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Displaced Aggression Is Alive and Well: A Meta-Analytic Review

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Content analysis of 122 social psychology textbooks confirmed that displaced aggression received a surge of attention immediately following J. Dollard, L. W. Doob, N. E. Miller, O. H. Mowrer, and R. R. Sears (1939), but subsequent interest sharply declined. Contemporary texts give it little attention. By contrast, meta-analysis of the experimental literature confirms that it is a robust effect (mean effect size = +0.54). Additionally, moderator analyses showed that: (a) The more negative the setting in which the participant and target interacted, the greater the magnitude of displaced aggression; (b) in accord with N. E. Miller's (1948) stimulus generalization principle, the more similar the provocateur and target, the more displaced aggression; and (c) consistent with the contrast effect (L. Berkowitz & D. A. Knurek, 1969), the intensity of initial provocation is inversely related to the magnitude of displaced aggression.

In a commonly used anecdote to illustrate displaced aggression, a man is berated by his boss but does not retaliate because he fears losing his job. Hours later, when he arrives home to the greeting barks of his dog he responds by kicking it. Conceptually, displaced aggression can be defined as a level of aggression toward a target that, in terms of the tit-for-tat rule (Axelrod, 1984), incommensurately exceeds that which is ordinarily seen as justified by the level of provocation emitted by that target. In exceeding the aggression warranted by the target's behavior, it reflects the failure to respond aggressively toward the source of a temporally antecedent provocation, or in this case the berating boss.

The notion that frustration leads to aggression is commonly known as the frustration-aggression hypothesis (Dollard, Doob, Miller, Mowrer, & Sears, 1939). Several conditions influence the

intensity and/or frequency of aggression: (a) greater levels of frustration, (b) stronger expectations of reaching a goal, and/or (c) increased interference with goal attainment (Berkowitz, 1989). Although aggression frequently is directed toward the agent perceived to have provoked it, sometimes other features of the situation elicit restraint. Miller (1941) proposed several constraining factors: (a) the provoking agent is unavailable (e.g., the provocateur has left the immediate environment), (b) the source of frustration is intangible (e.g., bad weather or a foul odor as in Konecni & Doob, 1972; Rotton, Barry, Frey, & Soler, 1978), and (c) retaliation or punishment is feared from the provoking agent (e.g., the provocateur is one's boss or has other sources of power). When any of these constraining factors are present, direct aggression is often controlled (e.g., Bandura, 1973; Baron, 1971; Taylor, Schmutte, & Leonard, 1977). Instead, it is alleged to be redirected toward or displaced onto less powerful or more available targets, as described in our opening vignette.

Baron and Bell (1975) provide an empirical example that is based on the second of these restraining factors in that the source of a frustrating initial provocation was intangible. Thus, in the first stage of their study, the ambient temperature of a room was manipulated (i.e., hot and humid vs. normal) during a filler task. In the second stage, anger arousal was manipulated by a confederate who either insulted (or did not insult) the participant. In the final stage, the same confederate served as the learner in a modified teacher/learner paradigm in a new room and thus was available as a target of displaced or triggered displaced aggression (depending on whether insult was absent or present in the second stage of the experiment). The dependent variable was the duration and intensity of shock across 20 trials. In sum, there was a manipulation of the presence of an initial provocation (i.e., hot and humid vs. normal temperature) and a subsequent opportunity to aggress against a target who had or had not provided an act (insult or no insult) that by itself could function as a triggering provocation unrelated to the initial provocation. Their results showed that the initial provocation increased aggressive responding irrespective of

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whether the displaced aggression target provided, or failed to provide, a second triggering provocation.¹

Nevertheless, experimental studies of displaced aggression have not produced consistent results. Whereas some have shown that provoked participants readily displace aggression onto innocent victims (e.g., Mosher & Proenza, 1968; Worchel, Hardy, & Hurley, 1976), others report that provoked participants are subsequently less likely to aggress toward a new target, as compared to nonprovoked participants (e.g., Berkowitz & Knurek, 1969; White, 1979). Moreover, although these opposing findings may reflect features specific to the experimental designs, existing empirical data do not speak on either the conditions necessary for displaced aggression nor the factors (e.g., qualities of the victim) that moderate its magnitude.

Displaced Aggression in Historical Context

Seemingly, most current textbooks on aggression consider displaced aggression to be a conceptually obsolete phenomenon, and those that do discuss it typically emphasize the controversy concerning its empirical status. Geen (1990) devotes 40 words to displaced aggression, defining it in accord with the frustration-aggression theorists (Dollard et al., 1939) and does not reference it in the index. Berkowitz (1993a) refers to it in slightly greater detail, presenting some experimental evidence, but allocating only two of 436 pages of text to it. Baron and Richardson (1994) define displaced aggression in a sentence, elsewhere devote two pages to discussion of it in the context of Neil Miller's conflict model (1948), and later present two and a half sentences of evidence for it.

This inspection prompted examination of a more extensive convenience sample of 122 social psychology textbooks. To test our impression that Dollard et al. (1939) stimulated a brief interest in displaced aggression that was sustained for only a short period, we divided the textbook data into three groups (i.e., 1900–1939, 1940–1945, and 1946–present) and examined the number of sentences that each text devoted to the topic.² In response to the unequal variances between groups, we applied an analysis using Welch's method (Wilcox, 1996). It showed reliable differences between time periods ($p < .001$). In post-hoc analyses there was more extensive discussion of the concept for the interval of 1940–1945 (mean number of sentences = 22.0) as compared to either the interval of 1900–1939 (mean number of sentences = 0) or the interval of 1946–present (mean number of sentences = 4.89). When we repeated the analysis with a temporal subdivision into five groups (i.e., 1900–1939, 1940–1945, 1946–1963, 1964–1981, and 1982–present), post-hoc analyses of the ANOVA result, $F(4, 15) = 7.42, p < .01$, again showed that coverage in the 1940–1945 interval exceeded that of the other intervals, with no other reliable effect.³

Thus, substantial activity and interest in displaced aggression followed the publication of Dollard et al. (1939), but shortly thereafter this interest waned. Scholars do not appear to view it as a well-established and empirically validated phenomenon in need of additional research. Instead, its empirical status seems to be viewed as questionable and it has become a relatively obsolete concept. Here, to identify the empirical status of displaced aggression, we meta-analytically integrate evidence from the experimental studies that have examined it. In addition, we attempt to clarify

circumstances under which it is more likely to occur by examining the role of four theoretically relevant moderator variables.

Meta-Analytic Procedures for Examining Moderators

Although some potential moderators of displaced aggression can be directly and objectively coded from studies (e.g., type and instigator of provocation, target of displaced aggression, sex of the participant, experimenter, target, etc.), other potentially more important theoretical variables cannot. We examined four theoretically derived moderators that fall into this latter category: (a) provocation intensity, (b) similarity between the provocateur and the target of displaced aggression, (c) similarity between the participant and the target of displaced aggression, and (d) the negativity of the setting in which the participant and the target of displaced aggression interacted. Because few studies of displaced aggression directly manipulate any of these four variables, it is not possible to examine their effects by means of a categorical comparison of subsets of studies that do and do not manipulate them. Instead, we used judges' ratings of the between-study variation in the level of each moderator to bootstrap new continuous data sets that were then used to evaluate whether each factor does indeed moderate displaced aggression.

Some have argued that judges' ratings are invalid (e.g., Cialdini & Fultz, 1990). Elsewhere, however, we have strongly countered this view (Miller & Carlson, 1990). Moreover, in a meta-analytic assessment of this issue (Miller, Lee, & Carlson, 1991), we have shown that judges can reliably predict the affective states and

¹ Elsewhere we argue that there are important conceptual reasons for drawing a distinction between displaced aggression and triggered displaced aggression (Miller & Marcus-Newhall, 1997). Although Baron and Bell (1975) provide evidence concerning each, it is the control condition, in which the target provided no triggering action to directly elicit aggression, that is the major condition of interest herein. The reason for this is that very few experimental studies have examined triggered displaced aggression. The four that we could locate (viz. Baron & Bell, 1975; Carver & Glass, 1978; Geen & Berkowitz, 1967; Worchel, 1966) are too few in number to profitably be examined within the context of the meta-analysis that we report in this paper.

² We conducted a focused search in which the indices of these textbooks were examined only for the terms *displaced aggression* or *aggression* with a subheading of either *displacement* or *displaced*. The general concept of displacement may be discussed in other places in these texts, as for example under the heading of scapegoating, wherein the discussion is at the group rather than the individual level. In addition, displaced aggression sometimes is alluded to within a section on frustration-aggression that merely describes anecdotally an everyday example but does not discuss relevant research.

³ Although our social psychology textbook analyses first appeared in Ensari and Miller (1998), the data collection and analyses had been performed by W. C. Pedersen, A. Marcus-Newhall, and N. Miller for the present article. See Appendix A of Ensari and Miller (1998) for texts sampled and number of sentences devoted to the topic in each text. A few minor corrections to Appendix A, as reported in Ensari and Miller, are: (a) Ensari and Miller have two separate entries for Klineberg (1940), one with 8 sentences and another with 25. The correct entry is 25 sentences. (b) For Aronson (1976), Ensari and Miller have 2 pages. The correct entry is 40 sentences. (c) For Shaver (1981), Ensari and Miller have 1 page. The correct entry is 1 sentence. For both Lippa and for Michener and DeLa-mater, Ensari and Miller have 1990 as the publication year. The correct year for both is 1994.

cognitions induced in research participants by experimental manipulations. Meta-analytically confirming the convergent validity of judges' ratings of study participants' affect, their ratings were positively and reliably correlated with the magnitudes of the manipulation check effect sizes that reflected the strength of each of two types of experimental inductions of affect. Similarly, such convergent validity also was reliably confirmed for their judgments regarding each of two experimentally manipulated cognitions (Miller et al., 1991).

