

OBJECTIVE APPRAISAL OF EFFECTS OF GROUP THERAPY: A Q-TECHNIQUE STUDY OF CHANGES IN SELF CONCEPTS

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By means of *Q*-sorts, Rogers (1951) had traced the changing relationship between a patient's perceived-self and her ideal-self during the course of non-directive therapy. He noted that at the beginning of treatment, there was little correspondence between the patient's perceived-self and her ideal-self (as indicated by an *r* of .21), while at the termination of treatment, the correspondence between the perceived or present-self and the ideal-self was quite appreciable (as indicated by an *r* of .69). The increased correspondence between present-self and ideal-self was primarily due to changes in the perceived-self rather than changes in the client's ideal-self.

Rogers proposed the hypothesis that the increased correspondence between the present or perceived-self and the ideal-self would be a valid measure or manifestation of progress in psychotherapy. In later years, Rogers and his co-workers (1958) conducted a large scale and comprehensive study of the effect of client-centered therapy in which his proposal was confirmed by the following findings. The total client group showed, before the therapy, a generally large discrepancy between present-self concept and ideal-self concept as these concepts were measured by *Q*-sorts.

The relationship approximated a zero correlation, indicative of low self-esteem and a decided degree of internal tension. By the end of the therapy, the discrepancy between present-self and ideal-self had decreased for a majority of clients (as indicated by a mean correlation of .34). This change was reported to be statistically

significant. The control group of this study exhibited at the outset, a small discrepancy between present-self and ideal-self, relative to the client group, represented by a mean correlation of .58. There was no significant change in this discrepancy over time, and at the follow-up point the mean correlation was .59. The differences between changes in the client group and in control group were so large as to be clearly non-random in character.

A lot of empirical studies and data of clinical interviews tend to support the contention of Rogers that positive and accepting attitudes toward the self are associated with good psychological adjustment and therefore the reduction of discrepancy between present-self and ideal-self is a valid and effective index of successful psychotherapy. In this general support for Rogers' contention, however, critical studies conducted by Block and Thomas (1955) and Friedman (1955) would be worthy of mention. Block and Thomas found that individuals expressing extreme self-satisfaction as indicated by extreme high correlation between present-self and ideal-self tended to enhance and distort themselves. They concluded that the proposal of expressed self-satisfaction as an index of psycho-therapy would be too simple and might be misleading and the relationship of expressed self-satisfaction to adjustment would be a curvilinear one which at different points on the curve would vary in its psychological imports.

Friedman shed a further light upon the problem of defensive self assessment. He investigated the relationship between the phenomenal-self, the ideal-self and the

projected-self in normal, neurotic and paranoid schizophrenic subjects. By the projected-self is meant the subject's self diagnosed and constructed by the investigator from a projective test protocol (TAT). Friedman found that the normals tended to see themselves as they would like to be, reflecting positive attitudes toward the self (as indicated by a mean correlation of .63 between phenomenal-self and ideal-self). He found that in case of psychoneurotics the correlation between phenomenal-self and ideal-self was low (.03) and subjective feelings of dissatisfaction and negative attitudes towards the self were characteristic of this group. The paranoid schizophrenic group was found to show comparatively high correlation as indicated by a mean correlation of .43. His results indicated further that both the normal and neurotic group had a significantly higher phenomenal-self—projected-self correlation than the paranoid schizophrenic group. This means that the elevated phenomenal—ideal correlation (positive self concept) of the paranoid schizophrenic group is based upon unrealistic self appraisal whereas both the high phenomenal—ideal correlation (positive self concept) of the normal and the low phenomenal—ideal correlation (negative self concept) of the neurotic group are based upon a more realistic degree of self appraisal.

These two studies seem to indicate to the present author that they do not defy the validity of Rogersian view completely but that they supplement Rogers' hypothesis.

The present author raised a more important problem as regards a measure of psychotherapeutic change. As above mentioned, Rogers and his followers have been concerned only with the discrepancy between present-self and ideal-self which, they considered, would be a valid measure of psychological maladjustment. The present author hypothesized that the discrepancy between present or phenomenal-self and self thought by the subject himself

to be perceived by other persons who were intimately associated with him would be as valid and effective as the discrepancy between present-self and ideal-self. In order to test this hypothesis, the following study had been conducted (Nagashima, 1961).

Three kinds of discrepancy scores (DS) were computed: DS between present-self and ideal-self, DS between present-self and friend-self, and DS between present-self and mother-self. Incidentally, friend-self is how the subject believes, his friends think of him and mother-self is how, the subject believes, his mother thinks of him, that is, her conception of him as he is.

