

Dispositional Sensitivity to Befallen Injustice

Manfred J. Schmitt,¹ Roland Neumann,¹ and Leo Montada¹

Dispositional Sensitivity to Befallen Injustice (SBI) is proposed as a new construct. A self-report questionnaire with four types of indicators (frequency, intensity of anger, intrusiveness of thoughts, punitivity) was developed for measuring SBI. Using structural equation modeling and the general rationale of multitrait-multimethod analysis, the convergent and discriminant validity of this questionnaire was investigated vis-à-vis measures for Trait Anger, Anger In, Anger Out, and Frustration Tolerance as related constructs. Additionally, a meaningful pattern of correlations was obtained between SBI and Life Satisfaction, Centrality of Justice, Interpersonal Trust, and Need for Control. Finally, self-reported sensitivity to befallen injustice was found to predict cognitive, emotional, and behavioral reactions to unjust treatment in laboratory and natural settings several weeks later.

KEY WORDS: justice; frustration; anger; disappointment; structural equation modeling; construct validation; measurement model; multitrait-multimethod analysis.

Many situational factors have been identified that affect individuals' preferences for allocation principles, their justice judgments, and their emotional reactions to distributions and procedures (e.g., Deutsch, 1985; Lind and Tyler, 1988; Mikula, 1981; Törnblom, 1992). Justice-related cognitions, emotions, and actions have also been found to covary with demographic and sociological variables such as age, social class, gender, and nationality (e.g., Major and Deaux, 1982; Mikula, 1981; Törnblom, 1992). Furthermore, several studies have revealed that individuals' sense of justice is related systematically to their personality, attitudes, and moral values (e.g., Furnham and Procter, 1989; Montada and Schneider, 1990; Montada, Schmitt

¹Department of Psychology, University of Trier, LD-54286 Trier, Germany.

and Dalbert, 1986; Schwinger and Winterhoff-Spurk, 1984; Törnblom, 1992).

Such findings of individual differences in justice-related variables and the large proportions of variance that have remained unexplained in experimental research suggest conceptualizing justice orientations themselves as characteristics of the person. Accordingly, instruments have been developed for measuring individual differences in various justice constructs such as Belief in a Just World (e.g., Rubin and Peplau, 1973), Centrality of Justice (Dalbert *et al.*, 1987), Equity Sensitivity (Huseman *et al.*, 1985), Attitudes Towards Principles of Distributive Justice (e.g., Jasso, 1983; Sabbagh *et al.*, 1994), and Attitudes Towards Principles of Procedural Justice (e.g., Wahner, 1986).

Substantial and reliable individual differences have been found in justice-related social comparison processes. Individuals differ consistently in their perceptions of inequalities and related justice judgments. In a series of questionnaire studies, the present authors (Montada Schmitt *et al.*, 1986; Montada and Schneider, 1990; Schmitt, Behner *et al.*, 1992) described the lot of disadvantaged people (e.g., people from Third World countries) to subjects who were objectively privileged compared to those reference groups. Among several cognitive, emotional, and behavioral reactions, the perceived injustice of the subject's privileges compared to the disadvantages of the reference groups was assessed. These justice judgments correlated significantly across resources and reference groups. Subjects who felt that their material well-being compared to the poverty in Third World countries was unjust also felt that they did not deserve their good health, their civil rights, having a job, and other privileges. Correspondingly, emotional reactions to the perception of injustice (moral outrage; guilt) were generalized across resources and reference groups. The validity of the justice judgments and emotion self-reports was tested successfully in peer rating studies (Schneider *et al.*, 1987) and via criterion group comparisons (Montada, Dalbert *et al.*, 1986). Together, the pattern of results suggests that individuals differ in their sensitivity to unjust *own advantages*. Furthermore, this sensitivity has trait-like properties; longitudinal analyses yielded stability coefficients as high as for personality traits (Montada *et al.*, 1990).

Much less is known about whether individuals also differ in their sensitivity to unjust *own disadvantages*—resulting either from unjust distributions or unfair procedures. Previous research on relative deprivation and the sense of injustice has focused primarily on situational factors (e.g., Crosby, 1981, 1984; Mikula, 1986; Mikula *et al.*, 1990). For example, Mikula (1986) investigated the social settings in which individuals experience injustice, the social relations that typically exist between perpetrators and victims, and the emotional and behavioral consequences following unfair treatment.

We know of one study that investigated the sense of deprivation from an individual differences perspective. Dar and Resh (1993) constructed a questionnaire for measuring adolescents' sense of deprivation as a cognitive and an emotional reaction to deprivation of instrumental, relational, and symbolic rewards in school and society: 17 measures for sense of deprivation were derived from 37 items. The correlations among these measures were small but mostly positive. Thus despite a considerable domain and resource specificity, the sense of deprivation was generalized. Dar and Resh related *subjective* sense of deprivation to *objective* indicators of deprivation such as gender, ethnic origin, and socioeconomic status. Very low correlations between objective and subjective measures were found. This corresponds to the more general finding that objective living conditions and subjective well-being are only weakly associated (e.g., Kammann, 1983).

