

Change in I-E Scores During T-Group

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ABSTRACT

The purpose of this study was to investigate the effects of T-Group experiences on the members' I-E scores. We hypothesized that those members who participated in T-Group would change their I-E scores more to internal orientation. We used as subjects 41 female students of a nursing school. They were divided into two groups, and six sessions were held during a 3-day period. I-E tests were given before and after the T-Group. The results supported and verified the above hypothesis.

T-Group, first started by Lewin, et. al. in the 1940's, has been carried out frequently as a new technique for improving the complex human relations in modern society.

In the United States, where the concept of T-Group was first conceived of and developed, T-Group is currently in full flourish in many organizations in educational, social work, medical and industrial circles, where human relations constitute as important consideration. These activities revolve around the National Training Laboratories.

In Japan, T-Group has been carried out mainly by industrial organizations, but in recent years it is gaining increasing acceptance in the medical community where they use the technique for the training of nurses.

What in the world are the purposes of T-Group, then? Researchers are divided on the question, but let us mention the following seven purposes as pointed out by Benne, K. D., et. al. (1964).

1. One hoped-for outcome for the participant is increased awareness of and sensitivity to emotional reactions and expressions in himself and in others.
2. Another desired objective is greater ability to perceive and to learn from the consequences of his actions through attention to feelings, his own and others'.
3. The staff also attempts to stimulate the clarification and development of personal values and goals consonant with a democratic and scientific approach to problems of social and personal decision and action.
4. Another objective is the development of concepts and theoretical insights which will serve as tools in linking personal values, goals, and intentions to actions consistent with these inner factors and with the requirements of the situation.
5. All laboratory programs foster the achievement of behavioral effectiveness in transactions with one's environments.
6. Another objective grows out of recognition that continuing opportunities to apply

new learnings will occur in backhome situations, though removed from the supportive environment of the laboratory.

7. A final objective underlying most laboratory education is "learning how to learn."

As indicated above, it is regarded as the most important purpose of T-Group to accurately perceive the effects (results) of their own behavior on other members and better understand other members' behavior. In other words, if the participants have heightened their sensitivity in perceiving the results of their own behavior and the responses of other members by subjectively relating them to their own behavior, then the T-Group can be called successful.

In this paper, we will discuss whether any change will take place through T-Group experiences in the participants' sensitivity (or in their outlook on those phenomena which arise in their social environment) from the point of view of whether they perceive things on the basis of their own standpoint or on the basis of others' or external standpoint.

For this purpose, we used the I-E scale prepared by Rotter, J. B. (1966). Now, let us explain what the I-E scale is all about. Once someone starts action, it naturally produces results. Sometimes the results can be desirable and sometimes the results can be undesirable from his point of view. The former includes things like receiving a prize, and the latter things like being punished. A reward and punishment can make a difference in his future behavior. However, the effects of reward or punishment can vary depending on whether he perceives the reward or punishment resulting directly from his own behavior or he perceives it as a matter of fortune or accident. As one accumulates experience or grows older, he creates generalized expectancies between his behavior and the idea of reward or punishment and the generalized expectancies become a personal condition which determines his social behavior.

Rotter referred to those people who believe in a cause-and-effect relationship between their behavior and its results as internal control-oriented persons and those who perceive the results of their behavior depending on external pressure, fortune or accident as external control-oriented persons. Thus, he worked out a questionnaire comprising 29 items. This is called I-E scale.

Now, let us explain the reasons why the I-E scale is used to measure changes in T-Groups, introducing some of those studies in the process.

First of all, whatever is measured by this scale must be changeable. Whatever is determined only by individual person's attributes or anything pertaining the genetic inheritance is not changeable. To be sure, the internal or external orientation is a quality pertaining to an individual, and in that sense, it is a personality variable. But, as mentioned before, what forms it is generalized expectancies vis-a-vis the cause-and-effect relationship of things created through an individual's experiences. In other words, it is a matter of "how one looks at things", or to what he attributes those phenomena which occur around him at all times (the results of his behavior). Therefore, as his new experience accumulates, "how he looks at things" can change, either reinforced, or conversely weakened.

Hayamizu (1973) found that people become "internal oriented" as they grow old, and that while no sexual variations can be found until they are in their 30's, men become more "internal oriented" than women after they are over forty years old.

We also found that first-line supervisors in industrial organizations become more "inter-

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nal oriented" than college students (1973). This means that the difference was caused by the fact that while college students are usually in a position to enjoy the freedom of action, those first-line supervisors of industrial organizations are burdened with responsibilities and powers and are looked upon with some specific expectations. At the same time, this also indicates that "how one look at things" can undergo change depending on environment, age and accumulated experience.

Incidentally, we would like to add a little footnote to the effect that unlike Hayamizu's observations concerning sexual variations, it was found that there were sexual variations even among young students, namely, male students were more "internal oriented" than female students.