Using pupils of junior high school as subjects, correlations were computed between these three variables and scores of the author's "Personality Diagnostic Test", which consists of six sub-scales, that is, abnormal tendency, neurotic tendency, self control, social maturity, leadership and lie scale. Lie scale was constructed to find out the subject who tended to defend himself and hence distortedly enhance himself. The results of this study were that the correlations between self-ideal DS and scores of Personality Diagnostic Test were not statistically significant, while the correlations between other two DS's, and scores of the test were found statistically significant. These findings seemed to show that the discrepancy between present-self and friend-self and the discrepancy between present-self and mother-self are associated with psychological maladjustment and more valid and effective as measures of adjustment than the discrepancy between present-self and ideal-self. The result was examined and analyzed further. When the subjects who obtained extremely high scores in the subtest of lie scale and hence were assumed to be defensive in self appraisal were excluded, the statistically significant correlations were found between self-ideal DS and scores of Personality Diagnostic Test.

In view of the above mentioned results, the author has concluded that to employ the discrepancy between present-self and ideal-self as a sole criterion of degree of adjustment would lead to the categorization of many maladjusted people as adjusted and *vice versa*. In order to appraise the effect of psychotherapy objectively, a sole measure of discrepancy between present-self and ideal-self as employed by Rogers and his coworkers would be necessary but not sufficient. A well developed experimental design must include, as measures of the effect of therapy, both the discrepancy or correlation between present-self and ideal-self, and the one between present-self and selves perceived by others (i.e., the subjects' notions of how they see themselves in relation to other persons who are intimately associated with them).

The aim of the present experimental study was to appraise objectively the outcomes and the effect of group therapy by using *Q*-technique recently developed by Stephenson, W. (1953). A subsidiary aim of the present study was to set forth procedures whereby other kind of psychotherapy could be studied in a comparable manner, thus eventually making it possible to obtain meaningful cross-comparison between different therapies.

METHOD AND PROCEDURE

Subjects: The subjects used in the present experimental study were pupils selected from the second grade of a lower secondary school located in Tokyo*. To all the pupils in the second grade, were administered intelligence test, the author's Personality Diagnostic Test, Sumita's Picture Frustration Test and sociometric test. The behaviors of the pupils were observed and rated by their class-room teachers. By analyzing the above mentioned data, the subjects were selected and divided into two groups i.e., experimental and control groups.

As the subjects of experimental group, twenty pupils were selected at first. Five cases were dropped out, however, because they did not complete the whole therapeutic program. As the subjects of control group, twenty pupils were also selected at first, but nine cases were omitted because it was impossible to get the necessary post-therapy tests. Thus, in the final analysis of data, the therapy or experimental group consisted of fifteen mal-adjusted subjects and the no-therapy control group consisted of eleven well-adjusted subjects. The obtained data showed that these two groups were equated in terms of intelligence, socioeconomic status of their home and family organization but they were markedly different in terms of personality organization and sociometric status in their class-room. Low scores of personality test, and low sociometric status in the class-room were characteristic of the experimental group and withdrawing tendency, feeling of insecurity, maladjustment to the friends' group and lack of motivation in learning situation were enumerated by their teachers as characteristic of the subjects of the experimental group.

The general framework of experimental design was as follows: the therapy program was administered only to the experimental group but not to the control group and before the beginning of therapy and after the termination of therapy, both of the two groups were asked to take various psychological tests and the comparisons were made between the pre-therapy tests and post-therapy tests. The further comparisons were made between the experimental group and the control group, thus making it possible to evaluate the effect of therapy.

The psychological instrument: Although various psychological instruments such as intelligence test, personality test, Picture Frustration Test and behavior rating were used, the description here was limited only to *Q*-technique, because the main objective of the present study was to trace the change of self concepts.

Q-cards containing 60 self-referent statements were given to both control and experimental subjects and they were required to sort the items (or cards) on the metrics "like-me"

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Table 1
Forced Distribution

Score	Most Like Me					Least Like Me				
	+4	+3	+2	+1	0	-1	-2	-3	-4	
Frequency	3	5	6	10	12	10	6	5	3	($n=60$)

to "unlike-me"*. The sort was a forced normal distribution sort with nine piles which is shown in Table 1. Subjects were given the following instruction.

1. Present-self sort. Sort these cards to describe yourself as you see yourself usually, from those cards that are "least like you" to those cards that are "most like you". (This sort will be referred to as P.)

2. Mother-self sort. Sort these cards to describe yourself as you see yourself in your relation to your mother. (This is how, the subject believed, his mother thought of him. This sort will be referred to as M.)

3. Friend-self sort. Sort these cards to describe yourself as you see yourself in your relation to your friend. (This is how, the subject believed, his friend thought of him. This sort will be referred to as F.)