In addition, in other meta-analytic research (e.g., Bettencourt & Miller, 1996; Carlson & Miller, 1987; Carlson, Charlin, & Miller, 1988; Ito, Miller, & Pollock, 1996; Miller & Carlson, 1990; Urban & Miller, 1998) we have presented over 20 instances in which judges' ratings of study participants' emotional and cognitive states, based on their reading of Method sections, have reliably evidenced theoretically predicted construct validity. These confirmations span such diverse affective and cognitive states as anger, anxiety, cognitive overload, frustration, fear of retaliation, global negative affect, guilt, happiness, inhibition/conflict, interpersonal similarity, importance of social categories, irritation or provocation, objective self awareness, perceived psychological cost, responsibility, sadness, and self-focus.

Similarly, other researchers have provided confirming evidence regarding the construct validity of judges' ratings of the affect and cognitions experienced by study participants (Bowers & Clum, 1988; Eagly & Carli, 1981; Eagly & Crowley, 1986; Eagly & Steffen, 1986; Hull & Bond, 1986; Johnson & Eagly, 1989; Mullen et al., 1985; Rojahn & Pettigrew, 1992; Steele & Southwick, 1985). Based on this array of evidence attesting to both the convergent and construct validity of judges' ratings of the emotional experiences and cognitions of study participants, we had strong reason to anticipate that our judges would provide valid ratings of the cognitive and emotional states of the participants in the studies comprising the displaced aggression literature.

We do recognize that researchers' skepticism about the ability of judges to predict the behavior of experimental participants is well taken. As often as not, judges who served in role-playing replications of research were unable to predict the behavior of the participants in the original study (A. Miller, 1972). Moreover, in our own validity study, we too failed to provide evidence supporting the validity of judges' predictions of the study participants' behavior (Miller et al., 1991). By contrast with this outcome for the prediction of behavior, however, and most important for our purposes here, is the array of very strong evidence that supports the validity of judges' ratings of affective and cognitive states.⁴

Moderators of Displaced Aggression

Although one might postulate many different theoretically driven moderators of displaced aggression, the constraints of the experimental paradigms preclude useful examination of many of these moderators. For instance, one example of a variable that cannot usefully be assessed is the time delay between the initial provocation and the resultant displaced aggression. For this variable there is insufficient variability. Four theoretically relevant moderators that do vary in the displaced aggression literature are: (a) provocation intensity, (b) similarity between provocateur and target of the participant's aggression, (c) similarity between participant and target of the participant's aggression, and (d) negativ-

ity of the setting in which the participant and the target of displaced aggression interacted.

Provocation

Provocation has been viewed as a critical antecedent of aggression, both in theoretical (e.g., Bandura, 1971; Berkowitz, 1989; Dollard et al., 1939; Geen, 1990; Zillman, 1979) and empirical work (Bettencourt & Miller, 1996; Carlson & Miller, 1988; Eagly & Steffen, 1986). Studies of displaced aggression employ an array of different operationalizations of provocation. These include: (a) personally attacking the participant, generally in the form of derogatory comments based on her/his task performance (e.g., Caprara, Renzi, Amolini, D'Imperio, & Travaglia, 1984; Mosher & Proenza, 1968); (b) unwarranted attacks based on, for example, proceeding too slowly on a task that is not timed (e.g., Konecni & Doob, 1972), exposure to frustrating events such as an insoluble task (e.g., Geen, 1968; Geen & Berkowitz, 1967), or failure in a competition (e.g., Burnstein & Worchel, 1962); or (c) other more intangible precursors of provocation, including sitting in a hot room (e.g., Griffitt, 1970), being crowded with people (e.g., Baum & Greenberg, 1975), putting one's hand in cold water (e.g., Berkowitz, Cochran, & Embree, 1981), breathing secondary smoke (e.g., Jones & Bogat, 1978), or working on a task in the presence of loud noise (e.g., Donnerstein & Wilson, 1976). Lack of sufficient provocation may explain the failure of some studies to show displaced aggression (e.g., Rule & Hewitt, 1971). Recent empirical attention to the theoretical role of cognitive appraisals of the provoking event further supports this interpretation (e.g., Bettencourt & Miller, 1996; Epstein & Taylor, 1967; Ferguson & Rule, 1983). Consequently, because some manipulations induce more provocation than others (Carlson & Miller, 1988), we not only categorized studies in terms of the type of provocation used in order to compare the levels of displaced aggression elicited by each type, but also we provided a more sensitive assessment of the effect of provocation by examining the relationship between judges' continuous ratings of the provocation intensity and the degree of displaced aggression.

On first thought it seems likely, according to the frustration-aggression hypothesis, that provocation intensity will be directly related to the magnitude of displaced aggression. A key feature of the research paradigms used in the displaced aggression literature, however, suggests an opposite effect. In an absolute sense, in all displaced aggression studies the person who was the target of displaced aggression was benign. That is, as previously indicated in Footnote 1, none of the effect sizes computed for this meta-analysis reflected triggered displaced aggression—instances in which the target of displaced aggression emitted a negative provoking action that by itself could serve as a direct instigation to retaliatory action toward that target person. Therefore, by comparison with the person who provided an initial provocation or who

⁴ One might wonder why, in the face of being able to predict subjective affect and cognitions, people are unable to translate this information into better than chance predictions of behavior. Perhaps the answer lies in part in the validity of the fundamental attribution error—namely, the failure to adequately consider the contribution of situational variations to behavior. This would lead judges to underestimate the effect of the situational differences between experimental conditions and consequently, not adequately distinguish between experimental treatments.

was the instigating source of a frustration, the target person for displaced aggression in the existing literature was likely to appear to be a nicer person. Put more generally, social comparison between the provocateur and the person who was the target of displaced aggression was likely to have elicited a contrast effect. The greater intensity of the provocation, the nastier its source appears to be, and by contrast, the nicer the benign or neutral target person appears to be. Consequently, this suggests that the greater provocation, the less displaced aggression.

Contrast effects have been reliably evidenced with a wide array of stimulus categories including the sensory modalities of vision (e.g., Curran & Johnston, 1996; Raymond & Isaak, 1998; Suzuki & Cavanagh, 1998), taste (e.g., Schifferstein & Oudejans, 1996), touch (e.g., DeCarlo, 1994), and smell (e.g., Lawless, 1991; Mardigan, Ehrlichman, & Borod, 1994). Judgmental contrast effects also are seen in a variety of other domains, including self-evaluations following exposure to highly attractive same-sex stimulus persons (Thornton & Maurice, 1997; Thornton & Moore, 1993), ratings of hyperactivity in twins (Simonoff et al., 1998), ratings of a target person's performance (Sumer & Knight, 1996), judgments of ethical marketing practices (Kellaris, Dahlstrom, & Boyle, 1996), and ratings of the emotional content of faces (Underwood, 1994). They have previously been found within the displaced aggression literature as well (e.g., Berkowitz & Knurek, 1969). Thus, given their pervasiveness and generality, we expected a contrast effect showing an inverse relation between provocation intensity and (nontriggered) displaced aggression.

Similarity Between Provocateur and Target of the Participant's Aggression

Generalizing from learning theory, Miller (1941, 1948) proposed a model concerned with the likely targets for displaced aggression. According to the model, three factors contribute to the choice of a target for displaced aggression: (a) the strength of aggressive instigation (approach tendencies), (b) the strength of inhibition against direct retaliatory aggressive behavior (avoidance tendencies), and (c) the similarity of alternative targets to the original provocateur (distance from goal).

When an individual is provoked, direct retaliation toward the original provocateur becomes the goal state. The relative strength of approach and inhibitory tendencies influence the likelihood of aggression toward the original provocateur. When avoidance tendencies are high as a consequence, for instance, of a strong fear of retaliation from the initial provocateur, aggressive retaliation toward the provocateur will be inhibited. Under these circumstances, aggression is likely to be displaced onto an alternative target person. According to the model, however, these same approach and avoidance tendencies generalize to potential alternative targets as a function of their similarity to the initial provocateur. Consequently, strongest aggression will not be directed at a target highly similar to the original provocateur. For a highly similar alternative target, the greater strength of the avoidance tendency that had initially inhibited aggressive retaliation against the provocateur will still be present in the generalized approach and avoidance tendencies elicited by the highly similar alternative target. Instead, a target with only moderate similarity to the provocateur will be preferred. The reason for this expectation lies in the previously discussed notion that, by comparison with approach tendencies

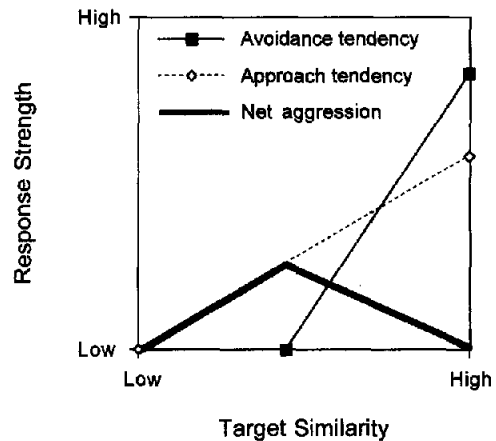


Figure 1. N. E. Miller's (1948) conflict model of displaced aggression as a function of similarity between a provocateur and potential targets of displaced aggression.

