

Improvement of the Feeling of Self-Affirmation by Using a Self-Reframing Diary System

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Abstract—Self-affirmation is the feeling of being able to affirm one's own value and meaning of existence. It is known that self-affirmation among the Japanese is extremely low compared to that of other countries. Low self-affirmation is a negative influence in various aspects of daily life, and therefore, it is important to increase self-affirmation. We construct a self-reframing diary system that enables users to perform a counseling method called reframing, in which they change the framework in which they look at things and see themselves from a different perspective, in order to enhance their self-affirmation, and examine whether self-reframing can improve self-affirmation. The results of an experiment showed that although self-reframing was not effective in improving self-affirmation for all participants, more than half of them improved their self-affirmation, and in particular, participants who originally had high self-affirmation could expect a further improvement in self-affirmation through self-reframing.

Keywords; *self-affirmation; self-reframing; counseling method; diary system.*

I. INTRODUCTION

Recently, a survey on self-esteem conducted by the Cabinet Office [1] showed that the self-affirmation of Japanese people is overwhelmingly lower than that of other countries. The survey covered men and women from seven countries, and the percentage of respondents who answered that they were "satisfied with themselves" was the lowest in Japan. Self-affirmation refers to the feeling of being able to affirm one's own value and meaning of existence. People with a high sense of self-affirmation tend to see things with a positive attitude and are able to honestly accept their own failures. Conversely, people with low self-affirmation often fear failure and find it difficult to take action or to accept praise. Thus, low self-esteem has a negative effect on various aspects of daily life, making it extremely important to improve self-affirmation.

One method of improving self-affirmation is reframing, a technique used in counseling [2]. This is to change the framework in which we look at things and perceive them from a different point of view. For example, a personality that is easily bored can be viewed from a different perspective as being curious. In addition, "surgery with a 10% failure rate" and "surgery with a 90% success rate" both mean the same thing, but the impressions are completely different.

Sano et al. [3] proposed a diary system that uses reframing to reduce self-reflection by having others give positive

interpretations to negative content. Self-reflection is the act of focusing on oneself in a state of negative emotion. Repeated self-reflection can lead to negative thoughts and depression. Reducing self-reflection reduces negative views of oneself, which can lead to an increase in self-affirmation. The evaluation results of the proposed system by Sano et al. showed that self-reflection decreased in users of their diary system. This suggests the effectiveness of reframing. However, this study assumed that others who are not the diary writer reframe the diary, but it is not always the case that there are others who reframe diaries in daily life. In addition, if self-affirmation is high, people can overcome negative attitudes and have confidence in themselves, and thus should be able to improve their self-affirmation on their own.

In this study, we developed a diary system that allows self-reframing, and examined whether self-reframing can improve self-affirmation, and whether there is a difference in the improvement of self-affirmation between self-reframing and reframing by others.

The rest of this paper is organized as follows. Section 2 reviews research on improving self-affirmation. Section 3 reports the results of a survey on self-affirmation conducted by the authors among university students. Section 4 describes the diary system developed in this study to enhance self-affirmation. Section 5 describes and discusses the experimental procedures and results of the diary system evaluation described in section 4. Section 6 summarizes this paper and discusses future work.

II. RELATED WORK

This section reviews research on reframing and journaling, which are common methods for increasing self-affirmation. In addition, we introduce an approach to increasing self-affirmation through the act of praise.

A. Research on Reframing

In counseling, reframing is a technique for changing the cognition and meaning-making of the person being counseled (hereafter referred to as the "client"). Yamamoto et al. [4] conducted an experiment in which 48 undergraduate and graduate students were divided into two groups, with those in one group acting as the counselor and those in the other acting as the client, to examine the emotional effects of reframing in a counseling situation. Psychological measures using the Self-Esteem Scale [5] and Emotion Scale [6] were taken before and

after the experiment, and the results were analyzed for variance. The results showed that only the client's positive emotions were significantly higher after the experiment, and both the counselor and client's negative emotions were significantly lower after the experiment. This experiment revealed that reframing has an effect of altering the emotional state of the recipient of the reframing, making the recipient more positive.

