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Self-esteem enhancement in children with attention-deficit/hyperactivity disorder

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The present study was conducted on two elementary-school children with attention-deficit/hyperactivity disorder (ADHD) to examine whether learning to write Kanji (Chinese-originated characters) would enhance their self-esteem. Changes in self-esteem were analyzed by using the self-evaluation method which involves only positive self-descriptions given by the participants. Self-evaluation after learning Kanji revealed the tendency for increased self-esteem in both participants. Qualitative analysis of the participants' positive descriptions confirmed that learning to write Kanji served as a source for their self-esteem.

Key words: self-esteem, ADHD, writing of Kanji

Introduction

Self-esteem of children with learning disabilities (LDs) or ADHD has been reportedly declining due to failures in various social and educational settings found in daily life (Treuting & Hinshaw, 2001). Avoiding such a decrease in self-esteem is thought to be important in children with ADHD in order to prevent secondary disorders.

Most self-esteem scales utilize both positive and negative items. For example, Rosenberg scale, a representative self-esteem scale, has five positive and five negative items (Rosenberg, 1965). Conley, Ghavami, VonOhlen and Foulkes (2007) measured self-esteem using the Rosenberg scale and showed that high-school students with LDs or emotional disturbance had significantly lower self-esteem than those without such disabilities or disturbance ($F(2, 47) = 3.89, p < .03$).

Our study on self-esteem of elementary-school children using the Rosenberg scale revealed a significant correlation between self-esteem scores and psychological discomfort at the time of the evaluation ($r = .500, p < .01$); children with lower self-esteem had a higher level of self-disgust than those with higher self-esteem when self-esteem was measured. When the self-evaluation by free description was used, which can give rise to negative self-concept children with a higher incidence of negative expressions in their descriptions were shown to have a tendency to experience stronger psychological discomfort (Tsurumaki, Nihei, & Sato, submitted).

Thus, when performed on children with low self-esteem, measurement using the scales that elicit negative self-evaluation can result in psychological discomfort and sometimes further implant and enhance negative self-concepts.

To solve this problem, we proposed a "self-evaluation method by free description which solely involves positive self-concepts" (hereafter referred to as "self-evaluation method with

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positive descriptions”) (Tsurumaki *et al.*, submitted).

In the present study, children with ADHD attending a regular elementary school having difficulty writing Kanji received instructions on writing. Then, their self-esteem was assessed using the self-evaluation method with positive descriptions in order to examine whether learning to write Kanji created changes in their self-esteem.

Methods

Participants

Participant A was sixth-grade girl (11 years and ten months old) diagnosed with ADHD and LDs who was at the inception of Kanji writing instructions. When tested to write Kanji characters of a second-grade level before beginning instructions, the rate of correct answers was 39.5%.

Participant B was a sixth-grade boy (11 years and nine months old) diagnosed with ADHD and LDs who was at the inception of Kanji writing instructions. When tested to write Kanji characters of a second-grade level and read those of a second, third and fifth-grade level before beginning instructions, the rate of correct answers for writing was 26.0% and reading 66.5%, 62.0% and 32.0%, respectively. The writing of Kanji characters expected of third and fifth graders was not tested.

Both Participants A and B had ADHD, were attending regular class in elementary schools, and had difficulty in writing Kanji. They were also attending individual training sessions at a university which provided training in writing. The individual training sessions were scheduled every other week, on Saturday mornings or on weekday evenings, for approximately two hours.

Both participants strictly avoided talking about their inability to write Kanji early in their attendance at the individual training sessions. For example, when they were asked how they feel (if they like or dislike studying Kanji) or about the actual situation of writing Kanji (to what extent they can write), they changed the subject to different topics by suddenly starting to talk about what happened on that day or by answering “I cannot do (write) Kanji” or “I am not good at Kanji.” In other words, both participants were aware that they were unable to write Kanji well despite repeated practice in writing and that they performed poorly in school. However, when the instructors asked them if they wanted to be able to write Kanji, both demonstrated a positive attitude towards improving themselves.

Procedures

The training in writing was provided using computer software developed for Kanji training through constructed response matching-to-sample procedures (CRMTS) (Tsurumaki, Yoshida, Anzai, & Kataoka, 2003), based on the single-subject design. The experiments in this study were conducted in AB design by scheduling follow-up consultations after the completion of the interventions.