(aggression), the generalization of inhibition (avoidance) exhibits a steeper decline in response strength as a function of decreasing similarity between an alternative target person and the provocateur (see Figure 1). Because of this difference in the slopes of the generalization gradients of inhibition and aggression, the model predicts that a displaced aggression target of "intermediate" similarity to the provocateur is likely to be most preferred as a target of displaced aggression. For such moderately similar targets, the steeper drop-off slope of the avoidance tendency will have resulted in a relative ascendance of the aggressive approach tendency.

In the experimental literature on displaced aggression, however, a paradigm feature that is common to virtually all studies is that the initial provocateur is never made available as a potential target for aggressive retaliation. That is, there are never control conditions that permit a test of the relative strengths of the implicit approach and avoidance tendencies toward the initial provocateur. Thus, for any given experiment one cannot know whether the strength of an aggressive approach tendency toward the provocateur is exceeded by an inhibitory avoidance tendency.⁵ Moreover, a structural feature of the research paradigms suggests a somewhat different prediction with respect to the similarity between provocateur and preferred target for displaced aggression than that derived on the basis of Miller's model. Displaced aggression studies characteristically preclude any potential opportunity for the experimental participant to engage in direct retaliatory aggression toward the source of provocation. This feature is likely to reduce the salience of potential inhibitory tendencies. In other words, when from the outset of the experiment the interaction between the provocateur and the participant is structured to preclude any possibility of retaliatory aggressive action by the provocateur, there is little reason for the participant to even contemplate fear of further aggressive retaliation by the provocateur. Thus, we suspect that for the literature that comprises our meta-analysis, avoidance tenden-

⁵ For the one study in the displaced aggression literature that manipulated fear of retaliation (Fitz, 1976), effect sizes were eliminated from the high fear condition.

cies uniformly are made less salient than aggressive approach tendencies. This stands in sharp contrast with Miller's model, in which the initial assumptions are that avoidance tendencies toward the provocateur will be highly salient and stronger than approach tendencies. It leads us to expect instead a monotonic pattern as a function of the similarity between the provocateur and the target of displaced aggression. Specifically, the greater the similarity between the target and the provocateur, the stronger the displaced aggression effect.

Some evidence seems consistent with this expectation. For instance, Moore (1964) found that when an original provocateur was unavailable, young boys who had lost a card game generally preferred to shoot at a target bearing the same card design whereas nonthwarted youngsters typically selected a target relatively unlike the design of the cards with which they originally played. Here, there was no fear of retaliation. Cards cannot shoot back. Therefore, it makes sense that a shooting-target design with maximal similarity is preferred to one that is highly dissimilar.

Similarity Between Participant and Target of the Participant's Aggression

The implications of the stimulus generalization principle can be extended to the relation between the participant and the target of aggression. Egocentric and self-enhancement biases are pervasive (Davis & Stephan, 1980; Larwood, 1978; Ross & Sicoly, 1979; Whitley & Frieze, 1986). In impression formation research, targets who share similar attitudes to self are seen as more attractive and are better liked (Byrne, 1971; Byrne, Clore, & Smeaton, 1986; Smeaton, Byrne, & Murnen, 1989) whereas those who are dissimilar to self tend to be judged more negatively (Rosenbaum, 1986). Likewise, the exaggerated evaluative favoritism exhibited toward members of the in-group is accompanied by heightened perceptions of similarity between self and in-group members (Deaux, 1996; Doise, Deschamps, & Meyer, 1978; Marcus-Newhall, Miller, Holtz, & Brewer, 1993; Turner, 1984; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Relative to in-group members who are seen as similar to self, out-group members are seen as dissimilar and are disliked (Judd & Park, 1988; Mullen & Hu, 1988). Taken together, these effects lead us to expect that greater similarity between self and the target of aggression will be associated with decreased aggression toward that target.

Negativity of the Setting in Which the Participant and the Target of Displaced Aggression Interacted

Some (e.g., Dollard et al., 1939) have suggested that any available and nonpowerful target is a candidate for displaced aggression. At the same time, however, Dollard (1938) emphasized that an individual who in some way serves as a source of irritation will be a more likely target. In parallel with this notion, Buss (1961) and Worchel (1966) argued that when aggressive behavior is energized, the threshold for instigation is lowered. Consequently, when exposed to even a minor annoyance or irritation, a previously provoked actor will emit a level of aggressive response that is disproportional to the annoyance. If so, some of the variation within the displaced aggression literature may reflect differences in the type of interaction (positive or negative) the actor has had

with the potential target of displaced aggression. Although many studies allow no interaction whatsoever (e.g., Donnerstein & Wilson, 1976), in some there is negative interaction between the participant and the target of the displaced aggression (e.g., Worchel, Hardy, & Hurley, 1976). By contrast, in others it is either neutral (e.g., Baum & Greenberg, 1975), or in some cases even positive (e.g., Bell & Baron, 1977).

However, as previously indicated, we specifically excluded from the meta-analysis the relatively few experimental studies or conditions in which the target of displaced aggression clearly emitted a hostile or aggressive triggering action that by itself is ordinarily viewed as an intentionally aggressive provocation that is likely to elicit direct retaliatory aggression. Instead, we examined situational features governing the nature of the interaction between the participant and the target that might function to prime negative thoughts or produce a negative mood in the participant. We expected such negative priming to be associated with increased displaced aggression.

In sum, then, within the context of a meta-analysis that examined published experimental research on displaced aggression, we examined the moderating role of four key theoretical variables: provocation intensity, similarity between the provocateur and the target, similarity between the participant and the target, and negativity of the setting in which the participant and the target of displaced aggression interacted.

Method

Literature Search

To collect the relevant studies, each of the following journals was examined: *Aggressive Behavior*, *European Journal of Social Psychology*, *Journal of Applied Social Psychology*, *Journal of Experimental Social Psychology*, *Journal of Personality and Social Psychology*, *Personality and Social Psychology Bulletin*, and *Social Psychology Quarterly*.⁶ Additional studies were located by a backward search of the reference sections of each article until no new references were found. Reference sections of relevant review articles and textbooks were examined for further citations (viz., Baron & Richardson, 1994; Berkowitz, 1962, 1989, chap. 6; Buss, 1961, chap. 4 & 13; Carlson, 1988; Carlson, Marcus-Newhall, & Miller, 1989; Carlson & Miller, 1988; Geen, 1990; Tedeschi & Norman, 1985; Zawadzki, 1948). Lastly, a computer literature search (Psych INFO) of *Psychological Abstracts* (1955–1998) was conducted using the key terms *aggression*, *aggressive behavior*, *displacement*, *displaced aggression*, *scapegoating*, and *frustration*.

Inclusionary Criteria for Studies

For inclusion in the analysis, a study had to meet the following criteria. First, studies had to be published in a journal. Second, the dependent variable needed to be an aggressive behavior directed toward a human target other than the initial source of provocation. Third, the reported results had to be sufficient to allow calculation of an effect size estimate of the difference in aggressiveness between provocation and no provocation

⁶ Predecessors of these journals also were scanned, including the *Journal of Abnormal and Social Psychology*.

Table 1
Definition, Exemplary Cases, and Scale Ranges for Each of the Judged Predictor Variables

Variable	Definition	Example of case with high value	Example of case with low value	Possible range
Provocation intensity	The extent to which the participant would feel badly after being provoked.	Participant's argument is evaluated negatively by 8 shocks from the experimenter and then by 9 shocks from Confederate (Hewitt, 1975).	Participant expects crowding in the experimental setting (Baum & Greenberg, 1975).	1 (<i>not at all badly</i>) to 8 (<i>extremely badly</i>)
Similarity: Provocateur and target of participant's aggression	The extent to which the provocateur and target of participant's aggression were similar.	College-aged confederate is the provocateur and different college-aged confederate is target of aggression (Konecni & Doob, 1972).	Experimenter is the provocateur, whereas the target of aggression is an unattractive child (Berkowitz & Frodi, 1979).	1 (<i>not at all similar</i>) to 6 (<i>extremely similar</i>)
Similarity: Participant and target of aggression	The extent to which the participant and the target of participant's aggression were similar.	Participant finds out that she or he has 75% of the same attitudes as target of aggression (Griffitt, 1970).	Participant finds out that target of aggression is an unknown out-group member (Miller & Bugelski, 1948).	1 (<i>not at all similar</i>) to 6 (<i>extremely similar</i>)
Negativity of the setting in which the participant and the target of displaced aggression interacted	The extent to which the interaction between the participant and target of participant's aggression was positive/negative.	Target of participant's aggression makes three blunders during presentation of a movie (Worchel, Hardy, & Hurley, 1976).	Participant is provided with a positive evaluation from future target of participant's aggression (Bell & Baron, 1977).	1 (<i>extremely positive</i>) to 7 (<i>extremely negative</i>)

control conditions.⁷ Finally, studies had to examine aggressive behavior in drug- and alcohol-free human participants (aged 15 years or older).⁸

The resulting sample of 49 articles (indicated by asterisks listed in the reference section) yielded 32 separate provocation versus no provocation comparisons. The publication dates ranged from 1948 to 1997. Twenty-seven articles contributed one provocation/no provocation pair of conditions, 17 articles contributed two independent pairs of provocation/no provocation conditions, three articles yielded three independent pairs of conditions, and four articles yielded four independent pairs of conditions. When there were several dependent measures within a study, individual effect sizes for all measures for which the required statistical information was reported were pooled to yield a composite aggression effect size estimate.

Variables Judged From Each Study

To examine moderators of displaced aggression, four theoretically relevant variables were judged from each study by four trained undergraduates: (a) provocation intensity, (b) similarity between the provocateur and the target of displaced aggression, (c) similarity between the participant and the target of displaced aggression, and (d) negativity of the setting in which the participant and the target of displaced aggression interacted. Table 1 presents the definitions of each variable, an example of a case with a high value and a low value, and the rating scale end points.