Sano et al. [3] proposed a diary system for reducing self-reflection and depression. In an experiment to evaluate the system, the experimenter gave positive interpretations to the negative elements written in the diary by the system's users, and verified the effects of the system on self-ruminations and depression of the system users. In the evaluation experiment, 9 participants were classified into 3 personality traits (self-ruminating trait, self-ruminating and self-reflection trait, and self-reflection trait) based on a preliminary questionnaire result about personality traits, and were divided into 3 groups: with intervention, without intervention, and without personality (details are described below.), so that the three personality traits would not overlap. The diary entries consisted of three items: "events," "feelings/behaviors," and "personality." The groups with and without intervention were asked to fill in all items, while the group without personality was asked to fill in two items: events and feelings/behaviors. Comparing the pre-experimental scores on the personality trait scale with the post-experimental scores, the scores of the group with the intervention decreased, while the scores of the other two groups increased. The results showed that the negative attitude was alleviated by providing a positive interpretation. This suggests that the positive interpretations given to the negative content allowed the users to learn new ways of thinking from perspectives they did not have, and helped alleviate their negative thoughts. On the other hand, the mean score of the Self-Introspection Scale increased the most in the group without personality, while there was no increase or decrease in the group with intervention. In Sano et al.'s paper, others need to do the reframing. However, it is not always possible to find others who can reframe. Therefore, our study examines whether it is possible to improve self-affirmation by reframing by oneself.

B. Research on Journaling

Journaling is the act of writing down one's feelings and thoughts. Some studies have shown that the incidence of stress-related illnesses varies greatly depending on whether or not a person confides in others about traumatic events experienced in the past [7][8]. Pennebaker et al. [9] checked whether describing past trauma, known as journaling, affects short-term and long-term health status. 46 university students participated in the experiment, journaling for 15 minutes each night for 4 days. The 46 students were divided into three groups: those who wrote about their feelings of the event without mentioning the trauma, those who wrote about the trauma without mentioning their feelings, and those who wrote about both the trauma and their feelings. After each writing session, the participants' heart rate, blood pressure, and physical condition were recorded. To examine the long-

term effects on their health, the participants completed questionnaires about their health status and whether or not they visited the hospital during the six months after the end of the experiment. The results of the experiment showed that all experimental participants had a significant decrease in blood pressure after journaling. In addition, the number of hospital visits increased in the group that wrote about their feelings about the event without mentioning the trauma and in the group that wrote about the trauma without discussing their feelings about the trauma. The group that wrote about both the trauma and their feelings reported fewer health problems than the other group. The diary system we are developing has a journal aspect, in which the participants write down daily events, so that daily journaling is conducted, in which they write down their feelings and thoughts.

C. Research on the act of praise

Murao et al. [10] focused on the act of giving praise and developed an Social Networking Service to improve self-affirmation through mutual praise within a group. Based on the hypothesis that indirect praise from others is more effective in improving self-affirmation than direct praise, they conducted a two-week experiment using two SNSs, one in which self-praise was not visible (experimental group) and the other in which self-praise was visible (control group), with 11 university students. To test the hypothesis, the degree of improvement in self-affirmation was measured three times before, during, and after the use of the system, using a self-affirmation scale. In our study, we implemented a system that enables self-reframing so that self-affirmation can be increased without other people.

III. CURRENT SURVEY ON SELF-AFFIRMATION

The target users of the experimental system developed in this study were undergraduate and graduate students at the authors' university. In order to grasp the degree of self-affirmation of the target users, we conducted a survey on the current status of self-affirmation in July 2022. The survey method was to send the URL to a survey form created by Google Forms to all undergraduate and graduate students affiliated with the authors by e-mail. On the survey form, we explained the handling of personal information and collected data at the beginning of the survey, and only those who understood the explanation at the beginning and answered that they could cooperate with the survey were asked to answer the survey questions. The Rosenberg Self Esteem Scale Japanese edition (RSES-J) [11], a measure of self-affirmation, was used for the survey questions. The scale consists of 10 items, which are rated on a 4-point scale, and the total score of all items is used to evaluate the level of self-affirmation.

As a general guideline for judging the level of self-affirmation, a score of 20 or less is considered low, and a score of 30 or more is considered high. The average score for Japanese adults is around 25. 86 responses were obtained for this survey. The results showed that the average score was

23.87. About one out of three participants had low self-affirmation (less than 20 points). From these results, we can conclude that most of the participants in this study did not have high self-affirmation, and that there is room for improving their self-affirmation.

IV. SELF-REFRAMING DIARY SYSTEM

This section provides an overview of our system and describes how it is used.

A. System Overview

The diary system we developed in this study aims to improve self-affirmation. Users of the system can enter events of the day and their feelings at the time, and they can reframe the entries themselves or have them reframed by others. The system is implemented as a web application and can be used from a PC or a smartphone. React.js was used for the front-end development, and Node.js for the back-end development.