Six Kanji characters (浅, 折, 焼, 続, 伝, 積), which both participants were unable to write, were selected as the target Kanji characters in the training. These are the standard characters that should be taught in the fourth grade. A total of ten trails of questions asking Japanese or Chinese pronunciation were prepared and used in one session.

During the baseline period, the participants were asked to write the Kanji characters which correspond to the readings in the ten trails of questions to confirm if they were able to write them. They were then asked to write the readings in Hiragana (Japanese phonograms) next to the Kanji characters printed on the question sheet. One session took approximately five minutes.

During the intervention period, three exercises including “pre-task assessment of writing”, “CRMTS task,” and “probe test in writing” were carried out in this order as one block for each individual training session at the university. One block of intervention took approximately 30 minutes. The methods used in the “pre-task assessment of writing” and “probe test in writing” were the same as those used during the baseline period. The “CRMTS task” was conducted as follows: 1) when participants touch the start-up screen and then the “START” icon is shown in the screen, a standard stimulus (Hiragana characters which represent the reading of one Kanji character) is displayed in the upper half of the screen and a comparison stimuli (ten elements forming various Kanji characters including two elements that form the above Kanji character) in the lower half of the screen, indicating the start of a trial; 2) participants touch the standard stimulus (i.e. observing response); 3) participants select the two elements of the Kanji character among ten comparison stimuli in the correct order; 4) participants select either the “ERASER” icon (to correct their response [i.e. the selection of the elements they made] when they think they made a wrong response) or “DONE”; 5) when participants select “DONE” or run past the time limit (three minutes), a feedback message indicating whether their response was correct or not is provided; 6) there are three seconds of an inter-trial interval (ITI) before the next trail of questions. One session of the CRMTS task included 12 trials and three sessions were conducted in one block of intervention.

In this task, the reading of a Kanji character was displayed in Hiragana in the upper half of the touch panel display as a standard stimulus. In the elements pool displayed in the lower half of the screen, a total of ten left or right halves of Kanji characters, five left halves in the upper row and five right halves in the lower row, were displayed in an otherwise random order as comparison stimuli. These left or right halves of Kanji characters used as comparison stimuli were derived from the six target characters of language training.

The participants were asked to first select the left and then the right half of the Kanji character. If these two were both correct, their selection was considered to be a correct response. When they made a correct response, a circle was displayed in the screen with a chime, whereas when they made an incorrect response, an × mark was displayed with a buzzer. The participants were not allowed to try again in the case of incorrect responses. The computer software was programmed so that it automatically conducts all tasks including arranging the order of the stimuli displayed on the screen, judging and recording whether the response was correct, providing feedback, and recording the response time.

The methods used during the follow-up period were the same as those used during the baseline period.

Because intervention was provided during the individual training scheduled once in two weeks, it took approximately six months for Participant A and approximately four months for Participant B to complete the writing instruction of Kanji.

Self-esteem of participants was rated using a self-evaluation method solely based on positive descriptions. During the intervention period when participants were trained through CRMTS tasks, each participant underwent measurement of self-esteem twice. With this method, only the phrases describing “what is good about me,” or positive descriptions about the participant, in the form of the sentences beginning with, “I am” are elicited from each participant and recorded. Ten columns with the same beginning of a sentence are provided in the answer sheet. In principle, the instructor elicited the positive descriptions from the participants and filled out the answer sheet in this study. At the same time, to determine psychological discomfort of the participants, they were asked after the evaluation to rate how they felt about the evaluation by selecting one of the following five answers: “it was fun,” “it was a little bit of fun,” “it was not fun, but not a pain either,” “it was a little bit of a pain,” “it was a pain.”

Results

Figures 1 and 2 show the results of learning Kanji writing and the timing of the evaluation of self-esteem (in bold arrows) of Participants A and B, respectively.