The rating procedures and materials were adapted from those used previously (e.g., Carlson, Marcus-Newhall, & Miller, 1990; Carlson & Miller, 1988; Miller & Carlson, 1990). The Method section of each article was separated and identifying information (e.g., author, title) was removed. Next, sections of the methods were highlighted in distinct colors, each of which corresponded to information relevant to the four theoretical variables of interest. Then each theoretical variable was judged independently by four undergraduates, two men and two women.

Before making their ratings, the undergraduates were trained in the coding process and provided with instructions, rating sheets, and the full set of Method sections. The definition of each variable was reviewed and the rating scales were explained. Judges were instructed to put themselves in the place of the participants involved in the actual study and estimate how the "average participant" would feel when exposed to the situation of

interest. To create anchored scale points and thereby enable judges to increase their interrater consistency across the entire set, they also were instructed to provide examples for each assigned value on their rating forms as they completed their ratings. Lastly, judges were told that it was not imperative to use all of the scale values, but to do so whenever possible even if that meant that they must go back and change earlier ratings after reading subsequent studies that were more extreme on any particular scale. To provide a practice trial, a fictitious Method section was given to each judge for each variable. After the practice trial, judges discussed discrepancies among their interpretations of the variables. Then they judged the entire set of studies on a single variable before rating the next variable. The four variables were judged in one of two randomly determined orders, with one judge of each sex rating the set of studies in one random order and the other using the alternate sequence.

Variables Coded From Each Study

The following information was coded directly by the first author from the information provided in each study: (a) type of provocation (negative evaluation, frustration, verbal attack, irritants, attack and shock or evaluation, attack and shock and evaluation); (b) instigator of provocation (experimenter, confederate, experimenter and confederate, intangible other); (c) target of the participant's aggression (experimental assistant, experimenter, confederate, hypothetical others); (d) sex configuration of the participant and the instigator of provocation (same, different); and (e) sex configuration of the participant and the target of the participant's aggression (same, different). When relevant information was absent or ambiguous, it was coded as missing.

⁷ An example of a study excluded due to this criterion is Melburg and Tedeschi (1989). In this study, the researchers did not report sufficient data to calculate an effect size.

⁸ Although research on aggression in children and substance-abuse individuals is important, their social dynamics may differ from those considered herein.

Meta-Analytic Procedures

Computing effect sizes. Estimates of the effect size for each study were computed with *DSTAT* (Johnson, 1990), a statistical software program for meta-analysis. The effect size index, d , is the difference between the means of two groups (e.g., provocation and no provocation) divided by the pooled standard deviation (Hedges & Olkin, 1985). It was estimated from either condition means and standard deviations, an F for main effects, a t statistic, a chi-square statistic, or an F from an interaction along with corresponding cell means and sample sizes. All effect sizes were corrected for sample size bias. Studies using factorial designs could contribute more than one effect size.⁹

Analysis of effect sizes. After effect sizes were estimated, they were combined when there were multiple dependent measures. Then, the mean weighted and unweighted effect sizes were computed and tested for significance. The weighted mean gives greater weight to studies with larger sample sizes on the assumption of greater reliability from such studies.¹⁰ Next, homogeneity (Q_b) of the combined effect sizes was computed to assess whether they varied more than might be expected on the basis of sampling variability (Hedges & Olkin, 1985).

Tests of judged variables. One approach to explaining the variance among effect sizes is to examine judged variables as potential moderators. These analyses were conducted using regression analyses on a traditional statistical software package (SPSS).¹¹ Univariate and simultaneous multivariate regressions were conducted on the four moderator variables. Prior to performing these analyses, ratings first were converted to z -scores and interrater reliabilities were calculated. Composite scores then were created and distributions were examined for normality.

Tests of categorical variables. Categorical variables were examined by comparing the mean effect sizes of subsets of studies that differed on these specific dimensions using the between class (Q_b) statistic (Hedges & Olkin, 1985). Analogous to the F test in an analysis of variance, if there are more than two groups, contrasts between specific category means can be performed. The within-class homogeneity (Q_w) statistic also was calculated for each level of the variable of interest. If the within-class statistic is significant, then considerable within-group variance still remains for that category.

Results

Summary of Effect Sizes

Table 2 lists the individual effect sizes from each study, with studies ordered by magnitude of effect size. It also presents their confidence intervals and sample sizes. Study references included in this meta-analysis are indicated by an asterisk in the reference section. A positive value indicates that previously provoked participants displayed more displaced aggression than controls, whereas a negative value indicates the opposite. The unweighted mean effect size of $+0.55$ for the 82 separate effect sizes (95% confidence interval [CI] = $+0.48$ – $+0.62$) corresponds to an effect size of medium magnitude (Cohen, 1988). The mean weighted effect size was $+0.54$, CI = $+0.48$ – $+0.61$.¹² The two results do not differ and both reliably exceed zero, indicating that participants who were initially provoked but precluded from aggressive retaliation displayed more displaced aggression than those not initially provoked.

Called the *file drawer problem* because studies obtaining null results are less likely to be published, it has been argued that analyzing data only from published reports may bias results (e.g., Rosenthal, 1979; Wachter, 1988). Some have feared that constricting analyses to published studies may bias results toward a mean effect size that differs significantly from zero. The *fail-safe n* (Cooper, 1989) estimates the number of studies with null results that must exist in order for obtained results to be rendered non-

significant. Its value for this meta-analysis is 4055. This clearly exceeds the $5k + 10$ benchmark suggested by Rosenthal (1991) as a reasonable tolerance level. Therefore, a file drawer problem is unlikely.

Finally, there was significant heterogeneity among the effect sizes ($Q_w = 267.26$, $p < .00001$). This was expected, given the inconsistency in this literature. Moreover, it supports our intent to examine moderators.

Reliability of Moderator Variables

As indicated, four moderator variables were separately judged by two male and two female judges: (a) provocation intensity, (b) similarity between the provocateur and the target of displaced aggression, (c) similarity between the participant and the target of displaced aggression, and (d) negativity of the setting in which the participant and the target of displaced aggression interacted (prior to the participant's opportunity to aggress toward him or her).¹³ One might conceptualize this latter variable as *the strength of the triggering event*. However, conceptually a triggering event corresponds to a form of provocation whereas this judged variable typically reflected aspects of the situation or task (e.g., a competitive task) that were seen by the judges as negative in their affective valence even though they specifically were not unambiguous instances of a second triggering provocation.

Bettencourt and Miller (1996) found sex differences in appraisals of provocation intensity. More important is whether male and female judges similarly ordered the provocation intensity across

⁹ Twenty-three studies provided more than one effect size estimate.

¹⁰ Although the use of the weighted mean effect size is potentially misleading when sample size is confounded with type of experimental paradigm (e.g., Bettencourt & Miller, 1996), this was not an issue in this data set.

¹¹ Regression analyses were calculated according to Hedges and Olkin (1985). Each effect size was weighted by its TW -term. Because SPSS does not make the necessary correction for the degrees of freedom in this weighted regression analysis, the relevant information was entered into *DSTAT* to correct for this (Johnson, 1990).

¹² Examination of the data set for outliers, yielded two ($d = -1.95$ and $d = 2.01$). To retain them in the sample, their values were changed to equal the value of the next closest effect size in the distribution (Tabachnik & Fidell, 1989). The mean effect size for the modified data set was 0.55 with a CI of $.48$ – $.62$ which did not depart substantially from that of the unmodified data set. To avoid violating assumptions of normality, the modified data set was used in subsequent analyses.

¹³ For the variable similarity of instigator of provocation and the target of the participant's aggression, 31 studies were not judged because the instigation of provocation was an irritant such as cold water, hot or humid room temperature, or crowding. Because there was no similarity between these sources of provocation and the target of the participant's aggression, these cases subsequently were coded as zeros. This rating indicates that they were even less similar than those cases judged as ones on the scale representing not at all similar. An example of a "1" (not at all similar) rating, for instance, was: (a) an adult male confederate who served as an instigator of provocation by allegedly disparaging the female participant after a brief discussion with her (by indicating on a written evaluation that she was "superficial and not very intelligent and that he could not be her friend"); and (b) a target of the participant's aggression who was a 10-year-old girl acting as their child by way of a closed-circuit television (Berkowitz & Frodi, 1979). The added new level of this variable that was created with zeros was used in all subsequent analyses.

