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Behavior Change Following Self-Confrontation: A Test of the Value-Mediation Hypothesis

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This study presents a reanalysis of data from Rokeach's self-confrontation experiments using path analytic techniques. Contrary to Rokeach's interpretations, findings indicate that behavior changes following self-confrontation are not primarily mediated through changes in value priorities. Rather, the available data suggest that the self-confrontation process involves the resolution of inconsistencies between behaviors and self-conceptions that are revealed during the treatment session. The authors interpret these findings within the framework of Rokeach's general theory of self-dissatisfaction and cognitive–behavioral change. Suggestions for future directions in self-confrontation research are offered.

Recently, an easily applied treatment called *self-confrontation* has been suggested as a method for inducing persistent cognitive and behavioral changes (Rokeach, 1973). This self-confrontation treatment presents individuals within certain feedback and interpretations concerning their own and significant others' values, attitudes, and behaviors. This information is hypothesized to effect cognitive and behavioral changes by making some individuals aware of certain chronic inconsistencies existing within their belief–behavior systems. Rokeach's theory of cognitive and behavioral change (1973, chap. 8) proposes that awareness of such inconsistencies, to the extent that they implicate positive self-conceptions or threaten self-esteem, should lead to a negative affective state of self-dissatisfaction. As one means of reducing this negative affective state, Rokeach's theory further proposes that some individuals will change their values, attitudes, and/or behaviors to become more consistent with one another and with self-conceptions. In support of this theory, recent research has demonstrated that self-confrontation can lead to changes in a variety of values, attitudes, and behaviors and that these changes may persist for many months after a single treatment (e.g., Greenstein, 1976; Rokeach, 1973; Rokeach & McLellan, 1972; Conroy, Katkin, & Barnette, Note 1).

The theory states that awareness of any of several inconsistencies within the belief–behavior system may result in self-dissatisfaction (i.e., an individual's values, attitudes, or behaviors may be inconsistent with one another or inconsistent with self-conceptions). However, researchers investigating self-confrontation (e.g., Rokeach, 1973) have assumed that the major source of self-dissatisfaction is awareness of inconsistencies between values and self-conceptions, and that behavioral changes following the treatment are primarily caused by changed value priorities (the value-mediation hypothesis).

This article proposes that the self-confrontation treatment, in addition to pointing out inconsistencies between values and self-conceptions, also provides individuals with in-

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formation about other inconsistencies, for example, between behaviors and self-conceptions. This article further proposes that the self-dissatisfaction aroused by awareness of these other inconsistencies is at least as important as changed value priorities in accounting for self-confrontation-induced behavioral changes.

The research presented here investigated two specific hypotheses: (a) that value change by itself does not account for the full range of behavioral effects induced by self-confrontation, and (b) that the non-value-mediated effects of self-confrontation on behavior will be substantially greater than the value-mediated effects. These hypotheses were tested by reanalyzing data from the original series of self-confrontation experiments (Rokeach, 1973).

These original studies of self-confrontation focused on the values *freedom* and *equality* and on behaviors relating to civil rights. In these experiments, students were exposed to information designed to arouse self-dissatisfaction in certain individuals concerning their low regard for the value *equality*. They were shown tables depicting the positive relationship between regard for the value *equality* and civil rights attitudes and behaviors that had been previously found for another group of college students (see Rokeach, 1973, pp. 422–428). Rokeach assumed that as a result of this feedback, some individuals would discover that they had values that were inconsistent with their self-conception as egalitarians, that is, that their values were similar to those of students who were against civil rights. The self-dissatisfaction resulting from this discovery was expected to lead to an increased regard for the value *equality* for these individuals, which in turn was expected to lead to changes in behaviors implicated by this value.

