CONFLICTS OF WILL MOTIVES (3): EFFECT OF ATTENTION AND THE DEVELOPMENT OF THE MAINTENANCE MECHANISM OF SUBCONSCIOUS MOTIVES

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The purpose of this study is to examine behavior under the influence of a conflict between two kinds of motives: One is the subconscious motive (Ms) arisen under hypnosis, and the other is the conscious motive (Mc) arisen in the waking state. The results were: (a) Ms was activated more strongly in adult subjects than in 12-year-old subjects. (b) Ms was activated more strongly in the subjects who are given a high number of trials in the former between the following two stimulations: One in the formation of Mc and another in activation of Ms. (c) While none of the 12-year-old subjects reported that any natural responses activated by Ms came up into their mind, a considerable number of adult subjects reported the opposite.

There are two kinds of mistake actions; one includes those Freud (1901) studied, i.e., that organisms usually succeed but occasionally view it as a failure or at least not as a success, and the other includes actions such as those related to what happens in the process of learning (Ferguson, 1972), i.e., those mistakes valued when compared with external standards. This study is focused upon the former.

In light of the fact that mistake actions do occur, motives causing them are thought to exist. These consist of two kinds, (1) those causing a certain action, and (2) those causing other actions. It is thought that actions caused by the motive of conscious intention are right, while those caused by interfering motives are wrong. The main difference between these are whether they are able to be consciously perceived or not. Freud (1901) thought that such subconscious motives were caused by "repressed thoughts", i.e., motives unable to be consciously perceived were caused by repression, and repression was thought to be caused by unacceptable thoughts or desires. He called this "the world of the unconscious". Janet (1907) thought that such motives were caused by dissociation, and named such unperceived thoughts "subconscious".

There are some studies concerning mistake actions or conflicts caused by hypnotically induced unacceptable mental thoughts such as Freud (1901) had proposed (Bobbitt, 1958; Erickson, 1939, 1944; Luria, 1932; Reyher, 1961; Reyher & Basch, 1970; Sheehan, 1969). Conflict phenomena results from the same mechanism as mistake actions. However, the difference between both of them has to do with whether the focus is upon emotion or action. It is thought that both motives which are the opposite relationship cause a conflict, and those which are an interfering relationship cause mistake actions.

There are some studies by hypnotically induced dissociated motives without con-
sideration of the unacceptable contents to oneself such as Janet (1907) had proposed (Hilgard, 1973, 1976; Knox, Crutchfield, & Hilgard, 1975; Messerschmidt, 1927–8; Prince, 1908–9; Stevenson, 1976). There are also some studies examining mistake actions or conflicts without consideration of the awareness of motives (LaFave, 1958; Lewin, 1935; Mackay, 1973; Mannell & Duthie, 1975). Some works have also been done focusing upon unperceived motives (Ach, 1959; Naruse & Obonai, 1955, 1958; Monzen, 1973, 1976, 1977, 1978).

Naruse and Obonai (1958), and Monzen (1973) gave subjects under hypnosis the task of subtracting the number on the right side from the one on the left upon the appearance of two red figures using posthypnotic suggestion, hypnotic learning, or both. They were awakened after being given the above instruction and amnesic suggestion on the task, followed by the task of addition upon the appearance of two numbers. When red numbers were presented, there was some distortion or other of the phenomena in which operations addition was changed into subtraction, or some others. Naruse and Obonai (1955) proposed the concept of conscious motive (Mc) and subconscious motive (Ms) as the interpretation of those phenomena. Mc is the motive with consciousness and in the above experiment it is also the motive of the operation of addition after awakening. Ms is the unperceived motive, and in the above experiment it is also the motive of the operation of subtraction given under hypnosis. This motive becomes Ms after forgetting the task followed by awakening. Various distortions in the performance of tasks were interpreted as the interference of Ms with Mc. Monzen (1973, 1976, 1977, 1978) also interpreted the same phenomena following Naruse and Obonai (1955). They also interpreted activation of Ms when Ms worked to cause the action by itself with the stimulus to Ms. In short, when a certain motive leads to an intentional action, it is called the “carry-on” which is also the same for Mc.

Monzen (1973, 1976, 1978) reported that the Ms caused by posthypnotic suggestion disappeared more rapidly than the Ms caused by hypnotic learning when both were activated. These studies were focused upon the fact that Ms was able to be divided into two kinds, i.e., the nature of Ms.

One purpose of this study is to examine the relationship between the difference in the subject’s age to the nature of Ms. Monzen (1973) used 12-year-old subjects who were pubescent, and in them, the mechanism maintaining motives in the subconscious is thought to still be incomplete. Then the rapidly disappearing Ms in the case of 12-year-old subjects caused by posthypnotic suggestion was given also to 18-year-old female students in order to examine the developmental difference.

