The Effect of a Temporal Distance of Autobiographical Memory on Mood Congruent Encoding

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This study investigated whether or not the amount of elaboration for recalled episodes affected mood congruent encoding (MCE). To manipulate the amount of elaboration for recalled episodes, we used a recent (within the last year) and a distant (to 5 from 10 years ago) autobiographical recall tasks. MCE was observed in the recent autobiographical recall task but not in the distant autobiographical recall task. This result indicated that the amount of elaboration for recalled episode was important to MCE.

key words: mood congruent encoding, temporal distance of autobiographical memory, autobiographical elaboration

Introduction and Purpose

Mood congruent encoding (MCE) refers to the phenomenon of facilitated encoding for material that is congruent with mood (Bower, 1981). For example, people in a positive mood recalled more pleasant materials than unpleasant ones. It has long been thought that MCE could automatically occur using self referent tasks (e.g. an autobiographical recall task, AT; Bower, 1981). On the other hand, Nouchi, Takano and Hyodo (2007) reported that MCE occurred only when participants recalled high elaborated episodes (e.g. high vividness episode, high important episode) in AT. This result suggested that MCE does not occur automatically, the amount of elaboration for recalled episodes would affect MCE. However, there is no study which directly manipulates a degree of elaboration in AT. Thus, the purpose of this study was to investigate whether or not retrieval of elaborated episodes affected MCE. The present study may contribute to understanding factors which facilitate MCE. To manipulate the amount of elaboration for recalled episodes, we focused a temporal distance of autobiographical memory. Memories for recent events typically contain more sensorial and contextual details than memories for more remote events (D'Argembeau & Van der Linden, 2004). If recalling more detailed episodes was important to occur MCE, MCE would be observed in recalling a recent past episode condition but not in recalling a distant past episode condition.

Method

Participants 30 undergraduate students (17 males and 13

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Short Report

females, age; M=19.60, SD=0.93) participated. They were assigned randomly to the positive or the negative mood condition.

Stimulus and music We used 30 pleasant and 30 unpleasant words from Aoki (1971). Positive mood induction music was "Eine Kleine Nachtmusik" by Mozart. Negative mood induction music was "Adagio in G Minor" by Albinoni. The music was same music of Eich and Metcalfe (1989).

Encoding task and mood questionnaire We used two types of autobiographical recall tasks (D'Argembeau & Van der Linden, 2004). A recent autobiographical recall task (rAT) required participants to recall a recent event that had happened within the last year. A distant autobiographical recall task (dAT) required participants to recall a distant event that happened in to 5 from 10 years ago. We used a Positive and Negative Affect Schedule (PANAS; Sato & Yasuda, 2001). Participants rated each adjective on a five-point intensity scale.

Procedure Participants listened to the music (positive or negative mood music) for 3 minutes, and then rated the PANAS. During the encoding phase, participants performed the rAT and dAT. Each trial began with the presentation of instructions (recent or distant) for 1500 ms, followed by a fixation cross (+) for 1000 ms, and then stimulus presented for 4000 ms. After the encoding phase, participants were given an distracter task (simple calculation test) for 1 minute. Finally, participants were required to recall the stimulus presented at the encoding phase for 5 minutes. After the experiment, participants were required to rate vividness of these episodes during the rAT and dAT using 5 point scales (1 = "not at all", 5 = "very intense").

Results and Discussion

Effect of mood induction We conducted two sample *t* tests for positive and negative mood scales. These results showed that participants in positive mood (M=27.47, SD=3.18) reported a more positive mood than participants in negative mood did (M=21.67, SD=4.02), *t* (28)=3.62, *p*<.01. Participants in negative mood than the participants in positive mood did (M=21.60, SD=4.05), *t* (28)=5.01, *p*<.01. These results suggested the mood induction was succeeded.

Proportion of recall We conducted paired *t* test for vividness ratings about the rAT and dAT. Result showed that the score of vividness for the rAT (M=3.70, SD=0.77) was higher than that for the dAT (M=2.90, SD=0.67), *t* (29)=9.53, p < .01. This result indicated that the recent episodes have more sensorial and contextual details than the distant episodes. The proportion of recall was analyzed using a two (mood: positive, negative)×two (task: rAT, dAT)×two (valence of stimulus: pleasant words, unpleasant words) mixed design ANOVA (Figure 1). A mood factor was a between-subject factor. Results showed a significant interaction between the mood, task and the valence of stimulus, F(1, 28)=34.95, p < .01. To interpret the three-way interaction, we performed two additional ANOVA analyses (mood×valence) separately for the rAT and dAT. A two-way ANOVA for the rAT task showed a significant interaction of mood×valence,



Figure 1 Proportion of recall as a function of task, word, and mood

F (1, 28)=61.31, *p*<.01. The test of simple main effects showed that participants of the positive mood condition recalled more pleasant words than participants of the negative mood conditions did, *F* (1, 56)=22.77, *p*<.01 and participants of the negative mood condition recalled more unpleasant words than participants of the positive mood conditions did, *F* (1, 56)=38.14, *p*<.01. In positive mood condition participants recalled more pleasant words than unpleasant words, *F* (1, 28)=32.14, *p*<.01 and in negative mood condition participants recalled more unpleasant words than pleasant words, *F* (1, 28)=29.10, *p*<.01 A two-way ANOVA for the dAT didn't show all of the main effect and the interaction.

Discussion These results showed that MCE occurred in the rAT but not in the dAT. Our results clearly supported our hypothesis. Based on the previous study (Nouchi et al., 2007) and the present result, we propose a new hypothesis which could explain MCE in AT. In the hypothesis, we assume that three factors may affect MCE. A first factor is that we would have tendency to focus on the information which matched emotional aspect between a mood state (e.g. positive mood) and an emotional valance of stimuli (e.g. pleasant words; Bower, 1981). A second factor is that we would conduct higher elaborated process about emotional stimuli compared to neutral stimuli (Talmi, Schimmack, Paterson, & Moscovitch, 2007). A third factor is that recent events contain more sensorial and contextual details com-

pared to remote events (D'Argembeau & Van der Linden, 2004). Our result which MCE occurred in only the rAT could be explained by the reason that the rAT condition would meet all of the three factors. Given that the rAT and the dAT could share the first and the second factors, our results indicated that an amount of the elaboration (third factor) would be the most important factor to occur MCE in AT. There is a clear need for additional research to address this hypothesis by using other elaboration processing tasks (e.g. semantic or emotional elaborations).

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