To test these hypotheses, all participants in these experiments were mailed a solicitation to join the National Association for the Advancement of Colored People (NAACP) 3–5 months after the self-confrontation treatment and again 15–17 months after the treatment. A favorable response to this solicitation was defined as either joining the NAACP or asking for more information. It was found that over twice as many experimental participants responded favorably to the solicitations compared to control participants. Consistent with the value-mediation orientation, Rokeach (1973) suggested that

> the main reason why significantly more experimental subjects . . . [responded favorably to] . . . NAACP . . . [was that] . . . the experimental treatment had significantly increased the experimental group's value for *equality*, thus predisposing more subjects in the experimental group to be receptive to the NAACP solicitations. (p. 279)

In support of this explanation, analyses were offered showing that the experimental participants had shown greater increases in their rankings of *equality* than had control participants.

These analyses, however, do not provide an adequate test of the value-mediation hypothesis. Although it is clear that both values and behaviors changed as a result of the self-confrontation, it is not clear that the behavior changes were primarily a result of the changed value priorities and not some other aspect of the treatment. In order to show that the behavioral changes were, in fact, primarily a result of changes in value priorities, it is necessary to compare directly the value-mediated and non-value-mediated effects of the treatment. The research reported in this article made this comparison by reanalyzing Rokeach's (1973) data using path analytic techniques.

Path Analysis

Path analysis was selected as the most appropriate statistical method for evaluating the value-mediation hypothesis and the alternative hypothesis proposed in this article. Since path analytic techniques are not commonly used in psychological research, a short discussion of path analysis will be presented.

Path analysis was developed by Sewall Wright (e.g., 1921, 1934) as a method for evaluating theoretically predicted causal relationships using correlational data. Basically, a simple verbal description of a theory is translated into a set of structural equations (the path model) that represent the postulated causal and noncausal relationships of the theory. Using the principles of path analysis, path estimation equations are derived from

the structural equations. Known correlations are inserted into the path estimation equations to solve for the parameters (usually in standardized form) of the path model. Each resulting path coefficient represents the fraction of the standard deviation of the dependent variable for which the appropriate independent variable is directly responsible. In the bivariate case, $p_{x_2x_1}$ (the path coefficient representing the effect of x_1 on x_2) is equal to the zero-order correlation coefficient; in the multivariate case, path coefficients are analogous to standardized regression coefficients (for a more detailed discussion of path analysis see Kerlinger and Pedhazur, 1973; and Land, 1969).

When using path analytic techniques, the causal model is usually presented pictorially as a path diagram. In the diagram, hypothesized causal relationships are designated by unidirectional arrows extending from each independent variable to each variable dependent upon it. Noncausal relationships are designated by curvilinear double-headed arrows. The path diagram representing the self-confrontation process as we hypothesized it is presented in Figure 1. The true score ranking of *equality* at the pretest is represented by x_1, and the measurement of this value by x'_1. Similarly, the true score ranking of *equality* at the posttest is represented by x_3, and the measurement of this value by x'_3. The treatment variable (experimental or control group) and the behavioral measure are represented in dichotomous form by x_2 and x_4, respectively.

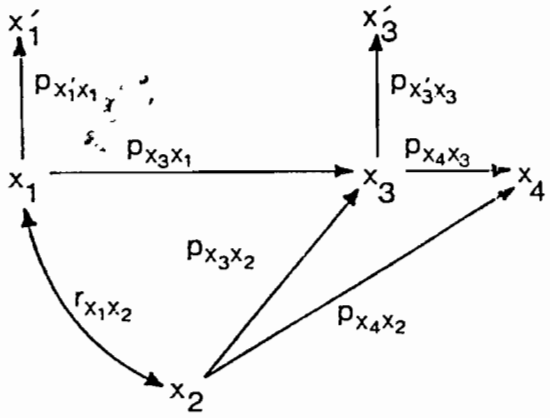

Figure 1. Causal model of the self-confrontation process (x_1 = pretest values, x'_1 = measurement of pretest values, x_2 = treatment, x_3 = posttreatment values, x'_3 = measurement of posttreatment values, x_4 = behavioral measure).

According to the value-mediation hypothesis, the treatment (x_2) changes the pretest value (x_1) into the posttest value (x_3), and behavior (x_4) then changes to become more consistent with this posttest value. The value-mediated effect of the treatment on behavior is found by multiplying Path $p_{x_3x_2}$ (the effect of the treatment on the value) by Path $p_{x_4x_3}$ (the effect of the posttest value on behavior). The usual interpretation of self-confrontation does not explicitly posit treatment effects other than those mediated through values. However, the hypothesis to be tested here is that other effects do exist, and thus $p_{x_4x_2}$ is included in the model in Figure 1.