The other purpose of this study is to examine which factor works more strongly, the interval being given between the instruction Mc and the stimuli activating Ms, or the number of trials reinforcing Mc. This is because it may be hard to activate Ms when the stimuli activating Ms are presented following many trials activating Mc. But, in the case there are many successive trials activating Mc, the consciousness of the instruction causing Ms may become lower at that time. Thus, Ms is thought to be activated more easily.

**Method**

**Subjects.** Fourteen female students over the age of 18. Every group had six to eight volunteer subjects. All the subjects were unable to remember contents hypnotically given as suggestions.

Morgan and Hilgard (1973) reported they could not find any difference of susceptibility to hypnosis between male and female students. Monzen (1977) also
reported that he could not find any difference between both sexes regarding this kind of task in his subjects.

Design of the experiment. The design of this experiment was similar to Monzen's (1976, 1977, 1978), illustrated in Fig. 1.

The subjects were first hypnotized, then given a certain task $T_H$, and stimuli $S_H$ for the $T_H$, and the behavior $B_H$ for these were confirmed. The subjects were brought back to the waking state after the suggestion of amnesia followed by $T_W$ and $S_W$. Then $S_{H+w}$ (the mixture of $S_H$ and $S_W$) was given after $B_w$ to $S_w$ by the subjects. The contents of $B_{H+w}$ caused by $S_{H+w}$ were examined.

$M_S$ is thought to be caused by $T_H$ in the experimental procedure, while $M_C$ is thought to be caused by $T_W$.

Calculations that were additions and subtractions were used as $T$. $T_H$ were given as posthypnotic suggestions.

Two groups were used for $T_W$ trials. One group (F-group) had one trial, and the other group (M-group) had five trials. This M-group had the same procedure as the posthypnotic suggestion group in Monzen's study (1973).

Stimuli. Twenty lustrous white cards which measured 10 cm long by 20 cm wide were used. These cards were the same as Monzen's (1973). Each card had two numbers. They were printed in the middle, 5 cm from the bottom and 5 cm, 15 cm from the left edge on the same card. The size of the numbers were 2 cm long by 1.5 cm wide. There were two kinds of cards: One had two red numbers on it, and the other two black numbers. The two numbers on all the cards, except for the two red ones, were selected from the table of random numbers so as to result in a number on the left not being less than the one on the right. The numbers on the two red cards were selected so as to result in a number on the left being less than the one on the right.

Procedure. The standard hypnotical procedure for adults made by Naruse (1968) was used as the hypnotizing procedure. In it, there are 22 items of suggestions, eight of which were chosen in this study. They are; postural sway, moving hands together, finger lock, hand lifting, visual hallucination, taste hallucination, fly hallucination, and forgetting ones own name.

First, the procedure in M-group will be described. The subjects were induced into a hypnotic state up to the level of suggestion of forgetting their own name, and then they opened their eyes in that state followed by the following posthypnotic suggestion.

"Now, I will awake you. I will show you red number cards and black number cards like these (showing them). There are numbers on each one like this (showing a red number card). When you see red numbers, you will subtract the right number from the left one. Well then, tell me what you do when you see two red numbers. (Here, the experimenter confirms the subjects' understanding, and if there are any misunderstanding, it is corrected by the experimenter.)—Yes, after awaking you will always subtract the right number from the left one on seeing two red numbers like this. You will be presented two red numbers many times, and at that time you will always subtract the right one from the left like the way I am doing now. You will perform subtraction only when you see red numbers."

Then they again closed their eyes and
are given the following hypnotic suggestion.

"I will count up to eight. You will be brought back refreshed to the normal state after I have counted up to eight. But you will not be able to remember what I have said in this room now, and what you have done and felt. But you will be sure to feel as if you have been sleeping. You will never remember, nor even intend to remember."

The degree of amnesia was examined after waking. They are asked, "What was there?" confirming the amnesia of the posthypnotic suggestion. Even if they remembered that they had seen cards but could not remember that they had performed subtraction upon the appearance of two red number cards, then they were judged to have partial amnesia due to the posthypnotic suggestion and were used as members of the group. When subjects who had been given the posthypnotic suggestions, remembered that they were to perform subtraction when they saw two red numbers, the data obtained from them were omitted. After examination of the degree of the amnesia, they were given the following instruction:

"Now I will show you cards with two numbers. Please add these two numbers. Please perform addition in all cases."