4. Father-self sort. Sort these cards to describe yourself as you see yourself in your relation to your father. (This is how, the subject believed, his father thought of him. This sort will be referred to as Fa.)

5. Ideal-self sort. Sort these cards to describe your ideal-self. (This is a self-description of what the subject would like to be ideally. This sort will be referred to as I.)

In this way, five *Q*-sorts were obtained which represented the subject's conception of himself, ideal-self concept, and his conception of himself in his relation to his mother, friend and father. When the therapy had been completed, the procedures were repeated in which each subject were again asked to sort the *Q*-cards.

Therapy Program: The therapy administered to the experimental group was the group therapy which was combined with psycho-

drama and role playing. It consisted of nine sessions and covered the period of three weeks.

Hypotheses: The hypotheses to be tested in this experimental study can now be stated briefly as follows:

1. The inter-sort correlation of the experimental group will be significantly less than the control group at pre-therapy.

2. The experimental group will show a great increase in inter-sort correlation and will have significantly higher correlation at post-therapy than at pre-therapy.

3. The control group will show neither a great increase nor significant decrease in inter-sort correlation. Hence, the difference between the two groups found at pre-therapy will disappear at post-therapy.

4. When factor analysis is applied, the meaningful factors will be found which discriminate the experimental group from the control group.

5. When factor analysis is applied to the individual subjects of the experimental group, the dynamic changes of self concepts during the course of the therapy will be ascertained.

RESULTS

Changes in the inter-Q sort correlation

The following four kinds of inter-*Q* sort correlations were computed, that is, correlation between present-self sort and mother-self sort, correlation between present-self sort and friend-self sort, correlation between present-self sort and father-self sort and correlation between present-self sort and ideal-self sort. These correlations were, as mentioned before, hypothesized to be indices of the degree of adjustment and will be referred to as r_{PM} , r_{PF} , r_{PFA} and r_{PI} respectively.

Table 2 compares the pre-therapy and post-therapy inter-*Q* sort correlations for

* *Q*-cards constructed by the author will be available for reader's use if he asks directly the author to use it.

Table 2
Change of Inter-*Q* sort Correlations in the Experimental Group over Therapy Period

	Period	Mean	Difference	<i>t</i>	<i>p</i> <
r_{PM}	Pre-therapy	.483	+ .266	4.75	.01
	Post-therapy	.749			
r_{PF}	Pre-therapy	.441	+ .262	6.24	.01
	Post-therapy	.703			
r_{PFa}	Pre-therapy	.477	+ .142	2.38	.05
	Post-therapy	.619			
r_{PI}	Pre-therapy	.151	- .032	.62	.60
	Post-therapy	.119			

Note: 1. Figures in the column "Mean" are *z* corresponding to *r*.
 2. P, M, F, Fa, and I represent present-self, mother-self, friend-self, father-self and ideal-self respectively.

Table 3
Change of Inter-*Q* sort Correlations in the Control Group over the Therapy Period

	Period	Mean	Difference	<i>t</i>	<i>p</i> <
r_{PM}	Pre-therapy	.887	+ .007	.03	.90
	Post-therapy	.894			
r_{PF}	Pre-therapy	.837	+ .129	.53	.70
	Post-therapy	.966			
r_{PFa}	Pre-therapy	.714	+ .232	2.20	.10
	Post-therapy	.946			
r_{PI}	Pre-therapy	.705	+ .141	.67	.60
	Post-therapy	.846			

the experimental group. The figure in the "Mean" column of the table represents a mean *z* computed by Fisher's method of *z* transformation of a correlation coefficient.

A glance at Table 2 shows that the inter-*Q* sorts correlations are found to increase appreciably except r_{PI} i.e., the correlation between present-self concept and ideal-self concept. Using a *t*-test for the differences of correlated mean, r_{PM} and r_{PF} are found to increase significantly at the 1 percent level of confidence and r_{PFa} is found to increase significantly at the 5 percent level of confidence.

In Table 3 is shown the comparison of pre-therapy and post-therapy inter-*Q* sort correlation for the control group. The control group, of course, did not receive

any therapy, but an equal period of time elapsed before their post-therapy *Q*-sorting. From a quick inspection of Table 3 it will be noticed that there is no significant change in the control group. A *t*-test for correlated mean reveals that the difference between pre-therapy and post-therapy inter-*Q* sort correlation is not statistically significant.