Results

To evaluate the relative strengths of these two effects, the system of structural equations corresponding to the causal model in Figure 1 must be solved. In its present form, however, the model is underidentified, that is, it is impossible to uniquely estimate the six paths from only four empirical correlations. However, it is possible to uniquely estimate the path coefficients by making two assumptions. Because the participants were randomly assigned to treatment conditions, one reasonable assumption is that the correlation ($r_{x_1x_2}$) between the pretest true score *equality* ranking and the treatment condition is .00 in the population. A second reasonable assumption is that the validity of the value measures is stable over time (i.e., $p_{x'_1x_1} = p_{x'_3x_3}$). Given the second assumption, it is possible to make an independent estimate of these validity coefficients using available test–retest data for the value *equality* (Rokeach, 1973, p. 28). On the basis of the test–retest reliability coefficient ($r = .71$), the construct validity of the *equality* measure was conservatively estimated to be .843.[1] This value was substituted for Paths $p_{x'_1x_1}$ and $p_{x'_3x_3}$, and the revised model was solved.

[1] This validity coefficient was derived from a path model similar to the top half of Figure 1. Using the designations in Figure 1, x'_1 and x'_3 represent the measured values at Times 1 and 2, respectively. Similarly, x_1 and x_3 represent the true score values at

Table 1
Solutions to the Path Model Presented in Figure 1

Path	Coefficient
$p_{x'_1x_1}$	.843
$p_{x'_3x_3}$	.843
$p_{x_3x_1}$	.76
$p_{x_3x_2}$	−.15
$p_{x_4x_3}$	−.13/−.18
$p_{x_4x_2}$	.22/.23
$p_{x_4x_3}p_{x_3x_2}$	.02/.03

Note. It was possible to estimate some path coefficients by two different methods because the model was over-identified. In these cases, the smaller estimate is presented first followed by a slash and the larger estimate.

The solutions to this model are presented in Table 1, and the zero-order correlations from which they were derived are presented in Table 2. Note that the model is now over-identified, that is, several of the path coefficients can be calculated two different ways. Both solutions to these paths are presented in Table 1. The fact that the two different estimation procedures produce essentially the same parameter estimates strengthens our confidence in these estimates. The most important finding presented in Table 1 is that the non-value-mediated effect of the treatment on behavior ($p_{x_4x_2} = .22$) is considerably larger than the value-mediated effect ($p_{x_3x_2}p_{x_4x_3} = .03$). Thus, this analysis supports our hypothesis that the treatment had an effect on behavior in addition to the effect mediated by values. It also indicates that this effect was substantially more powerful than the value-mediated effect.

Although it is apparent that the treatment had a substantial effect on behavior that was not mediated through values, an exact interpretation of this effect is still not possible. However, further reanalyses of Rokeach's (1973) data indicate that it is likely that the primary source of behavior change after self-confrontation was awareness of inconsistencies between behaviors and self-conceptions. Although this hypothesis cannot be directly tested given the available data, there are indications that this interpretation is appropriate.

Rokeach's data reveal that the self-confrontation treatment primarily affected the behaviors of participants whose pretreatment values and attitudes were *not* inconsistent with an egalitarian self-conception but whose behaviors might have been. Prior to treatment, the experimental participants who later responded favorably to the NAACP solicitations had significantly higher rankings of *equality*, $t(196) = 2.06$, $p < .05$, and significantly more favorable attitudes toward blacks, $t(138) = 3.77$, $p < .05$, than did the experimental participants who did not respond favorably. However, 93% of the experimental group reported that prior to the experiment, they had never participated in a civil rights demonstration. As a result of the treatment, some of these individuals may have come to perceive this lack of participation as inconsistent with their egalitarian self-conceptions.

