

Internalization Versus Identification in the Laboratory: A Causal Analysis of Attitude Change

Daniel Romer

University of Illinois at Chicago Circle

Two possible mediators of attitude change, internalization and identification, were investigated in a laboratory setting. Internalization was assumed to underlie change when respondents are attracted to others who hold the same opinion and can argue in favor of their attitude position; identification was assumed to mediate change when respondents are attracted to similar others but cannot necessarily support their position. A causal analysis based on these assumptions confirmed the independent existence of internalization and identification as mediators of attitude change. The analysis suggested that internalization involves more valid change than identification does and that attraction toward similar others is affected by both internalization and identification. These conclusions are supported in terms of both individual and treatment variation. The results suggest that attraction toward similar others does not necessarily reflect true attitude change but that valid change can be detected even in laboratory settings.

Distinguishing true attitude change from mere response change is a critical issue in the study of persuasion. Hendrick and Seyfried (1974) approached this problem by assuming that genuine attitude change would be reflected by increased attraction to others who hold the same opinion (Byrne, 1971). There are several objections to this approach, however. First, as Wells (1976) noted, demand characteristics and evaluation apprehension may just as easily affect the measurement of attraction as the measurement of attitude change. Thus, both attitude change and attraction could be disingenuous. Second, it is possible for attraction to be genuine and yet not reflect true attitude change. For example, we may identify (Kelman, 1961) with others who agree with a message without having fully accepted (internalized) the message ourselves. Third, more direct evidence of the

persuasive impact of a message should be obtained before labeling its effects as valid. For example, evidence that the message has been internalized should be evaluated.

To overcome these objections, the present research employed a causal modeling approach based on Kelman's (1961) three-process model. This research was conducted to demonstrate (a) that identification and internalization are independent processes with separate determinants and separate consequences; (b) that, as Kelman has theorized, internalization is a more central response to persuasion than identification is and (c) that attraction toward similar others is a function of both identification and internalization. In addition, the research was planned to encompass both treatment and individual variation in response to a persuasive message, thereby providing a sensitive test of the similarity-attraction hypothesis (cf. Hendrick & Bukoff, 1976).

The Causal Model

Causal modeling has its roots in the biometric work of Wright (1921) and was developed to uncover causal mediators in cor-

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Requests for reprints should be sent to Daniel Romer, Department of Psychology, University of Illinois at Chicago Circle, Box 4348, Chicago, Illinois 60680.

