
Envy and *Schadenfreude*

Richard H. Smith

Terence J. Turner

University of Kentucky

Ron Garonzik

Boston University

Colin W. Leach

University of Michigan

Vanessa Urch-Druskat

Christine M. Weston

Boston University

To test the hypothesis that Schadenfreude, pleasure at the suffering of others, will result when an envied person experiences a misfortune, envy was created in subjects by asking them to watch a videotaped interview of a student who was made to appear either superior or average. An epilogue informed subjects that the student had suffered a recent setback. The envy created in subjects was found to enhance the likelihood that they would feel Schadenfreude on learning of this setback. In addition, dispositional envy predicted subjects' envy of the student, and this envy also mediated subsequent Schadenfreude. These results strongly support linking envy with Schadenfreude.

Socrates. Did we not say that pleasure in the misfortunes of friends was caused by envy?

Plato (427-348
B.C./1925, p. 339)

We are rarely indifferent to the fortunes of other people. Usually, the good things that happen to others please us, and the bad things are upsetting. However, our feelings can also run counter to what seems usual or even proper. Sometimes, we meet people whose good fortune, rather than making us feel happy for them, creates the socially repugnant emotion of envy, a form of pain caused by another's superiority (e.g., Foster, 1972; Heider, 1958; Klein, 1975; Parrott, 1991; Salovey & Rodin, 1984; Schoeck, 1969; Silver & Sabini, 1978; Sullivan, 1953; *Webster's New World Dictionary*, 1982). We can also meet people whose bad fortune, rather than making us feel sorry for them, creates another unappealing

emotion, *Schadenfreude*, pleasure at another's suffering. The purpose of the present study was to show that the emotions of envy and *Schadenfreude* are often closely linked. Although envy is painful and *Schadenfreude* is pleasurable, we hypothesize that envy creates the conditions under which *Schadenfreude* should occur—if a misfortune befalls the envied person.

TYPICAL FEATURES OF ENVY

Envy is a complex emotion with a number of facets (Parrott, 1991). It can be a uniquely unpleasant experience. As Silver and Sabini (1978) note, envy is the one "sin" that has no obvious pleasure joined with it. Envy is unpleasant in part because self-evaluations are so often derived from how well or poorly we compare with other people on self-relevant attributes (e.g., Brickman & Bulman, 1977; Festinger, 1954; Morse & Gergen, 1970; Salovey & Rodin, 1984; Smith, Diener, & Garonzik, 1990; Smith & Insko, 1987; Tesser & Collins, 1988). When we feel envy, it means that we lack something important to us, this lack made apparent by a social comparison. It is

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probably the resulting sense of inferiority that makes envy so afflicting and unwelcome (Smith, Parrott, Ozer, & Moniz, 1994).

A rich tradition of scholarly work suggests that envy also involves a sense that the envied person's advantage is undeserved (e.g., Hazlitt, 1823/1932; Heider, 1958; Nietzsche, 1880/1911; Parrott, 1991; Russell, 1930; Smith, 1991; Smith, Parrott, Ozer, & Moniz, 1994). In Heider's (1958) view, the envying person desires the "equalization of lots," especially if the advantaged person is similar in most other important ways. The sense of injustice results from psychological balance forces that require that similar people "ought" to have similar fortunes. Even though societal norms dictate that we celebrate the good fortunes of others, privately we may resent the envied person's advantage because it violates subjective requirements of justice (Smith, Parrott, Ozer, & Moniz, 1994).

The sense of injustice in envy may help explain why a third typical feature of envy involves hostility and dislike. It is natural to feel hostility if someone has an undeserved advantage (Brown, 1986), even if the claim of injustice must remain a private grievance because it lacks social validation. But, regardless of its cause, some form of antipathy felt toward the envied person is another common property of envy (Foster, 1972; Krech & Crutchfield, 1958; Parrott & Smith, 1993; Salovey & Rodin, 1984; Schoeck, 1969; Silver & Sabini, 1978; Smith, 1991; Smith, Parrott, Ozer, & Moniz, 1994; *Webster's New World Dictionary*, 1982).

ENVY AND *SCHADENFREUDE*

Although envy is usually painful, scholarly traditions also point to another side to envy, one that can actually lead to pleasure rather than pain (e.g., Elster, 1989; La Rochefoucauld, 1678/1959; Mora, 1987; Neu, 1980; Plato, 427-348 B.C./1925; Schoeck, 1969). Socrates, in Plato's *Philebus*, argued that envy is actually an emotion in which pain and pleasure are mixed with each other—because it is the envious person whom we see "rejoicing in the misfortunes of his neighbors" (p. 333).

In our view, the link between envy and *Schadenfreude* follows from the readiness with which people feel pleased when an envied person, in particular, suffers a misfortune. Envy appears to fulfill many of the conditions for *Schadenfreude*—if the envied person suffers a misfortune.

One situation in which another's misfortune should be pleasing is when the misfortune benefits us in some way (Ortony, Clore, & Collins, 1988). Invidious comparisons seem native to competitive arenas in which people struggle for scarce resources (e.g., Nozick, 1974; Sulli-

van, 1953). A misfortune befalling an envied competitor often leads to the envying person's direct gain, and therefore the misfortune should please. What is more, the misfortune can cut away at the very basis of envy because it renders the advantaged person less enviable. And so accompanying the *Schadenfreude* should be agreeable feelings of relief caused by the decrease in envy.

The sense of injustice in envy should provide a further basis for feeling pleased over a misfortune befalling the envied person. In general, just as it is natural to feel angry and hostile when someone commits an injustice (Brown, 1986), it may be correspondingly natural to feel pleased if this same person suffers a setback—especially if this person is hoist with his or her own petard. Even if the misfortune is qualitatively different from the injustice originally committed, there may be a pleasurable sense that a wrong has been righted and that a form of justice, poetic justice, has been served. Although the sense of injustice in envy may lack social validation, a misfortune befalling the envied person may still please in a private way—because now, to use Heider's terms, this person's situation better matches what "ought" to be.