An important and interesting fact was found out when the experimental group was directly compared with the control group. Table 4 shows a comparison of pre-therapy and post-therapy inter-*Q* sort correlations for the experimental and the control group. Table 4 shows that before therapy, the inter-*Q* sort correlations in the experimental group are low while the correlations in the control group are mark-

Table 4

A Comparison of Inter-*Q* sort Correlations for the Experimental
and the Control Group over the Therapy Period

	Period	Group	Mean	Difference	<i>t</i>	<i>P</i> <
r_{PM}	Pre-therapy	Exper.	.483	-.404	4.54	.01
		Control	.887			
	Post-therapy	Exper.	.749	-.145	1.77	.10
		Control	.894			
r_{PF}	Pre-therapy	Exper.	.441	-.396	3.63	.01
		Control	.837			
	Post-therapy	Exper.	.703	-.263	1.91	.10
		Control	.966			
r_{PFa}	Pre-therapy	Exper.	.477	-.237	1.93	.10
		Control	.714			
	Post-therapy	Exper.	.619	-.327	4.36	.05
		Control	.946			
r_{PI}	Pre-therapy	Exper.	.151	-.554	10.07	.01
		Control	.705			
	Post-therapy	Exper.	.119	-.727	8.98	.01
		Control	.846			

Table 5

A Comparison of the Change of the Correlation between Present-self
and Father-self for the Experimental-Success Group and the Control
Group over the Therapy Period

Period	Group	Mean	Difference	<i>t</i>	<i>P</i> <
Pre-therapy	Exper.	.367	-.347	3.15	.05
	Control	.714			
Post-therapy	Exper.	.572	-.374	1.55	.20
	Control	.946			

edly high. A *t*-test for the difference between the two group (for uncorrelated mean) reveals that the differences are statistically significant except r_{PFa} , i.e., correlation between present-self and father-self. The table shows further that the differences between the two groups in r_{PM} and r_{PF} are significant before therapy, but are not at post-therapy time.

In case of r_{PFa} , the difference between the two groups are not significant before therapy but becomes statistically significant at post-therapy *Q*-sorting although from Table 2, it is found that r_{PFa} in the experimental group increased significantly. This

result might be said to be against the expectation of the experiment. Therefore the result was examined and analyzed from a different point. The subjects of the experimental group were further divided into the group of seven subjects which were appreciably improved in adjustment and the group of eight subjects which were not found to be markedly improved. The classification of the subjects was done based upon an over-all rating of success by the therapists. Table 5 compares the change of the correlation between present-self and father-self (r_{PFa}) for the experimental-success group and the control

group over the therapy period. The table reveals that the difference between the two groups is significant before therapy but not at post-therapy Q -sorting. A t -test for the difference at pre-therapy time was determined by Cochran-Cox method, because F -test was significant*. This way of analyzing data signifies that, in case of r_{PFa} , the experimental hypothesis was also confirmed.

From Table 4, it can be seen that both the pre-therapy and post-therapy r_{PI} in the experimental group are extremely low and there is no significant change in the amount of correlation, while in the control group, the correlations are markedly high at both the pre-therapy and post-therapy time. Table 4 reveals further that the difference between the two groups is statistically significant before therapy and this difference does not disappear at post-therapy time. As the successful therapy was hypothesized to increase r_{PI} , it can be said that the therapy adopted in the present experiment might be unsuccessful. As examined already, however, the therapy might be said to be successful because r_{PM} , r_{PF} and r_{PFa} significantly increased. An over-all evaluation of the therapy will be done later when the factor analysis is applied to self concepts and the data is examined in more qualitative manner.

Factor analysis

The subjects in the factor analytic study were seven subjects selected from the experimental group who were markedly improved in the therapy and eight sub-

jects selected from the control no-therapy group. Three kinds of factor studies were conducted: the first for ideal-self concept, the second for present-self concept and the third for seven individual cases of the experimental group.

The procedure of factor analysis in Q -technique is as follows: inter-individual or intra-individual correlations are computed by the product moment method and factor analysis is then performed according to Thurstone's (1947) complete centroid method. The extraction of centroid factors is continued until (a) the number of statistically significant residual coefficient does not exceed that which could be accounted for on the basis of chance, (b) the computed standard error of the residual coefficients corresponds to the standard of a zero r , and (c) the frequency distribution of residual coefficients did not differ significantly from a normal curve of distribution according to a chi-square test. Thus obtained factors or factors rotated, if necessary, make it possible to provide the explanation of all the data. Finally the factor-arrays are calculated. This is an important procedure in Q -technique. The calculation of the factor-arrays consists of estimating the factor scores for each of Q -cards (or statements) in standard terms. The scores gained by a statement are added, giving greatest weight to those scores belonging to the variates with the largest factor loadings**. Thus, all the statements are arrayed in rank order of their factor weighted scores. The statements which gain the highest score for a factor are placed at the head of the list and that scoring least is placed at the bottom. In this way all the statements are laid out in rank order, we can then look over and can make concrete interpretations of each factor.