B. How to use this system

When logging into the system, each user uses his/her own google account. When logging in for the first time, they were redirected to the new registration screen, where they registered their nickname and reframing method (“your own” or “someone else’s”).



Figure 1: Diary System’s Home Screen.

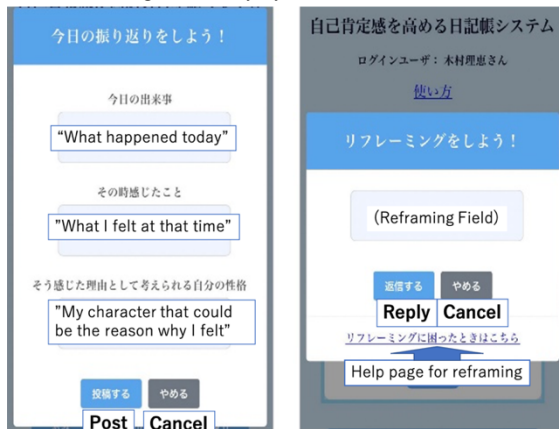


Figure 2: Diary submission page (left) and Reframing page (right).

To post a diary entry, the user clicks the "Post" button on the home screen (Figure 1), and is taken to the diary posting window (Figure 2, left). In this window, three items can be filled in: "What happened today," "What I felt at that time," and "My character that could be the reason why I felt ". If the third item is negative, our system users will reframe the diary when the system is used the next day.

Clicking the "Reply" button at the bottom of the diary allows the user to reframe on the home screen (Figure 1), and the reframing window (Figure 2, right) will appear. Once the reframing is filled in, the user clicks the "Reply" button to complete the reframing.

A help page for reframing (Figure 2, right) is provided in case the user does not know what words to use when reframing, or if the reframing process does not proceed smoothly. This help page includes target words and examples of expressions after reframing (for example, "tenacious" and "single-minded" are examples of expressions for "reluctant to give up") on the reframing window.

V. EXPERIMENT

In this section, we describe the outline of the experiment, the experimental procedure, and the experimental results. Also, we discuss the effect of self-reframing, which is the main point of this study.

A. Outline of experiment

The purpose of the experiment was to confirm whether self-affirmation improves when participants reframe the diary by themselves or by others. Participants kept a diary for two weeks using the diary system described in the previous section and reframed the diary by themselves or with the help of others. The participants were divided into two groups.

Group A: 9 participants reframed the diary entries by themselves.

Group B: Participants reframed the diary entries among themselves (5 pairs of 10 participants).

The reason for pairing up and reframing each other's diaries in group B is to avoid bias in the number of reframing sessions.

B. Experimental procedure

The experimental procedure was as follows.

- (1) The participants answered the questions of the RSES-J scale described in Section 3 as a preliminary questionnaire.
- (2) As a reframing exercise, participants listed 20 disadvantages and rewrote them as advantages.
- (3) Participants started keeping a diary from the first day of the experiment and reframed the previous day's diary from the second day onwards. This process was continued for 14 days.
- (4) After the 14 days of the experiment, the participants answered a questionnaire (RSES-J scale questions and questions about the experiment).

C. Results of the experiment

Tables 1 and 2 list the mean and standard deviations of the scores on the self-affirmation scale before and after the Group A and Group B experiments. We also calculated the effect size of the self-affirmation scale scores before and after the Group A (reframing by oneself) experiment and before and after the Group B (reframing by others) experiment. The results showed that the difference between the pre- and post-experiment averages for Group A was small (Glass's $\Delta=0.26$), while the difference between the pre- and post-experiment averages for Group B was almost negligible (Glass's $\Delta=0.14$).

TABLE I. SELF-AFFIRMATION SCALE SCORE MEANS AND STANDARD DEVIATIONS FOR GROUP A (N=9).

	Pre-experiment	Post-experiment
Mean	23.33	25.33
SD	7.20	9.66

TABLE II. SELF-AFFIRMATION SCALE SCORE MEANS AND STANDARD DEVIATIONS FOR GROUP B (N=10).

	Pre-experiment	Post-experiment
Mean	24.40	25.40
SD	6.87	6.81

The participants in Group A and Group B had a mixture of low, average, and high scores on the self-affirmation scale before the experiment. The standard deviations in Tables 1 and 2 indicate that the self-affirmation scores of the participants varied. The self-affirmation scores of all participants before and after the experiment are shown in Figures 3 and 4. The self-affirmation scores are out of 40 points.