The second reason why the I-E scale was used was because it was thought that what was to be measured was so closely related to the purpose and process of the T-Group. As mentioned before, the purpose of T-Group is to heighten one's sensitivity in a way that he can take a close look at other persons and himself when those people living in a society influence one another, and thus accurately grasp how his behavior is influencing other people and what kinds of motives other people have behind their behavior. In other words, the purpose of T-Group is to convince him that when he assumes some kind of behavior, there exists a profound cause-and-effect relationship between him and his behavior and that it does not occur by accident. One can go a step further by saying that it is a process of establishing the participants' subjectivity by assuming aggressive behavior in the course of their giving social influences to other members. In this sense, T-Group is to make them attribute the results of their behavior to themselves. The I-E scale is to measure this "way of looking at things".

The above two things are the reasons why we used the I-E scale in T-Group. According to these reasons, the hypothesis which will be tested in this study is as follows.

HYPOTHESIS

Through T-Group experiences, the participants will attribute, more than ever, the results of their behavior to themselves. In terms of the I-E scale, they will take an internal oriented approach more than ever.

METHOD

Under the above hypothesis, we decided to introduce the I-E scale into a T-Group held for three days in the latter part of April, 1976 at a higher nursing school in Fukuoka. Used as trainees were female students of the same school. With the exception of a students who was born in 1950, all the trainees were born in 1955. They were divided into two groups, one comprizing 21 and the other 20 (call former Group A and the latter Group B). Two trainers joined each of the two groups. Entries into the I-E scale were made twice, during the orientation given prior to the beginning of the T-Group and also upon the completion of the same.

Before examining the results of the T-Groups, let us discuss the questionnaire items comprizing the I-E scale and how we rated.

Table 1 shows the 29-item questionnaire designed to measure I-E. Those items marked F are called "Filler" items used as a "decoy" designed to keep the subjects from knowing what is going to be measured, and therefore these items are not rated on. Since there are 6 "Filler"

TABLE 1
The I-E Scale

- F 1. a . Children get into trouble because their parents punish them too much.
b . The trouble with most children nowadays is that their parents are too easy with them.
2. (a) . Many of the unhappy things in people's lives are partly due to bad luck.
b . People's misfortunes result from the mistakes they make.
3. a . One of the major reasons why we have war is because people don't take enough interest in politics.
(b) . There will always be wars, no matter how hard people try to prevent them.
4. a . In the long run people get the respect they deserve in this world.
(b) . Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
5. a . The idea that teachers are unfair to students is nonsense.
(b) . Most students don't realize the extent to which their grades are influenced by accidental happenings.
6. (a) . Without the right breakes one cannot be an effective leader.
b . Capable people who fail to become leaders have not taken advantage of their opportunities.
7. (a) . No matter how hard you try some people just don't like you.
b . People who can't get others to like them don't understand how to get along with others.
- F 8. a . Heredity plays the major role in determining one's personality.
b . It is one's experiences in life which determine what they are like.
9. (a) . I have often found that what is going to happen will happen.
b . Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a . In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
(b) . Many times exam questions tend to be so unrelated to course work that studying is really useless.
11. a . Becoming a success is a matter of hard work, luck has little or nothing to do with it.
(b) . Getting a good job depends mainly on being in the right place at the right time.
12. a . The average citizen can have an influence in government decisions.
(b) . This world is run by the few people in power, and there is not much the little guy can do about it.
13. a . When I make plans, I am almost certain that I can make them work.
(b) . It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
- F14. a . There are certain people who are just no good.
b . There is some good in everybody.
15. a . In my case getting what I want has little or nothing to do with luck.
(b) . Many times we might just as well decide what to do by flipping a coin.
16. (a) . Who gets to be the boss often depends on who was lucky enough to be in the right place first.
b . Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

Note. — Scale used in this study was translated into Japanese by Shirakashi, S., Seinan Gakuin University.