Factor study for present self concept: The factorial study aimed to clarify a dynamic change of present self concept over therapy and to compare the experimental group with the control group. As mentioned

* $F=4.25$ (significant in the 5 percent level.)

$$t_{.05} = \frac{(S_1^2)(t_1) + (S_2^2)(t_2)}{S_1^2 - S_2^2} = 2.333$$

** The "weight" for the scores gained by any statement is computed according to the following formula.

$$\frac{W_b}{W_a} = \frac{f_b(1-f_a^2)}{f_a(1-f_b^2)}$$

Here f_a and f_b are the factor loadings for factor f in two variates a and b respectively.

Table 6
Factor Matrix for Present Self Concept

	Centroid Matrix		Rotated Matrix	
	I	II	I'	II'
1	11	34	-02	36
2	18	14	12	20
3	21	22	11	28
4	36	32	22	43
5	25	66	-01	71
6	31	17	23	27
7	52	20	41	38
1'	-17	51	-35	41
2'	13	30	01	33
3'	45	13	37	29
4'	32	30	19	40
5'	41	33	26	46
6'	11	25	01	27
7'	55	16	45	35
I	68	26	54	49
II	58	-09	57	13
III	57	-34	66	-11
IV	63	-37	72	-11
V	57	-43	69	-19
VI	68	-20	71	07
VII	68	-23	72	04
VIII	64	-19	67	06
I'	57	22	45	42
II'	65	-19	67	06
III'	59	-18	62	05
IV'	63	-13	63	11
V'	64	-37	73	-11
VI'	64	-23	68	02
VII'	71	-31	78	-03
VIII'	65	-24	69	02

Note: Decimal points are omitted.

before, the experimental group for factor study consisted of seven subjects and the control group consisted of eight subjects and each subject was asked to make present-self *Q*-sorting before the beginning of therapy and after the termination of therapy and hence, there were thirty *Q*-sorts. These thirty *Q*-sorts were correlated and the correlation matrix which included 435 correlation coefficients was obtained and factored (centroid) and rotated (or-

thogonal) with the result shown in Table 6. Although four factors were extracted the average contribution percentage of the third and fourth factor loadings were so small that these factors were neglected when the interpretation was made for the obtained factors. Incidentally, in the table, 1, 2, 3,..... 7 denote the pre-therapy *Q*-sorts of the experimental group and 1', 2', 3',..... 7' denote the post-therapy *Q*-sorts of the same group. In the same way, I, II, III,VIII denote the pre-therapy *Q*-sorts of the control group and I', II', III',..... VIII' denote the post-therapy *Q*-sorts of the same group.

Table 6 indicates the following points. (1) The control group have significantly high saturation with factor I' and in this control group there has been no appreciable change of amount of loadings between pre-therapy and post-therapy time. On the other hand, the experimental group have comparatively low saturation with factor I' except the subject 7. This factor seems to be characteristic of the control group. (2) Factor II' has its significantly high loadings on the variates of the experimental group and has little or no significant loadings on the variates of the control group except the subject 1. Factor II' can be said to be characteristic of the experimental group. (3) The above mentioned findings indicate that, as the therapy proceeds successfully, factor I' is expected to have significantly higher loadings and factor II' is expected to have significantly lower loadings on the control group at post-therapy *Q*-sorts than at pre-therapy *Q*-sorts. These expectation, however, was not consistently realized and individual differences were found to be rather great. In some cases (subjects 5 and 7), factor I' becomes higher and factor II' becomes significantly lower in their loadings. But in other case (subject 3), although factor II' is kept constant, factor I' becomes significantly higher in its loading at post-therapy than at pre-therapy time. There-

Table 7

Factor I': List of the Beginning and End of the Factor-Array for I'

Highest in I'		Lowest in I'	
Score	Statement	Score	Statement
+4	I am happy.	-4	I revenge a wrong other persons do to me.
+4	I am honest.	-4	I am selfish and capricious.
+4	I am industrious.	-4	I feel always uneasy.
+4	I try to keep company with friends who have different opinions from my own.	-3	I usually give up my job whenever I am weary of it.
+3	I can control myself to work with friends whom I dislike.	-3	I easily become so excited that I cannot be absorbed in thinking about one thing.
+3	I do my job precisely even if my friends neglect to do it.	-3	I usually do not do my job until my parents or teacher urge me to do it.
+3	I am ready to do whatever I am asked to do.	-3	I am too much obedient to others.
+3	I make an effort to conform to what friends have agreed to do even if I disagree myself.	-3	I am troubled with feelings of inferiority.