The first list consisted of five cards with black numbers, and five cards with red numbers. The second consisted of five two-black number cards and five two-red number cards, for a total of 20 cards. The two cards with two red numbers which, if subtracted, would result in negative numbers were put in the eighth and seventeenth positions. The answers were written on record sheets by the subjects. This procedure was the same as that of Monzen's PHS group (1973) with the exception of the hypnotic induction procedure, which was nearly the same as well.

The procedure in F-group was as follows: The subjects were given the same instructions as M-group after awakening, and they were presented one black two-number card, five red two-number cards for the first list, and five black two-number cards, five red two-number cards for the second, and then four black two-number cards were added for a total of 20 cards. The two cards in which subtraction would result in negative numbers were put in the fourth and the thirteenth positions. The first and second lists were referred to as two five red number cards. The procedure in F-group was the same as that of the M-group except for the order of presentation of the stimuli.

Cards were presented 50 cm in front of each subject. The next cards were presented after the subject answered. Card presentation time and the presentation interval were not defined.

There are many reports that the same subjects were used for all conditions, but by doing so, the subjects may become aware of the expectation of the experimenter and answer according to those expectations (Orne, 1959). In order to avoid these cases, each subject was used for only one condition.

RESULTS

The conflicts between $T_H$ and $T_w$ were caused in the trials in which $S_{H+w}$ were presented. The five trials using the first presentations of $S_{H+w}$, are called the "first list", and the second five trials the "second list". $B_{H+w}$ are thought to be caused during the trials of presentations of $S_{H+w}$. In this experiment, $B_H$, questions, hesitations, influences, and $B_w$ were caused as $B_{H+w}$. Judging from the point of view of $T_H$ interference with $T_w$, there are no changes (N), questions (Q), hesitations (E), influences (I), and conversions (C). I defined them as the indices of $B_{H}$ interference with $B_w$. Q means "May I add?" or "May I subtract?" to which the experimenter answered, "Please feel
TABLE 1
The analysis of variance for the results in Fig. 2

<table>
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<th>SS</th>
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<th>MS</th>
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** p < .01

TABLE 2
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* p < .10

free to do so.” E means behaviors which had clearly longer reaction time compared with those in the Sw presentations. I means mistake calculations or the answers written in utter disregard of designated blanks. C is B_H. There are indices of neither correction nor stopping compared with Naruse and Obonai’s indices (1958). These indices were omitted because there were more corrections in the control group which had only Sw and Tw in Monzen’s data (1976) so that the index was not for T_H interference with T_w, and there was no stopping because in this procedure, the experimenter waited until the subjects had finished each action before presenting the next stimulus. Therefore, only the above mentioned five indices were considered as various T_H interferences with T_w.

Four indices, excluding N, were divided roughly into Q and E, which were interferences in the process of the behavior, and I and C, which were interferences in the results of behavior. Dividing the indices in this way, the interferences of I and C are understood to be larger than Q and E. Comparing Q with E, E is a larger interference than Q. Comparing I with C, C is a larger interference than I. They are orderly arranged starting from larger T_H interferences with T_w; C, I, Q, and E. Adding N, five orders were made. The following analyses were made on the basis of this ordinal scale.

Figure 2 shows the comparison between Monzen’s PHS group (1973), in which the subjects were 12-year-olds, with the same procedure as used in this study, and M-group. Guilford (1954) reported that one might use F analysis of the numerical values from the ordinal scales. This is the approach used here, also. Table 1 shows the result of F analysis. This table shows that the differences between PHS group and M-group, and the first list and the second list, and the interaction were significant (p < .01).

Figure 3 shows the comparison of M-group and F-group. Table 2 shows the
result of $F$ analysis. The result shows a significant tendency between both groups, and no significant difference for the lists nor for the interactions.

Next is a discussion of their introspection when $S_{H+w}$ were presented. Two of eight subjects in M-group reported that the result of subtraction had flashed through their minds. None of the subjects in the PHS group and furthermore none of the 55 twelve-year-old hypnotized subjects in Monzen's studies (1973, 1976) reported that the subtraction had done so. In contrast, ten of 23 hypnotized adult subjects in Monzen's study (1977) who were again checked, reported that the answer resulting from the subtraction behavior had flashed through their minds. $\chi^2$ analysis of the age difference resulted in a significant difference ($\chi^2=17.75, df=1, p<.01$). On examination of the behavior during the first 20 trials of ten subjects, three of them had shown $B_H$ during only a few trials, and one had shown $B_H$ during all trials. But due to the differences in the procedure between this study and Monzen's (1977), it is necessary to discuss in detail the behavior of the two subjects in whose mind the answer resulting from subtraction had flashed. In one, when $S_{H+w}$ were presented, E and C appeared alternately. In the other, E appeared in all trials.