Discussion

Taken as a whole, the findings presented in this article suggest the following reinterpretation of the self-confrontation process. It seems likely that the treatment primarily served to reveal inconsistencies between behaviors and

Table 2
Correlations Between Variables in the Path Model Used to Calculate Path Coefficients

	x_2	x'_2	x_4
x'_1	—	.539	−.081
x_2	—	−.123	.245
x'_2	—	—	−.153

Note. Pearson's r is based on an N of 218. x'_1 = *equality* ranking at pretest, x_2 = treatment, x'_2 = *equality* ranking at posttest, x_4 = behavioral measure.

Times 1 and 2, respectively. Path $p_{x_3x_1}$ represents the true score test–retest reliability for the value *equality* and is assumed to be 1.00. The observed test–retest reliability for the value *equality* (the known correlation between x'_1 and x'_3) is .71 (Rokeach, 1973, p. 28). The difference between the true score reliability and the observed reliability is attributed to the less-than-perfect validity of the value measures. This validity is represented by Paths $p_{x'_1x_1}$ and $p_{x'_3x_3}$ and is assumed to be equal at Times 1 and 2. The path estimation equation is of the form

$$.71 = (p_{x'_1x_1}) \cdot (p_{x_3x_1}) \cdot (p_{x'_3x_3}).$$

Because $p_{x_3x_1} = 1.00$ and because $p_{x'_1x_1} = p_{x'_3x_3}$, the validity is equal to $\sqrt{.71} = .843$. (See Alwin, 1973, for a similar discussion with regard to the validity of attitude and behavioral measures.)

self-conceptions for those individuals who considered themselves to be egalitarian but who had not previously engaged in behaviors that were consistent with these self-conceptions. In accord with Rokeach's (1973) theory, we hypothesize that awareness of such inconsistencies aroused a state of self-dissatisfaction in these individuals because such information was threatening to their self-esteem or self-conceptions. As one means of reducing this dissatisfaction, some of these individuals changed their behaviors to become more consistent with their self-conceptions by responding favorably to the NAACP solicitation.

It is important to note that this reinterpretation does not question the usefulness of the self-confrontation treatment. Research on self-confrontation indicates that under appropriate circumstances, a single treatment can be used to initiate long-term changes in a wide range of important beliefs and behaviors. In addition to the experiments showing modifications of behaviors, values, and attitudes relating to civil rights, other research has shown that the treatment can be used to modify other complex behaviors (e.g., teaching behaviors [Greenstein, 1976] and smoking behaviors [Conroy et al., Note 1]) and cognitive variables (locus of control [Hamid & Flay, 1974]). Thus, self-confrontation has many potential social and clinical applications. Greenstein (1976) has suggested that self-confrontation may be especially useful in "modifying those behaviors whose reinforcement contingencies are too complex or obscure for the application of other behavior modification techniques" (p. 262). Similarly, the procedure may also prove to be particularly useful where an attempt is being made to modify behaviors at a group rather than at an individual level. In addition, because the changes induced by self-confrontation are actually initiated by the individual, rather than by management of external reinforcement contingencies, the procedure may be useful in increasing intrinsic motivation through attributional processes (e.g., Winett, 1970). Thus, behavior changes initiated by self-confrontation may be more persistent and may generalize to a greater extent than behavior changes initiated by other techniques. If this is the case, self-confrontation may prove extremely effective when used in conjunction with other more traditional behavior modification procedures (e.g., see Conroy et al., Note 1).

The findings presented in this article have several important implications for future self-confrontation research and application. First, further research in this area must allow for a clarification of the self-confrontation process. Such research should include measures of self-dissatisfaction and inconsistency involving behaviors as well as those involving values. Second, in applied settings, these findings indicate that the treatment may be most effectively applied to a restricted range of a population. Specifically, these findings suggest that self-confrontation should be most effective for those individuals whose self-conceptions, values, and attitudes predispose them to engage in the target behaviors but who have not previously engaged in such behaviors.

Reference Note

1. Conroy, W. J., Katkin, E. S., & Barnette, W. L. *Modification of smoking behavior by Rokeach's self-confrontation technique.* Paper presented at the meeting of the Southeastern Psychological Association, New Orleans, April 1973.

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