

## Perceived Dimensions of Attributions for Loneliness

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This study examined the applicability of Weiner's model of causal attributions to lay explanations for the causes of loneliness. Weiner posits three dimensions (Internality, Stability, and Controllability) along which causes vary and links each dimension to distinct consequences for the actor. To test the salience of these dimensions in lay perceptions of causality, 180 college students made judgments about the causes of loneliness. As predicted, both exploratory and confirmatory multidimensional scaling analyses found that dimensions of Internality and Stability were perceived by respondents. Contrary to recent theorizing, Controllability was not independent of the other two dimensions; instead, controllable causes were both internal and unstable. Confirmation of Internality and Stability as dimensions underlying attributions for loneliness supported the extension of Weiner's model to the domain of affiliative behavior.

Attribution theorists have emphasized that the perceived causes of events are central features in social perception (Kelley & Michela, 1980). Researchers have sought to identify the general properties or dimensions underlying specific causal attributions and the psychological consequences of causal attributions. The model of causal attributions developed by Weiner and his colleagues (Weiner, 1974, 1979; Weiner et al., 1972) identifies basic causal dimensions of Internality, Stability and, more tentatively, Controllability. In research primarily on achievement behavior, these dimensions have been linked to particular consequences involving expectancies, affect, evaluation, and behavior. Recently, Weiner (1979) suggested that this model applies beyond the achievement context and that it constitutes a general model of motivation.

The present study was undertaken to extend Weiner's (1979) model to the domain of affiliative behavior. Although it has been proposed (e.g., Abramson, Seligman, & Teasdale, 1978; Folkes, 1978) that causal dimensions in Weiner's model apply to such non-achievement events as social rejection, relatively little empirical work has directly tested this possibility. The present study investigated attributions for the causes of loneliness, an experience that can be construed as a social failure (Peplau, Russell, & Heim, 1979). The research attempted to determine the dimensions underlying perceptions of the causes for loneliness. A clear demonstration that Weiner's attributional model is relevant to perceptions of loneliness would support the generality of his attributional approach. An attributional analysis of loneliness may also have more practical implications. Although loneliness is a common and distressing problem for many Americans, research in this area is limited (see reviews by Peplau & Perlman, 1979, 1982), and an attributional analysis of loneliness may provide a focus for empirical investigation of this neglected problem.

A central issue addressed in this study was the correspondence between theoretically derived attributional dimensions and lay perceptions of causes. Weiner's (1974, 1979) model has been developed primarily through

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a deductive process of postulating general attributional dimensions on the basis of theoretical assumptions about causes and then testing empirical relationships predicted by the dimensional model. This approach does not provide evidence of whether theory-based attributional dimensions of Internality, Stability, and Controllability are actually salient in lay conceptions of causes.

Two studies that have attempted to compare theoretical dimensions and lay conceptions of causes have yielded mixed results. Passer (1978) asked students to rate the similarity among various causes for success and for failure in an academic situation. He used multidimensional scaling (MDS) and correlational methods to uncover the perceived dimensions underlying similarity judgments. Passer concluded that dimensions of Internality and Intentionality (i.e., locus and controllability, in the recent terminology of Weiner, 1979) characterized lay perceptions of attributions for achievement outcomes, but evidence of a Stability dimension was not found. Also using a multidimensional scaling procedure, Falbo and Beck (1979) analyzed similarity ratings of 20 causes for failure and 20 causes for success in various situations. They reported little support for Weiner's dimensions; instead, they interpreted lay conceptions of causes as corresponding to dimensions such as Achievement Orientation, Vitality, and Mastery.