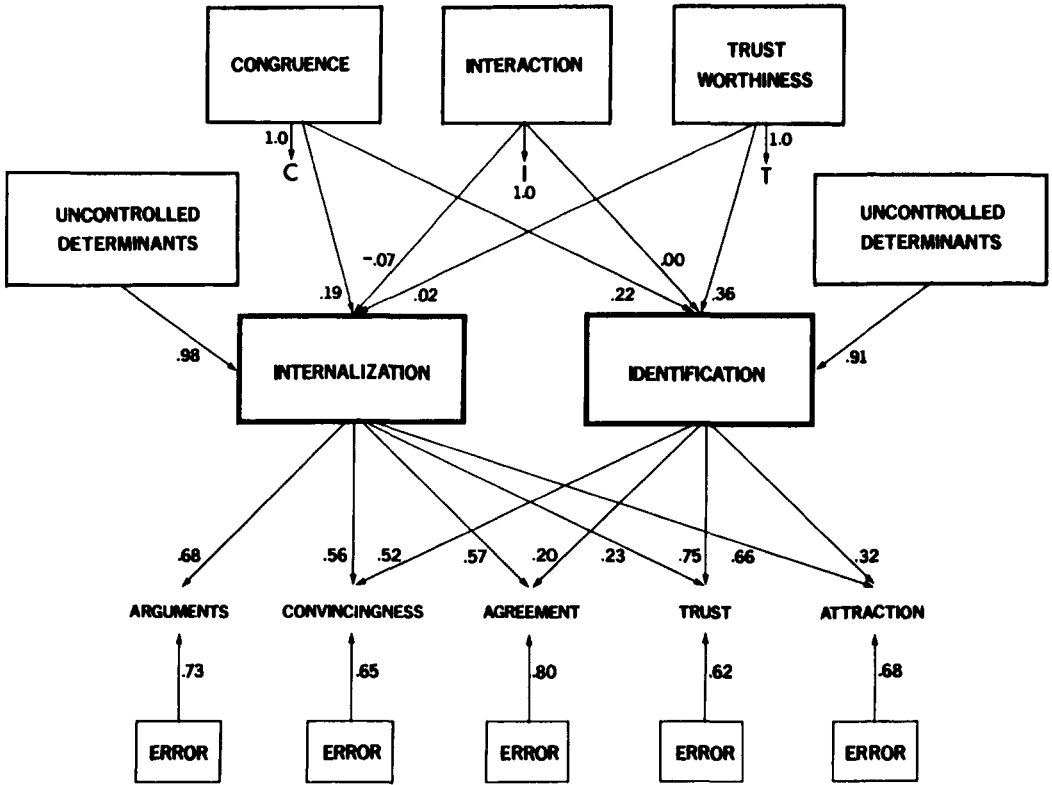


Figure 1. The causal model with observed values for causal paths.

relational research. More recent developments (Goldberger & Duncan, 1973) have extended the method to latent variables and multiple indicators. An important advance in these methods is Jöreskog's (1969; 1973) application of maximum likelihood methods to the analysis of causal models. Jöreskog's method involves the specification of a causal model assumed to underlie a data set and the confirmation of the model with maximum-likelihood factor analysis (cf. Kenny, 1976).

Although causal analysis was originally developed for nonexperimental research, it is also useful for separating latent mediating effects in experimental designs (Alwin & Tessler, 1974; Costner, 1971). In the case of attitude research, agreement with a persuasive message may be mediated by several processes. According to Kelman, the most central (and valid) change occurs when the attitude has been internalized by the recipient. It is possible, however, for change to occur as a result of identifying with the communicator or

others who hold the same position. Such change reflects attraction toward others that is based on motives other than the true acceptance of the position.¹

A causal model representing Kelman's theory as it applies to the present research is shown in Figure 1. Causal links (arrows) between variables represent the relationships that are hypothesized by the present theoretical approach (the coefficients are discussed in the results). Each observed independent and dependent variable is shown to be affected by one or more latent variables or factors (enclosed in boxes). In the model, internalization and identification are assumed to be independent processes that underlie various attitude measures (described below). In addition, the model suggests that experimental

¹ Kelman also hypothesizes the existence of a third process (compliance); however, this mediator is not the focus of the present research.

independent variables may affect one or both of the mediators at the same time. According to the model, it is quite possible that effects of internalization and identification are confounded in ordinary experimental research. The use of causal analysis, however, permits the separation of these mediating processes. In order to employ a causal analysis, it was necessary to manipulate and to measure the mediators in such a way that their causal effects could be distinguished.

Independent variables. If internalization and identification are independent, then each must have its own determinants. Furthermore, to demonstrate that these processes do not merely reflect individual differences, it is necessary to show that they are amenable to experimental variation. Thus, independent variables were chosen that would affect the processes and facilitate their separation.

For internalization, the variable that fulfilled these purposes was the extent to which the persuasive message contained arguments that were congruent with recipients' values. The more congruent the arguments, the more readily they can be internalized. It is also possible, however, for this manipulation to affect identification. Communicators who use more value-congruent arguments might also appear attractive over and beyond the extent to which their arguments are internalized. Thus the congruence manipulation is shown as a potential determinant of both internalization and identification in the diagram.

A second variable, communicator trustworthiness, was manipulated to affect identification. Communicators who are trustworthy should be more likely to induce identification than ones who are not. At the same time, communicator trustworthiness might also affect internalization, so this causal link was also tested in the model. Trustworthy communicators may facilitate internalization because their arguments are more credible.

Finally, the product of the independent variables was included because the variables might interact in affecting either internalization or identification.

Dependent variables. It was also critical in the present research to distinguish internalization from identification at the response

level. To accomplish this goal, an effect of internalization that would not be produced by identification was measured. This variable measured the extent to which respondents' attitudes are justified by the beliefs in their own value system. The justification could involve (a) beliefs that the advocated position produces benefit (proarguments) or (b) beliefs that it produces harm (counterarguments). Both of these beliefs can be represented in an expectancy-value model of attitude structure (Peak, 1955; Rosenberg, 1956) in which proarguments correspond to positive expectations of the advocated position and counterarguments to negative expectations. Thus, a single argument index is shown affected only by internalization in the diagram.