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TABLE 1—Continued

17. (a). As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
b . By taking an active part in political and social affairs the people can control world events.
18. (a). Most people don't realize the extent to which their lives are controlled by accidental happenings.
b . There really is no such thing as "luck."
- F19. a . One should always be willing to admit mistakes.
b . It is usually best to cover one's mistakes.
20. (a). It is hard to know whether or not a person really likes you.
b . How many friends you have depends upon how nice a person you are.
21. (a). In the long run the bad things that happen to us are balanced by the good ones.
b . Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22. a . With enough effect we can wipe out political corruption.
(b). It is difficult for people to have much control over the things politicians do in office.
23. (a). Sometimes I can't understand how teachers arrive at the grades they give.
b . There is a direct connection between how hard I study and the grades I get.
- F24. a . A good leader expects people to decide for themselves what they should do.
b . A good leader makes it clear to everybody what their jobs are.
25. (a). Many times I feel that I have little influence over the things that happen to me.
b . It is impossible for me to believe that chance or luck plays an important role in my life.
26. a . People are lonely because they don't try to be friendly.
(b). There is not much use in trying too hard to please people, if they like you, they like you.
- F27. a . There is too much emphasis on athletics in high school.
b . Team sports are an excellent way to build character.
28. a . What happens to me is my own doing.
(b). Sometimes I feel that I don't have enough control over the direction my life is taking.
29. (a). Most of the time I can't understand why politicians behave the way they do.
b . In the long run the people are responsible for bad government on a national as well as on a local level.
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items, 23 out of the 29 items on the I-E scale are actually rated on. The subjects are required to check off the proper response after reading the two choices (a. and b.) listed for each item. Those items with *a* or *b* encircled with "○" are "external-oriented". Rating is done by adding up those "○" encircled items which are checked off. Therefore, each subject's I-E score ranges from 0 to 23. The lower his score, the more "internal-oriented" he is, and the higher his score, the more "external-oriented" he is. In our study (Yoshida, M. & Shirakashi, S. 1975), however, two items (5, 21) were excluded from rating because they were found to be "inappropriate items", and thus the highest score was 21. Let us proceed to examine the results of these ratings.

RESULTS AND DISCUSSION

Table 2 shows I-E scores obtained from the members of Group A and B before and after the T-Group.

As might have been expected from the hypothesis, the I-E scores of Group A and B decreased after the T-Group, showing that they became more "internal-oriented". The differences in both Group A and B are statistically significant (Group A $df=20$, $t=8.341$, $p < .001$, Group B $df=19$, $t=8.663$, $p < .001$). Incidentally, no significant differences were found between the scores of the two groups before the T-Group and those after the T-Group, thereby indicating that the two groups were not made up of particularly different persons. It was proved that the 3-day T-Group experiences influenced their "way of looking at things" and changed it in the "internal-oriented" direction, i.e., attributing the results of their behavior to

TABLE 2

Pre and Post I-E Scores of the Members of Group A and B

Group A (N-21)			Group B (N-20)		
Member	Pre	Post	Member	Pre	Post
A	9	7	A	15	14
B	11	11	B	12	9
C	3	3	C	4	3
D	9	6	D	7	11
E	12	9	E	9	8
F	10	7	F	7	7
G	7	11	G	8	8
H	11	6	H	11	10
I	9	3	I	15	12
J	9	7	J	11	3
K	11	13	K	11	9
L	10	11	L	11	10
M	6	4	M	9	10
N	9	8	N*	8	7
O	9	3	O	13	5
P	9	5	P	11	10
Q	10	9	Q	9	9
R	8	11	R	13	9
S	7	6	S	6	4
T	19	13	T	5	2
U	10	7			
Mean	9.43	7.62	Mean	9.75	8.00
S D	2.88	3.09	S D	3.01	2.65

* born in 1950

TABLE 3

Number of Responses to the Internal-Oriented Items of Pre and Post I-E Test

	Group A		Group B	
	Pre	Post	Pre	Post
2	3	8	5	6
3	13	15	17	13
4	6	8	9	8
6	10	15	13	17
7	4	14	4	13
9	13	18	13	17
10	18	20	18	18
11	5	9	6	5
12	14	15	8	13
13	14	14	8	10
15	7	8	7	10
16	17	14	13	15
17	18	20	17	15
18	7	11	7	13
20	17	8	12	9
22	12	16	11	12
23	18	17	15	14
25	3	2	3	3
26	21	20	18	20
28	10	11	7	6
29	15	19	15	17

themselves. Now, let us check and see which items particularly underwent changes. Table 3 shows the number of internal-oriented choices the members of Group A and B took in regard to each of the 29 items (not including the "Filler" items and Item 5 and 21 which were considered to be inappropriate items). Table 3 indicates that internal responses increased in some items, and conversely external responses increased in other items. Also, in some items many members responded to internal choices. Which means that we can not judge from Table 3 alone precisely how the changes took place. Table 4 shows the rate of changes. The rate of change can be obtained by the following formula. (Post-T-Group scores - Pre-T-Group scores) ÷ Pre-T-Group scores. These figures represent increases (decreases in the case of minus) in internal responses. Those items with much internal responses from the start show rather small figures even if their internal responses have increased after T-Group, and those items which have undergone substantial change show relatively large figures. So, this makes it easier to find out about the degree of changes. In what follows, we will examine the responses in detail according to Table 4.

