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Short Report

Effects of Imagining a Future Episode on Mood-Congruent Encoding

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Mood-congruent encoding refers to the phenomenon of facilitated encoding for material that is congruent with mood. To investigate mood-congruent encoding using a future episode image task, 66 participants were assigned randomly to one of three induced mood groups (positive, negative, and neutral). Participants in each condition were presented with 30 pleasant and 30 unpleasant trait words at 4s intervals. In the future episode image task, participants imaged future episodes corresponding to the stimulus items. Mood-congruent encoding was observed in the positive and negative mood conditions. These findings suggest that self-referent processing is important for mood-congruent encoding.

key words: mood-congruent encoding, future episode, self-referent process

Introduction and Purpose

Mood-congruent encoding is a phenomenon in which stimuli matching in the affective valence with mood are encoded and recalled better than stimuli of a different valence (Blaney, 1986). For example, Nouchi and Hyodo (2006) investigated mood-congruent encoding using an autobiographical recall task. This task was one of self referent processing tasks and required participants to recall a past episode related to the stimulus. Nouchi and Hyodo (2006) showed that mood-congruent encoding occurred in the autobiographical recall task. This result suggested that self-referent processes were important for the occurrence of mood-congruent encoding.

Recent studies have showed that the recalling of past events (autobiographical recall task) and the imagining future events (future episode image task) involved the same processes (Schacter and Addis, 2007). If imagining a future episode and recalling a past episode have similar processes, mood-congruent encoding will occurred on imaging a future episode.

This study investigated whether or not mood-congruent encoding occurred in imaging the future episode image task.

Method

Participants. Sixty six undergraduate students (33 males and 33 females) participated. The mean age of these participants was 19.38 years ($SD=1.05$). They were assigned randomly to one of the three mood conditions (positive, negative, and neutral).

Stimulus. We used 30 pleasant and 30 unpleasant words from Aoki (1971).

Encoding task. In the future episode image task, participants were required to imagine a future episode related to a word.

Mood questionnaire. A Japanese version of the Positive and Negative Affect Schedule (PANAS; Sato & Yasuda, 2001) was used. After a mood induction, participants rated each adjective on a five-point intensity scale after mood induction.

Mood induction music. Positive mood induction music was Eine Kleine Nachtmusik by Mozart. Negative mood induction music was Adagio in G Minor by Albinoni. The music was the same music of Eich and Metcalfe (1989).

Procedure. Participants in the positive and negative mood groups listened to the music for 3 minutes, and then rated the PANAS. The neutral mood group rated the PANAS without listening to the music. The music continued playing until the participants finished the encoding task. During the encoding phase, the participants performed the future episode image task. Each trial began with a presentation of instructions (image a self episode) for 1,500 ms, followed by a fixation cross for 1,000 ms, and then stimulus was presented for 4,000 ms. After the encoding phase, participants were given an distracter task for 1 minute. A sheet of paper with Japanese words printed in hiragana was given to each participant. They were then required to circle quickly as many nouns as possible with more than three hiragana characters. Finally, the participants were required to recall the stimulus presented at the encoding phase. They wrote down as many stimuli as they were able to recall during 5 minutes, in any order. After the recall phase, participants were debriefed.

Result and Discussion

Effect of mood induction. One-way analysis of variance (ANOVA) was conducted on the total scores of the positive and negative mood scales. For the positive scale, the main effect of mood was significant ($F(2, 63)=6.99$, $p<.01$). Multiple comparison tests (Ryan's procedure) showed significant differences. The score of the positive mood group ($M=25.68$, $SD=3.58$) was higher than the score of the negative group ($M=21.32$, $SD=3.15$; $t(63)=3.49$, $p<.01$) and that of the neutral mood groups ($M=22.05$, $SD=5.38$; $t(63)=2.91$, $p<.01$). For the negative mood scale, the main effect of mood was significant ($F(2, 63)=14.71$, $p<.01$). Multiple comparison tests showed significant differences. The score of the negative mood group ($M=24.09$, $SD=3.38$) was higher than that of the positive group ($M=17.14$, $SD=4.09$; $t(63)=5.33$, $p<.01$) and that of neutral mood

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Table 1 Mean of proportion of recall as a function of valence and mood

	Mood		
	Positive	Negative	Neutral
Pleasant Word	.21 (.07)	.11 (.09)	.15 (.07)
Unpleasant Word	.15 (.07)	.21 (.03)	.13 (.06)

group (M=19.50, SD=5.29; $t(63)$=3.52, $p<.01$).

Proportion of recall. The means of the proportion of recall are presented in Table 1. The data were transformed using the appropriate arcsine transformation. These data were analyzed using a three (mood: positive, negative, neutral)×two (valence: pleasant, unpleasant) mixed design ANOVA. Results showed a significant main effect of mood ($F(2, 63)=7.34$, $p<.01$) and a significant interaction of mood×valence ($F(2, 63)=11.97$, $p<.01$).

The test of simple main effects showed the effect of mood for pleasant ($F(2, 126)=9.06$, $p<.01$) and unpleasant words ($F(2, 126)=9.69$, $p<.01$). Results of multiple comparison tests indicated that participants in the positive mood recalled more pleasant words than participants in the negative mood ($t(126)=3.78$, $p<.01$) and the neutral mood ($t(126)=3.58$, $p<.01$). Similarly, participants in the negative mood recalled more unpleasant words than participants in the positive ($t(126)=4.39$, $p<.01$) and the neutral mood did ($t(126)=2.48$, $p<.05$). Participants in the positive mood recalled more pleasant words than unpleasant words ($F(1, 63)=8.20$, $p<.01$). Participants in the negative mood recalled more unpleasant words than pleasant words ($F(1, 63)=14.60$, $p<.01$).

Discussion. Our results showed that mood-congruent encoding occurred in the future episode image task. This pattern is similar to that of recalling past episodes (Nouchi & Hyodo, 2006). This result is consistent with those of many previous studies that self-referent processes are important in mood-congruent encoding. Because imagining the future episodes and recalling the past episodes had same processing (Shacter & Addis, 2007), mood-congruent encoding was observed in the future episode image task.

Recently, many researchers focused on imagining future episodes (e.g. Schacter & Addis, 2007). However, previous studies ignored that how emotions affected imagining future episodes. Further studies need to examine the relation between emotions and imagining future episodes.

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