Finally, a study by Meyer (1980) used factor-analytic techniques to uncover dimensions underlying causes of success and failure. Respondents in Meyer's study rated the perceived influence of each of nine possible causes for success or failure. Three factors emerged, corresponding to Internality, Stability, and Controllability. For example, on the Controllability factor, effort had a highly positive loading and ability had a highly negative loading. Although Meyer's results support Weiner's model, they do not indicate whether the interrelationships found among causes are actually salient to respondents. In the factor-analytic procedure, associations among causes were obtained by intercorrelating ratings that respondents had made separately for each cause; thus, associations were statistical in origin. In contrast, in the MDS studies, respondents themselves generated measures of the association among causes by

making similarity ratings of causes. In this way, results from MDS studies provide more direct evidence of what laypersons think about interrelationships among causes (MacCallum, 1974). In sum, although Meyer's three factors "reflect" (Meyer, 1980, p. 706) the dimensions proposed by Weiner, it is not clear whether they represent a cognitive schema that can be used by laypersons when they analyze causality (cf. Weiner, 1979).

The present study used an MDS approach to test the applicability of Weiner's attributional model to causes in the affiliative domain. Lay perceptions of the causes of loneliness were analyzed to provide inductive evidence for the viability of the dimensions of Internality, Stability, and Controllability.

## Method

### *Participants*

Students, 48 men and 48 women at the University of California, Los Angeles (UCLA), participated to receive partial credit toward a requirement of their introductory psychology course.

### *Questionnaire*

A lengthy questionnaire examined respondents' perceptions of the causes of loneliness. Students were presented with a list of 13 possible causes of loneliness. This list was derived from previous research by Berke and Peplau (Note 1), in which 160 college students wrote replies to open-ended questions about the causes of their own loneliness and the loneliness of people in general. The authors and other members of a research group compiled a list of categories selected to capture the variety of causes given by students. Care was taken to include the most frequently given causes (e.g., "shyness," or lack of "trying" to find friends, and the "impersonal" social environment of the university) as well as other causes that were less frequent but seemed plausible to the researchers (e.g., unpleasant personality). The 13 categories generated in this manner formed the basis for the 13 specific causes of loneliness used in the present study and shown in Table 1.

Participants were instructed to consider each cause, in turn, as responsible for loneliness of a person described in one of four ways. Descriptions systematically varied the type (Weiss, 1973) of loneliness. The lonely person (whose sex was unspecified) was described as feeling lonely due to either a lack of "friends to do things with" (social loneliness) or a lack of a "boyfriend or girlfriend" (emotional loneliness). The description also varied the duration of loneliness; the person was described as having been lonely either "for just a short while—about a week" or "for a long while—around 6 months." These variations were intended to increase the generalizability of results, and preliminary analyses ex-

amined whether there were differences in perceptions of causes in relation to the four descriptions. Comparisons of results obtained separately for each description revealed no systematic differences, using each of the methods of data analysis described later.

The first of two tasks for participants was to rate how similar each of the 13 causes was to every other cause. The causes were arranged in their 78 possible pairs, and respondents judged the similarity of the causes in each pair on a 9-point scale from "very different" to "very similar." To eliminate the possibility of systematic order effects, questionnaires were generated by a computer program designed to give each respondent a unique random order of pairs of causes, with the order of the two causes within each pair also randomly varied.

Respondents also rated the causes on a series of 20 bipolar scales. Scales were selected to capture distinctions among causes that are made in attributional theories and to assess other perceptions including particular effects of causes. (The latter scales are not considered in the present paper; see Michela, Peplau, & Weeks, Note 2). For each scale, respondents rated each cause on a 9-point scale operationalizing Stability, with endpoints labeled "The cause is a temporary condition" and "The cause is a permanent condition." In this portion of the questionnaire, the following randomizations were done by the computer program: (a) order of the scales, presented one scale per page, (b) the left-right orientation of the two poles of each scale, and (c) the order of the 13 causes presented below each scale.

### Procedure

The major data were collected in three testing sessions. After each group of participants gathered in a large lecture hall, questionnaires were distributed in a random fashion to avoid confounding versions of questionnaires with early or late arrivals. Tabulations after earlier sessions allowed recruiting and assignments of questionnaires for the final session so that equal numbers of men and women received each version of the questionnaire. All respondents completed their questionnaires within 1½ hours. Then respondents received a description of the purpose of the study and were thanked and given credit for participation. After data from the main study were analyzed, ratings of the 13 causes of loneliness were obtained from a separate group of respondents. The questionnaire used in the second study was identical to that described previously with two exceptions: The similarity judgment task was deleted, and the set of scales on which each cause was rated was modified to include some new scales and replicate some previous ones. Questionnaires were distributed to 48 women and 36 men during a class meeting of an upper-division psychology class at UCLA. Students were given 40 minutes to complete the questionnaire and later heard a lecture on the purpose and design of the study.