Table 2
Effect Size Estimates and Study Variables, Ordered by Magnitude of Effect Sizes

Citation	Effect size (<i>d</i>)	95% CI	<i>n</i>	Provocation	No provocation	Dependent variable
1. Caprara, Renzi, Amolini, D'Imperio, & Travaglia (1984)	2.01	1.47–2.55	80	Aggressive slides Negative evaluation	Aggressive slides No negative evaluation	Intensity of shock
2. Worchel, Hardy, & Hurley (1976)	1.69	1.19–2.18	84	Commercial interruption	No commercial interruption	Rating of assistant
3. Caprara, Renzi, Alcini, D'Imperio, & Travaglia (1983) Experiment 1	1.65	1.24–2.07	120	Negative evaluation	No negative evaluation	Intensity of shock
4. Burnstein & Worchel (1962)	1.40	0.87–1.94	66	Nonarbitrary Task frustration	Nonarbitrary No task frustration	Negative attitude of experimenter
5. Bell & Baron (1976)	1.35	0.27–2.44	16	Similar attitudes Positive evaluation Hot temperature	Similar attitudes Positive evaluation Cool temperature	Intensity and duration of shock
6. Caprara, Renzi, Amolini, D'Imperio, & Travaglia (1984)	1.27	0.93–1.61	160	No slides + neutral slides Negative evaluation	No slides + neutral slides No negative evaluation	Intensity of shock
7. Mosher & Proenza (1968)	1.22	0.67–1.77	60	Intense negative evaluation	No intense negative evaluation	Verbal aggression
8. Baron & Bell (1975)	1.12	0.07–2.17	16	Aggressive model present Hot temperature	Aggressive model present Normal temperature	Intensity and duration of shock
9. Geen & Berkowitz (1967)	1.10	0.11–2.10	18	Boxing film/Kirk Task frustration	Boxing film/Kirk No task frustration	Intensity of shock
10. Hokanson, Burgess, & Cohen (1963)	1.06	0.01–2.11	16	Undergraduate student Task frustration	Undergraduate student No task frustration	Pressure from shock
11. Worchel & Teddlie (1976)	1.06	0.73–1.40	158	High density/close	Low density/far	Rating of other group members
12. Jones & Bogat (1978)	1.04	0.44–1.64	48	Exposure to cigarette smoke	No exposure to cigarette smoke	Intensity of noise burst
13. Griffitt (1970)	1.00	0.07–1.93	20	Low similarity Hot temperature	Low similarity Normal temperature	Attraction response
14. Caprara, Renzi, Alcini, D'Imperio, & Travaglia (1983) Experiment 2	0.99	0.61–1.37	120	Negative evaluation	No negative evaluation	Intensity of shock
15. Feningstein & Buss (1974)	0.98	0.29–1.68	36	Negative evaluation	No negative evaluation	Intensity of shock
16. Geen & Berkowitz (1967)	0.96	–0.01–1.94	18	Boxing film/Bob Task frustration	Boxing film/Bob No task frustration	Intensity of shock
17. Berkowitz (1981)	0.93	0.04–1.90	18	Partner fault Task frustration	Partner fault No task frustration	Total no. of punishments
18. Berkowitz, Cochran, & Embree (1981) Experiment 1	0.91	0.03–1.79	22	Punishment hurts Hand in cold water	Punishment hurts Hand in neutral water	Total no. of punishments
19. Konecni & Doob (1972)	0.90	–0.02–1.82	20	Annoyance	No annoyance	Shocks to scapegoat
20. Caprara (1982)	0.80	0.52–1.09	200	Negative evaluation	No negative evaluation	Intensity of shock
21. Baum & Greenberg (1975)	0.80	0.34–1.25	79	Anticipation of crowding	No anticipation of crowding	Rating of aggressiveness
22. Baron & Bell (1976) Experiment 2	0.75	–0.27–1.76	16	Positive evaluation Hot temperature	Positive evaluation Cool temperature	Intensity and duration of shock
23. Bell & Baron (1977)	0.73	–0.23–1.68	18	Hot temperature	Cool temperature	Duration of shock
24. Worchel (1966)	0.72	0.35–1.09	120	Assistant threat of pop quiz	No threat	Aggression toward experimenter
25. Rotton, Barry, Frey, & Soler (1978) Experiment 2	0.70	–0.20–1.61	20	Low similarity Room odor	Low similarity No room odor	Attraction response
26. Berkowitz (1965) Experiment 1	0.68	–0.40–1.76	14	Boxer role Angered	Boxer role Not angered	Hostility toward neutral experimenter
27. Baron & Bell (1975)	0.68	–0.32–1.69	16	No model present Hot temperature	No model present Normal temperature	Intensity and duration of shock
28. Fischer, Kelm, & Rose (1969)	0.66	–0.35–1.67	16	Carving knife Negative evaluation	Carving knife No negative evaluation	Evaluation score
29. Baron & Bell (1976) Experiment 1	0.66	–0.21–1.53	24	Positive evaluation Warm + hot temperature	Positive evaluation Cool temperature	Intensity and duration of shock

(table continues)

Table 2 (continued)

Citation	Effect size (<i>d</i>)	95% CI	<i>n</i>	Provocation	No provocation	Dependent variable
30. Berkowitz & Embree (1987)	0.62	0.13-1.11	68	Hand in cold water	Hand in warm water	Total no. of punishments
31. Fischer, Kelm, & Rose (1969)	0.61	-0.39-1.62	16	No object control Negative evaluation	No object control No negative evaluation	Evaluation score
32. Griffitt & Veitch (1971)	0.56	0.05-1.08	60	Low similarity High density	Low similarity Low density	Attraction response
33. Geen (1968)	0.55	0.04-1.07	60	Initially reinforced Task frustration	Initially reinforced Control	Intensity of shock
34. Donnerstein & Wilson (1976) Experiment 2	0.53	-0.36-1.42	20	Nonangered High noise	Nonangered No noise	Intensity of shock
35. Burnstein & Worchel (1962)	0.50	0.02-0.99	67	Arbitrary Task frustration	Arbitrary No task frustration	Negative attitude toward experimenter
36. Hokanson, Burgess, & Cohen (1963)	0.48	-0.51-1.48	16	Psychology student Task frustration	Psychology student No task frustration	Pressure from shock
37. Rotton, Barry, Frey, & Soler (1978) Experiment 2	0.47	-0.30-1.24	30	High similarity Room odor	High similarity No room odor	Attraction response
38. Berkowitz & Green (1962)	0.46	-0.40-1.34	36	Frustration by experimenter	No frustration	Unfriendliness to confederate
39. Berkowitz & Frodi (1979)	0.46	-0.29-1.21	28	Unattractive Negative evaluation	Unattractive No negative evaluation	Intensity of shock
40. Fischer, Kelm, & Rose (1969)	0.45	-0.54-1.45	16	Table knife Negative evaluation	Table knife No negative evaluation	Evaluation score
41. Griffitt & Veitch (1971)	0.43	-0.08-0.94	60	High similarity Hot temperature	High similarity Normal temperature	Attraction response
42. Berkowitz (1981)	0.41	-0.53-1.34	18	Machine fault Task frustration	Machine fault No task frustration	Hostility toward first partner
43. Griffitt & Veitch (1971)	0.39	-0.12-0.90	60	High similarity High density	High similarity Low density	Attraction response
44. Nacci & Tedeschi (1977)	0.39	0.12-0.90	60	Delay	No delay	Total no. of shocks
45. Hokanson, Burgess, & Cohen (1963)	0.36	-0.63-1.35	16	Experimental assistant Task frustration	Experimental assistant No task frustration	Pressure from shock
46. Hewitt (1975)	0.36	-0.63-1.35	16	Low inhibition Dissimilar target (age) Negative evaluation	Low inhibition Dissimilar target (age) No negative evaluation	Intensity of shock
47. Fitz (1976)	0.36	-0.14-0.88	60	High similarity Anger/low fear	High similarity No anger/low fear	Intensity of buzzes
48. Hewitt (1975)	0.33	-0.65-1.32	16	High inhibition Dissimilar target (age) Negative evaluation	High inhibition Dissimilar target (age) No negative evaluation	Intensity of shock
49. Mosher & Proenza (1968)	0.33	-0.18-0.84	60	Mild negative evaluation	No mild negative evaluation	Verbal aggression
50. Zillman, Baron, & Tamborini (1981)	0.32	-0.25-0.89	48	No annoyance Assistant smoke	No annoyance No smoke	Hostility toward experimenter
51. Miller & Bugelski (1948)	0.31	-0.19-0.82	31	After frustration	Before frustration	Trait rating
52. Griffitt (1970)	0.30	-0.58-1.18	20	High similarity Hot temperature	High similarity Normal temperature	Attraction response
53. Strube, Turner, Cerro, Stevens, & Hinchey (1984)	0.29	-0.13-0.72	85	Task frustration	No task frustration	Fine level
54. Goldstein & Arms (1971)	0.26	-0.20-0.72	77	Navy Postgame	Navy Pregame	Hostility score
55. Cowen, Landes, & Shaet (1959)	0.25	-0.10-0.60	64	Attitudes toward Negroes Task frustration	Attitudes toward Negroes No task frustration	Anti-Negro attitude score
56. Berkowitz (1981)	0.24	-0.69-1.17	18	Machine fault Task frustration	Machine fault No task frustration	Total no. of punishments
57. Carver & Glass (1978) Experiment 2	0.23	-0.33-0.80	48	Task frustration	No task frustration	Intensity of shock
58. Fitz (1976)	0.22	-0.29-0.73	60	Low similarity Anger/low fear	Low similarity No anger/low fear	Intensity of buzzes
59. Geen & Berkowitz (1967)	0.22	-0.44-0.87	36	Track film Task frustration	Track film No task frustration	Intensity of shock
60. Griffitt & Veitch (1971)	0.21	-0.29-0.72	60	Low similarity Hot temperature	Low similarity Normal temperature	Attraction response
61. Swart & Berkowitz (1976)	0.16	-0.74-1.07	19	Pain cues Negative shock evaluation	Pain cues No negative shock evaluation	Intensity of shock

Table 2 (continued)