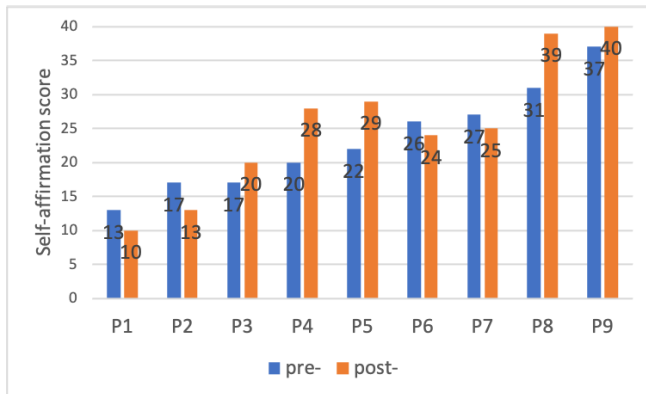


Figure 3: Self-affirmation scale scores of Group A's participants (P1-P9) pre- and post-experiment.

Figure 3 shows that the number of Group A participants whose scores increased before and after the experiment was 5 (the highest score range was 8), while the number of Group A participants whose scores decreased before and after the experiment was 4 (the lowest score range was 4).

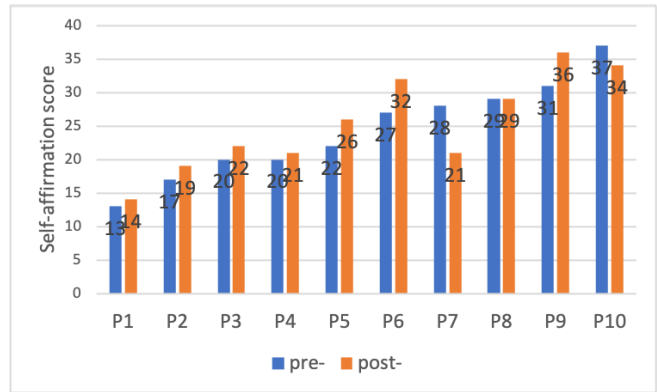


Figure 4: Self-affirmation scale scores of Group B's participants (P1-P10) pre- and post-experiment.

Figure 4 shows that the number of Group B participants whose scores increased before and after the experiment was 7 (the highest score range was 5), while the number of Group B participants whose scores decreased before and after the experiment was 1, and the number of Group B participants whose scores did not change after the experiment was 1.

D. Discussion of the Effects of Self-Reframing

As explained in the previous part, there was no significant difference in the mean scores on the self-affirmation scale before and after the experiment for the participants in Group A, the self-reframing condition. However, examining the pre- and post-experiment changes in the self-affirmation scale scores of the participants in Group A, the self-reframing condition, five of the nine participants in Group A increased their scores and four decreased their scores. In particular, more participants with high self-affirmation scores before the experiment increased their self-affirmation scores after the experiment than those with low self-affirmation scores before the experiment. These results indicate that although it cannot be said that self-reframing is effective in improving self-affirmation for all participants in the experiment, more than half of them improved their self-affirmation, and in particular, those who originally had high self-affirmation could expect further improvement in self-affirmation through self-reframing. Conversely, participants whose self-affirmation was low or average could either improve or decrease their self-affirmation.

We think that one of the reasons why some of the experiment participants' scores on the self-affirmation scale dropped after the experiment is related to their usual habit of keeping a diary. One of the participants said, "I usually do not spend much time in self-reflection, so my self-affirmation dropped when I conducted the reflection exercises during the experiment". From this, we consider it necessary to reconsider the method of self-reframing, including methods other than diaries, as well as other methods of self-reframing.

VI. CONCLUSION AND FUTURE WORK

In this study, we constructed a self-reframing diary system in which users perform a counseling method called reframing, whereby they change the framework through which they look at things and see themselves from a different perspective, in order to improve their self-affirmation. The results of an experiment indicated that although self-reframing was not effective in improving self-affirmation for all participants, more than half of them improved their self-affirmation, and in particular, those who originally had high self-affirmation could expect further improvement in their self-affirmation through self-reframing. In particular, we concluded that system users with high self-affirmation can expect further improvement in self-affirmation through self-reframing.

In the future, we will reconsider how to implement self-reframing, including methods other than diaries, in order to deal with participants who do not have the habit of keeping diaries and thus become more negative by writing down negative points when they reflect on themselves. We will continue to improve the system so that all of its users can improve their self-affirmation through self-reframing.

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