## Results

### Exploratory MDS Solution

To identify the dimensions that underlie perceptions of causes of loneliness, the similarity judgments collected from the major

sample first were analyzed by the INDSCAL multidimensional scaling procedure (Carroll & Chang, 1970). This method computes locations of causes on dimensions so that the judgments of similarities among causes will be optimally accounted for.

*Number of dimensions.* INDSCAL solutions were computed for representations of one, two, and three dimensions. The two-dimensional solution was superior to the others in the following respects. First, in terms of variance accounted for ( $R^2$ ), there was a near doubling of  $R^2$  from one to two dimensions (.12 to .23), but a substantially smaller increase in  $R^2$  occurred for three dimensions ( $R^2 = .29$ ). Second, in terms of interpretability, the first two dimensions were visibly correspondent to hypothesized dimensions, but the third dimension could not be identified by inspection. Thus, the two-dimensional INDSCAL solution was retained.

Table 1  
*Labels and Exact Wordings of Causes of Loneliness*

Label	Wording
Pessimism	The person believes there is little chance of finding someone.
Fear of rejection	The person is afraid of being rejected if he/she tries to start a friendship (relationship).
Lack of trying	The person doesn't try hard enough to meet someone.
Unlucky	The person hasn't had any luck meeting people.
Lack of knowledge	The person doesn't know what to do to start a friendship (relationship).
Shyness	The person is too shy.
Physically unattractive	The person is physically unattractive.
Others' groups/relationships	Other people have their own groups (relationships) and aren't interested in this person.
Others' fear	Other people are afraid of making friends (getting into a relationship).
Impersonal situations	The person is always in impersonal situations with too many people.
Lack of opportunities	There aren't enough opportunities to meet people.
Others' lack of trying	Other people don't try to make friends.
Unpleasant personality	The person has an unpleasant personality.

*Internality and Stability dimensions.* After inspection of the locations of the 13 causes in the two-dimensional space, it appeared that an orthogonal rotation of the axes would enhance the correspondence of the obtained dimensions to dimensions proposed by theory. Such rotation is appropriate when the placement of axes has been specified by theory (see Peabody, 1978), and the allowability of rotation specifically for INDSCAL dimensions is supported by MacCallum's (1976) demonstration that INDSCAL is an instance of the general three-mode model. Accordingly, a counterclockwise rotation of 33 degrees yielded the representation shown in Figure 1.

The interpretation of Dimension 1 as Internality is supported by the location at one

end of the dimension of causes referring to the lonely person (e.g., "physically unattractive," "fear of rejection," and "shyness"), and causes at the other end referring to other people or circumstances (e.g., "others' fear," and to a lesser degree, "impersonal situations"). Dimension 2 separates causes that are apparently temporary or changeable (e.g., "lack of opportunities," "lack of trying") from causes that are more permanent or unchangeable (e.g., "unpleasant personality," "physically unattractive"), thereby suggesting the label of Stability.

INDSCAL results concerning individual differences were analyzed in relation to sexes of respondents as well as types and durations of loneliness, but no systematic differences in perceived dimensions were found.