Citation	Effect size (<i>d</i>)	95% CI	<i>n</i>	Provocation	No provocation	Dependent variable
62. Hewitt (1975)	0.16	-0.53-0.86	32	Low inhibition Similar target (age) Negative evaluation	Low inhibition Similar target (age) No negative evaluation	Intensity of shock
63. Berkowitz & Thome (1987)	0.16	-0.46-0.78	45	Hand in cold water	Hand in warm water	Total no. of punishments
64. Rotton, Barry, Frey, & Soler (1978) Experiment 1	0.12	-1.01-1.25	12	Low similarity Room odor	Low similarity No room odor	Attraction response
65. Geen (1978)	0.12	-0.76-1.00	20	No attack High noise	No attack No noise	Duration of shock
66. Swart & Berkowitz (1976)	0.10	-0.53-0.73	39	No pain cues Negative shock evaluation	No pain cues No negative shock evaluation	Intensity of shock
67. Bell & Baron (1976)	0.07	-0.91-1.05	16	Positive evaluations Dissimilar attitudes Hot temperature	Positive evaluations Dissimilar attitudes Cool temperature	Intensity and duration of shock
68. Berkowitz, Cochran, & Embree (1981) Experiment 2	0.05	-0.82-0.93	20	Punishment hurts Hand in cold water	Punishment hurts Hand in neutral water	Total no. of punishments
69. Matthews, Paulus, & Baron (1979)	0.04	-0.40-0.48	80	No delay Crowded	No delay Not crowded	Intensity, number, and duration of shock
70. Berkowitz & Frodi (1979)	0.00	-0.74-0.74	28	Attractive Negative evaluation	Attractive No negative evaluation	Intensity of shock
71. Donnerstein & Wilson (1976) Experiment 1	-0.09	-0.97-0.79	20	Nonangered High noise	Nonangered No noise	Intensity of shock
72. Fischer, Kelm, & Rose (1969)	-0.11	-1.09-0.87	16	Switchblade knife Negative evaluation	Switchblade knife No negative evaluation	Evaluation score
73. Taylor, Schmutte, & Leonard (1977)	-0.18	-1.06-0.70	20	Nonintoxicated Task frustration (failure)	Nonintoxicated No task frustration (success)	Intensity of shock
74. Hewitt (1975)	-0.38	-1.08-0.32	32	High inhibition Similar target (age) Negative evaluation	High inhibition Similar target (age) No negative evaluation	Intensity of shock
75. Berkowitz & Knurek (1969)	-0.44	-1.17-0.28	30	Negative name Task frustration	Negative name No task frustration	Personality evaluation of partner
76. White (1979)	-0.49	-1.38-0.40	20	Nonangered Negative slides	Nonangered Neutral slides	Intensity and duration of shock
77. Baron (1972)	-0.51	-1.40-0.38	20	Nonangered Hot temperature	Nonangered Cool temperature	Intensity and duration of shock
78. Rule & Hewitt (1971)	-0.54	-1.05-0.02	60	Moderate thwarting	Low thwarting	Intensity of shock
79. Berkowitz & Knurek (1969)	-0.62	-1.35-0.11	30	Neutral name Task frustration	Neutral name No task frustration	Personality evaluation of partner
80. Epstein (1965)	-0.71	-1.16-0.26	80	Task frustration	No task frustration	Intensity of shock
81. Berkowitz (1965) Experiment 1	-0.84	-1.93-0.25	14	Speech major Angered	Speech major Not angered	Hostility toward neutral experimenter
82. Rotton, Barry, Frey, & Soler (1978) Experiment 1	-1.95	-3.22-0.68	14	High similarity Room odor	High similarity No room odor	Attraction response

Note. CI = confidence interval.

studies. If not, this would undermine the rationale for using a composite of all judges. Therefore, interjudge correlations were computed for all possible pairs of judges. As shown by inspection of Table 3, with the exception of the correlations that include the data of one male judge on the variable provocation intensity, the intra- and inter-sex correlations between male and female judges are of comparable magnitudes, thereby justifying the pooling of their ratings for the analyses. For the variable provocation intensity, the ratings by the one aberrant male judge were excluded from the pooled composite used in the subsequent analyses.

Effective reliabilities (*R*s; Rosenthal, 1991) and Pearson correlations (*r*s) then were calculated for the judges (see Table 4). For similarity between provocateur and target of displaced aggression, similarity between participant and target of displaced aggression, and negativity of the setting, reliabilities were quite high. However, the reliability of provocation intensity was noticeably lower. As indicated, this is attributable to the ratings of one judge (male 2 in Table 3). When his judgments were eliminated, the reliability for this variable markedly increased, yielding an effective reliability of *R* = .90. Inspection of the mean interjudge correlations

Table 3
Interjudge Correlations and Reliabilities

Judgment	Intensity of the provocation	Similarity between provocateur and target	Similarity between participant and target	Negativity of the setting
Reliability (<i>R</i>)				
Male 1/Female 1	.84	.99	.86	.87
Male 1/Female 2	.85	.97	.92	.94
Male 2/Female 1	-.11	.98	.90	.89
Male 2/Female 2	.17	.98	.94	.92
Female 1/Female 2	.89	.97	.95	.94
Male 1/Male 2	.44	.99	.92	.94
Correlation (<i>r</i>)				
Male 1/Female 1	.72	.98	.75	.77
Male 1/Female 2	.74	.94	.85	.89
Male 2/Female 1	-.06	.97	.82	.80
Male 2/Female 2	.09	.96	.88	.85
Female 1/Female 2	.80	.94	.91	.89
Male 1/Male 2	.28	.98	.86	.88

Note. Effective reliabilities (*R*s) are Spearman-Brown coefficients.

pooled across the four judged variables shows that they evidence good reliability ($R = .95$, $r = .85$).

Relation Between Moderator Variables and Magnitude of Displaced Aggression

Table 5 presents separate univariate multiple regression tests assessing the effect of each moderator, when entered alone and when entered simultaneously with the other three moderators.¹⁴

Provocation intensity. The intensity of the provocation was inversely related to the magnitude of the effect sizes ($B = -0.23$, $\beta = -0.28$, $p < .0001$). The stronger the initial provocation, the less displaced aggression. Although at first glance this finding may seem counterintuitive, it is in line with fundamental processes governing human judgment (Campbell, 1956; Helson, 1964). Within any setting, judgments are comparative. Thus, the nastier the provocation, the nicer the displaced aggression target appeared by comparison, and consequently, the less aggression displaced onto him or her. This result meta-analytically confirms this contrast effect, as discussed by Berkowitz and Knurek (1969). Moreover, it remained reliable when the other three moderators were

Table 4
Correlations and Reliabilities for Judges

Judgment	Intensity of the provocation	Similarity between provocateur and target	Similarity between participant and target	Negativity of the setting
Reliability (<i>R</i>)	.75	.99	.96	.96
Correlation (<i>r</i>)	.43	.96	.85	.85

Note. Effective reliabilities (*R*s) are Spearman-Brown coefficients. One judge was not reliable in his ratings on the variable perceived provocation intensity. The correlations presented above include his ratings on this variable. When his judgments of perceived negativity were removed from the analysis of this variable, $R = .90$ and $r = .75$.

Table 5
Regression Analyses of the Effects of the Moderator Variables on the Magnitude of Displaced Aggression

Moderator	Univariate model		Multivariate model	
	<i>B</i>	β	<i>B</i>	β
Provocation intensity	-0.23	-0.28****	-0.54	-0.64****
Similarity between provocateur and target	0.09	0.15*	0.24	0.39****
Similarity between participant and target	0.42	0.12†	0.36	0.09
Negativity of setting in which the participant and the target interacted	0.07	0.09	0.18	0.23**

Note. *B* = unstandardized beta weight; β = standardized beta weight. † $p < .10$ (marginally significant). * $p < .05$. ** $p < .01$. **** $p < .0001$.

entered simultaneously into the analysis (right column of Table 5). Note, however, that it occurred within the context of a main effect of displaced aggression (viz., within the context of the overall mean effect size of +0.54).

Separate analyses were conducted on studies that contained a human versus a situational provocation. Both the direction and approximate magnitude of the correlations between provocation intensity and displaced aggression effect sizes were equivalent (human provocation, $r = -.30$, $p = .09$; nonhuman provocation, $r = -.41$, $p = .03$). When a simultaneous regression was performed, the negative relationship between effect size and provocation intensity was maintained regardless of the type of provocation, human or situational.

Similarity between provocateur and target of displaced aggression. Consistent with expectation, there was a reliable positive relation between the similarity of the provocateur to the displaced aggression target and the magnitude of the displaced aggression ($B = 0.09$, $\beta = 0.15$, $p < .05$). This relation is even more robust when the effects of the other three moderators are controlled ($B = 0.24$, $\beta = 0.39$, $p < .0001$). The more similar was the target to the provocateur, the greater the amount of aggression displaced onto that target.

Similarity between participant and target of displaced aggression. The effect of the similarity between the participant and displaced aggression target was only marginally reliable ($p < .10$) when entered in the univariate analysis. Although the direction of this effect in the univariate analysis was counter to prediction in

¹⁴ Distributions of the judged moderator variables were examined for normality and data transformations were performed (Tabachnik & Fidell, 1989). All four variables were skewed. Transformations did not correct for the nonnormal distribution for provocation intensity, similarity of provocateur and the participant's target of aggression, or the negativity of the setting. Therefore, there was no advantage to transforming them. Although skewness is likely to reduce power, the hypothesized effects on all three variables were obtained. The transformation for the similarity of participant and the target of the participant's aggression variable was more successful. This variable was reflected and then log transformed to correct for the negative skewness. This transformed variable was used in all subsequent analyses.

that greater perceived similarity between the participant and the target was associated with the expression of more displaced aggression toward the target, this effect was not reliable when examined in the multivariate model.

Negativity of the setting. For the analysis of the negativity of the setting in which the participant and the target of displaced aggression interacted, high ratings corresponded to more negative interactions. Although the negativity of the setting had no reliable effect when examined in the univariate model, when the effects of the other moderators were partialled out, its effect was reliable ($B = 0.18$, $\beta = 0.23$, $p < .01$). The more negative the interaction between the participant and the target of displaced aggression, the greater the magnitude of aggression displaced onto the target. This finding can be interpreted as a priming effect or as an attributional process in which features of the setting and/or the target are seen as providing justification for the actor's subsequent display of aggression.