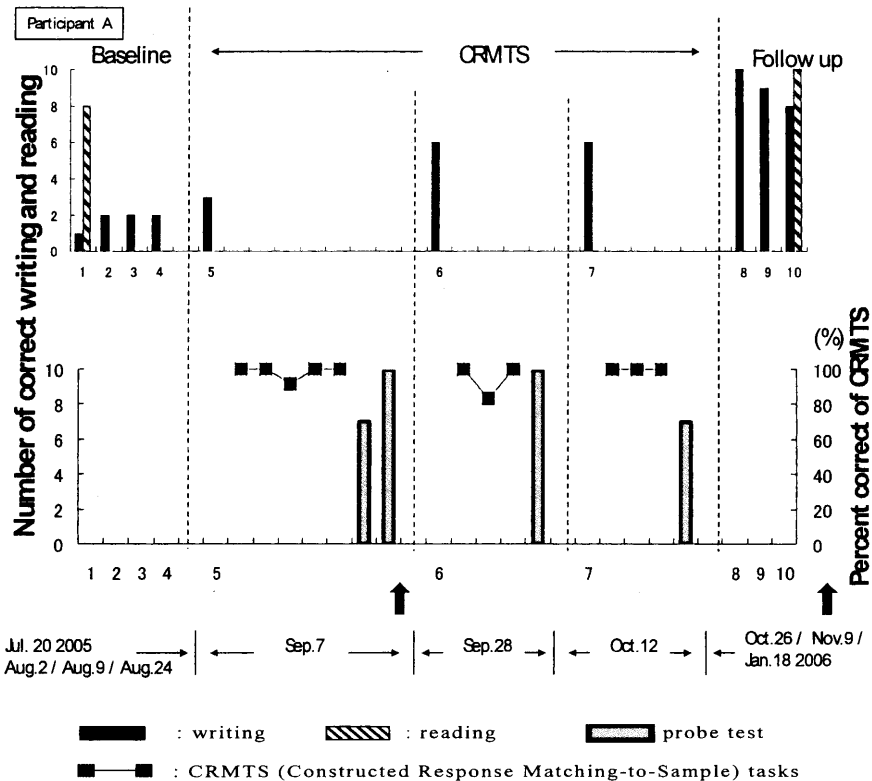


Figure 1. The results of learning Kanji writing and timing of self-esteem evaluation (indicated by bold arrows) in Participant A

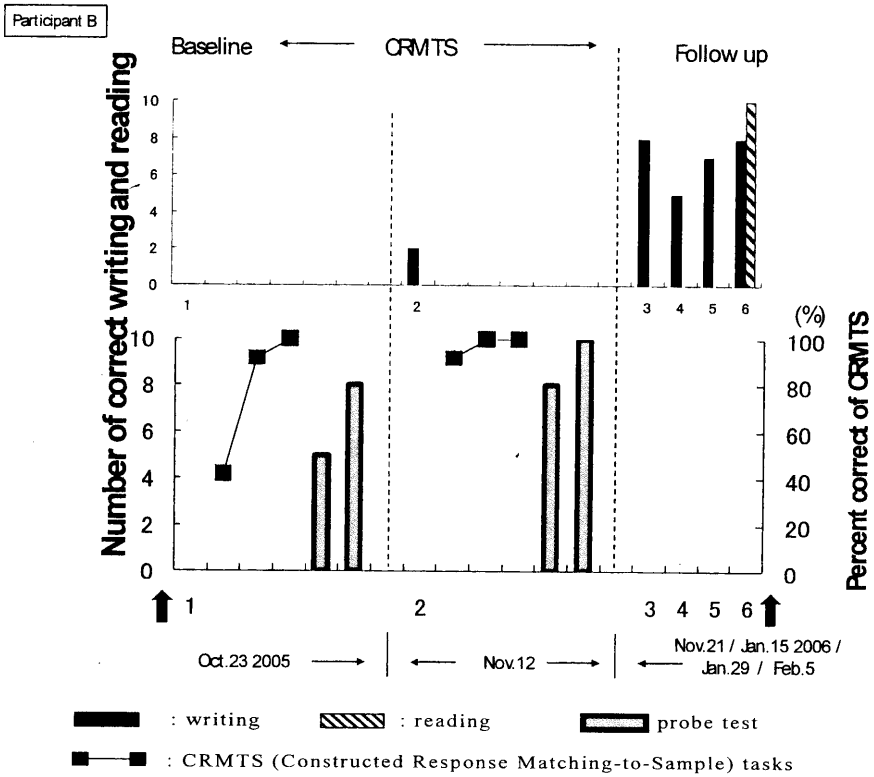


Figure 2. The results of learning Kanji writing and timing of self-esteem evaluation (indicated by bold arrows) in Participant B

Participant A wrote one or two among ten characters correctly (correct responses) during the baseline period, although the number of correct responses varied by session. In the follow-up period after the completion of intervention, her ability to write eight to ten among ten characters correctly was confirmed. Also after the intervention, she was able to read all ten characters.