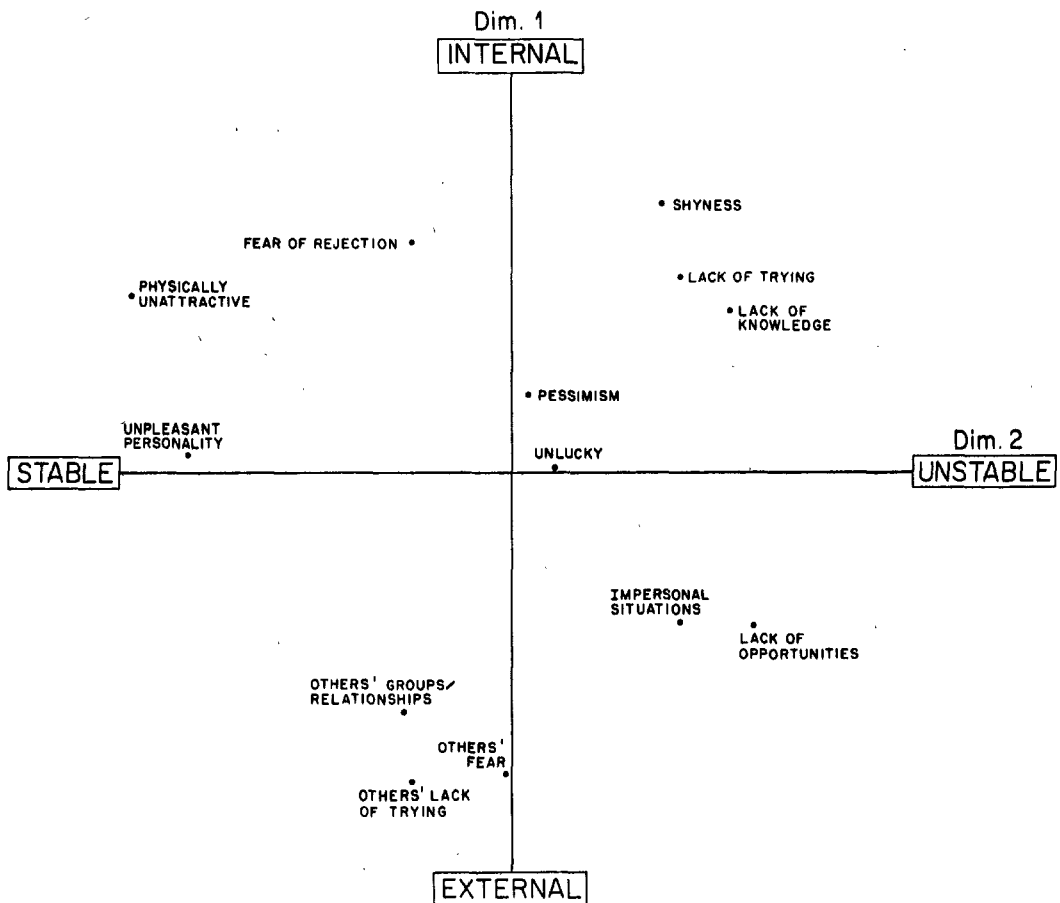


Figure 1. Perceived dimensions of 13 causes of loneliness. (Dim. = dimension.)

### Confirmatory MDS Solutions

Further MDS analysis seemed necessary because conclusions from the exploratory MDS analysis were somewhat subjective and because a dimension of Controllability as discussed by theorists (e.g., Weiner, 1979) did not emerge in the exploratory MDS solution. A confirmatory multidimensional scaling procedure was used to address these issues. In confirmatory MDS, measures of perceived similarity are statistically compared with separate measures that directly assess perceived relations of stimuli (causes) to hypothesized dimensions. These measures consisted of ratings of causes on bipolar scales for the dimensions of Internality, Stability, and Controllability. The confirmatory MDS procedure (Bentler & Weeks, 1978) determined the degree to which ratings on bipolar scales were predictive of similarity judgments about causes. Accurate prediction would indicate that the hypothesized dimensions had influenced how respondents made their similarity judgments.