Categorical Variables

Six categorical variables were analyzed: (a) both the type and source of the provocation; (b) the target of displaced aggression (e.g., a confederate, an experimenter, an experimental assistant, etc.); and (c) the sex configurations of the participant and instigator of provocation, and of the participant and the target of aggression. Table 6 reports the classes contained in these categories, the between category effects (Q_b), the number of cases, mean effect sizes, and within-category effects (Q_w). In general, the results of such analyses cannot be illuminating because implementation strength across the classes within each category is not controlled. Consequently, it is not surprising that these analyses show occasional anomalous effects. The latter can best be interpreted as

reflecting unique, unspecifiable features of the particular paradigms that were used in some of the categories of experiments, as well as differences in implementation strength within the classes of each categorical variable.

Type of provocation. For descriptive purposes, we examined differences among types of provocation by dividing studies into six subsets: negative evaluation; frustration; verbal attack; irritants such as temperature, noise, and smoke; verbal attack paired with either shock or negative evaluation; and verbal attack in conjunction with both shock and negative evaluation. Significant variation was present among these subsets ($Q_b = 49.21$, $p < .0001$), indicating that the type of provocation affected the magnitude of displaced aggression. The within-category variation indicated that negative evaluation and verbal attack were homogeneous. That is, additional moderators are not needed to account for their effects. The other categories failed to evidence homogeneity. Post-hoc comparisons indicated that participants who were provoked both by being verbally attacked as well as receiving either shock or negative evaluation ($d = 0.88$) exhibited more displaced aggression than did those receiving any other form of provocation (verbal attack: $d = -0.07$; frustration: $d = 0.46$; evaluation: $d = 0.40$; irritants: $d = 0.51$; evaluation, shock, and attack, $d = 0.06$; all $ps < .05$). On first thought this suggests an intensity effect, with stronger displaced aggression from combined provocations. However, not only does this interpretation directly counter our obtained contrast effect with a continuous measure of provocation intensity, but it is inconsistent with the effect for evaluation, shock, and attack. We see no simple interpretation of these effects. We are inclined to give more credence to the result obtained with the continuous measure of provocation intensity

Table 6
Summary of Effect Size Estimates

Category and class	Q_b	n	Mean d	Q_w	95% CI for d
Type of provocation	49.21***				
Negative evaluation		4	0.40 _{b,c}	1.47	-0.10-0.90
Frustration		18	0.46 _{b,c}	72.85***	0.33-0.59
Verbal attack		2	-0.07 _b	3.76	-0.84-0.70
Irritants		31	0.51 _c	53.97*	0.39-0.63
Attack and shock or evaluation		14	0.88 _a	68.43***	0.75-1.01
Attack and shock and evaluation		12	0.06 _b	27.18*	-0.17-0.28
Instigator of provocation	48.73***				
Experimenter		12	0.97 _a	74.94***	0.82-1.11
Confederate(s)		19	0.38 _b	37.01*	0.23-0.52
Experimenter + Confederate		10	0.67 _{a,b}	13.46	0.43-0.90
Intangible Other		11	0.28 _b	54.09***	0.12-0.43
Target of aggression	25.38***				
Experimental assistant		2	1.69 _a	2.99	1.19-2.18
Experimenter		3	0.57 _b	7.09	0.24-0.91
Confederate		61	0.57 _b	225.15***	0.49-0.65
Hypothetical others		10	0.35 _b	4.19	0.18-0.52
Sex configurations	>.80				
Participant and instigator of provocation					
Same		31	0.39	56.24*	0.26-0.52
Different		5	0.40	2.70	0.01-0.79
Participant and target of aggression					
Same		64	0.55	202.33***	0.47-0.62
Different		3	0.62	1.02	0.04-1.20

Note. Means with different subscripts differ significantly at $p < .05$. CI = confidence interval.
* $p < .05$. *** $p < .001$.

obtained from judges' ratings because that analysis allowed statistical control of the effects of the other three theoretically important moderators.

Instigator of provocation. This variable was partitioned into four types: experimenter; confederate (either one or multiple); both an experimenter and a confederate; and an intangible source, which included nonhuman sources such as insoluble puzzles, bicycle failure, etc.¹⁵ There was significant variation among effect sizes between these different sources of provocation ($Q_b = 48.73$, $p < .0001$). When the experimenter was the instigator of provocation, the magnitude of displaced aggression ($d = 0.97$) exceeded that produced by any of the other instigators of provocation (both an experimenter and a confederate [$d = 0.67$]; intangible sources [$d = 0.28$]; and the confederate alone [$d = 0.38$], all $ps < .05$). Examination of the within-group variability indicated that all of the sources of provocation except the combined experimenter/confederate condition evidenced significant within-category variation.

Target of displaced aggression. In most cases, the target of the participant's aggression was a confederate posing as a second participant in the study. In a small number of cases, the target was the experimenter or an experimental assistant. There were also a few cases where a hypothetical or unknown other served as the target (e.g., an unknown out-group member). The reliable target effects ($Q_b = 25.38$, $p < .00001$) reflect greater displaced aggression when the experimental assistant was the target of aggression ($d = 1.69$), as compared to the experimenter ($d = 0.57$), the confederate ($d = 0.57$), and the hypothetically described others ($d = 0.35$) ($p < .05$).

Analyses of the judges' continuous ratings of similarity of target to self showed no reliable effects when variation on the other judged variables was controlled. Yet, some features of the categorical analyses appear to support our initial hypothesis that similarity between the target and actor will reduce displaced aggression. Participants were more willing to displace aggression onto an experimental assistant than onto an experimental confederate. An experimental confederate is likely to have been seen by participants as highly similar, that is, as another undergraduate like themselves. By contrast, experimental assistants were more likely to have been graduate students, and even when not, there was likely to have been a perception of role differentiation between self and the assistant. Thus, this aspect of the categorical analysis is consistent with the idea that similarity between self and target reduces displaced aggression.

Why then was the magnitude of displaced aggression also reduced when the target was the experimenter or a hypothetical other? An experimenter more clearly has higher status than either an experimental assistant or the participant. Fear of some form of retaliation is likely to be elicited by high status targets. At the same time, hypothetical others are likely to elicit less displaced aggression precisely because they are hypothetical. We are disinclined to make too much of these effects, however, because of the extremely small sample sizes for the experimental assistant ($n = 2$) and the experimenter ($n = 3$) conditions. Moreover, the studies within the experimenter, experimental assistant, and hypothetically described others categories were homogeneous (probably as a result of low statistical power), whereas the test of homogeneity was rejected for the confederate category.

Sex configuration. In the vast majority of studies, the sex of the target of displaced aggression matched that of the participant.

Similarly, the sex of the provocateur almost always matched that of the participant. These sex configuration variables (i.e., same or different sex between the participant and the target/provocateur) had no impact upon the displaced aggression exhibited by the participant ($Q_b = .06$ and $Q_b = .004$, respectively; $p > .80$). As indicated, however, there are very few instances in which the sex of the two actors differed (i.e., $n = 3$ for sex differences between the participant and the target and $n = 5$ for sex of the participant and the provocateur).

Discussion

Our primary objectives were to assess whether displaced aggression is a reliable phenomenon and to examine factors that might moderate its magnitude. The obtained mean effect size of $+0.54$ (with a 95% confidence interval that very clearly does not include zero) shows that those who are provoked and unable to retaliate reliably respond more aggressively toward an innocent other than those not previously provoked. The obtained fail-safe n very strongly erodes concern about the validity of this result as a function of the absence of unpublished studies. As stated earlier, the fail-safe n estimates the number of studies with null results that must exist in order for our obtained result (the mean effect size) to be rendered nonsignificant. Because its value exceeded 4,000, it allays concern regarding our decision to constrain the analysis to published studies. Moreover, when the mean effect size of published and unpublished studies has been empirically compared, outcomes typically do not differ (Rosenthal, 1991). For instance, Rosenthal states

There is certainly no clear difference between mean effect sizes obtained from journals compared to unpublished materials. The mean difference favors one by .08 units; the median difference favors the other by .05 units. The results of this analysis very strongly suggest that the burden of proof now rests on those who claim that unpublished . . . studies are biased in their results relative to published studies. (p. 40)

In sum, then, when taken together, the evidence suggests that displaced aggression is indeed a reliable effect and that contemporary social psychology needs to reconsider its neglect or rejection of the concept.

Moderators of Displaced Aggression

Although our examination of moderator variables did not fully account for the obtained variability among the effect sizes, it provided a beginning to a better understanding of circumstances in which displaced aggression is more or less likely to occur. Our analyses showed that greater initial provocation intensity is associated with less displaced aggression. This result holds whether the provocation is from a tangible human source or from the situation. That is, similar contrast effects were obtained in analyses that comparatively examined human versus situational (nonhuman) sources of provocation. This effect meta-analytically confirms Berkowitz and Knurek's (1969) notion of judgmental contrast, suggesting that the stronger a prior negative experience the more likely a neutral target of displaced aggression will be seen as a nice

¹⁵ Irritants such as cold water, hot and humid room temperature, crowding, etc. were eliminated from this analysis.

person. In turn, such favorable perception is likely to reduce aggression.

At the same time, however, our theoretical analysis (Miller & Marcus-Newhall, 1997) argues that this effect will be reversed when the displaced aggression target emits a triggering action. Under this latter circumstance, a stronger initial provocation is likely to yield stronger displaced aggression, again irrespective of whether it stems from a human or situational source.

