# LONG-RANGE EXPERIMENTAL MODIFICATION OF VALUES, ATTITUDES, AND BEHAVIOR[1]

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SINCE the summer of 1966, a major portion of the research effort at Michigan State University has been devoted to a systematic investigation of the effects of experimentally induced feelings of self-dissatisfaction on long-range changes in values, attitudes, and behavior. The theoretical approach used differs from other approaches in experimental social psychology in three major respects:

1. Contemporary social psychologists generally agree that a necessary prerequisite to cognitive or attitude change is the presence of a state of imbalance or inconsistency. Two major experimental methods generally employed to create such a psychological state are (*a*) to induce a person to engage in behavior that is incompatible with his attitudes and values and (*b*) to expose him to information about the attitudes or values of significant others that are incompatible with his own attitudes and values. In contrast to these two well-known methods, we have employed a third method, namely, to expose a person to information designed to make him consciously aware of states of inconsistency that exist chronically within his own value-attitude system below the level of his conscious awareness.

2. While the main theoretical focus of contemporary social psychology is on the concept of attitude and on theories of attitude change, the present focus is on the concept of value and on a theory of value change. This shift from attitudes to values is made on the assumption that values are more fundamental components within a person's makeup than attitudes and, moreover, that values are determinants of attitudes as well as of behavior. Such a shift in focus becomes scientifically possible only if clear conceptual and operational distinctions can be made between the attitude and value concepts. Relevant discussions concerning this distinction are presented elsewhere (Rokeach, 1968a, 1968b, 1968c, 1968–69, 1971) and need not be repeated here except to say that an attitude represents an organization of interrelated beliefs that are all focused on a specific object or situation, while a value refers to a desirable *end state of existence* (terminal value) or a desirable *mode of behavior* (instrumental value). Terminal and instrumental values are generalized standards of the means and ends of human existence that transcend attitudes toward specific objects and situations. Thus defined, a person is conceived to have many thousands of attitudes but only several dozens of values. These relatively few values are conceived to determine many or all of man's attitudes as well as his behavior.

3. A third way in which our theoretical approach differs from those of other workers in the field of attitude change is in the conception and measurement of psychological states of dissonance (imbalance, inconsistency, incongruity). To speak of dissonance meaningfully is to identify at least two elements $X$ and $Y$ that are in some "dissonant relation" to one another. In Festinger's theory (and in other balance formulations), $X$ and $Y$ are typically identified as two cognitions (beliefs, attitudes, values, or cognitions about behavior), and $X$ and $Y$ will necessarily vary from one situation to another. In the present formulation, $X$ and $Y$ are not two cognitions that vary from one situation to another, but are invariant across all situations: $X$ = self; $Y$ = one's perceived performance or behavior in whatever the situation. $X$ and $Y$ are dissonant with one another if the person's behavior in any given situation leads him to become dissatisfied with himself; $X$ and $Y$ are consonant if his behavior in a given situation leads him to remain satisfied with himself. Such states of dis-

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TABLE 1

RANK ORDER OF IMPORTANCE TO 298 MICHIGAN STATE UNIVERSITY STUDENTS

| Rank | Value |
|---|---|
| 13 | A comfortable life |
| 12 | An exciting life |
| 6 | A sense of accomplishment |
| 10 | A world at peace |
| 17 | A world of beauty |
| 11 | Equality |
| 9 | Family security |
| 1 | Freedom |
| 2 | Happiness |
| 8 | Inner harmony |
| 5 | Mature love |
| 16 | National security |
| 18 | Pleasure |
| 14 | Salvation |
| 15 | Social recognition |
| 4 | Self-respect |
| 7 | True friendship |
| 3 | Wisdom |

sonance or self-dissatisfaction can be routinely measured in any experiment by simply asking the subject to report the extent to which he is satisfied or dissatisfied with whatever he may have said or done in a given situation. Such a measure is not a generalized measure of self-esteem or the self-concept; it is a situation-specific measure.