Table 8

Factor II': List of the Beginning and End of the Factor-Array for II'

Highest in II'		Lowest in II'	
Score	Statement	Score	Statement
+4	I am happy.	-4	I sometimes feel so much delighted that I am rather excited.
+4	I easily sympathize with others and I am moved to tears.	-4	I like to do things precisely.
+4	I do my job precisely even if my friends neglect to do it.	-4	I prefer making decisions alone.
+4	I try to obey the right opinion expressed by friend even if I hate them.	-3	I do not feel lonesome even if I have no intimate friends.
+3	I am careful not to say things to hurt other people's feelings.	-3	I am not discouraged when the opinions of others differ from my own.
+3	I often find it difficult to speak in public.	-3	I revenge a wrong other do to me.
+3	I am slow in making decisions.	-3	I like to express my opinion in public.
+3	I often make an excuse for what I did.	-3	I am ready to do whatever I am asked to do.

fore, final evaluation of the therapy program must be held undecided until factor studies are conducted for individual subjects of the experimental group.

Now we can look over at the factor-arrays in detail. These are given in Table 7 and 8 for the top ten statements or so and the lowest ten or so statements in each factor array. The factor-array for factor I' was based upon five subjects who were most highly saturated with factor I'. Therefore, Table 7 is considered to be characteristic of the control well-adjusted group. From the table, it can be seen that

factor I' represents self-control, self-esteem, feeling of security and tendency of co-operation. This factor may be generally referred to as the factor of "social adjustment".

Table 8 was based upon seven subjects who were highly saturated with factor II' and therefore was characteristic of present-self concept expressed by the experimental group before the beginning of therapy. Table 8 reveals that factor II' represents lack of self-control and lack of active tendency of behavior and moreover this factor represents not active but passive social

tendency. Factor II' may be generally termed factor of "passive sociability".

Factor study for ideal-self concept: The data for factor study for ideal-self concept were ideal-self *Q*-sorts made by both the experimental and the control group before the beginning of therapy, because the reliability, i.e., correlation coefficients between pre-therapy *Q*-sorts and post-therapy *Q*-sorts were relatively high as indicated by a mean correlation coefficient of 0.68 with a range from 0.48 to 0.79. This high reliability coefficient suggested that ideal-self concept reflected general societal concepts whereas present-self concept might be more idiosyncratic.

The fifteen ideal-self *Q*-sorts made by the two groups were inter-correlated and thus, the obtained correlation matrix which included 105 correlation coefficients was factored by Thurstone's complete centroid method and two centroid factors were extracted. These two factors were not considered necessary to be rotated, because the factor matrix had the characteristic of what Stephenson called "simplest structure" (1953, p. 107 ff). Although two factors were extracted the average contribution percentage of the second factor loadings was so small (only three percent) that this factor was neglected when the interpretation was made for the obtained factors.

Factor I had significantly high loadings on both the subjects of the experimental group and those of the control group. The range of factor loadings was from 0.50 to 0.86 and a mean of factor loadings was found to be 0.56. This findings seemed to indicate that, in terms of ideal-self concept, the subjects of the two group were homogenous and ideal-self concept might reflect stereotypical social standards and therefore ideal-self concept would not be markedly changed by therapy.

The factor array for factor I was constructed and based upon four subjects of the control group who were typically saturated with this factor. The factor

array proceeded as follows:

Most characteristic statements.	
weighted score	
+4	I am happy.
+4	I am trying to do my best with ambition.
+4	I am really trusted by many friends.
+3	I am honest.
+3	I am industrious.
+3	I usually keep my promise precisely.
+3	I like to express myself in public.
+3	I am warm-hearted and tender.

Least characteristic statements.	
weighted score	
-4	I feel always uneasy.
-4	I am selfish and capricious.
-4	I have difficulty in refusing friends' proposal even if I know the proposal is not good.
-3	I often feel that most of my friends are against me.
-3	I am troubled with feelings of inferiority.
-3	I usually give up my job whenever I am weary of it.

This factor array reveals that the subject would like to be honest, trusted by others and active in social situation and moreover they would like to overcome feeling of inferiority and to have self-control.