RESEARCH QUESTIONS

The purpose of this research was to investigate empirically whether individuals differ consistently in their sensitivity to befallen injustice (SBI) across different indicators, and if so, whether SBI is dissimilar enough to related dispositions, such as frustration tolerance, to justify the proposal of a new psychological construct. Based on four hypothetical indicators, a questionnaire was developed for measuring SBI. The correlational convergence among these indicators, their discriminant validity vis-à-vis measures for related constructs, and their predictive validity towards reactions to unjust treatments in the laboratory and in the real world were analyzed. An important criterion in selecting indicators was to cover a broad range of possible manifestations of SBI, including perception and memory, emotion, coping, and behavioral intentions.

Indicators for Sensitivity to Befallen Injustice

Frequency. Sensitivity to a class of stimuli implies conceptually a low perceptual threshold—which should lead to a larger number of detections (alarms) than a high threshold (Gordon, 1989). Furthermore, traits seem to imply the chronic availability of concepts for interpreting events (Higgins and King, 1981). Correspondingly, justice-sensitive individuals should look at social situations more often from a social comparison point of view and therefore discover more instances of injustice than insensitive individuals. Memory functioning provides an additional basis for this indicator. Unjust treatments are emotionally significant (see below). It is known from mem-

ory research that emotionally salient events are recalled more easily than neutral episodes (Christianson, 1992).

Intensity of Anger. Several studies have identified unjust treatment as a major cause for anger. Scherer *et al.* (1986) found that the perceived unfairness of an anger evoking situation was correlated most closely with intensity of anger (INA). Mikula's (1986) subjects reported anger, rage, and indignation as the most common emotional reactions to being treated unfairly. Klein and Bierhoff (1988) studied reactions to unjust evaluations in achievement situations and found anger to be one of three common reaction factors.

Intrusiveness. Strong emotions tend to preoccupy the mind. They distract attention from other foci, reduce the capacity for problem solving and achievement (Dörner and Stäudel, 1990), and they lead individuals to ruminating about the event (Rime *et al.*, 1992).

Punitivity. Justice norms are affirmed and sustained by sanctions of the legal system and by social reactions to unjust behavior in everyday interactions—such as revengeful or retributive acts on behalf of the victim. Revenge and retribution are intrinsically related to unjust behavior because they reduce the benefit of the perpetrator. Given that unjust treatments imply frustrations, punitivity (PUN) can also be derived as an indicator for SBI from theories on the social significance of anger (Averill, 1982; Plutchik, 1980) and the functional link between frustration and aggression (Rosenzweig, 1978). In this literature, anger and aggression are considered to prevent ongoing frustrations, to compensate for harms and losses, and to remove obstacles in the pursuit of goals.

Related Constructs and Construct Validation

The Problem of Multidetermination. Each of these indicators may reflect not only SBI. Virtually any behavior is multidetermined (Ahadi and Diener, 1989) and may therefore indicate several dispositions (Borkenau, 1986). In our case, the frequency of unjust incidents may not only indicate the person's perceptual threshold for injustice, but also reflect differences between individuals in their objective circumstances. A person's anger reaction to unjust treatment may not only depend on his sensitivity to justice but also signify his general anger proneness (Spielberger, 1988). The intrusiveness of thoughts about unjust events may express, at least partly, a *general* tendency to ruminate (Klauer and Filipp, 1993). Finally, punitivity may reflect to some extent aggressiveness as a general disposition to deal with social conflicts (Olweus, 1979).

Convergent and Discriminant Validity. Given multidetermination as a general problem in measurement, it is necessary to establish empirically

the amount of common and unique variance of each indicator. The proportion of common variance can serve as an estimate for the convergent validity. Convergent validity is a necessary but insufficient criterion for the construct validity of a measure. A second necessary criterion is the discriminant validity of the measure vis-à-vis measures for related constructs. Sensitivity to Frustration, Trait Anger (TRA) as well as Anger In (ANI) and Anger Out (ANO) were considered as reference constructs here.

Frustration Tolerance. Frustrating and unjust events both imply the violation of expectations. While frustrations may result from the blockade of mere desires, unjust events imply conceptually the violation of a moral principle and either a personal agent or some sort of social comparison. Given the common element of violated expectations, a moderate positive correlation between SBI and sensitivity to frustration (Rosenzweig, 1978) was expected.

Trait Anger, Anger In, Anger Out. Trait anger and anger expression modes (Anger In, Anger Out) according to Spielberger (1988) are obviously related to three of our indicators, namely, intensity of anger, intrusiveness of thoughts, and punitivity. The anger scales should correlate only with the specific components of our indicators but not with their common factor because the common factor represents the construct of justice sensitivity purely, i.e., freed from the indicator specific factors.

Methodological Framework. Structural equation modeling with latent variables was chosen for investigating the convergent and discriminant validity of the indicators for our construct within the general framework of multitrait-multimethod analysis (Widaman, 1985). This methodology is superior to the traditional methodology of comparing correlations among the indicators (Campbell and Fiske, 1959) because latent variable models (i) take care of measurement error, (ii) are theory-driven confirmatory models which can be tested explicitly, (iii) allow for separating random measurement error from specific but systematic sources of variance of the indicators, and (iv) make possible to include the systematic sources of variance in the process of construct validation.