Pleasure at an envied person's misfortune should also occur because of the hostility and dislike that envy usually generates. If we dislike someone, his or her misfortune should be pleasing to a degree (Feather, 1989; Heider, 1958; Ortony et al., 1988). Although the antipathy created by envy will lack public favor, it should still provide the envying person with yet another reason to feel pleased, at least privately, when a misfortune befalls the envied person.

FEATHER'S RESEARCH ON ATTITUDES TOWARD HIGH ACHIEVERS

Feather and his colleagues have done a series of studies examining responses to the fall of high achievers (Feather, 1989, 1991; Feather & McKee, 1992; Feather, Volkmer, & McKee, 1991). In Study 2 of Feather (1989), subjects received a brief description of a student whose grades were either consistently high or generally average. Subjects predicted that they would be more pleased if this student was caught cheating on an exam in the high-achiever condition than in the average-achiever condition. The findings across these studies reveal a few inconsistencies (Feather & McKee, 1992), but, overall, they suggest that a setback suffered by a high achiever may often be especially pleasing. It also appears that this pleasure correlates with factors such as how deserved the setback is (Feather, 1989) and the high achiever's likability (Feather et al., 1991).

Although these studies on the fall of high achievers are compatible with linking envy with *Schadenfreude*,

none directly test this link by manipulating envy. One goal of the present study was to achieve a solid manipulation of envy using a target person who appeared real to subjects and who was richly enough developed to elicit an actual emotion. Furthermore, we tried to address the severe problem of experimenter demand arising in studies of socially undesirable emotions in which the focus of the research is undisguised. The emotions of envy and *Schadenfreude* (especially when possibly linked to envy) compound the problem of social desirability. And so we also tried to introduce a misfortune and to measure *Schadenfreude* without subjects' suspecting that the misfortune was forged or realizing that any resulting *Schadenfreude* (and its tie with envy) was our main interest.

The main test of our hypothesis entailed manipulating the superiority of a target person and then examining whether subjects would feel greater pleasure when a misfortune happened to the person who was superior. We also included a premisfortune measure of envy to test by means of structural equation modeling (Jöreskog & Sörbom, 1978) whether any effect on *Schadenfreude* resulting from varying the target person's superiority was mediated by envy. We also tested the link between envy and *Schadenfreude* using an individual difference strategy. Subjects completed a recently developed and validated measure of dispositional envy (Smith, Parrott, Diener, & Hoyle, 1994). We expected that this dispositional measure of envy would predict subjects' envy of the target person and that this envy would also mediate subsequent *Schadenfreude* following the misfortune.

METHOD

Subjects

Subjects were 114 undergraduates (50 females and 64 males) at the University of Kentucky. Thirty-four were students in a lower-level psychology class who took part in the experiment for extra credit. The remaining subjects were recruited from the introductory psychology subject pool and participated in partial fulfillment of an experimental participation requirement. Four subjects were dropped from the data analysis because they expressed suspicion about the true purpose of the experiment.

Design and Overview of Procedure

Blocks of one to three subjects were assigned at random to watch a videotaped interview of either a superior or an average undergraduate who was preparing to apply to medical school. An epilogue indicated that the student had experienced a setback in his postgraduate plans. Subjects completed mood scales before the tape

began, just before it ended, and immediately after the epilogue. They also completed a dispositional envy scale either 4 to 8 weeks before the experimental session or just before its completion.

Procedure

Subjects who completed the dispositional envy scale before viewing the taped interview did so in a large group session early in the semester. This scale was one of a set of personality and attitude measures that made up a psychology department screening protocol. Subjects understood that completing these measures would make them eligible for possible recruitment in experiments later in the semester. About 4 to 8 weeks later, they were called by another experimenter, and arrangements were made for them to participate in an experiment entitled "Career Evaluations." Subjects' responses in the two sessions were linked through their student identification numbers, and anonymity was assured throughout.

The dispositional envy scale is a 17-item scale designed to measure tendencies to feel various facets of envy. This scale has demonstrated high test-retest ($r = .87$) and interitem reliability (Cronbach's $\alpha > .88$) and predicts the experience of envy in a variety of contexts (Smith, Parrott, Diener, & Hoyle, 1994). Sample items are "I feel envy every day"; "On the whole, I am satisfied with my abilities compared to others"; "I resent the fact some people have the money to buy all the things they want"; "When I feel envy, I usually feel it in an intense way." Although we expected the scale to predict *Schadenfreude*, none of the items actually focused on tendencies to feel it.

On arriving for the experimental session, subjects were seated in desk chairs spaced far enough apart so that their responses could remain private. Approximately 6 ft in front of them was a cart containing a large-screen monitor and VCR. After reading and signing informed consent forms, subjects were provided with the apparent rationale for the study. They were told that the experimenters were helping a company called "Med-Tech" that was putting together a video series on pre-medical training. The goal of the project was to create a series of tapes to be used in a university career library. Subjects were told that the experimenters were helping the company evaluate the effectiveness of a pilot version of the tape.

Subjects were told they would be viewing one interview taken from a large pool of interviews with students from diverse universities across the country. They were to watch the tape as if they themselves had gone to a career library to learn about career issues. Once the tape was over, they would be asked to evaluate the tape in terms of how effectively it portrayed the things involved in getting into medical school.

Two other aspects of the project were emphasized to further minimize subjects' suspicions about the true purpose of the study. Subjects were told that one issue the Med-Tech company was particularly interested in was whether the student they saw would be appropriate for the final version. The producers were interested in piloting a range of students, from the very outstanding to the not so outstanding. They wanted feedback about each interview in order to get a sense of the kind of student who would suit the project best. Subjects were also told that at the end of each interview was a short epilogue that updated the viewer about what had happened to the student since the interview. The producers were also interested in getting feedback about whether this aspect of the tape was a feature worth keeping in the final version.