To date, a number of experiments have been carried out and are now under way in which situation-specific states of self-dissatisfaction have been induced concerning one's values, attitudes, and behavior, and in which the long-range effects of such induced states have been objectively ascertained. The general procedure employed in all these experiments is basically the same, as follows:

The experimental subjects (college students at Michigan State University, 97% of whom are white) are first asked to rank 18 terminal values (see Table 1) in order of importance, and also to state their position in writing toward civil rights demonstrations. They are then shown Table 1 and Table 2 which are reproduced here. Table 1, the subjects are informed, shows the average rankings of the 18 terminal values that had been previously obtained from Michigan State University students. The experimenter draws specific attention to the data concerning two target values—equality and freedom. More precisely, their attention is drawn to the finding that previously tested college students had ranked freedom first and equality eleventh on the average. To arouse feelings of self-dissatisfaction, the experimenter then interprets these findings to mean that "Michigan State University students, in general, are much more interested in their own freedom than they are in the freedom for other people." The experimental subjects are then invited to compare their own rankings of the same 18 values with the results shown in Table 1.

Then, to increase the level of self-dissatisfaction to an even greater degree, subjects are asked to state the extent of their sympathy with the aims of civil rights demonstrators as follows: (*a*) "Yes, and I have personally participated in a civil rights demonstration"; (*b*) "Yes, but I have not participated in a civil rights demonstration"; (*c*) "No." Immediately afterward, they are shown Table 2 which displays a highly significant positive relationship between attitude toward civil rights demonstrations and value for equality.

The experimenter then interprets the results shown in Table 2 as follows:

> This raises the question as to whether those who are *against* civil rights are really saying that they care a great deal about *their own* freedom but are indifferent to other people's freedom. Those who are *for* civil rights are perhaps really saying they not only want freedom for themselves, but for other people too.

Once again the subjects are invited to compare their own rankings of equality and freedom and their own position on the civil rights issue with the results shown in Table 2.

By this self-confrontation procedure, many of the experimental subjects become aware for perhaps the first time in their lives of certain inconsistencies existing within their own value-attitude systems. For example, some subjects discover to their dismay that they had placed a high value on

TABLE 2

AVERAGE RANKINGS OF FREEDOM AND EQUALITY BY MICHIGAN STATE UNIVERSITY STUDENTS FOR AND AGAINST CIVIL RIGHTS

| Value | Yes, and have participated | Yes, but have not participated | No, not sympathetic to civil rights |
|---|---|---|---|
| Freedom | 6 | 1 | 2 |
| Equality | 5 | 11 | 17 |
| Difference | +1 | −10 | −15 |

freedom but a low value on equality; others discover that they had expressed a pro-civil-rights attitude, yet had ranked equality relatively low in their value hierarchy, etc.

At the end of the experimental treatment, measurements of self-dissatisfaction are obtained by having the subjects rate, on an 11-point scale, how satisfied or dissatisfied they are in general with what they had found out about their values and attitudes (general satisfaction-dissatisfaction). They also indicate whether they are satisfied or dissatisfied with their ranking of each of the 18 values considered separately (specific satisfaction-dissatisfaction).

The control group merely fill out the value and attitude scales and are then dismissed. They are not shown Tables 1 and 2 and thus have no opportunity to think about or to discover that they might hold incompatible values, or an attitude that is incompatible with one or more of their values, or that they had engaged in behavior that is incompatible with their values or attitudes.

Experimental and control subjects are typically tested in groups of 20–25 at a time. The experimental session lasts for about 30–40 minutes and the control session for about 20 minutes.

*Experiment 1*

A preliminary report of Experiment 1 has already been published (Rokeach, 1968a, 1968c), and a fuller report, along with the results obtained from all the work we have done to date, will be presented in a monograph now in preparation. The major findings of Experiment 1 were (*a*) that induced states of self-dissatisfaction concerning one's values and attitudes led to highly significant changes in values and attitudes that were evident three–five months after the experimental treatment. Moreover, (*b*) measures of self-satisfaction-dissatisfaction, obtained at the end of the experimental session, predicted the value changes that were to be observed three weeks and three–five months afterward.

We were extremely reluctant, however, to accept these experimental findings as evidence of real, genuine long-range changes in values and attitudes because it seems unlikely, given the present state of theory and fact in social psychology, that any single and brief experimental session could have resulted in such long-range changes. More convincing evidence that such changes are indeed real changes would require additional data concerning behavioral effects as well as effects on values and attitudes (measured by paper-and-pencil tests), following the experimental treatment. Experiments 2 and 3 were therefore carried out in order to determine the long-range effects of experimental procedures designed to induce feelings of self-dissatisfaction on real-life behavior as well as on values and attitudes.