METHOD

Measurement Instruments

Sensitivity to Befallen Injustice

The scales for measuring Frequency (FRE), Intensity of Anger (INA), Intrusiveness (INT), and Punitivity (PUN) were based on the following items:

1. I am taken advantage of by others.
2. Things are being withheld from me.
3. I am being treated or judged unfairly by others.
4. Credit that I deserve is being withheld from me.
5. Others take advantage of me without compensating me.
6. I perform better than others without getting any appreciation or reward.
7. I have to iron out others faults.
8. I deserve more in turn for my efforts and achievements than I get.
9. I get less chances than others to develop my talents.
10. Others are better off than me without deserving it.
11. I have to work hard for a goal while others reach it without effort.
12. Despite knowing things better than others, I do not get a chance to prove it.
13. Others are being treated more friendly than me without reason.
14. I experience more difficulties than others.
15. I get less attention than others.
16. I am being criticized more often than others.
17. Others are being treated better than me.
18. While others get a lot of support, I have to struggle on my own.

In the FRE scale, the frequency of each instance had to be estimated on 6-point rating scales ranging from 1 (seldom) to 6 (often). In the INA scale, the intensity of anger following such an event had to be estimated on a 6-point rating scale. In the INT scale, the subject had to rate on 6-point rating scales how long he would have to think about the event. The PUN scale contained only events 1, 3, 4, 5, 6, 8, 10, 11, 14, 16. The remaining events cannot be combined meaningfully with retaliatory actions. The subject had to rate on six-point rating scales how strongly she felt inclined to take revenge for the unjust treatment.

Frustration Tolerance

Adopting the critical incident technique (e.g., Wicker *et al.*, 1983), we devised a Situation-Emotion-Questionnaire to have a measure for frustration tolerance and a second measure for SBI, differing from the instrument described above in that more specific and concrete situations were used. Accordingly, two kinds of situations are described, 8 situations where the person was *frustrated* without being treated unfairly and 10 situations where the person was *treated unjustly* by someone else.

The 8 frustrating situations were:

1. Imagine you bought an expensive jacket. You soon discover that you could have gotten the jacket much cheaper in another store.
2. Imagine you are searching for your car keys. After a while, you realize that you locked them in your car.
3. Imagine you want to cross a busy road. The traffic is so dense that you have to wait for a very long time.
4. Imagine a paper-bag full of groceries breaks and the content falls on the street.
5. Imagine you have been standing in line in a cafeteria for quite a long time. Right before it is your turn, they run out of food.
6. Imagine you are in a hurry. You are stopped by the police because you were speeding.
7. Imagine you are standing at the cashier of a supermarket and recognize that you forgot your money.
8. Imagine you are working in a restaurant. Because of the bad business-situation, they cannot pay the usual Christmas gratification.

The 10 unjust situations were:

1. Imagine you are standing in line and someone passes.
2. Imagine a colleague of yours is given credit for something you have accomplished and your colleague conceals the error.
3. Imagine another applicant gets the job you had applied for. You find out later that the other person was preferred because he was close to the chair of the search committee.
4. Imagine you are in a bakery to be served. Someone who came in after you is served first.
5. Imagine you want to visit a disco. You are not allowed to enter although other persons are admitted.
6. Imagine you get a bad grade in an exam because your neighbor copied from you without your knowledge.
7. Imagine you had been on the waiting list for admission to a university for several years. You find out that other applicants were admitted immediately because they knew some tricks.
8. Imagine if you are sitting in a restaurant. Other guests who had arrived after you are served first.
9. Imagine you play in a lottery. Every third lot wins. All your friends win something but you don't win anything although you bought a dozen lots already.

10. Imagine you are being fined for a traffic violation which you haven't committed. You cannot prove your innocence and have to pay.

Subjects were instructed to imagine each situation and to rate on 6-point rating scales how angry and how disappointed they would feel. Four scales were derived from the Situation-Emotion-Questionnaire, INAN (Injustice leads to Anger), INDI (Injustice leads to Disappointment), FRAN (Frustration leads to Anger), FRDI (Frustration leads to Disappointment).

Trait Anger and Anger Expression Scales

A German version (Schwenkmezger and Hodapp, 1989) of Spielberger's State-Trait-Anger-Expression Inventory (Spielberger, 1988) was used to assess trait anger, anger out, and anger in.

Sample

All questionnaires were administered to a sample of 300 subjects drawn randomly from the population of students and employees of the University of Trier, Germany; 218 subjects returned the questionnaires anonymously (69.3% female, 30.7% male; 90.1% students, 7.9% employees).

RESULTS

Exploratory Factor Analyses and Internal Consistency Analyses

The 64 items of the SBI Questionnaire were submitted to a principal axes analysis. The scree test suggested two or four common factors. After varimax rotation of the first four axes to simple structure, four factors appeared which correspond to the four scales (FRE, INA, INT, PUN). The loading pattern was ideal, i.e., all items had their highest loading on the a priori factor.

The 36 items of the Situation-Emotion Questionnaire were also submitted to a principal axes analysis. The eigenvalues suggested two, three, four, or five common factors. Varimax rotation of the first two axes led to a good simple structure and a clear loading pattern, the two factors reflecting Anger and Disappointment. In the four-factor solution, the factors reflected the four a priori scales (INAN, INDI, FRAN, FRDI), but the loading pattern deviated from simple structure and did not agree com-

pletely with the a priori structure; two items with loadings $>.50$ had this loading on the "wrong" factor.

For the scales of the SBI Questionnaire, the following internal consistency coefficients alpha were obtained: FRE (.92), INA (.93), INT (.93), PUN (.87). The corresponding coefficients for the Situation-Emotion Questionnaire were FRAN (.82), FRDI (.86), INAN (.80), INDI (.83).