Two typical indices of attitude change (agreement with and convincingness of the message) were measured and are shown affected by both internalization and identification in the diagram. A single index of communicator trustworthiness was included to validate the corresponding manipulation. It was assumed to reflect internalization as well as identification because a communicator who presents more value-congruent arguments should also be seen as more trustworthy.

Finally, an index of attraction toward a similar other was measured. The other was described as a fellow subject who agreed with the advocated position. It was assumed that to the extent that subjects also agreed with the advocated position, their similarity and attraction toward the fellow subject would be greater. A major implication of the present model is that this process occurs as a consequence of both internalization and identification and therefore is not a pure measure of true attitude change.

Uncontrolled variation. Also shown in the diagram are sources of variation in the dependent variables that were not under experimental control. These include individual differences in internalization and identification that could be sizable. It is desirable to analyze the present model in terms of both treatment and individual variation, since similarity-attraction is so sensitive to individual variation. Furthermore, subjects' value systems

could be expected to differ greatly, producing considerable individual variation in internalization. Finally, a certain amount of error is shown affecting each dependent variable. The errors were assumed to be mutually uncorrelated, an assumption that should be (and was) evaluated.

Method

Subjects and Design

One hundred and sixty undergraduates fulfilling course requirements in introductory psychology were randomly assigned to four conditions of an orthogonal design involving two levels of value congruence and two levels of communicator trustworthiness. Equal numbers of males and females were assigned to each condition.

Experimental Variables

The intent of the manipulations was to produce change in subjects' attitudes toward the admittance of Puerto Rico to the Union. The value-congruence manipulation involved variation in the acceptability of a message that argued in favor of making Puerto Rico the 51st state. The less congruent message, an adapted version of one used by Watts and McGuire (1964), referred to the need to establish military bases in Puerto Rico and to replace those in Cuba, the international propaganda value of admitting a state composed of a minority population, and the economic advantages of eliminating import duties upon Puerto Rican goods. The more congruent message, which was written by the author, claimed that statehood would ensure a higher minimum wage for the underpaid and exploited work force, a tax structure more suited to the needs of the people, and a voice in Congress to affect the decisions that are now made without Puerto Rico's direct representation. The messages were approximately equal in length, and pretesting confirmed that they were perceived as equally well written.

The arguments were presented as a statement given by a witness for a congressional committee hearing on Puerto Rico's present and future status. The communicators were described as either a distinguished professor from the Yale law faculty who was an expert on Latin America or as a director of public relations for a land development corporation located in Puerto Rico. The public relations director was assumed to be less trustworthy because his firm might benefit from Puerto Rico's statehood; furthermore, it seemed reasonable that university students would see a law school professor as trustworthy and would be more inclined to identify with him than with a public relations person.

Procedure

Subjects were assembled in groups of 6 to 12 and were told that the experiment was concerned with their "ability to process and evaluate information." They were asked, in written instructions, to read the message carefully and to complete a questionnaire that followed the message. The questionnaire contained 14-category scales for rating the convincingness of the arguments, agreement with the advocated position, and the trustworthiness of the source.

When everyone had completed the questionnaire, the argument and attraction questionnaires were administered, their order being counterbalanced within experimental conditions. The argument questionnaire was constructed to increase the likelihood that a respondent's ability to support the advocated position would be measured. Previous research by the author (Romer, 1979) has suggested that "thought listing" procedures such as the one used by Brock (1967) do not adequately represent a respondent's repertoire of arguments and that a questionnaire specifically requesting that respondents list as many arguments as they can is a more direct measure of their ability to argue for or against an attitude position. Therefore subjects were not simply asked to list their "thoughts and ideas" about the advocated position. Instead, they were asked to consider that both positive and negative consequences can follow from an event. They were given as an example the devaluation of the dollar, which might lead to greater exports but higher prices for imported goods. Following the example, they were asked to list as many positive and negative consequences of admitting Puerto Rico as they could within a 5-minute period. At the end of the 5 minutes, both the desirability and the likelihood of the consequences listed were rated. Positive desirability was indicated by a scale of 1 to 5 ranging from "only slightly desirable" to "extremely desirable." Undesirability was rated from -1 ("only slightly undesirable") to -5 ("extremely undesirable"). Likelihood judgments were requested on a scale from 1 ("not very likely") to 5 ("extremely likely").