*Experiments 2 and 3*

These two experiments are basically identical to Experiment 1 except for the fact that unobtrusive measures of behavioral effects were obtained as well as measures of value and attitude change. Moreover, posttest measures were extended to include a much longer time interval following the experimental treatment. Dependent measures (values, attitudes, and behavior) were obtained 3 weeks, 3–5 months, 15–17 months, and 21 months after the experimental treatment.

The subjects of Experiments 2 and 3 were entering freshmen (fall 1967) of two newly founded small residential colleges at Michigan State University: James Madison College, for students interested in the social sciences (Experiment 2); Lyman Briggs College, for students interested in the natural sciences (Experiment 3). Experiments 2 and 3 were identical in all respects except for the fact that they were carried out with these two different types of college freshmen. As already described, the experimental treatment was designed to induce feelings of self-dissatisfaction by making the subjects consciously aware that they held certain incompatible values or that they held an attitude that is incompatible with certain of their values. And, as already stated, the only difference in the treatment of the experimental and control subjects was that the experimental subjects were exposed to Tables 1 and 2, and to brief interpretations of these tables, while control subjects were not so exposed.

Pretest measures of values and attitudes showed no significant differences between experimental and control groups. More specifically, experimental and control subjects were not significantly different from one another in their pretest rankings of equality or freedom or position on civil rights for blacks. Posttest measures were obtained not only for values and attitudes, but also for various unobtrusive kinds of behavior. The best unobtrusive measure, ob-

TABLE 3

MEAN INCREASES IN VALUE FOR EQUALITY AND FREEDOM AND IN PRO-CIVIL-RIGHTS ATTITUDE FOR EXPERIMENTAL AND CONTROL GROUPS

| Value | Posttest 1 (3 weeks later) | | Posttest 2 (3–5 months later) | | Posttest 3 (15–17 months later) | |
|---|---|---|---|---|---|---|
| | Experimental | Control | Experimental | Control | Experimental | Control |
| Equality | 1.91*** | .68 | 2.80*** | .71 | 2.68*** | .32 |
| Freedom | 1.48*** | .20 | 1.16** | .21 | 1.59*** | .22 |
| Equal rights for Negroes | −.46 | −.69 | 2.09** | .20 | 2.79*** | .86 |

Note.—Madison and Briggs data combined.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

tained 3–5 months after and also 15–17 months after the experimental treatment, involved a direct solicitation by first-class letter from the National Association for the Advancement of Colored People (on NAACP letterhead and envelope) addressed to each subject individually. The letter invited the subject to join the NAACP. To join, the subject had to (*a*) fill out an application blank, (*b*) enclose $1, and (*c*) drop the prestamped return envelope into a United States mailbox.

The results pertaining to value and attitude change for the three posttest periods are shown in Table 3.

Table 3 shows that significant increases in value for equality and freedom were found for the experimental subjects on all three posttests. Fifteen to 17 months after the experimental session, for example, the experimental group had increased its ranking of equality an average of 2.68 units (on an 18-point ranking scale), while the control group had increased its ranking of equality only .32 units. Similarly, 15–17 months after the experimental session, the experimental group had increased its ranking of freedom an average of 1.59 units, while the control group had increased its ranking of freedom only .22 units. These findings, therefore, suggest long-range value change as a result of the experimental treatment.

Consider next the findings concerning attitude change (equal rights for Negroes). The findings at Posttest 1—three weeks after the experimental session—showed a "sleeper" effect: no change in the experimental group at Posttest 1, and in fact, a slight "backlash effect." But significant increases in pro-civil-rights attitude were found for the experimental group at Posttests 2 and 3, suggesting long-range attitude change as well as value change. Table 3 also shows another important finding—that attitude change took place among experimental subjects following changes in values.

In contrast to all these findings for the experimental group, no significant value or attitude changes were observed in control subjects for any of the three posttest measures. After 15–17 months in college, the subjects in the control groups had essentially the same values for equality and freedom and the same attitude toward civil rights they had started with.

