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#### **Title**

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#### **Permalink**

<https://escholarship.org/uc/item/1f91x9vh>

#### **Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 29(29)

#### **ISSN**

1069-7977

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#### **Publication Date**

2007

Peer reviewed

# The Role of Autobiographical Memories in Story Comprehension

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**Keywords:** story comprehension; situation models; autobiographical memory.

## Introduction

Some researchers indicated that situation models resemble autobiographical memory (AbM). For example, Zwaan & Radvansky (1998) pointed “The dimensions of time, space, and protagonist are also featured in accounts of autobiographical memory of directly experienced events” by quoted Wagenaar (1986). Also, Radvansky, Copeland & Zwaan (2005) investigated AbM using memories of fictional autobiographic novel as vicarious AbM. So, there are many evidences of the familiar relationship of situation models and AbM. Most studies, however, have focused on AbM rather than situation models.

In this study, we focused situation model rather than AbM, and then research the role of AbM in constructing situation models exploratory and empirically.

## Experiment

The aim of this experiment was to simply examine whether AbMs are related to construction of situation models or not.

## Method

*Participants.* 24 Japanese undergraduate students.

*Material.* A short German story “Ein Baer namens Sonntag (A bear which name is Sunday)” translated into Japanese.

*Procedure.* It was individual experiments and took almost 40 minutes. The experiment had three phases. First, participants were divided two groups at random. One was called AbM group and the others were control. AbM group retrieved AbMs about target cue (“Teddy bear”) associated with story contents. Control group played “Shiritori” which is a kind of Japanese word game and require memory retrieval at low level. Second, each group read a story text presented sentence by sentence on the computer screen at their own pace, and their reading times (RTs) were collected. Finally, similarity of their experiences and story contents which is called Contents- Experience similarity (Similarity). Similarity was measured by seven point scale (1: Never experienced - 7: Experienced exactly) questionnaire which consisted of 15 events extracted from the story (e.g., Have you ever played with teddy bear?).

## Results

Before analysis, participants were divided into Low and High groups by *median* (3.57) of contents-experience similarity ( $M_s = 2.63, 4.58$ ). Then, 2 (Treatment: AbM vs.

Control; between) x 2 (Similarity: Low vs. High; between) ANOVA was conducted. There are significant main effect of Treatment ( $F_2^* (1,114) = 116.92, p < .001$ ), Similarity ( $F_1^* (1, 20) = 2.54, p = .047, F_2 (1,114) = 196.04, p < .001$ ) and interaction between Treatment and Similarity ( $F_2 (1,114) = 28.05, p < .001$ ). Multiple comparison revealed that there are simple main effects of Treatment in either Low or High group ( $F_2 (1,114) = 35.5, p < .001; F_2 (1,114) = 95.34, p < .001$ ).

\*  $F_1$  is value based on participants analysis and  $F_2$  is item analysis.

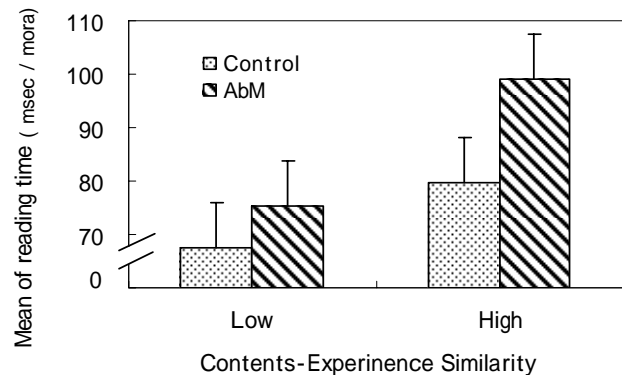


Figure 1: Average reading times of each group ( $N=24$ )

## Discussion

We have two possible accounts for the results based on processing-load hypothesis (Zwaan, 1999). One is interference account: high similarity group needs more efforts to inhibit irrelevant detailed AbM for constructing situation models than low similarity group. Another is enrichment account: high similarity group needs more efforts to integrate detailed AbM into situation models.

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