*Internality/Stability.* The first analysis reported in Table 2 tested Internality and Stability as the perceived dimensions. The MDS procedure compared mean ratings of causes, computed over subjects' ratings on bipolar scales for Internality and Stability, with mean similarity judgments. The analysis yielded an  $r$  index of fit of .62, which was obtained by computing the Pearson product-moment correlation between the similarity judgments actually obtained and the judgments predicted within the MDS procedure from the scale ratings for Internality and Stability. This result indicates that the underlying dimensions were well characterized as Internality and Stability. The nearly equal variances for the two dimensions (see Table 2) showed that causes were differentiated along both of the hypothesized dimensions.<sup>1</sup>

*Other solutions.* Analyses testing other combinations of dimensions were less convincing. The next analysis tested the possibility that Controllability was a primary dimension along which causes of loneliness were distinguished. Ratings of causes on scales representing Internality and Controllability were entered into the confirmatory MDS procedure. (Preliminary analyses had

Table 2  
*Results of Confirmatory Multidimensional Scaling Analyses*

$r$ index of fit and scale	Scale variance
.62	
Internality	.493
Stability	.470
.42	
Internality	.200
Controllability	.106
.62	
Internality	.491
Stability	.449
Controllability	.030

*Note.* The a priori scales were as follows. Internality: Cause reflects him/her personally — Cause doesn't reflect him/her personally. Stability: The cause is a temporary condition — The cause is a permanent condition. Controllability: Controllable by lonely person — Not controllable by lonely person.

suggested that Internality was the best dimension to include with Controllability; see also Passer, 1978). Results indicated that these two dimensions were inferior to Internality/Stability: The index of fit for Internality/Controllability was lower ( $r = .42$ ) and the Controllability scale evidenced little variance (.106) relative to the Internality scale (.200).

The final confirmatory analysis tested whether all three scales together could account for the similarity judgments better than Internality/Stability. To the contrary, addition of the Controllability scale did not improve the index of fit above Internality/Stability, and the near-zero variance for Controllability suggested that the concepts of Internality and Stability alone capture the salient dimensions of the causes of loneliness.

*Replicability of dimensions.* After establishing the perceived dimensions for respondents in the main sample, these perceptions

<sup>1</sup> Variances of dimensions were computed in the routine manner from the projections of the 13 causes along each dimension. These projections, in turn, were derived from a combination of the measured (fixed) mean ratings of causes on bipolar scales, and a scaling parameter that was estimated for each dimension. The scaling parameters effectively expanded or contracted the projections, and their values were chosen to maximize the overall goodness of fit.

were compared with those of respondents in the second sample. Simple correlations were computed over the mean ratings of causes on bipolar scales corresponding to Internality, Stability, and Controllability. For each of these dimensions, the cross-sample correlations were, respectively,  $r = .98, .81$ , and  $.97$ . Members of the two samples thus essentially agreed on the dimensional placements of causes.

### Discussion

#### *Convergence of Scientific and Lay Conceptions*

It has not been clear, either from previous empirical research or theoretical statements (e.g., Weiner, 1979), whether attributional dimensions represent concepts that are salient in lay thinking about causality or whether these dimensions are higher-level theoretical constructs useful to scientists but not a part of lay conceptions of causality. As suggested in the introduction, MDS studies may provide more direct evidence about laypersons' perceptions of relations among causes than do factor-analytic studies (e.g., Meyer, 1980), which may be more relevant to a scientific characterization of causes. The results of our MDS analyses indicate that people do spontaneously distinguish between causes that exist in the person versus the situation and between causes that are relatively changeable versus permanent.

Although our results are highly consistent with Weiner's model, they differ somewhat from two earlier studies that used MDS to investigate people's spontaneous or naturally occurring distinctions among causes. Passer (1977), working in the domain of academic achievement, found evidence for the salience of dimensions of Internality and Intentionality but not Stability. Passer speculated that his use of an academic setting, where concerns about rewards and punishments for performance are prominent, may have encouraged respondents to distinguish causes along the dimension of Intentionality as well as Internality. In contrast, the affiliative domain used in the present study may have made Stability more prominent than Intentionality. More puzzling is the divergence between our results and those of Falbo and