Consider next the results shown in Table 4 that pertain to the first NAACP solicitation initiated three–five months after the experimental treatment. Forty subjects responded to this solicitation by joining the NAACP, and an additional 13 subjects responded by writing a sympathetic, pro-civil-rights letter asking for more literature or information about the NAACP as a civil rights organization. Thus, a total of 53 persons out of 366 responded to the NAACP solicitation. Of these 53, 39 were experimental subjects, and only 14 were control subjects. This difference between experimental and

TABLE 4

NUMBER OF PERSONS RESPONDING TO FIRST NAACP SOLICITATION: 3 5 MONTHS AFTER EXPERIMENTAL TREATMENT

| Group | Joined NAACP | Wrote positive letter asking for more information about NAACP | No response | Total |
|---|---|---|---|---|
| Experimental | 29 | 10 | 158 | 197 |
| Control | 11 | 3 | 155 | 169 |
| Total | 40 | 13 | 213 | 366 |

TABLE 5

NUMBER OF PERSONS RESPONDING TO SECOND NAACP SOLICITATION: 15–17 MONTHS AFTER EXPERIMENTAL TREATMENT

| Group | Joined NAACP | Wrote positive letter asking for more information about NAACP | Renewed membership | NAACP member wrote letter complaining he had not heard from NAACP all year | No response | Total |
|---|---|---|---|---|---|---|
| Experimental | 5 | 7 | 3 | 2 | 159 | 176 |
| Control | 1 | 4 | 3 | 0 | 139 | 147 |
| Total | 6 | 11 | 6 | 2 | 298 | 323 |

control groups is statistically significant at the .002 level of confidence.

Table 5 shows the results of an identical NAACP solicitation initiated a full year after the first solicitation—15–17 months after the experimental treatment. All experimental and control subjects still in school were once again invited to join the NAACP or, if they had previously joined, to renew their membership by paying their $1 annual dues. This second solicitation resulted in 6 new NAACP members—5 experimental and 1 control. It moreover yielded 11 additional letters, all favorable in tone, requesting more information about the NAACP, 7 coming from experimental subjects and 4 from control subjects. Six subjects renewed their membership, 3 renewals coming from experimental subjects and 3 from control subjects. Finally, 2 subjects who had joined the previous year wrote indignant letters complaining that they had not heard from the NAACP all year. Both of these letters came from experimental subjects. All told, a total of 17 experimental subjects responded to this second NAACP solicitation as against 8 control subjects. While these findings fall somewhat short of statistical significance, they are highly consistent with those obtained from the first solicitation (Table 4).

TABLE 6

NUMBER OF PERSONS RESPONDING TO FIRST AND SECOND NAACP SOLICITATIONS

| Group | Responded to NAACP appeal | No response | Total |
|---|---|---|---|
| Experimental | 51 | 146 | 197 |
| Control | 18 | 151 | 169 |
| Total | 69 | 297 | 366 |

When the results of the NAACP solicitations from both years are combined, the findings shown in Table 6 are obtained. A total of 69 persons out of 366—about 20%—had responded to the NAACP solicitations. Fifty-one of these were experimental subjects, and only 18 were control subjects.[3] This represents a response rate of about 1 out of 10 for the control subjects compared with 1 out of 4 for the experimental subjects. These findings are significant beyond the .001 level. When considered along with the findings previously presented, they suggest long-range behavioral effects as well as long-range value and attitude changes as a result of the experimental treatment.

It should be emphasized that the results shown in Tables 3–6 are for Experiments 2 and 3 combined. As already stated, Experiments 2 and 3 were experiments carried out with two very different samples of college students—one consisting of students interested in the social sciences, the other consisting of students interested in the natural sciences. Separate statistical analyses carried out for these two samples also show significant posttest differences between experimental and control groups in values, attitudes, and behavior.

The nonobtrusive NAACP solicitation was, of course, experimentally invented, with the full knowledge and cooperation of the local NAACP chapter. For the James Madison study (Experiment 2), the long-range behavioral effects of the experimental treatment were also tested by taking advantage of a totally unanticipated *natural* behavioral event. Students in the newly formed James Madison College were required to register for courses in one of the following five "core" areas: (*a*) ethnic and religious intergroup relations; (*b*)

[3] One subject wrote letters requesting more information in response to both NAACP solicitations.

TABLE 7

NUMBER OF JAMES MADISON STUDENTS SELECTING THE ETHNIC CORE PROGRAM: EXPERIMENT 2

| Group | Ethnic core program | Other core programs | Total |
|---|---|---|---|
| Experimental | 28 | 39 | 67 |
| Control | 14 | 50 | 64 |
| Total | 42 | 89 | 131 |

international relations; (*c*) justice, morality, and constitutional democracy; (*d*) socioeconomic regulatory and welfare policy problems; (*e*) urban community policy problems. The Madison students first heard of these five core areas about five months after the experimental treatment, at which time they were requested to select one of these to major in. Table 7 shows the number of experimental and control subjects who were officially registered in the ethnic core program in the fall of 1969—21 months after the experimental treatment.