TABLE 4
Rate of Change to the Internal-Oriented Items from Pre to Post I-E Test

	Group A	Group B
2	1.67 (5)	0.20 (1)
3	0.15 (2)	-0.24 (-4)
4	0.33 (2)	-0.11 (-1)
6	0.50 (5)	0.31 (4)
7	2.50 (10)	2.25 (9)
9	0.38 (2)	0.31 (4)
10	0.11 (2)	0.00 (0)
11	0.80 (4)	-0.17 (-1)
12	0.07 (1)	0.63 (5)
13	0.00 (0)	0.25 (2)
15	0.14 (1)	0.43 (3)
16	-0.18 (-3)	0.15 (2)
17	0.11 (2)	-0.12 (-2)
18	0.57 (4)	0.86 (6)
20	-0.53 (-9)	-0.25 (-3)
22	0.33 (4)	0.09 (1)
23	-0.06 (-1)	-0.07 (-1)
25	-0.33 (-1)	0.00 (0)
26	-0.05 (-1)	0.11 (2)
28	0.10 (1)	-0.14 (-1)
29	0.27 (4)	0.13 (2)

First, let us take a look at the five items with the largest rate of changes. In Group A, Item 7 shows the largest figure, followed by Items 2, 11, 18, and 6 in the order mentioned. In Group B, Item 7 is also the largest, followed by Items 18, 12, 15, 6 and 9 in that order. Common between the two groups are Items 7, 18 and 6. Item 7 comes out on top in both groups. Its contents are; "No matter how hard you try some people just don't like you" (external), and "People who can't get others to like them don't understand how to get along with others" (internal). The above shows that members' ways of thinking have gotten closer to the latter view. In Item 18, the view that "Most people don't realize the extent to which their lives are controlled by accidental happenings" (external) has changed to the view that "There really is no such thing as 'luck'" (internal). In Item 6, the view that "Without the right breaks one cannot be an effective leader" (external) has changed the view that "Capable people who failed to become leaders have not taken advantage of their opportunities" (internal). In the course of T-Groups, members expose themselves, deepen their insight into others' behavior and

their own inner selves, and sometimes go through inner conflict, thereby paving the way for their growth. The reason why Item 7 concerning likes and dislikes turned "internal" was

probably because the feeling developed through these experiences that the participant could understand and trust other persons if he tried enough to do so. Through interplay with other persons, he became definitely aware of his own existence in the group, thereby establishing his "subjecthood". This caused the Item 6 concerning leader to turn "internal" and also made the Item 18 concerning life in general change in the "internal" direction.

So much for that. Now, let us take a look at those items which underwent change in Group A and B. In Group A, the Item 2 concerning unhappy things in people's lives and the Item 11 concerning success changed so that the participants came to attribute these things to their own conduct. These two items show that the participants changed their view in such a way that they now tried to recognize their role in society. This suggests that, like Item 18, the subjects were establishing their "subjecthood" in their daily lives and in their outlook on life. In Group B, Items 9, 12 and 15 underwent change. Item 9 concerns making a decision to take definite course of action, Item 12 concerns participation in political affairs and Item 15 concerns fulfillment of his hope or desire. As in Group A, these items show that the participant's "internal" way of thinking was translated into events that happen in his daily life.

Since the main purpose of this paper is to show that "ways of looking at things that can be measured by means of the I-E scale undergo changes through T-Group experiences, we only mentioned those items which drastically changed and we probably will discuss the details of why they changed on some other future occasions. Also, as shown in Table 3 and 4, there are some items in which external responses increased. It seems necessary to examine these, but we decided not to analyze them at this point for lack of data other than the I-E scale. These problems must be further scrutinized in the future. At which point I-E survey must be conducted in another problem that requires a further examination. In the past studies on the effects of T-Group, some effects were recognized at the time T-Group ended, but no studies has ever shed enough light on whether or not a lasting change results from T-Group. Some reports indicated that some participants returned to the Pre-T-Group state after the lapse of six months or a year. It is deemed necessary to make a follow-up survey after a lapse of some time.

Let me close by stating my point of view that has developed while analyzing these data.

As mentioned before, data show that I-E turns internal as experience accumulates and a person grows older. Our data (1975) shows that supervisors in industrial organizations are more internal than college students. However, the data from our last study show that the participant's "way of looking at things" turns more internal through T-Group experience. This probably means that T-Group may have the effect of providing the participant with many social experiences (something which people can acquire only by going through daily lives over a long period of time in condensed form).

It is often thought that the purpose of T-Group is to make a "supreme man" out of the participant. True, some of those carefully-prepared T-Group programs conducted in the U. S. and Europe over a long period of time may have accomplished such a purpose. Admittedly, that is what we should aspire to in pursuing T-Group programs. However, that strikes me as a very difficult attempt to create something that does not exist. In the course of my work of analyzing the data, I have begun to feel that there is nothing wrong with thinking of T-Group

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as something that accelerates changes, which, given enough time and experience, would naturally occur, by subjecting the participant to a lot of experiences within a limited period of time.

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