The attraction questionnaire was designed to measure attraction in a relatively unobtrusive manner. Rather than asking subjects how much they would like a person whose attitude was completely similar to theirs (as in Hendrick & Seyfried), the questionnaire asked subjects to imagine another subject in an experiment similar to the one in which they were participating who expressed "strong agreement" with the message they had read. Once they had "formed a picture of this person," they were asked to describe the person in terms of the likelihood that she or he possessed each of 10 traits. The ratings were made on a 10-category scale ranging from "not very likely" to "extremely likely." The traits, taken from Anderson (1968), covered the entire range of likableness and were all high in judged meaningfulness.

At the conclusion of the experiment, subjects were

invited to ask questions about the experiment and its purpose. Although the content and the occurrence of questions varied considerably across sessions, all subjects were promised written, posted feedback about the results of the experiment.

Measurement of Dependent Variables

Three of the dependent variables were simply taken from the category ratings of convincingness, agreement, and trustworthiness. Convincingness was rated in response to the question "How convincing were the arguments in the statement?" ("not very convincing" to "very convincing"). The agreement item asked "To what extent do you agree that Puerto Rico should be admitted as the 51st state?" with "strongly agree" to "strongly disagree" as polar descriptions; trustworthiness was assessed with "How trustworthy do you regard the witness to be with respect to the Puerto Rican issue?" ("not very trustworthy" to "very trustworthy").

The argument index was formed by multiplying the desirability rating by the likelihood rating for each consequence that a subject listed and taking the arithmetic sum of these products as the overall index for a subject. In a similar fashion, the attraction index was obtained by multiplying the likelihood ratings by a transformation of the scale values of likableness tabled by Anderson (1968) for each of the traits. The tabled values range from 0 to 6, covering the entire range of likableness. For the purpose of this index, however, a value of 3 was assumed to reflect neutrality, with values greater than 3 deviating in a positive direction and values less than 3 in a negative direction. These deviation scores defined the trait values that were multiplied by the likelihood judgments in forming the overall index.

Analysis

The causal diagram presented in Figure 1 corresponds to an oblique five-factor model in Jöreskog's system. In this model, observed variables in the diagram (Y) are written as a function of latent factors (F) and error (E):

$$Y = AF + DE,$$

in which A is a matrix of factor loadings and D is a diagonal matrix of error coefficients. This model predicts the correlation matrix of independent and dependent variables (C) from

$$C = ABA' + D^2,$$

in which B is a matrix of interfactor correlations. The parameters of the A and B matrices as defined by the causal model are shown in Table 1.

As is evident, many parameters were predefined as zero. These restrictions are implied by the causal model and indicate that the variable or factor is predicted not to correlate with the relevant factor. Parameters that were meant to be estimated are left

Table 1
Parameters Defined by Causal Model

Variable/factor	Factor				
	1	2	3	4	5
Matrix A					
Congruence ^a	—	0	0	0	0
Trustworthiness ^a	0	—	0	0	0
Interaction ^a	0	0	—	0	0
Convincingness	0	0	0	—	—
Agreement	0	0	0	—	—
Trust	0	0	0	—	—
Arguments	0	0	0	—	0
Attraction	0	0	0	—	—
Matrix B					
1. Congruence	1.0				
2. Trustworthiness	0.0	1.0			
3. Interaction	0.0	0.0	1.0		
4. Internalization	—	—	—	1.0	
5. Identification	—	—	—	0.0	1.0

Note. The far left column lists variables for Matrix A and factors for Matrix B.

^a Independent variable coded 1, -1.

blank. These correspond to the causal links that were hypothesized in the diagram. Two of the restrictions are notable: (a) The loading of the argument index on the identification factor was set to zero, reflecting the assumption that identification is independent of the extent to which respondents can argue in favor of the advocated position, and (b) the correlation between internalization and identification was set to zero, reflecting the assumption that identification is independent of internalization. All of the unrestricted correlations in B refer to potential effects of the independent variable factors upon internalization and identification. The unrestricted loadings in A refer to links between factors and the various variables.