Together, the exploratory factor analyses reproduce the a priori structure for the Sensitivity to Befallen Injustice Questionnaire very well and for the Situation-Emotion Questionnaire satisfactorily. All a priori scales are internally consistent and reliable according to conventional criteria.

Separate Measurement Models

It is useful to begin structural equation convergent and discriminant validation modeling of different measures for different constructs with specifying and testing separate measurement models for each construct first (Widaman, 1985). All models were tested with LISREL (Jöreskog and Sörbom, 1988).

Measurement Model 1 (MM1): Sensitivity to Befallen Injustice

We assume that each indicator measures three components, a common latent trait (SBI), a specific latent trait, and random measurement error. Separating the last two components requires at least two measures for each indicator. They were obtained by splitting the four scales into test halves on the basis of the exploratory factor analyses reported above. Items were ordered according to their loadings on the common factor and divided into test halves with odd and even items belonging to different test halves. This procedure should lead to test halves as essentially τ -equivalent as possible. The three assumptions mentioned plus the assumption of essential τ -equivalence translate into the measurement model in Fig. 1.

The model contains five common factors: one common factor (SBI) for all test halves and one common factor for each pair of test halves (FRE, INA, INT, PUN). All factors and all measurement error variables are mutually uncorrelated. The loadings accord to a perfect simple structure, i.e., each test half measures only SBI and its specific trait. Corresponding loadings and corresponding error variances were constrained to be equal.

From the conceptual viewpoint of multitrait-multimethod analysis (Widaman, 1985), SBI may be interpreted as the *trait* factor, whereas the specific factors may be interpreted as *method* factors, although they are not different methods in a literal sense.

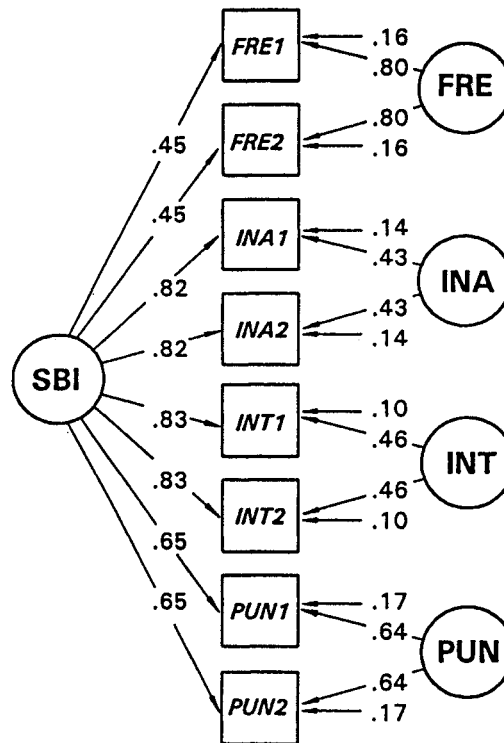


Fig. 1. Measurement model for the Sensitivity to Be-fallen Injustice Questionnaire.

The a priori model was tested with LISREL. Despite the restrictive assumptions, the model fit was excellent, $\chi^2(24) = 17.17$; $p = 0.84$. The parameter estimates for the model are given in Fig. 1. The reliabilities of the test halves are high ($> .84$). Intensity of anger (INA) and intrusiveness of thoughts (INT) are better indicators of SBI than the frequency of unjust experiences (FRE). Possibly, individual differences in the frequency of be-fallen injustice are only partly due to *subjective* interpretations. In addition, they may reflect substantial individual differences in the *objective* frequency of unjust treatments.

Measurement Model 2 (MM2): Situation-Emotion Questionnaire

The four scales (FRAN, FRDI, INAN, INDI) are assumed to measure four latent dispositions: (i) the disposition to react angrily, independent

of the type of situation encountered (ANG); (ii) the disposition to react disappointedly, independent of the type of situation encountered (DIS); (iii) the disposition to be affected by frustrating events, independent of the kind of emotion (Emotional Reactivity to Frustrating Events, FRU); and (iv) the disposition to be affected by unjust treatments, independent of the kind of emotion (Emotional Reactivity to Unjust Treatments, INJ).

The model in Fig. 2 serves as an adequate formal representation of these assumptions. It contains four latent variables representing the dispositions just introduced. Each latent variable is measured by two scales that differ *either* in the type of situation *or* in the type of emotion they refer to. To identify the model, corresponding loadings and all error variances were constrained to be equal.

Additional assumptions refer to the correlations among the four traits. A correlation between the emotional dispositions of anger and disappointment is likely, since both emotions imply that an expectation has been violated. It is also reasonable to assume that a person's emotional reactivity is generalized across different types of violated expectations—which corresponds to a correlation between FRU and INJ. Both assumptions cannot be tested simultaneously within the present measurement model, because only one of these two correlations can be identified from the set of structural equations. Therefore, the two correlations at issue were constrained to be equal.