Subjects were given a notebook containing the measures they would complete. On the front of the notebook were the Med-Tech name and logo, in keeping with the cover story. The experimenter explained that there was a need to control for the various psychological factors that are known to affect people's evaluations. Consequently, before, during, and after the tape, subjects would be completing mood scales, and before arriving, they had completed relevant personality measures (or, after the tape, they would be completing relevant personality measures), all for important control purposes. They were asked to complete these measures as honestly and as frankly as possible and were reminded that all their responses were anonymous.

Subjects were then asked to complete the first mood scale. This scale contained a set of items designed to reinforce the claim made in the cover story that one of the factors being controlled for was mood (e.g., "in a good mood," "bored," "content," "attentive," "in a bad mood," "absorbed by the interview").¹ The scale ranged from 0, *not at all*, to 9, *extremely*. Once the scale was completed, the experimenter reminded subjects of the purpose of the project and then began playing the tape.

The tape depicted an undergraduate at Boston University who was a junior biology major with career plans for medical school. He appeared to be answering questions from an off-camera interviewer about his daily activities in pursuit of getting into medical school. As he answered these questions, scenes from his activities were inserted at appropriate moments. For example, as he discussed his study habits, he was shown in a lounge area working on a chemistry assignment. Later, as he described his research experience, a shot of him working in a research lab was inserted. Near the end of the interview, as he discussed his social life, he was shown having a meal with his girlfriend.

Envy manipulation. Subjects saw one of two versions of the tape. The same actor played the role of the student, but in the superior condition, details were fashioned to make him appear outstanding in terms of academic achievements, research and hospital experience, extracurricular activities, social life, and the likelihood of getting into a good medical school. In the average condition, he was shown engaging in the same basic activities, but his actual achievements were similar to an average student's. In the superior version, his grade point average was 3.85; in the average version, it was 3.0. In the superior version, his job in a research laboratory involved contributing to "cutting edge" work on a complex growth hormone, whereas in the average version, his job involved washing glassware. In the superior version, he noted his being on the university tennis team, and a shot was included of him playing tennis with his attractive girlfriend; in the average version, he simply noted that he liked playing tennis, and a shot was included of him taking tennis lessons. In the superior version, when asked about his chances of getting into medical school, he revealed that his adviser believed he would be able to get into Harvard; in the average version, he noted that he would be very happy to get in anywhere.²

Preepilogue mood scale. Both versions of the tape were approximately 12 min long. Two minutes before the end of each tape, the interview paused, and instructions appeared on the screen asking subjects to complete the second mood scale. This scale, also using a 0 (*not at all*) to 9 (*extremely*) range, contained the items in the first mood scale plus 14 additional items designed to measure various theoretically relevant affective and attitudinal responses to the student interviewed on the tape.

The main purpose of introducing this second mood scale was to measure subjects' envy. Accordingly, one set of items asked subjects directly how envious they felt (e.g., "envious because of the student's advantages") in addition to asking the extent to which they felt various affects shown to characterize envy (e.g., "inferior because of the student's record"; "resentful of the student's talents and/or achievements"; "hostile towards the student"). Although we expected these items to mediate subsequent *Schadenfreude*, none of these items actually measured this tendency. Additional items focused on liking/admiration toward the student (e.g., "admiration toward the student," "liking for the student") and self-confidence (e.g., "feeling good about your own achievements," "self-confident"). Once subjects had completed the scale, the interview recommenced.

Misfortune epilogue. Ten seconds after the interview ended, an epilogue appeared, which read:

Epilogue

In the Spring Semester of 19__, Jeff Crawford was charged with stealing amphetamines from University Research Laboratory where he was working.

As a result of this matter, he was denied admission to medical schools for at least the 19__ academic year.

Postepilogue mood scale. Five seconds after the epilogue had disappeared from the screen, instructions appeared that asked subjects to complete the third mood scale. This scale (again employing the 0-9-point range) contained most of the items from the second mood scale in addition to six items designed to measure *Schadenfreude* (e.g., "happy because of how things have turned out for the student, especially since the interview"; "delighted because of how things have turned out for the student since the interview"). Also contained in this scale were six items designed to measure sympathy (e.g., "sad because of how things have turned out for the student since the interview"; "sorry for the student because of what has happened to him since the interview").

Interview evaluation items, dispositional envy scale, and suspicion check. Consistent with the cover story, another set of items followed the third mood scale and had the outward purpose of tapping subjects' evaluations of the format and structure of the tape and the appropriateness of the student for the project.

Subjects who had not participated in the large group session then completed the dispositional envy scale. To reduce the possibility of response bias, the 17 items were dispersed among a larger set of items labeled as a "Career Proclivity Scale." Consistent with the cover story, most of the additional items asked the subjects to indicate the extent to which they possessed various traits seemingly relevant to different careers.

All subjects completed a set of open-ended questions designed to assess suspicions about the true purpose of the experiment. Subjects were also probed verbally for suspicion. Finally, the true purpose of the research was revealed, and the justification for the deception was discussed at length.

RESULTS

The analysis is divided into three parts. The first part describes the variable reduction performed on the pre- and postepilogue scale items. The second part describes the testing of our predictions using regression analyses. The third part describes the use of structural equation modeling to create an integrative model of the results.

Part I: Variable Reduction

The preepilogue items and the postepilogue items were submitted to separate principal factors analyses (with squared multiple correlations on the diagonal of

the correlation matrix), followed by a varimax rotation. As noted earlier, the items were designed to measure a number of factors of interest. For the preepilogue items, these factors were envy, liking/admiration for the target person, and self-confidence. For the postepilogue items, the two factors of interest were *Schadenfreude* and sympathy. All five of these factors emerged clearly from the two analyses.