An important aspect of the present model concerns the fact that the parameters estimated under it are uniquely defined. In ordinary factor analysis, the solution is arbitrary because the factors can be rotated without violating the assumptions of the model. In the present model, the factors are defined (by the zero loadings in the A matrix) such that no other estimates of the free parameters will fit the model as well as the ones that are obtained.² The

² According to Jöreskog (1969) the criteria for a unique solution are that there are at least k^2 (where k = the number of factors) restrictions in the A and B matrices and that the rows of the A matrix can be permuted such that restrictions on the factors lie in the upper triangle of the matrix. Both of these criteria are met by the present model.

Table 2
Correlation Matrix and Means and Standard Deviations of Independent and Dependent Variables

Variable	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>
1. Value congruence								0.00	1.00
2. Communicator trustworthiness	000							0.00	1.00
3. Interaction	000	000						0.00	1.00
4. Convincingness	247	187	-035					8.42	3.73
5. Agreement	082	139	-024	426				8.67	3.47
6. Trust	193	285	-016	516	272			7.72	3.54
7. Arguments	135	020	-046	368	397	155		15.37	46.07
8. Attraction	216	095	-058	535	429	397	466	16.93	22.56

solution, therefore, is the best that can be obtained, given the restrictions that define the factors.

There are a number of computer programs presently available to solve this causal system. The one used in this analysis was Jöreskog's analysis of covariance structures (Jöreskog, Gruvaeus, & Van Thillo, 1970). This program, as well as others, employs a large sample chi-square test of fit based on the maximum-likelihood principle. The test of fit measures the extent to which the predicted correlation matrix matches the observed matrix. The program produces a solution that minimizes the discrepancy between these matrices; however, a particular model may or may not fit the observed matrix. If a model produces a good fit, it can then be considered a candidate for explaining the data set.

Results

The correlation matrix for both independent and dependent variables is presented in Table 2. Rather than focusing upon specific correlations in the matrix, the present analysis attempts to account for the pattern of correlations in the entire matrix. Before turning to the analysis, however, it is worth asking whether the present matrix fully accounts for the effects that were observed. In particular, the order of measuring the argument and attraction indices was counterbalanced within experimental conditions, and equal numbers of males and females were studied in all cells of the design. However, neither order of measurement nor sex of subject produced any effects upon the variables in the matrix. It was assumed, therefore, that the data set was adequately described by the correlations in the matrix.

The results of the covariance structure analysis are shown in Figure 1. The first question one can ask is whether the correlation

matrix is adequately reproduced by the model. The answer appears to be yes. The chi-square test of fit between the predicted and obtained correlation matrix was nonsignificant, $\chi^2(10) = 3.55$, $p = .96$, indicating a close correspondence between predicted and obtained values. Inspection of the differences between these values revealed that no residual was greater than .07 in absolute value ($M = .006$, $SD = .021$). Thus, the model does a good job of predicting the data.

As is evident in the figure, factors corresponding to both internalization and identification mediated variation in the dependent variables. All of the dependent variables loaded positively upon internalization, indicating that respondents who had positive attitudes also thought the communicator was trustworthy, had arguments to support their position, and were attracted toward others who agreed with the advocated position. A factor corresponding to identification, however, was orthogonal to internalization and mediated variation that was independent of arguments that supported the advocated position. It contained loadings from all of the other dependent variables, indicating that the more respondents agreed with the advocated position, the more they trusted the communicator and the more attracted they were to others who agreed with the advocated position. Thus, as expected, attraction toward others was affected by both internalization and identification.

An important assumption of the causal model is the theoretical independence of internalization and identification. As they are

defined, both involve variation in expressed attitudes and attraction toward those who hold the same attitudes, but only internalization is based on arguments in support of the attitude position. Although the goodness-of-fit test indicates that this assumption is plausible, it is also possible to test the model without making the assumption. In this test, the model is fitted without the *B*-matrix restriction that the factors are uncorrelated. The obtained solution, however, was virtually identical to the one in Figure 1, and the factors were still orthogonal ($r = -.02$). It appears, therefore, that relaxing the assumption does not improve the fit of the model and that the assumption is valid.