The model was tested with LISREL and could be accepted despite the restrictive constraints on the loadings and error variances, $\chi^2(6) = 9.95$;

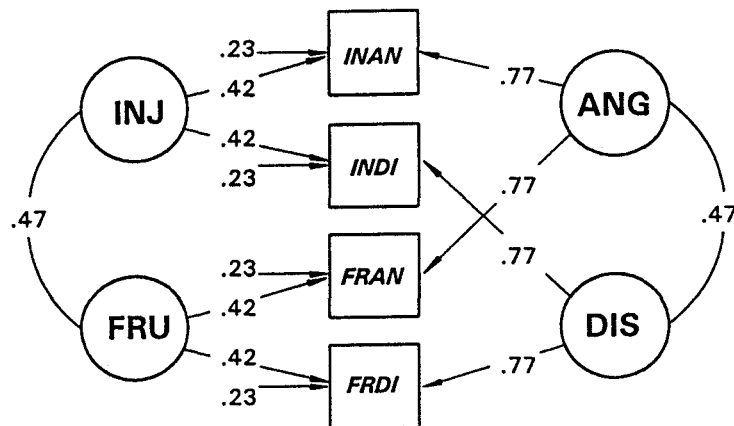


Fig. 2. Measurement model for the Situation-Emotion Questionnaire.

$p = 0.13$. The maximum likelihood parameter estimates for the model are given in Fig. 2.

Measurement Model 3 (MM3): Trait Anger and Anger Expression

Test halves were obtained for trait anger (TRA), anger in (ANI), and anger out (ANO) in the same way as for the SBI scales.

A measurement model was specified with three factors and the following constraints (Fig. 3): perfect simple structure, equal loadings and equal error variances for corresponding test halves. Correlations among the factors were not restricted.

The LISREL test for the model yielded an acceptable fit $\chi^2(12) = 19.46$; $p = 0.078$. The correlations between the factors were estimated as follows: $COR(TRA, ANI) = .07$; $COR(TRA, ANO) = .79$; $COR(ANI, ANO) = -.29$. Trait Anger and Anger Out are highly correlated. Since the correlation between Trait Anger and Anger In was not significant, it was

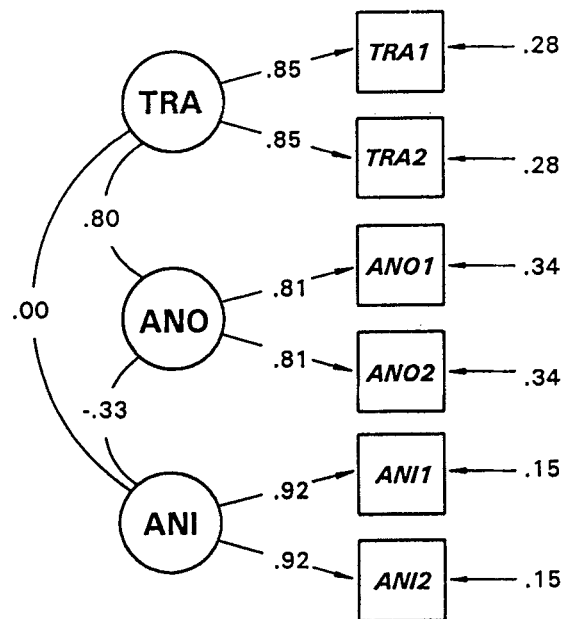


Fig. 3. Measurement model for the Anger Inventory.

constrained to be zero in the final model. The parameter estimates for the final model are given in Fig. 3.

Validation Model

To investigate the convergent and discriminant validity of the measures, the three separate measurement models were combined into a simultaneous model. To retain the meaning of the latent variables from the separate measurement models, the parameter estimates from these models were included as fixed parameters into the validation model.

Hypotheses

Phrased in the terminology of multitrait-multimethod analysis, MM1 contains a common trait factor SBI and four specific method factors: Frequency (FRE), Intensity of Anger (INA), Intrusiveness of Thoughts (INT), and Punitivity (PUN). By definition, the method factors are independent of the trait factor. MM2 may also be interpreted as a multitrait-multimethod model. It contains two trait factors INJ (Emotional Reactivity to Unjust Treatment) and FRU (Emotional Reactivity to Frustrating Events) and two method factors DIS (Disappointment) and ANG (Anger). Again, trait and method factors are independent by definition. MM3 does not decompose the indicators into latent trait and latent method factors because the items cannot be projected on any other facet besides the trait they measure (TRA, ANO, ANI).

Unlike the traditional method of comparing correlations among measurement variables (Campbell and Fiske, 1959), structural equation modeling with latent trait and latent method variables (Widaman, 1985) makes possible to consider correlations among trait factors, among method factors, and between trait and method factors. Compared to the traditional technique, this leads to a larger set of correlations, a greater possibility of inconsistent correlations, and therefore a stronger empirical test of the constructs and the measures.

Figure 4 translates the following hypotheses into a structural equations validation model. Arcs represent expected correlations while unconnected latent variables are defined or expected to be uncorrelated.

1. Trait factor from MM1 with trait factors from MM2: The common trait factor SBI from MM1 should correlate more highly with the common trait factor INJ than with the common trait factor FRU, both from MM2. This difference in correlations is crucial from the viewpoint of discriminant validity.