Preepilogue items. Five interpretable factors emerged from the analysis of the preepilogue items, only three of which were relevant to our purpose. As expected, the 9 items loading on the *Episodic Envy* factor, which accounted for 26% of the common variance of items, included the expected components of envy: direct reports of envy, discontent because of the target person's advantages, a sense that the envied person was undeserving of these advantages, and a hostile attitude toward the envied person. Cronbach's alpha for these high-loading items was .93. The *Liking* factor, which accounted for 18% of the common variance, was bipolar, containing 5 items suggesting liking for the student as well as 3 items suggesting dislike for the student. Cronbach's alpha was .89. The *Self-Confidence* factor, accounting for 28% of the common variance, contained a range of items, 10 in all, suggesting satisfaction and confidence with oneself. Cronbach's alpha was .91.

Postepilogue items. The seven interpretable factors in this analysis were the five factors found in the preepilogue analysis plus two factors containing items that we had expected would tap responses to the target person's misfortune—namely, *Schadenfreude* and sympathy. The items loading highly on the *Schadenfreude* factor contained all six of the items designed to measure this feeling. This factor accounted for 15% of the common variance. Cronbach's alpha was .89. The items loading highly on the *Sympathy* factor also included all six of the items designed to measure this feeling. This factor accounted for 17% of the common variance. Cronbach's alpha was .89.

In all the analyses reported below, we used factor scores, estimated by regression. Each factor was scaled to the mean of the items loading more than .30 on the factor and to a standard deviation of 1.0.

Part II: Regression Analyses

ANALYSES OF TARGET PERSON SUPERIORITY AND
DISPOSITIONAL ENVY AS JOINT PREDICTORS OF
EPISODIC ENVY, SCHADENFREUDE,
SELF-CONFIDENCE, LIKING, AND SYMPATHY

In our initial set of regression analyses, we examined the simultaneous effects of target person superiority, dispositional envy, and the interaction of these variables on episodic envy (preepilogue), *Schadenfreude*, self-

confidence, liking, and sympathy separately. However, in none of the analyses was the interaction effect significant, and it was therefore dropped from all the analyses reported here.

Episodic envy measure. As expected, both dispositional envy and target person superiority were associated with greater episodic envy. The mean episodic envy of the superior target person ($M = 1.38$) was greater than that of the average target person ($M = 0.70$), $F(1, 106) = 19.79$, $p < .0001$, indicating that the target person manipulation was successful in creating envy. The regression coefficient for dispositional envy was .45, $F(1, 106) = 15.52$, $p < .0001$, indicating that subjects higher in dispositional envy experienced more episodic envy of the target person.

Schadenfreude measure. Dispositional envy and target person superiority also had significant effects on *Schadenfreude*. A greater degree of *Schadenfreude* was experienced at the misfortune of the superior target person ($M = 2.04$) than at the misfortune of the average target person ($M = 1.63$), $F(1, 103) = 5.35$, $p < .05$. The regression coefficient for dispositional envy was .39, $F(1, 103) = 9.76$, $p < .01$, indicating that subjects higher in dispositional envy felt greater pleasure at the misfortune of the target person.

Self-confidence, liking, and sympathy measures. Dispositional envy, but not target person superiority, was associated with self-confidence, $\beta = -.45$, $F(1, 98) = 24.80$, $p < .001$, subjects higher in dispositional envy reporting less self-confidence. Neither dispositional envy nor target person superiority had significant effects on sympathy or liking.

REGRESSION ANALYSES OF EPISODIC ENVY, LIKING,
AND SELF-CONFIDENCE AS JOINT PREDICTORS
OF *SCHADENFREUDE*

Schadenfreude. Episodic envy, liking, and self-confidence were used jointly to predict *Schadenfreude*. Self-confidence did not contribute uniquely to the prediction of *Schadenfreude*, $F(1, 97) = 2.56$, n.s. Both episodic envy, $\beta = .37$, $F(1, 97) = 17.98$, $p < .0001$, and liking, $\beta = .34$, $F(1, 97) = 15.15$, $p < .001$, did contribute uniquely, however. Thus, subjects who experienced greater envy of the target person and/or who liked him less felt greater pleasure at his subsequent misfortune.

Sympathy. Episodic envy, liking, and self-confidence were also used jointly to predict sympathy. Neither episodic envy nor self-confidence contributed uniquely to the prediction of sympathy, respective $F_s(1, 97) = 1.76$ and 1.38, n.s. Liking did, however, $\beta = -.50$, $F(1, 97) = 28.86$, $p < .0001$. Thus, the more the subjects liked the target person, the more sympathy they felt for him when he suffered a misfortune.

Because self-confidence had no unique effect on either sympathy or *Schadenfreude*, it was dropped from all subsequent analyses.

ANALYSES OF DISPOSITIONAL ENVY, TARGET PERSON
SUPERIORITY, AND EPISODIC ENVY AS JOINT
PREDICTORS OF *SCHADENFREUDE*

We next examined whether target person superiority and dispositional envy had their effects on *Schadenfreude* through their effects on episodic envy or whether they had direct effects on *Schadenfreude*. We regressed *Schadenfreude* on the three predictors jointly: dispositional envy, target person superiority, and episodic envy. Neither dispositional envy, $F(1, 96) = 2.29$, n.s., nor target person superiority, $F(1, 96) = 1.28$, n.s., contributed to the prediction beyond that due to episodic envy. Only the episodic envy predicted *Schadenfreude*, $\beta = .27$, $F(1, 96) = 6.88$, $p < .05$. We conclude, therefore, that target person superiority and dispositional envy influence *Schadenfreude* only by means of their effects on episodic envy.

COMPARISON OF PREPILOGUE ENVY
AND POSTPILOGUE ENVY

We expected that episodic envy would decrease after the target person experienced a misfortune because the target person would become less enviable. Using the episodic envy items included in both the pre- and postepilogue mood scales, we analyzed the effects of target person superiority and dispositional envy together with this pre/postepilogue time factor. Although the mean preepilogue envy ($M = 1.48$) was greater than the mean postepilogue envy ($M = 1.22$), this difference was not significant. Furthermore, there were no interactions involving target person superiority or dispositional envy. The absence of a no-misfortune control condition makes any interpretation of these results difficult.