In evaluating the effects of the independent variables upon internalization and identification, a special procedure was employed. The obtained correlation (shown in the figure) was set to zero, and the remaining parameters of the model were fixed to their obtained value. The model was then tested to see if the goodness of fit of the entire model was significantly poorer than the fit of the original model. If it is, then the correlation can be considered to be different from zero.

As expected, the value congruence manipulation affected internalization, $\chi^2(1) = 4.38$, $p < .05$. The message that contained more congruent arguments was more readily internalized. There were no other effects upon internalization, however. Apparently, the trustworthiness of the communicator did not affect the credibility of his persuasive arguments.

The trustworthiness manipulation did affect identification, however, $\chi^2(1) = 14.03$, $p < .05$. The more trustworthy communicator apparently induced greater change by virtue of his attractiveness. In addition, the value congruence of the message affected identification, $\chi^2(1) = 5.42$, $p < .05$. Thus the congruence manipulation produced change mediated by both internalization and identification. The interaction of the independent variables did not affect identification, however.

As is evident in Figure 1, uncontrolled sources of variation in both internalization and identification were sizable. This indicates that most of the variation in the mediators

was due to individual differences. Nevertheless, the success of the model suggests that both treatment and individual variation can be encompassed by the same causal model.

The estimated errors shown in the Figure indicate that from 40% to 64% of the variation in the dependent variables was unexplained.³ The assumption that these errors of measurement are uncorrelated does not seem unreasonable in view of the very close fit of the model. That is, there does not appear to be any reliable variation in the dependent variables that was not explained by the internalization and identification factors. Furthermore, the finding that both factors were affected by the independent variables suggests that the factors are not solely composed of error. Although the error variation in the variables was sizable, all of the remaining error-free variation (36% to 60%) was predicted by the model.

Rival Models

Even though a particular model does well in predicting data, it is always possible that an alternative model is superior. One advantage of causal analysis, however, is that the assumptions underlying a model are made explicit so that different models can be tested. For example, it is possible that all of the reliable variation in the dependent variables is accounted for by a single internalization factor. Therefore, a model containing only internalization was fitted to the data. This model was identical to the favored model with the exception that the identification factor was not included. This model did not fare well, however, by the goodness-of-fit test, $\chi^2(17) = 27.67$, $p < .05$. Furthermore, the two-factor model was a significantly better predictor of the correlation matrix than the internalization model was, $\chi^2(7) = 24.12$, $p < .05$. It appears, therefore, that a model involving both internalization and identification is a better explanation of the data than a model involving only internalization is.

³ The estimated proportion of variance due to error in each dependent variable is equal to the square of the corresponding error coefficient.

The possibility exists, nevertheless, that a different two-factor model also accounts for the data. To evaluate this possibility, alternative models that contained different restrictions on the second dependent variable factor were constructed. These included (a) restrictions on both attitude measures so that the second factor only contained loadings from trust, arguments, and attraction; (b) a restriction on trust so that all of the remaining variables could load on the factor; and (c) a restriction on attraction, with the remaining dependent variables free. Although each of these models provided a good fit to the data, the solutions that were obtained were uninterpretable. Two of them (a and c) implied that the variables on the second factor were inversely correlated but positively affected by the independent variables; the third implied that congruence had a negative impact on all the variables of the second factor. Thus although these models could fit the data mathematically, they did so at the expense of plausibility and interpretability. This is not surprising, since there were no obvious theoretical models that would support these solutions. Nor could the second factor in these solutions be attributed to correlated measurement error: The factors in each model were correlated with the independent variable factors suggesting that if these models were valid, the factors were not entirely composed of error. Thus, the tests of these alternative models suggest that the internalization-identification model is the best explanation of the data.

Discussion

There were three things to be demonstrated in the present research. The first was that internalization and identification independently mediate attitude change. This, of course, was the rationale underlying the two-factor model. This model did significantly better in predicting the data than did a model containing only internalization as a mediator. Furthermore, the separate effects of the independent variables upon internalization and identification indicate that each factor reflected valid variation in the dependent vari-

ables. In fact, the value-congruence manipulation affected both mediators, but trustworthiness only affected identification. Finally, a test of the model without the orthogonality assumption still affirmed the independence of the factors. Thus, two orthogonal factors appeared to mediate attitude change in the present laboratory setting.