Beck (1979), who identified quite different dimensions such as Mastery and Vitality. Although it may be that this divergence is also explained by differences in domains of causal explanation (i.e., the affiliative context vs. the various occupational achievement contexts in Falbo and Beck), several apparent flaws in their study may also provide an explanation. Weiner (Note 3) criticized the Falbo and Beck study on several grounds, including the following: (a) Some dimensions were not bipolar (e.g., the Achievement Orientation dimension in explanations for success was defined at one extreme by causes of "ambition" and "wanting rewards," but the other extreme contained "good training" and "good conditions," which are not opposite to achievement orientation). (b) The causes at *both* ends of some other dimensions appeared similar with respect to the proposed property underlying the dimension (e.g., "calmness" and "takes responsibility," each located at opposite ends of the Mastery dimension, may both be involved in mastery). (c) Whereas Falbo and Beck offered no data directly in support of the labels proposed for dimensions, Weiner found that additional subjects' ratings of causes on bipolar scales for Achievement Orientation, Mastery, and so on did not correspond to MDS results in the expected fashion. In contrast, the present study did provide such support for dimension labels through the confirmatory MDS procedure and through additional procedures very similar to those that Weiner used (see Michela et al., Note 2).

#### *The Controllability Dimension*

Recent theoretical discussions (e.g., Weiner, 1979; Wortman & Dintzer, 1978) have highlighted the importance of the attributional dimension of Controllability. However, the present results suggest careful examination of this emphasis, because results of two types of MDS analysis indicated that perceived controllability of causes is predictable from the dimensions of Internality and Stability. To assess the degree of this predictability, a simultaneous multiple regression was performed with loadings of causes on the Internality and Stability dimensions as independent variables and ratings of Con-

trollability as the dependent variable. The resulting beta weights for Internality (.69) and Stability (.44) were both substantial. The high multiple correlation ( $R = .82$ ) demonstrated that controllability judgments were well explained by Internality and Stability, with controllable causes seen as internal and unstable. This implies that in some cases, controllability may be important largely because it carries information about the internality or stability of causes. Moreover, a logical analysis suggests that control over an event requires that the event can occur on some occasions and not occur on others (i.e., unstable causation may be a prerequisite for controllability). The logical link between personal control and internality is less clear-cut. Presumably, individuals can exercise control over both themselves and their environments, although data from this study indicate that laypersons *perceive* internal causes as more controllable (see also Meyer, 1980; Peplau, Russell, & Heim, 1979). Despite the dominance of internality and stability in the global picture presented by this study of attributions for loneliness, it remains possible that attributions of controllability are central in laypersons' perceptions and responses in other contexts or in more specific situations.

#### *Implications for Affect, Cognition, and Motivation*

The present description of how people perceive causality is an important step toward understanding the role of these perceptions in generating consequences of attributions. Unfortunately, little is known about the underlying processes by which causal attributions influence feelings, expectations, and reactions (Bem, 1972; Kelley & Michela, 1980). One suggestion about these processes, from the present findings and previous work, is that the dimensional properties of causes are of central importance, so even when a person cannot identify a specific cause of an event there may be dimension-mediated consequences of the person's attributional analysis. For example, although a person may not be able to specify a particular cause of loneliness, he or she may consider whether or not the cause is stable. The persistence of loneliness over time might lead to a conclusion

about stability even if the precise nature of the cause were still uncertain (Peplau, Russell, & Heim, 1979; Read & Stephan, 1979). As a result, lacking a specific attribution, the person would be expected to experience the consequences of stable attributions, which might include various affective and behavioral manifestations of hopelessness.

Because the dimensions of Internality and Stability were revealed in lay perceptions of causality, Weiner's model constitutes a cognitive schema that researchers and theorists in the broader area of social cognition may want to analyze closely. The relatively large amount of prior research and theory related to this model could provide promising directions for establishing details of processes by which cognitive schemas influence other cognition, perception, affect, and behavior. Some of the related questions might be approached by drawing upon the wider body of attributional research as well.

Finally, results of this study support Weiner's contention that his model offers a general framework for understanding motivation in diverse domains of life. Evidence was found that lay perceptions of causes of loneliness correspond to the model's basic dimensions. These findings warrant further exploration of attribution processes as they apply to interpersonal perception and behavior in affiliation.

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