SUMMARY OF FIRST TWO STAGES OF THE ANALYSES

The results thus far can be summarized as follows: Dispositional envy and target person superiority affect episodic envy, which, in turn, affects *Schadenfreude*, liking, which is not affected by either target person superiority or dispositional envy, affects both *Schadenfreude* and sympathy for the target person. Self-confidence has no impact on either *Schadenfreude* or sympathy.

Part III: Structural Equation Modeling

In an attempt to provide an integrated model of these results, we performed an analysis of the six main variables (omitting self-confidence and postmisfortune episodic envy) using structural equation modeling (Jöreskog & Sörbom, 1988). This technique is used to model the variance-covariance matrix of a set of variables (see Table 1) in terms of a measurement model of the raw data scores (specifying how these measured variables

TABLE 1: Variance-Covariance Matrix of the Variables Used in the Structural Equation Model

	<i>Episodic Envy</i>	<i>Sympathy</i>	<i>Schadenfreude</i>	<i>Target Person Superiority</i>	<i>Dispositional Envy</i>	<i>Liking</i>
Episodic envy	.92					
Sympathy	.09	.95				
<i>Schadenfreude</i>	.36	-.01	.92			
Target person superiority	.21	.01	.13	.25		
Dispositional envy	.25	-.05	.20	.03	.49	
Liking	-.05	.44	-.32	-.04	-.09	.92

relate to underlying, and unmeasured, latent variables) and a structural model of the relations among the latent variables.

The measurement components in structural equation models are usually estimated by incorporating multiple measures of each latent variable. We took a different approach, one that still allowed each "free" parameter in the model to be uniquely estimated. In our model, each latent variable is measured by only one indicator variable. We estimated the latent variables directly by using the internal-consistency measure of reliability of each measured variable to derive the parameter relating the measured variable to the latent variable (see Jöreskog & Sörbom, 1988). We took this direct approach because each of our measures was simply a multi-item scale, and so we could form multiple measures only by arbitrarily dividing the items for a scale into multiple measures. We assumed that our manipulated factor (target person superiority) was measured without error and so has a reliability coefficient of 1.0.

Our model contained three exogenous variables (dispositional envy, target person superiority, and liking) and three endogenous variables (episodic envy, *Schadenfreude*, and sympathy). The variance-covariance matrix of these variables is given in Table 1. We specified a structural model that reflects the results of our analyses above. That is, we specified that dispositional envy and target person superiority affect episodic envy, which, in turn, affects *Schadenfreude*. In addition, we specified that the liking variable affects both *Schadenfreude* and sympathy for the target person. All other links between the latent variables were set to zero. The program LISREL VI (Jöreskog & Sörbom, 1978) was used to derive the maximum likelihood estimates of the coefficients in the model of the variance-covariance matrix.

The results are shown in Figure 1. The model has an adjusted goodness of fit index of .925 and a root mean square residual of .053. The model fits the data very well. (This is also implied in the statistical tests.³ For the overall model, $\chi^2[10] = 11.40$, $p = .327$, and each of the structural coefficients was significant at the .05 level.)

As Figure 1 shows, subjects with greater dispositional envy showed more intense episodic envy while watching

the tape, and those who watched the tape of a particularly superior person felt envy even more intensely. Subjects either liked or disliked the target person while watching the tape. Those who disliked him more (or liked him less) felt greater *Schadenfreude* at his later misfortune. Those who liked him more felt more sympathy later because of his misfortune.

We tested whether a direct relation between dispositional envy and *Schadenfreude* added to the fit of the model shown in Figure 1. When this direct relation was added, the adjusted goodness of fit index rose from .925 to .968, and the mean square residual dropped from .053 to .049. Both changes are very small, suggesting that the effect of dispositional envy on *Schadenfreude* occurs by means of its effect on episodic envy. (The statistical results were $\chi^2[9] = 9.89$, $p = .359$. This model is a less constrained version of the model shown in Figure 1, and so the difference in $\chi^2[1.51]$, with $df = 1$ is also a χ^2 . This difference was not significant, again suggesting that the effect of dispositional envy on *Schadenfreude* occurs completely by way of its effect on episodic envy.)

We conducted a parallel analysis of the direct effect of target person superiority on *Schadenfreude*. A model incorporating the direct effect gave an adjusted goodness of fit index of .923 and a root mean square residual of .053, neither of which differs meaningfully from its counterpart in the model. (The statistical results were $\chi^2[9] = 10.74$, $p = .294$. The difference in χ^2 was 0.66, with $df = 1$. This was not significant.) These results indicate that the total effect of target person superiority on *Schadenfreude* occurs by way of its effect on episodic envy.

We also examined whether the model shown in Figure 1 held for a number of subgroups in our data set. In particular, we investigated whether male and female subjects reacted in the same way and whether subjects who completed the dispositional envy measure before watching the tape reacted in the same way to the tape as those who filled out the measure after watching the tape. In both cases, the models for each group comparison were not significantly different from each other. For gender analysis, the results were $\chi^2(31) = 42.33$, $p = .084$, and for the order effects analysis, the results were $\chi^2(31) = 27.35$, $p = .654$.