The second goal of the research was to show that internalization is a more central process than identification is in mediating attitude change. This was demonstrated by restricting the argument index from loading on the identification factor. Since subjects were asked to generate as many positive and negative arguments as they could (in 5 minutes), the argument index has face validity as a measure of a respondent's ability to support the advocated position. Therefore only the internalization mediator reflected variation in the perceived consequences and justification of the advocated position. Although the argument index was only one of many possible measures of internalization, it did display validity by correlating with the other measures. Furthermore, the finding that trustworthiness affected identification but not internalization indicates that there were effects that were mediated by processes other than internalization. Therefore, even if a more sensitive measure of internalization had been used, the present results suggest that a separate factor would still be needed to explain variation that is unrelated to internalization.

The third goal of the research was to show that attraction toward similar others is a function of both internalization and identification. This hypothesis was clearly supported. The attraction index loaded on each factor, indicating that variation in attraction was affected by both internalization and identification. Apparently, we express acceptance of an advocated position not only because we can argue in favor of it but also because we identify with others who hold the same opinion. Therefore, Hendrick and Seyfried (1974) were justified in measuring attraction as an indicator of true attitude change. However, the present results show that without evidence about whether or not

internalization has occurred, it is not possible to know whether attraction reflects internalization or identification.

Wells' (1976) charge that attitude change and attraction may both be caused by experimental artifacts (demand characteristics and evaluation apprehension) seems an unlikely explanation for the present results. Since attitudes and attraction loaded on each of *two* factors, one would have to postulate a complex pattern of compliance motives to account for both factors. In the case of internalization, subjects would be assumed to have role played greater acceptance of the more congruent message. However, since all subjects received a persuasive message of comparable length and writing quality, demands for expressing acceptance of the advocated position should have been equal in both congruence conditions. Furthermore, the instructions for generating arguments requested subjects to list as many arguments as they could. If anything, this instruction should have induced demands to be prolific rather than to be favorable toward the advocated position. Finally, if the internalization factor merely reflects compliance, it is unclear why the factor would not also be affected by source trustworthiness.

Whether the identification factor reflects experimental artifacts is less certain. However, attraction was measured less obtrusively than in Hendrick and Seyfried (1974), and, even if compliance contributed to the identification factor, the conclusion that more than one form of attitude change mediated the results would still be tenable. Thus although it is impossible to rule out completely a compliance explanation, it seems unlikely that compliance can account for the entire pattern of the present results.

One implication of the present approach is that, if subjects' attitudes were retested at a time when the message and source were less salient, attitudes based on internalization should be more stable than those based on identification. Kelman (1958) used this assumption to show that compliance, identification, and internalization could be distinguished. The present results are consistent, therefore, with research on the persistence of

attitude change in which variation due to communicator trustworthiness decays at a different rate from "message-only" variation once "dissociation" of the source has occurred (Gruder, Cook, Hennigan, Flay, & Halamaj, 1978; Hovland & Weiss, 1951). The basis of this differential decay could be that trustworthiness is mediated by identification more than by internalization.

One advantage of the present causal modeling approach is that both individual and treatment variation could be tested in the same analysis. It was possible, therefore, to observe the similarity-attraction relationship at both the individual and treatment levels. Although the variation in individual attitudes and attraction was far greater than the treatment variation, both appeared to be subsumed by the same causal processes.

The present results indicate that laboratory-produced attitude change may be valid. This is cause for optimism on at least two grounds. First, although the study of attitude change was once a central issue in social psychology, interest in the topic has waned. Researchers doubt the validity of studying attitude change in the laboratory, and the results that have been obtained are regarded with suspicion. Although there are probably many reasons for the reduced interest, the present results suggest that suspicion of the laboratory is not always justified. Second, if genuine attitude change can be distinguished from other forms of change, the study of attitude change can proceed despite the belief that laboratory-induced persuasion is suspect. For example, research can be conducted further to determine how and when a message is internalized. Thus even if the many variables that have been studied only produce surface change, this realization need not impede progress toward determining the factors that cause long-lasting and meaningful change in peoples' attitudes.

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