Factor study for individual case: It was mentioned before that the therapy seemed to have unique effects upon the subjects of the experimental group respectively. Therefore, here, factor analysis was applied to individual cases. Because of the limitation of space in the present paper, only one case, M.E. was referred to. M.E. was a girl and she was one of the subjects who were rated by the therapists to be markedly improved in adjustment. M.E. was asked, before and after therapy to make five kinds of *Q*-sorts, i.e., present-self sort (P), mother-self sort (M), friend-

Table 9
Correlation Matrix for M.E.'s Self
Concepts: $n=60$ statements

	P	M	F	Fa	I	P'	M'	F'	Fa'	I'
P	—	39	45	50	33	82	25	50	48	36
M		—	53	51	31	39	30	49	35	30
F			—	61	39	32	35	48	39	15
Fa				—	22	23	38	41	40	08
I					—	32	17	30	26	68
P'						—	81	71	68	41
M'							—	52	61	20
F'								—	76	52
Fa'									—	32
I'										—

Note: 1. Decimal points are omitted.
2. P, M, F, Fa and I represent present-self, mother-self, friend-self, father-self and ideal-self respectively at pre-therapy Q-sort.
P', M', F', Fa' and I' denote post-therapy Q-sort.

Table 10
Factor Matrix for M.E.

	Centroid Matrix			Rotated Matrix		
	I	II	III	I''	II'	III'
P	69	07	—05	33	55	37
M	60	05	—23	33	52	17
F	65	15	—46	36	71	02
Fa	60	29	—48	23	77	—03
I	55	—60	—14	79	05	21
P'	82	16	33	15	46	75
M'	60	28	36	—05	40	66
F'	81	07	25	24	44	68
Fa'	74	20	29	09	45	69
I'	56	—61	16	69	—09	46

* The rotation matrix for I and III.

	I	III
I'	.80	.59
III'	— .59	.80

** The rotation matrix for I' and II.

	I'	II
I''	.79	.60
II'	.60	— .79

self sort (F), father-self sort (Fa), and ideal-self sort (I). P, M, F, Fa and I denote pre-therapy Q-sorts and P', M', F', Fa', and I' denote post-therapy Q-sorts. These ten variates were correlated by product moment method. The correlation matrix is shown in Table 9.

The extraction of centroid factors was performed according to Thurstone's complete centroid method and the extracted three factors were rotated by orthogonal solution with the results shown in Table 10. The procedure of rotation here was first to plot I and III* and the new I' was plotted against II**.

The factor matrix of Table 10 reveals the following points: (1) Factor I'' is characteristic of the subject's ideal self at pre-therapy time as well as at post-therapy time. Opposed to these are M' and Fa'. It means that she does not believe that her parents see her like this. (2) Factor II' has its highest loadings on variates Fa, F, P, and M. This factor can be said to be characteristic of self concepts at pre-therapy time. (3) Factor III' has significantly high loadings on variates P', M', F' and Fa'. This factor is decidedly characteristic of self concepts at post-therapy time.

The factor arrays for factors I'', II' and III were constructed. The construction of the factor-arrays was based upon the variates highly saturated with these factors respectively. Examining and analyzing these factor-arrays the present author was led to the following consideration: (1) Factor I'' is referred to as "ideal social adjustment" which reflect what the subject would like to be ideally. This factor includes feeling of security, social recognition and self-control. (2) Factor II' may be called "factor of introversion". (3) Factor III' may be named "factor of passive sociability" which means that, although the subject is passive and not apt to take the lead in social situation, she is cooperative, honest, affectionate and socially skilled.

Combining rotated matrix (Table 10) and factor-arrays, the author presented the following interpretations: (1) The therapy seemed to have no appreciable effect upon the ideal-self concept. The subject did not think that her parents saw her ideally like factor of ideal social adjustment and the subject herself did not think herself like this. The discrepancy between ideal-self concept and present-self concept was ever great at the post-therapy period. (2) Before therapy, the subject believed that her parents and friends thought her to be introvert and the subject thought also herself to be introvert. After therapy, the subject became to believe that her parents and friends thought her to be less introvert. (3) As regards the subject's sociability, there were great differences between her view and the conceptions of her friends and her parents before therapy. She thought herself to be rather sociable, but people who were intimately associated with her, she thought, had the opposite idea about her in this respect. After therapy, however, she became to believe that her parents and her friends thought her to be, though passive, extremely sociable. (4) The therapy did not decrease the discrepancy between her ideal-self concept and her present-self concept but did produce the congruence between the subject's notion of herself and the conceptions about her held by her parent's and friends. This congruence might decrease the subject's inner tension and produce feeling of security, self-confidence and positive attitude toward self.

SUMMARY AND CONCLUSION

The present investigation was designed to appraise objectively the effect of group therapy by using *Q*-technique developed by W. Stephenson. A subsidiary objective of the present experimental study was to establish the procedures whereby other kind of psychotherapy could be investigated in a comparable manner, thus eventually making it possible to obtain mean-

ingful cross-comparison between different therapies.

Rogers has held the contention that positive and acceptive attitudes towards the self are associated with good psychological adjustment and therefore the reduction of discrepancy between present-self and ideal-self is a valid measure of successful psychotherapy.