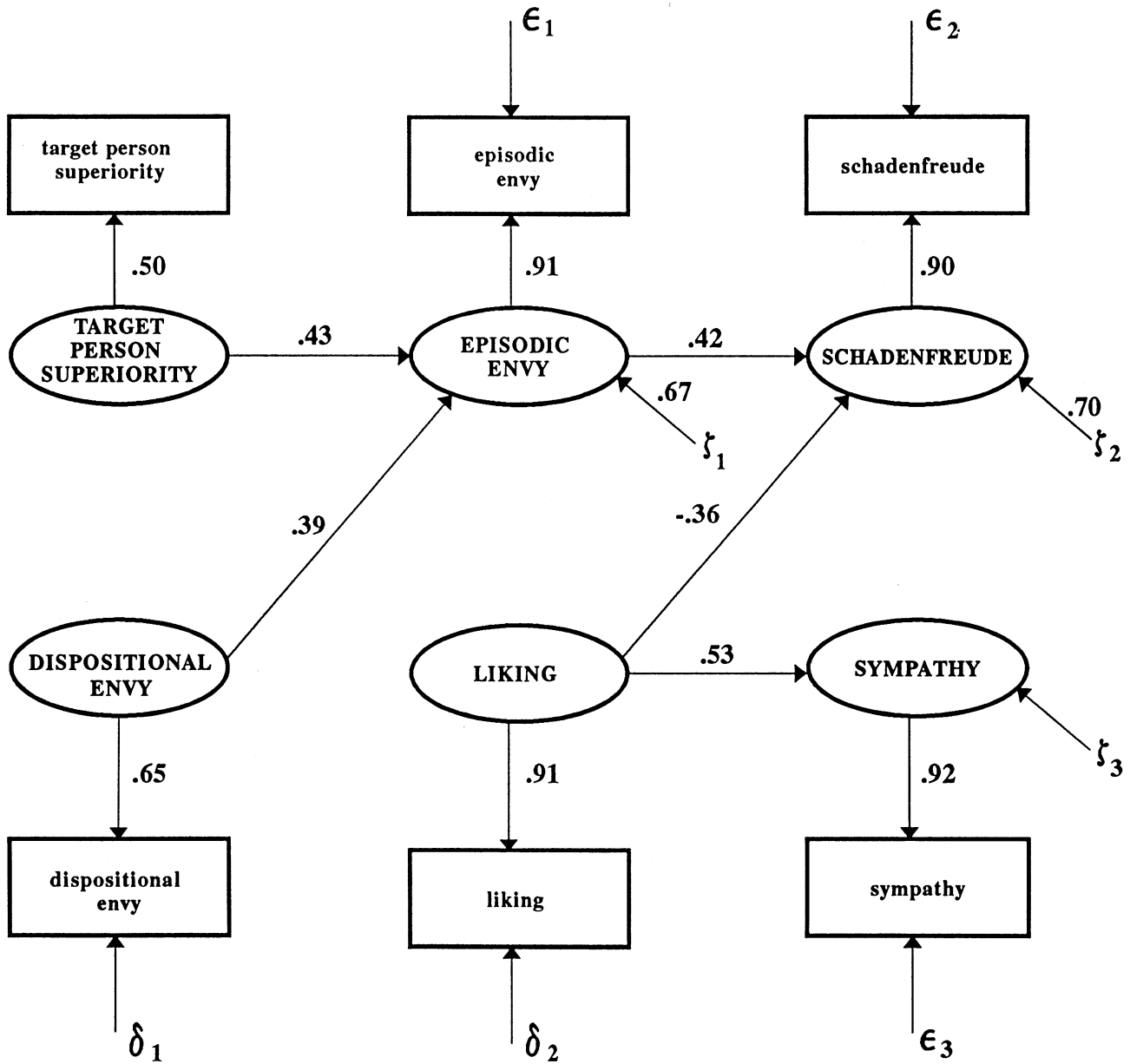


Figure 1 A structural equation model of affective responses to superiority and misfortune. (The latent variables have been standardized, and so the structural coefficients can be interpreted as beta weights. Because of this standardization, the coefficients in the measurement model do not correspond to reliability coefficients.)

DISCUSSION

Our hypothesis that *Schadenfreude* will result when a misfortune befalls an envied person was well supported. The manipulation of envy had a significant effect on *Schadenfreude*. Subjects who watched the interview of the superior student were more pleased on learning that this person was charged with stealing than subjects who watched the interview of the average student who suffered the same fate. The episodic envy produced by the

manipulation of envy mediated this pleasure. In addition, subjects who described themselves as susceptible to feeling envy tended to feel more envious when watching the interview of the target person, and again, this envy was linked to subsequent *Schadenfreude*. Thus, the effects of dispositional envy and of our experimental manipulation of envy on *Schadenfreude* were both mediated by episodic envy. These results, taken together especially, make a strong, converging case for linking envy with *Schadenfreude*.

Self-Confidence

Other aspects of the results also support our hypothesis. One could argue that *Schadenfreude* is caused more by variations in self-esteem than by envy. The misfortune of another person, especially a superior person, might allow people with low self-esteem to reevaluate their own condition more favorably. Accordingly, the link between envy and *Schadenfreude* may simply be due to a correlation between envy and self-esteem. However, the pre-epilogue measure of self-confidence, a proxy measure of self-esteem, proved unrelated to any subsequent *Schadenfreude*.

Liking for the Target Person

Our manipulation of envy involved changing attributes of the target person to create either a superior or an average student. We tried to control for attributes other than those that would suggest either superiority or averageness. For example, although we believed that there were theoretical grounds for assuming that envy would tend to breed a form of dislike or hostility toward the superior student, we did not want the likability of the student per se to be a deliberate feature of the manipulation. As subjects found the student equally likable across the two versions of the interview, this potential confound appears to have been avoided. Thus, we can be more confident that the main effect for our manipulation of envy on *Schadenfreude* was due to subjects' envy rather than the likability of the student.

Lack of Sympathy as an Indirect Form of Schadenfreude

Because *Schadenfreude* is a socially disreputable emotion, it may tend to be expressed in an indirect way, especially if it appears driven by envy, socially disreputable in its own right. Although *Schadenfreude* is an emotion defined as a form of pleasure resulting from another person's suffering or misfortune, it is possible that *Schadenfreude* may emerge as a lack of an appropriate sympathy for the sufferer rather than as a pleased feeling. However, neither the manipulation of envy nor the measure of dispositional envy was related to sympathy.

Liking and Sympathy

Although it appears that we were able to avoid a confound for likability, there was clear variability in how much subjects liked the student—in both the superior and the average conditions. Liking for the student was also related to *Schadenfreude*, and not surprisingly, the less subjects liked the student, the more pleased they were after learning of his misfortune. Liking for the student was also predictive of how much sympathy they felt for him because of his misfortune—the more subjects liked the student, the more sympathy they felt.