The relationship between the subjects who reported changes of consciousness and those who showed $T_H$ interferences with $T_I$ were examined. Specifically, the changes of consciousness are: "I felt uneasy", and "I felt difficulty in seeing the letters that time", etc. There were four of 16 subjects in M-group and F-group who reported changes of consciousness. All four subjects showed the behavior $B_{H+w}$ excluding N. Five of six subjects reported changes of consciousness. All five also showed behavior $B_{H+w}$ without N. Fourteen of nineteen subjects in Monzen's study (1973) reported changes of consciousness. Thirteen showed the behavior without N. The strength of the relationship between the changes of consciousness and the $T_H$ interference with $T_I$ were examined in the 12-year-old subjects (Monzen, 1973) and in the adult subjects. The correlation $\phi$ coefficients were .56 ($\chi^2=6.77, df=1, p<.01$) in the 12-year-old subjects and .40 ($p<.10$) in the adult subjects.

**DISCUSSION**

In mistake actions related to behavior distortions, the motives which cause the original actions or behaviors may be called "conscious motives (Mc)" because one is able to be consciously aware of them. If only Mc had worked, mistake actions or behavior distortions may not have been caused. But different motives are thought to work because such phenomena do occur. However, the person, himself cannot be aware of why mistake actions were caused. Therefore, the motives which worked here are thought to be ones which one is not able to be aware of, namely "subconscious motives (Ms)". In this study, Mc are thought to be activated when the actions caused by Mc appear. It is the same for Ms. As the actions caused by Mc are contrary to those
caused by Ms, Mc and Ms may cause conflicts. The actions appearing when stimuli simultaneously activating both Mc and Ms are presented are determined in accordance with the competition of Mc and Ms.

Based on the above predictions, the results were discussed: First, $T_H$ interferes with $T_W$ differently in each of the two age levels. In accordance with Table 1, $T_H$ interference in the adults were larger than in the 12-year-old subjects, and in the 12-year-old subjects, $T_H$ interference disappeared rapidly, whereas in the adults, it did so slowly. The interference in the first list was larger than in the second. As a result, we can see that there are differences according to age. That is, Ms in adults may have a longer and stronger interference with Mc. In other words, the mechanism of maintaining Ms is thought to be not perfectly developed in the 12-year-old subjects. This fact must be examined further using subjects of various ages. From the results of the experiments reported in this study, it is still too early to conclude that adults necessarily exhibit more mistake actions than children. In addition, the mistake actions studied in this paper are only a part of all mistake actions. But it is now more easily understandable how to arrive at these results by the "dissociation" concept of Janet (1907). That is, it is possible to deduce that the mechanism of dissociation is built up as people grow older. As it is built up, the borderlines among dissociated things may become firmer, so it may be more difficult for dissociated things to be fused again, and Ms may continue longer.

The next result has to do with the tendency of larger $T_H$ interference in M-group than in F-group. In this regard, the factor of trials from the instruction causing Mc to the stimuli activating Ms may influence the activation of Ms. The more trials there are, the stronger the activation may be. From this, it is possible to deduce that attention to the instruction of Mc may become low while experiencing the trials using Mc, and it may thus be easier for Ms to be activated. In other words, the lower the attention to Mc is, the easier it may be for Ms to be activated. Thus, attention is thought to play a large role for the activation of Ms.

None of the 12-year-old subjects reported that the answer to the subtraction flashed through their minds, but many of the adult subjects did. As a result, it is possible to say that adults may use more visual imagery when thinking than 12-year-olds. From the point of view of developmental psychology, psychologists usually assume that the younger people are, the more they are apt to think using concrete imageries, but in calculation tasks, adults think using more visual imageries than 12-year-olds. Furthermore, the subjects who reported that the results caused by Ms flashing through their minds in the form of visual imageries scarcely showed $B_H$. This is thought to result from the fact that their consciousness controlled the answers caused by $B_H$ when they flashed through their minds in the form of visual imageries. Visual imageries are thought to be one of the means of reflecting things to be tested in a TOTE unit as reported by Miller, Galanter, and Pribram (1960). Accordingly, the answers in the form of visual imageries might scarcely appear in their own form by feedback circuits.

Next, we consider the correlation between changes of consciousness and $T_H$ interferences with $T_W$. In 12-year-old subjects, the correlation was identified as significant, but in adult subjects, it was not. As a result, in 12-year-olds, the changes of consciousness due to the hypnotic trance is thought to greatly influence $T_H$ interferences with $T_W$, but this influence is less in adults.
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