events than when they were incongruent, $F(3, 63)=5.63, p<.01$.

References

Dijkstra, K., Kaschak, M. P., & Zwaan, R. A. (in press). Body position facilitates retrieval of autobiographical memories. *Cognition*.