Effectiveness of the Experimental Procedure

Overall, subjects' reports of envy were mild, suggesting that our manipulation of envy was weak. This weakness is troubling, given previous evidence indicating that envy is frequently an intense experience, at least outside the laboratory (e.g., Parrott & Smith, 1993; Smith, 1991). Probably, if we had used only subjects interested in medical school, the self-relevance of the unflattering comparison would have been enhanced for a larger proportion of subjects, making envy more intense (Salovey & Rodin, 1984; Tesser & Collins, 1988).

Subjects' reports of *Schadenfreude* were also mild, but mild reporting in this case may be less of a problem than with envy. Unlike envy, *Schadenfreude* may rarely reach high intensity, in or outside the laboratory. People may usually feel it as a mild rush of pleasure rather than an outburst of intense joy.

Given the challenges of studying both envy and *Schadenfreude*, it may be more notable that these emotions were successfully captured at all than that they were reported in a mild form. Not only did the procedure provide a context in which both emotions could be evoked at detectable levels, it also appeared to assure their being reported frankly without subjects' being aware of the particular focus of the study.

Generalizability of the Results to Other Types of Misfortunes

We chose to elicit *Schadenfreude* with the revelation that the target student was caught stealing. Not only did the student bring the misfortune on himself, but because the misfortune also involved an immoral act, it was linked to a character defect. Would the present findings hold for a misfortune that is random, such as a serious illness? Our theoretical perspective suggests that they would. Particularly if the situation is perceived as a competitive one, the misfortune would still benefit the envying person because it would prune away at the competition. This benefit should make the misfortune pleasing, at least to a degree. Further, from the envying person's begrudging point of view, there may still seem to be a gratifying measure of poetic justice served by the illness, as it better equalizes the two parties' outcomes. And to the extent that this person's envy spawns hostility (however socially inappropriate), the misfortune may also seem fitting and proper—and pleasing. Therefore, assuming that the person suffering the misfortune has evoked envy prior to the misfortune, a degree of *Schadenfreude* should result regardless of whether this misfortune is caused by immoral behavior.

Implications for Social-Comparison-Based Emotions

Although research on the influence of social comparisons on numerous social phenomena has a long history

(see Wheeler, 1991, for a recent review), the empirical unraveling of the network of relations that explain the emotions resulting from social comparisons is a more recent focus (e.g., Folger, 1987; Parrott & Smith, 1993; Salovey, 1991; Salovey & Rodin, 1984, 1986; Smith, Kim, & Parrott, 1988; Tesser, 1991). The present study reinforces the notion that key aspects of our emotional lives are determined by such comparisons. Our findings suggest that an envious response to someone's superiority will have important implications for how we subsequently feel about a misfortune befalling this person. Rather than feeling sympathy, we are likely to feel *Schadenfreude*.

We argued that *Schadenfreude* will result from a misfortune befalling an envied person because, for one thing, the misfortune can directly benefit the envying person. We also suggested that by eliminating the very basis for envy, the misfortune should supply a pleasant relief from the pain of envy. One might further argue that the misfortune may sometimes transform an invidious comparison into a downward comparison. This downward comparison might provide not only a relief from envy but also a boost to the envying person's self-esteem (Wills, 1981, 1991), which may have been jeopardized previously by the invidious comparison (Smith et al., 1990). Such downward comparisons may even produce outright mirth, as Wills (1981) suggests in his analysis of comparison processes that appear to underlie many forms of humor.

We have emphasized that one reason a misfortune befalling an envied person should produce *Schadenfreude* is that it may appease the sense of injustice in envy. We described the source of this sense of injustice in terms of balance theory principles (Heider, 1958). Justice concerns may also arise because many of the advantages that create envy involve realms of comparison (such as native abilities, inherited wealth, and physical beauty) that are largely beyond the envying person's control. This lack of control may allow the envying person to feel blameless for his or her disadvantage and provide a further basis for perceiving that the envied person's advantage is undeserved (Smith, 1991).

If envy involves a sense of injustice, what prevents the envying person from taking action against this injustice? Heider (1958) argues that societal norms require the acceptance of one's lot and typically forbid the envying person to cry foul because of another person's superiority (e.g., Silver & Sabini, 1978). In addition, the efficient managing of a society seems to invite a merit system favoring those who possess advantages on uncontrollable attributes (e.g., Mora, 1987; Silber, 1989). However, the envying person may have one ally—bad luck or misfortune befalling the envied person. Such misfortune, by righting the moral balance, may mollify the

sense of injustice in envy and thus satisfy in an especially felicitous way.

NOTES

1. This scale was included to enhance the persuasiveness of the cover story. Preliminary analyses using aggregate measures of positive or negative affect showed that these measures were unrelated to the main dependent measures.

2. This manipulation of envy entailed a number of comparison dimensions because pilot work indicated that doing so was necessary to ensure a successful evocation of envy across subjects.

3. Because the structural equation model was derived from prior regression analyses of the same data set, the probabilities referred to in these statistical analyses should be discounted. The structural equation models presented here are best understood in terms of the goodness-of-fit parameters rather than the probabilities derived from the statistical analyses.