When the first session in the baseline period was conducted, Participant B was unable to write a single character and refused to take the test. Therefore, no more tests were conducted during the baseline period and intervention was instigated. As the percentage of correct responses in CRMTS tasks improved, he wrote more characters correctly during the probe tests. In the follow-up after completion of intervention, it was confirmed that he was able to write six to eight among ten characters correctly, although the number of correct responses varied by session. Also after the intervention, he was able to read all ten characters correctly.

Self-esteem was evaluated after the fifth session and the tenth session for Participant A and before and after the intervention for Participant B.

Participant A provided ten items of “what is good about me” in both of the two self-esteem ratings. The instructor interviewed her about the positive description and recorded them for the first rating, while the participant filled out the answer sheet by herself in her free time for the

second rating. During the assessment of the level of psychological discomfort at the self-esteem evaluation, she selected “it was a little bit of fun” for the first rating and “it was fun” for the second rating, indicating a reduction of psychological discomfort.

Participant B provided ten and seven items of “what is good about me” in the first and the second rating, respectively. His psychological discomfort at the self-esteem evaluation changed from “it was a little bit of fun” at the first rating to “it was not fun, but not a pain either” at the second rating. However, a description, “I am able to memorize Kanji” appeared in the second rating of self-esteem. This phrase represents positive descriptions of writing Kanji, a topic that was not included in the first rating.

Discussion

The present study sought to examine whether self-esteem of participants with ADHD changes as they learn to write Kanji using the self-evaluation method which solely involves positive descriptions.

Participant A did not show any change in the number of items she provided in the self-evaluation method with positive descriptions, providing ten items in both two occasions. However, the level of psychological discomfort at this self-evaluation changed from “it was a little bit of fun” to “it was fun.” This most likely indicates an improvement in self-esteem. Before the second self-evaluation, she was told by the instructor that she finished learning writing Kanji characters, the initial goal, and this feedback from the instructor was probably reflected in the change in self-esteem.

Furthermore, Participant A offered to write “what is good about me” in the second self-evaluation. She added an “upward mark” (a spiral-shaped arrow pointing upward) after each of the four out of ten items of positive descriptions. When she was asked what this mark meant, she explained, “it shows I am happy and in a good mood.” This behavior of writing down positive phrases about herself without being asked may have contributed to the reduction of psychological discomfort.

The number of items of positive self-description provided by Participant B decreased from ten (the first evaluation) to seven (the second evaluation). His psychological discomfort at the evaluation changed from “it was a little bit fun” to “it was not fun, but not a pain either.” The instructor wrote down the positive description elicited from Participant B in the first self-evaluation; however, in the second evaluation Participant B was asked to write the description down by himself. Participant B was originally not good at writing and the burden he felt about writing many characters to form sentences describing himself possibly influenced the rating of psychological discomfort at the self-evaluation.

However, among the descriptions in the second self-esteem evaluation, the statement, “I am able to memorize Kanji” appeared, which is a positive description about an academic skill. In addition to this description, another statement regarding his attitude, “I am serious about everything” also appeared. Based on these results, the fact that he learned Kanji writing was considered to be incorporated into the change in his self-esteem as a positive element.

Two participants in this study had ADHD and were unable to learn how to write Kanji by conventional means of instruction involving repeated writing exercises. In addition, both tended to have low self-esteem. However, they were able to learn how to write them by a new method of teaching writing behavior that involves learning of CRMTS behavior and such learning was shown to change self-esteem of these two children with ADHD.

Furthermore, as reflected in the "upward marks" written by Participant A and her impression on writing the phrases by herself, the very procedure of describing positive aspects of herself possibly elevated her self-esteem effectively in the self-evaluation method with positive descriptions. In other words, the self-evaluation method with positive descriptions may not only prevent children with ADHD with low self-esteem from experiencing psychological discomfort at evaluation, but also improve their self-esteem through its rating procedure. Therefore, this self-evaluation method was considered to be effective, especially for children who tend to have lower self-esteem.

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