This hypothesis proposed by Rogers has been confirmed by a lot of empirical studies and data of clinical interviews.

In view of the findings in the previous study conducted by the present author, however, he contended that to employ the discrepancy between present-self and ideal-self as a sole criterion of degree of adjustment would lead to the categorization of many maladjusted people as adjusted and *vice versa*. He contended, further, that the discrepancy between present-self and selves perceived by others, i.e., the subject's notions of how they see themselves in relation to other persons who are intimately associated with him would be valid and effective index of adjustment as well. The present author asserted that, in order to appraise the effect of psychotherapy objectively, a sole measure of discrepancy between present-self and ideal-self would be necessary but not sufficient.

The above mentioned consideration was taken into account when the present experimental investigation was designed. The control group method was employed. The experimental group consisted of fifteen maladjusted pupils of a lower secondary school while the control group consisted of eleven well-adjusted pupils. The experimental group received the group therapy which included nine sessions and covered the period of three weeks.

The self concepts held by the subjects were defined and measured operationally by *Q*-sort. *Q*-cards which contained 60 self-referent statements were given to both the experimental and the control group and the subjects were asked to make *Q*-

sorts before the beginning of therapy and after the termination of therapy.

Five kinds of self concepts were obtained, i.e., present-self concept, ideal-self concept, mother-self concept, friend-self concept and father-self concept. The latter three kinds of concepts were the subjects' notions of themselves in their relation to their mother, friends and fathers. And the following four kinds of correlations were computed and employed as experimental measures: correlation between present-self and ideal-self, correlation between present-self and mother-self, correlation between present-self and friend-self and correlation between present-self and father-self.

The hypotheses to be tested in this experimental study were as follows: (1) The inter-sort correlation of the experimental therapy group will be significantly less than the control group at pre-therapy *Q*-sort. (2) The experimental group will show a great increase in inter-sort correlation and will have significantly higher correlation at post-therapy than at pre-therapy. (3) The control group will show no significant change in the amount of correlation. Hence, the difference between the two groups found at pre-therapy will disappear at post-therapy.

These three hypotheses were confirmed and supported by the result of the experiment except the fact that the correlation between present-self and ideal-self were not increased in the experimental group.

By applying factor analysis, changing aspects of self concepts were studied in more qualitative and dynamic way.

The factor study for ideal-self revealed that the subjects of both the experimental and the control group were homogenous in terms of ideal-self and might reflect stereotypical social norms and therefore ideal-self concept was not be markedly changed by therapy. The factor-array suggested that the subjects would like to be honest, popular among friends, trusted by others and active in social situations

and they would be eager to overcome feeling of inferiority and to have self-control.

The factor study for present-self concept revealed that two meaningful factors were extracted. Factor I', which was termed factor of social adjustment by examining its factor-array, was characteristic of the control well-adjusted group. Factor II' which was referred to as passive sociability, was characteristic of the experimental group before therapy. Therefore, the experimental group might be expected to have higher loadings in factor I' and to have lower loadings in factor II' at post-therapy than at pre-therapy. This expectation was realized in some subjects, but individual differences were found to be rather great.

Finally, factor analysis was applied to individual subjects of the experimental group. The present paper, however, dealt with only one case due to the limitation of space. Intra-individual *Q*-sorts were correlated and factored and the extracted factors were rotated by orthogonal solution. The result showed that, although the discrepancy between the subject's present-self and ideal-self was not decreased, there appeared the congruence between the subject's notion of herself and the conception about her held by other persons who were intimately associated with her at post-therapy time.

The results led the present author to the following conclusion:

1. If Regersian view that the successful therapy is expected to increase the correlation between present-self and ideal-self, is a sole criteria, the therapy adopted in this experiment might be unsuccessful. But, so far as the author's hypotheses were largely supported by the result, the therapy might be said to be successful.

2. The failure to increase the correlation between present-self and ideal-self in this experiment might be due to the difference between the client-centered therapy adopted by Rogers and his co-

workers and group therapy adopted in this experiment. Or it might be argued that if the experiment had been continued longer, it would have increased the correlation between present-self and ideal-self.

3. However it may be, the proposal of the discrepancy between present-self and ideal-self as an index of psychotherapy might be too simple and sometimes misleading. A well developed experimental design must include the discrepancy between present-self and ideal-self as well as the discrepancy between the subjects' present-self and the subjects' notions of how they think themselves in relation to other persons.

4. Ideal-self concept was found to reflect stereotypical social standards. If so, to adopt only the congruence between present-self and ideal-self as measure of psychotherapy might be said to be based on static view of therapy. Dynamic understanding which was exemplified in the factorial study of the present experi-

ment will contribute a great deal to the development of objective self psychology.

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