REFERENCES

- Brickman, P., & Bulman, R. J. (1977). Pleasure and pain in social comparison. In J. M. Suls & R. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 149-186). Washington, DC: Hemisphere.
- Brown, R. (1986). *Social psychology* (2nd ed.). New York: Free Press.
- Elster, J. (1989). *The cement of society*. New York: Cambridge University Press.
- Feather, N. T. (1989). Attitudes towards the high achiever: The fall of the tall poppy. *Australian Journal of Psychology*, *41*, 239-267.
- Feather, N. T. (1991). Attitudes towards the high achiever: Effects of perceived own level of competence. *Australian Journal of Psychology*, *43*, 121-124.
- Feather, N. T., & McKee, I. R. (1992). Australian and Japanese attitudes towards the fall of high achievers. *Australian Journal of Psychology*, *44*, 87-93.
- Feather, N. T., Volkmer, R. E., & McKee, I. R. (1991). Attitudes towards high achievers in public life: Attributions, deservingness, personality, and affect. *Australian Journal of Psychology*, *43*, 85-91.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-140.
- Folger, R. (1987). Reformulating the preconditions of resentment: A referent cognition model. In J. C. Masters & W. P. Smith (Eds.), *Social comparison, social justice, and relative deprivation: Theoretical, empirical, and policy perspectives* (pp. 183-215). Hillsdale, NJ: Lawrence Erlbaum.
- Foster, G. M. (1972). The anatomy of envy: A study in symbolic behavior. *Current Anthropology*, *13*, 165-202.
- Hazlitt, W. (1932). Characteristics: In the manner of Rochefoucault's maxims. In P. P. Howe (Ed.), *The complete works of William Hazlitt* (Vol. 9, pp. 163-229). London: Dent. (Original work published 1823)
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: John Wiley.
- Jöreskog, K. G., & Sörbom, D. (1978). *LISREL user's guide*. Chicago: International Educational Services.
- Jöreskog, K. G., & Sörbom, D. (1988). *LISREL 7: A guide to the program and applications*. Chicago: SPSS Inc.
- Klein, M. (1975). "Envy and gratitude" and other works, 1946-1963. London: Hogarth.
- Krech, D., & Crutchfield, R. S. (1958). *Elements of psychology*. New York: Knopf.
- La Rochefoucauld. (1959). *Maxims* (L. Tancock, Trans.). Harmondsworth, England: Penguin. (Original work published 1678)
- Mora, R. (1987). *Egalitarian envy*. New York: Paragon.
- Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of the self. *Journal of Personality and Social Psychology*, *40*, 524-634.
- Neu, J. (1980). Jealous thoughts. In A. O. Rorty (Ed.), *Explaining emotions* (pp. 425-463). Berkeley: University of California Press.

- Nietzsche, R. (1911). The wanderer and his shadow (P. V. Cohn, Trans.) In O. Levy (Ed.), *The complete works of Friedrich Nietzsche: Vol 7. Human all-too-human (Part II)* (pp. 179-366). London: Allen & Unwin. (Original work published 1880)
- Nozick, R. (1974). *Anarchy, state, and utopia*. New York: Basic Books.
- Ortony, A., Clore, G. L., & Collins, A. (1988). *Cognitive structure of emotions*. New York: Cambridge University Press.
- Parrott, W. G. (1991). The emotional experiences of envy and jealousy. In P. Salovey (Ed.), *The psychology of jealousy and envy* (pp. 3-30). New York: Guilford.
- Parrott, W. G., & Smith, R. H. (1993). Distinguishing the experiences of envy and jealousy. *Journal of Personality and Social Psychology*, 64, 906-920.
- Plato. (1925). *Plato* (H. N. Fowler & W.R.M. Lamb, Trans.). New York: Putnam. (Original work published 427-348 B.C.)
- Russell, B. (1930). *The conquest of happiness*. New York: Liveright.
- Salovey, P. (1991). Social comparison processes in envy and jealousy. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research*. Hillsdale, NJ: Lawrence Erlbaum.
- Salovey, P., & Rodin, J. (1984). Some antecedents and consequences of social-comparison jealousy. *Journal of Personality and Social Psychology*, 47, 780-792.
- Salovey, P., & Rodin, J. (1986). The differentiation of social-comparison jealousy and romantic jealousy. *Journal of Personality and Social Psychology*, 50, 1100-1112.
- Schoeck, H. (1969). *Envy: A theory of social behavior*. New York: Harcourt, Brace & World.
- Silber, J. (1989). *Shooting straight: What's wrong with America and how to fix it*. New York: Harper & Row.
- Silver, M., & Sabini, J. (1978). The perception of envy. *Social Psychology Quarterly*, 41, 105-117.
- Smith, R. H. (1991). Envy and the sense of injustice. In P. Salovey (Ed.), *The psychology of jealousy and envy* (pp. 79-99). New York: Guilford.
- Smith, R. H., Diener, E., & Garonzik, R. (1990). The roles of comparison level and alternative comparison domains in the perception of envy. *British Journal of Social Psychology*, 29, 247-255.
- Smith, R. H., & Insko, C. A. (1987). Social comparison choices during ability evaluation: The effects of comparison publicity, performance feedback, and self-esteem. *Personality and Social Psychology Bulletin*, 13, 111-122.
- Smith, R. H., Kim, S. H., & Parrott, W. G. (1988). Envy and jealousy: Semantic problems and experiential distinctions. *Personality and Social Psychology Bulletin*, 14, 401-409.
- Smith, R. H., Parrott, W. G., Diener, E., Hoyle, R., & Kim, S. H. (1995). *The development and validation of a scale for measuring enviousness*. Manuscript in preparation.
- Smith, R. H., Parrott, W. G., Ozer, D., & Moniz, A. (1994). Subjective injustice and inferiority as predictors of hostile and depressive feelings in envy. *Personality and Social Psychology Bulletin*, 20, 705-711.
- Sullivan, H. S. (1953). *Clinical studies in psychiatry*. New York: W. W. Norton.
- Tesser, A. (1991). Emotion in social comparison and reflection processes. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 115-145). Hillsdale, NJ: Lawrence Erlbaum.
- Tesser, A., & Collins, J. E. (1988). Emotion in social reflection and comparison situations: Intuitive, systematic, and exploratory approaches. *Journal of Personality and Social Psychology*, 55, 695-709.
- Webster's new world dictionary of the American language*. (1982). New York: Simon & Schuster.
- Wheeler, L. (1991). A brief history of social comparison theory. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 3-21). Hillsdale, NJ: Lawrence Erlbaum.
- Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin*, 90, 245-271.
- Wills, T. A. (1991). Similarity and self-esteem in downward comparison. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 51-78). Hillsdale, NJ: Lawrence Erlbaum.

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