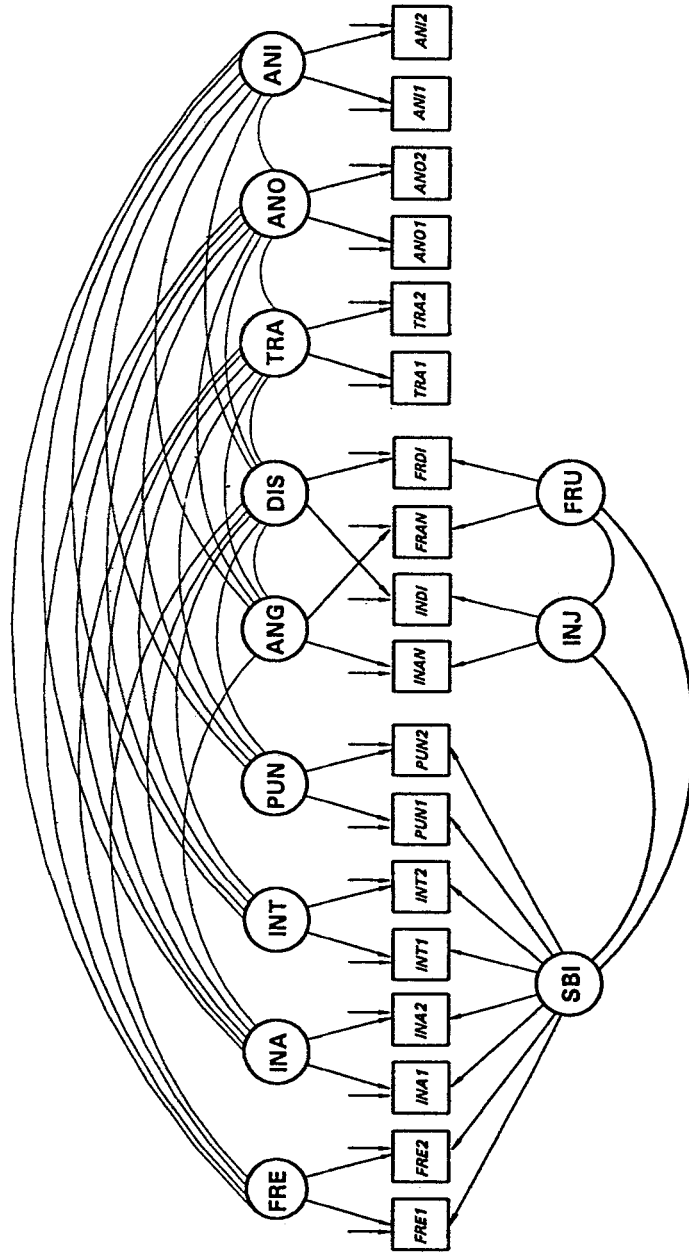


Fig. 4. Validation model.

2. Trait factor from MM1 with method factors from MM2: Since SBI is free from indicator-specific or method variance, it should not correlate with the two method factors ANG and DIS from MM2.

3. Trait factor from MM1 with factors from MM3: For the same reason, SBI should not correlate with the three anger factors TRA, ANO, and ANI from MM3.

4. Method factors from MM1 with trait factors from MM2: The hypotheses formulated so far imply that the method factors FRE, INA, INT, and PUN from MM1 should not correlate with the trait factors FRU and INJ from MM2.

5. Method factors from MM1 with method factors from MM2: Method factor INA from MM1 should correlate highly with method factor ANG from MM2 but less highly with DIS. It follows from this assumption and from the mutual independence of the method factors in MM1 that ANG (Anger, MM2) should be uncorrelated with all method factors from MM1 (FRE, INT, PUN) except INA. Furthermore, since the method factors ANG and DIS in MM2 are only moderately correlated, DIS may correlate with each of the method factors from MM1.

6. Correlations of the method factors from MM1 with the factors from MM3: From the method factors of MM1, INA is expected to correlate with TRA and the two anger expression factors ANO and ANI from MM3. The method factor PUN, reflecting the desire to punish the perpetrator, should correlate positively with TRA and ANO but not or even negatively with Anger In—since ANI is the tendency to hold back one's anger as opposed to expressing it overtly. Finally, INT (Intrusiveness of Thoughts) is expected to correlate more highly with ANI than with ANO. Keeping one's anger private (versus expressing it openly) should lead to a longer mental preoccupation with the causes of one's anger.

7. Correlations of the trait factors from MM2 with the factors from MM3: Since by definition, the two trait factors INJ and FRU from MM2 are free from specific anger variance, they should not correlate with the anger factors from MM3.

8. Correlations of the method factors from MM2 with the factors from MM3: The method factor ANG from MM2 should correlate higher than DIS with the anger factors from MM3.

The Problem of Identification

Testing all hypotheses would require estimating all possible correlations among all factors across the three measurement models. This is not possible, because not all of these correlations can be identified simultane-

ously from the set of structural equations. Restrictive assumptions are thus needed to estimate a smaller set of correlations (for a detailed discussion of this issue cf. Schmitt, Neumann, and Montada, 1992).

Restrictions

All hypotheses stating zero correlations between latent variables were constrained to be zero. It was assumed, further, that the correlations of FRU (Emotional Reactivity to Frustrating Events, MM2) with the two sensitivity to injustice factors, SBI (MM1) and INJ (MM2), are equal to each other. This equality constraint is reasonable under the assumption that SBI and INJ are highly similar or even identical constructs. Next, it was assumed that the correlation of DIS (Disappointment, MM2) with the two anger method factors, INA (Intensity of Anger, MM1) and ANG (Anger, MM2), are equal to each other. Again, this assumption is reasonable if the two anger method factors from MM1 and MM2 represent identical or highly similar dispositions.