These results, statistically significant beyond the .01 level of confidence, again suggest long-range behavioral effects as a result of the experimental treatment. The experimental treatment had the effect of doubling student enrollments in the ethnic core program, when compared with enrollments by control subjects. And it should be noted that these effects were observed four six months after the second NAACP solicitation.

I turn, finally to present some data that throw light on the basic psychological processes that underlie the long-range changes reported here for the experimental groups, namely, data on the effects of self-dissatisfaction on subsequent change. Table 8 shows the amount of absolute change in rankings of equality and freedom for experimental subjects who had reported at the end of the experiment that they were "satisfied" and "dissatisfied" with their rankings of equality and freedom. While both groups changed their rankings of equality and freedom substantially over the long course of the experiment, it is obvious that those who reported they were "dissatisfied" changed their average rankings of equality and freedom significantly more than did those who reported they were "satisfied." In other words, reports of specific satisfaction or dissatisfaction obtained from experimental subjects at the end of the experiment predicted the changes in value rankings that were to be observed 3 weeks after the experiment, 3–5 months afterward, and 15–17 months afterward. Indeed, we found that those subjects who had reported they were "dissatisfied" with their ranking of any 1 of the 18 values shown in Table 1 typically showed more subsequent change on that value than those who reported they were "satisfied" with their ranking of that value. Moreover, measures of *general* self-dissatisfaction also predicted subsequent value change, but not as well as measures of *specific* self-dissatisfaction.

## CONCLUSIONS

I now conclude this report with a brief consideration of some implications of the present findings. Obviously, the finding that relatively enduring changes in values, attitudes, and behavior can be brought about as a result of a rather brief experimental treatment has important implications for the fields of political science and propaganda, as well as for the fields of education and therapy. But I must pass over these here to draw attention to the more urgent ethical implications of the present research findings.

If such socially important values as equality and freedom can be altered to become more important to human subjects, they can surely be altered to also become less important. Who shall decide which values are to be changed and who shall decide the direction of such change? Is it ethically possible to defend experimental work that may

TABLE 8

EFFECTS OF REPORTED SATISFACTION OR DISSATISFACTION WITH EQUALITY AND FREEDOM RANKINGS AT END OF EXPERIMENT ON ABSOLUTE CHANGE IN EQUALITY AND FREEDOM RANKINGS OBSERVED: 3 WEEKS, 3–5 MONTHS, AND 15–17 MONTHS LATER

| Value | Satisfied | | Dissatisfied | | *p* |
|---|---|---|---|---|---|
| | *N* | *M* change | *N* | *M* change | |
| Equality | | | | | |
| 3 weeks later | 116 | 2.56 | 36 | 5.22 | .0001 |
| 3–5 months later | 83 | 3.58 | 25 | 5.96 | .0017 |
| 15–17 months later | 85 | 3.12 | 30 | 5.77 | .0002 |
| Freedom | | | | | |
| 3 weeks later | 116 | 2.22 | 36 | 4.86 | .0001 |
| 3–5 months later | 82 | 2.54 | 26 | 4.54 | .0006 |
| 15–17 months later | 85 | 2.72 | 30 | 5.20 | .0004 |

lead to relatively enduring changes in a person's values, attitudes, and behavior without his informed consent? To what extent should our educational institutions shape values as well as impart knowledge, and, if so, which values and in which direction? If we have indeed learned how to bring about changes in values, attitudes, and behavior, as I think the experiments described here suggest, we must make certain that this kind of knowledge will be put to use for the benefit rather than the detriment of mankind.

But no scientist, in my opinion, should be permitted to decide such grave, ethical issues all by himself. I call on other scientists, professional associations, fund-granting agencies, universities, and other agencies of society to enter into such deliberations in order to ensure that the knowledge gained will not be abused and that proper safeguards will be instituted to protect the fundamental rights and dignity of the individual. At the same time, it is also necessary to ensure that scientific research will continue to be encouraged on what is perhaps the most distinctively human of all human problems, namely, the nature of human value systems and how they affect social attitudes and social behavior.

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