Model Tests and Parameter Estimates

The $\chi^2(146)$ value for the model was 182.21 ($p = 0.023$). This value must be taken with caution because some of the fixed parameters were estimates from previous LISREL analyses of the simple measurement models, leading to more degrees of freedom for the present test. Still, the model seems acceptable for three reasons: The descriptive LISREL Goodness-of-Fit Index is .91. The LISREL Adjusted Goodness-of-Fit Index, which is the estimated fit for an independent sample, is .89. Finally, only 2 out of 171 normalized residuals are larger than |2|.

Of the 25 estimated correlations among the latent variables, 3 did not significantly differ from zero. They were fixed at zero in a second analysis. These restrictions led to a nonsignificant decrease in the model fit, $\chi^2(149) = 183.27$ and a slightly better p value of 0.029. The more restrictive model was accepted. The correlations among the latent variables of this model are given in Table 1.

Before we compare these correlations with our hypotheses, two more analyses are reported. First, we tested whether the correlation of .81 between SBI (MM1) and INJ (MM2) differs significantly from the correlation of .59 between SBI and FRU (MM2). This test is crucial for the discriminant validity of the measures for SBI vis-à-vis measures for Sensitivity to Frustration as a related construct. The equality constraint led to a signifi-

Table I. Correlations Among the Factors of the Validation Model^a

| | MM1 | | | | | MM2 | | | | MM3 | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | SBI | FRE | INA | INT | PUN | INJ | FRU | ANG | DIS | TRA | ANO |
| FRE | | | | | | | | | | | |
| INA | | | | | | | | | | | |
| INT | | | | | | | | | | | |
| PUN | | | | | | | | | | | |
| INJ | .81 | | | | | | | | | | |
| FRU | .59 | | | | | .59 | | | | | |
| ANG | | | .61 | | | | | | | | |
| DIS | | .15 | .33 | .28 | | | | .33 | | | |
| TRA | | .47 | .89 | .76 | .74 | | | .50 | .42 | | |
| ANO | | .22 | .47 | .47 | .58 | | | .22 | .13 | .80 | |
| ANI | | .43 | .17 | .24 | | | | | .45 | | -.33 |

^aSBI = Sensitivity to befallen injustice; FRE = frequency; IBA = intensity of anger; INT = intrusiveness of thoughts; PUN = punitivity; INJ = emotional reactivity to unjust treatment; FRU = emotional reactivity to frustrating events; ANG = anger; DIS = disappointment; TRA = Trait Anger; ANO = Anger Out; ANI = Anger In.

cant decrease in model fit ($p < 0.01$). This means that the correlation between SBI and INJ is higher than the correlation between SBI and FRU.

We then tested whether the correlation between SBI and INJ differs significantly from 1. If this were not the case, SBI and INJ would be identical latent variables. Although this appears desirable from a theoretical point of view, a correlation < 1 is not detrimental to construct validity because the questionnaire items for measuring SBI and INJ refer to different kinds and different levels of situations, and a person's sensitivity to befallen injustice may not be generalized *perfectly* across these. Fixing the correlation between SBI and INJ to 1 led to a significant decrease in the model fit ($p > 0.01$), meaning that the correlation between SBI and INJ is less than 1.

Description of the Accepted Validation Model

Results are presented in the same order as the hypotheses were stated.

1. Trait factor from MM1 and trait factors from MM2: As expected, SBI correlates more highly with INJ than with FRU. However, the correlations between SBI and FRU and between INJ and FRU are substantial (.59). A person's sensitivity to befallen injustice is thus not independent of

his sensitivity to frustration. In addition to the common element of violated expectations, this correlation might reflect that "mere" frustrations are rare and that most frustrating events can be looked upon from a normative perspective also. If a paper bag breaks and its content falls, at least some individuals may attribute responsibility for this frustrating event to agents such as the manager of the supermarket who bought bad bags.

2. Method factors from MM1 and method factors from MM2: As expected, the correlation between the two anger method factors INA (MM1) and ANG (MM2) is substantial (.61) and higher than the correlation between the anger method factor INA (MM1) and the disappointment method factor DIS (MM2). The remaining correlations between the method factors from MM1 and MM2 are either small or nonsignificant.

3. Method factors from MM1 and factors from MM3: As expected, TRA correlates highly with INA and with PUN, but TRA also correlates highly with INT. Anger-prone individuals seem more inclined to ruminate about unjust treatments than individuals with low trait anger levels. Also, TRA correlates substantially with FRE (MM1). This correlation contradicts our assumption that FRE reflects only the objective frequency of unjust treatments but not a person's subjective sensitivity. Since FRE is a residual or method factor, it should be free from a subjective component. Perhaps, the correlation between FRE and TRA reflects a *causal* effect. A person's anger proneness may increase over time as a function of frequent unjust treatments. The correlation of the anger expression factors ANO and ANI corresponds to our expectations. Only ANO, but not ANI, correlates substantially with PUN (MM1).

4. Method factors from MM2 and factors from MM3: As expected, TRA and ANO correlate more highly with method factor ANG than with method factor DIS, although the differences are small. Contrary to our expectations, the correlation between DIS and ANI is higher than the correlation between ANG and ANI. Perhaps, this correlation is spurious, reflecting as a common source of variance a personal norm of nonaggression. Disappointment may be a nonaggressive way of communicating to someone that she has violated an expectation, whereas ANI reflects the disposition to not say or show one's emotional reaction to violated expectations at all.

SUPPLEMENTARY ANALYSES AND ADDITIONAL RESEARCH

Additional construct validation analyses and additional studies were conducted to provide further empirical support for the usefulness of the construct and the validity of the questionnaire for its measurement. Due to limited space, only a summary of the results is given here. Note that

the correlations reported in the following sections are correlations among measurement variables and not correlations among error-free latent variables.

Supplementary Analyses

Measures for additional constructs were obtained from the subjects of the sample described above. *Life Satisfaction* (Montada *et al.*, 1983) was expected to have a moderately negative correlation with SBI since the experience of injustice should impair a person's psychological well-being. The highest correlation was expected for the Frequency Scale. As expected, the correlation with the total SBI scale score was $-.32$, and FRE had the highest correlation of all indicators ($-.38$). *Centrality of Justice* as a value (Neumann, 1991) was expected to have a moderately positive correlation with SBI because central values are more ego-involving than peripheral values. Since threats to the person's value system are emotionally and cognitively involving, the highest correlations were expected for INA and INT. The correlation between Centrality and SBI is low (.18), but as expected, the higher correlations were obtained for INA (.18) and INT (.25) than for the other scales. A moderate negative correlation was expected for *Interpersonal Trust* (Krampen *et al.*, 1982; Rotter, 1967) because in ambiguous situations, trusting individuals should more easily give the perpetrator the benefit of the doubt. The highest correlation was expected for FRE. The correlation between Trust and SBI is $-.55$, and as expected, the highest correlation was obtained for FRE ($-.50$). *Need for Control* (Kordman, 1991) was expected to have a moderate positive correlation with SBI because control and justice both serve a more basic need for security. Accordingly, a correlation of .38 was obtained. Together, these correlations show that SBI is sufficiently distinct from these constructs but, at the same time, is related to them in psychologically meaningful ways.

Additional Research

SBI and Reactions to Unjust Treatment

In a recent study by Schmitt and Mohiyeddini (1995), 75 student subjects who had answered the SBI Questionnaire were recruited for a laboratory study on achievement and competition 8 weeks later. In six different treatments, the equality of chances principle and the equity principle were violated. One treatment was that subjects had to compete with another person in solving a computer puzzle. Subjects were told that both would

be paid according to relative achievements. While the other person had a color monitor and thus more information to solve the puzzle, the subject had a monochrome monitor, presumably because the second color monitor had just broken. Subjects were always much slower than the other person and received much less money (less than 10 compared to more than 30 DM). After the treatment, subjects answered several questionnaires assessing their sense of injustice, their anger, and positive emotions as reactions to the episode. The entire session was taperecorded. Records were given to blind experts who judged the degree to which the subject resented the treatment. This expert rating could be predicted with a beta weight of .71 from the subject's SBI score as measured several weeks earlier. The remaining dependent variables (justice judgment anger, positive emotions) also depended significantly on SBI. Furthermore, measures for competing predictors such as anger and self-assertiveness always explained no or little variance of the dependent variables over and above SBI.

SBI and Reactions to Real Life Disadvantages

In a second study by Schmitt and Mohiyeddini (1995), 57 psychology students who could not be admitted to their preferred practicum because of limited teaching resources were given questionnaires to assess several reactions to the occurrence, among them their sense of injustice regarding the procedure and their approval of a task force for working out alternative admission procedures. The subjects justice judgment could be predicted with a beta weight of .71 and their approval of the task force with a beta weight of .33 from their SBI score which had been measured several weeks earlier. Competing predictors did not explain any variance of the criteria over and above SBI.

SUMMARY AND CONCLUSIONS

Four types of indicators for a new justice construct, Sensitivity to Be-fallen Injustice (SBI), were proposed and translated into a questionnaire: reported frequency of befallen injustice, reported intensity of anger following an unjust treatment, intrusiveness of thoughts about the unjust event, desire to punish or rebuke the perceived perpetrator. Each of these indicators measures SBI as a common factor or latent disposition and a specific factor of its own. Anger and intrusiveness of thoughts are better indicators of SBI than the reported frequency of unjust treatments. Frequency may

reflect not only a person's threshold for unjust treatments but the objective frequency of unjust treatments as well.

The convergent and discriminant validity of the indicators was demonstrated vis à vis measures for Frustration Tolerance, Trait Anger, Anger Out, Anger In, Life Satisfaction, Centrality of Justice, Interpersonal Trust, and Need for Control. A relatively high correlation of .59 was estimated between Sensitivity to Befallen Injustice and Sensitivity to Frustration. It may reflect that both types of events imply the violation of an expectation and that many frustrations are judged from a moral perspective. Despite this substantial correlation, appropriate LISREL analyses prove that both latent variables reflect distinct dispositions.

Besides this evidence on the concurrent validity of the proposed questionnaire for measuring SBI, its predictive validity could be demonstrated in two independent studies. Cognitive, emotional, and behavioral reactions to unjust treatment in the laboratory and cognitive and emotional reactions to real life disadvantages could be predicted from the SBI score which had been obtained several weeks earlier.

The pattern of results from this research seems convincing, but additional research is desirable to warrant the usefulness of the SBI construct and the validity of our questionnaire. Peer ratings and other objective measures (e.g., complaints in various work settings, law suits, objections against administrative decisions) could be employed as criteria in future correlation studies, and quasi-experimental studies could be designed to investigate whether individuals who differ in SBI react differentially to critical life events that may be viewed as unjust such as plant closures, crimes, or accidents.

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