The obtained effects for negativity of the situation are in accord with this latter expectation. Elsewhere (Miller & Marcus-Newhall, 1997), we discussed the theoretical importance of minor triggering acts of provocation on the part of the target of displaced aggression that function to justify aggressive responding. They can serve to override features of the situation or target that ordinarily inhibit aggressive action. For instance, target attributes, such as high status, might ordinarily function to inhibit the display of displaced aggression. When these same targets provide even minor triggering actions that can be used to justify augmented retaliation, the inhibiting effect of status may no longer effectively function as an inhibitor. Unfortunately, because only a few studies of displaced aggression included any triggering action on the part of the displaced aggression target (e.g., Baron & Bell, 1975; Carver & Glass, 1978; Geen & Berkowitz, 1967; Worchel, 1966), no direct examination of the effect of this factor was possible. (As indicated in Footnote 1, the instances of triggered displaced aggression from these studies were excluded from the meta-analysis. And because of the small sample size, we did not attempt to analyze the comparative effects of displaced and triggered displaced aggression.)

Therefore, we expected interactions between the participant and the target of displaced aggression that occurred in more negative settings to function much like triggering events. They are likely to prime negative thoughts and reactions, and thereby increase displaced aggression (Berkowitz, 1993a). When the other three continuous moderators that were based on judges' ratings were controlled, the more negative the interaction setting, the greater the displaced aggression. Thus, this result is consistent with our conceptual analysis of triggered displaced aggression (Miller & Marcus-Newhall, 1997) and can be interpreted as a cognitive priming effect.

In accord with this view, other research on aggression shows that provocation elicits a stronger retaliatory aggressive response when situational cues associated with either violence (e.g., Berkowitz & LePage, 1967) or unpleasantness (e.g., Berkowitz & Frodi, 1979) are present. Such cues undermine the cognitively based inhibitory restraints that ordinarily reduce aggression (Berkowitz, 1982, 1983). Moreover, meta-analysis shows that the situational presence of aggressive cues not only augments aggressive responses in provoked participants, but also in nonprovoked participants, although to a lesser degree (Carlson, Marcus-Newhall, & Miller, 1990). Thus, a negative interaction setting can serve as a cognitive cue that facilitates the expression of aggression. The important point here, however, is that this feature of the setting interacted with prior provocation to produce higher levels of displaced aggression. In addition, other cognitive cues that are associated with negative affect can be expected to exacerbate the effect of a negative interaction setting and further increase the likelihood of displaced aggression. For example, if the target of displaced aggression was an out-group member or a disliked other, the cueing properties inherent in these targets should have the

same basic function as do other situational aggression cues and thereby increase aggressive responding (Carlson et al., 1990).

Affective processes also may contribute to the effect of negative interactions, producing greater levels of displaced aggression. Those in negative mood states perceive events as more negative overall, whereas those in positive moods see the world through "rose-colored glasses" (e.g., Isen, 1984, 1987; Isen & Shalke, 1982; Isen, Shalke, Clark, & Karp, 1978). Negative affects, such as anger, have a priming function that directs attention toward negatively valenced stimuli (Higgins & King, 1981). Those who have been provoked and are unable to retaliate will tend to interpret negative interactions even more negatively. This augmenting process will in turn lead them to be more likely to displace their aggression against new targets of aggression, regardless of whether those new targets have emitted behavior ordinarily seen as deserving of aggressive retaliation.

With respect to the two similarity moderators, we obtained mixed results. Consistent with Miller's (1948) extrapolation from the principle of stimulus generalization and our reinterpretation of its implication within the context of paradigms that uniformly reduce the salience of avoidance cues, the more similar was the target of the participant's aggression to the instigator of provocation, the greater the displaced aggression. Miller's (1948) model predicts a curvilinear relationship between similarity and aggression when both approach and avoidance tendencies are high. However, because the paradigm for virtually all displaced aggression studies has experimentally precluded threat of retaliation (with the exception of Fitz, 1976), this result is limited to conditions in which avoidance tendencies are weak or nonsalient. Under such conditions, our prediction of a linear relationship between similarity and aggression was confirmed, buttressing Berkowitz's (1997) reanalysis of Fitz. At the same time, the experimental literature that we examined, precluded any comparative analyses of interpersonal versus intercategory similarity. For instance, on the basis of the individual/group discontinuity one might anticipate even stronger effects for differential similarity of social categorization than for differential interpersonal similarity (Schopler & Insko, 1992).

Counter to our expectation, however, the similarity between the participant and the target of the participant's aggression did not moderate the magnitude of displaced aggression. In retrospect, features of the experimental paradigms included in the meta-analysis are likely to have contributed to the absence of any moderating effect. First, the major source of variation in similarity lay in whether the target was a confederate who, like the participant, was a college student, or instead, was the experimenter. Thus, dissimilarity, which was expected to augment the magnitude of displaced aggression, was confounded with higher status, which is likely to have had the opposing effect of inhibiting the displacement of aggression. And although opposite gender configurations between participant and target could provide another source of dissimilarity, as previously indicated, variability was highly constrained by the fact that there were only a handful of such cases.

A Mechanism for Displaced Aggression in Real-World Settings

We have provided strong evidence establishing that displaced aggression is a reliable phenomenon and have identified important factors that moderate it. However, the studies comprising our

meta-analysis lack an important feature necessary for ecological generalization. Specifically, in the experimental studies included in the meta-analysis, the interval between the provocation and the opportunity for the manifestation of displaced aggression is short. Rarely, if ever, has it exceeded the 15- or 20-min duration of the affective arousal that was likely to have been produced by the initial provocation. Thus, the key explanatory ingredient for our results may be affective arousal *per se*, not a stored cognitive representation of it that can continue to exert an effect after the arousal has dissipated. If displaced aggression is to have explanatory value for aggressive actions seen in real-world settings, evidence of its occurrence with longer temporal intervals between an initial provocation and the subsequent display of displaced aggression will be needed. There is little reason to seek such evidence, however, if a viable explanatory process for it cannot be identified.

Neither Freud's (1920) discussions—centering on internally generated eros and thanatos energies and the role of the ego in reorienting (displacing) potentially dangerous id-driven actions toward alternative, safer activities—nor Dollard et al.'s (1939) translation of them into a language compatible with Hullian learning theory (Hull, 1943), satisfy the explanatory tastes of contemporary social psychology. Buss (1961) and Worchel (1960, 1966) introduced the notion of threshold as an explanatory concept, positing that the inability to respond to an initial frustration lowers the threshold for future aggression. A threshold notion, however, leaves unanswered such questions as: (a) how does one independently measure the aggression threshold and the aggressive action and thereby avoid circularity? (b) who will be the likely target of that unexpressed aggressive intent? and most important (c) what underlying process might allow such aggressive intent to persist and subsequently lower the threshold for aggressive responding?

Two promising perspectives that may help us to better understand the mechanisms of displaced aggression are ruminative processes (e.g., Martin & Tesser, 1989) and cognitive neoassociationistic concepts (Berkowitz, 1990).

Ruminative processes. A current cognitive perspective focuses on the role of ruminative thoughts (Martin & Tesser, 1989). Rumination can occur in the absence of environmental cues instigating that thought, can persist over a long period of time, and in the process, can cause expenditure of substantial cognitive energy (Martin & Tesser, 1989; Tait & Silver, 1989). It may involve both controlled and automatic processes, and consequently need not always be conscious. Even in the absence of a motivational component, environmental cues may initiate or trigger ruminative thought (Martin & Tesser, 1989).

Experimental studies have consistently shown that, relative to conditions of distraction, individuals who were already depressed and then asked to ruminate about their current mood experience an exacerbation of their depressive mood (e.g., Fennell & Teasdale, 1984; Gibbons et al., 1985; Lyubomirsky & Nolen-Hoeksema, 1993, 1994; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema & Morrow, 1991). In addition, relevant to the current theorizing on displaced aggression, Rusting and Nolen-Hoeksema (1998, Experiments 1 and 3) have shown that a manipulation of rumination increased anger.

As a potential explanation of the effects of rumination on the negative moods of both anger and depression, Rusting and Nolen-Hoeksema (1998) turn to spreading activation or associative network theories of mood (Bower, 1981, 1991; Clark & Isen, 1981;

Ingram, 1984; Lang, 1984; Teasdale, 1983). Such theories conceptualize emotions as central nodes that are linked to memories and sensations associated with that particular emotion. When an individual experiences an emotion, activation spreads through the associated network which in turn prolongs that emotional experience. Rusting and Nolen-Hoeksema (1998) hypothesize that "rumination or self-focus on the negative emotion should enhance this spreading activation and therefore exacerbate the emotion" (p. 791). As such, negative moods can activate a network of negative memories which, in turn, make these negative memories more accessible. Being accessible, they can then influence cognitive, affective, and behavioral processes.

Starting with the assumption that actions and thoughts are goal-directed, the blocking of an important goal signals the onset of motivationally driven ruminative activity which ceases only when people accomplish the goal or disengage themselves from it (Martin & Tesser, 1989). Thus, rumination is linked to the Zeigarnik effect (1927/1938)—that people remember uncompleted tasks better than those that have been completed—and can be viewed as an example of incompleteness theory (Gold & Wegner, 1995). Because the achievement of a person's original intention has been obstructed, thoughts and emotions are aimed towards the completion of the task. In consonance with this expectation, the frustration-aggression hypothesis (Dollard et al., 1939) views the blocking of a goal-related behavior as a frustration that in turn orients one towards an aggressive reaction that unblocks achievement of the goal. In addition, traumatic or unpleasant events, an abrupt invalidation of basic beliefs that a person holds about themselves or the world, or a threat to the self-concept also may be particularly important sources of ruminative thought (Rime, Philpott, Boca, & Mesquita, 1992).

Thus, the concept of ruminative thought is not contradictory with the prior theorizing of Dollard et al. (1939) or Worchel (1966). Rather, it provides a process or mechanism by which a sensitization or lowered threshold effect might occur. Consider, for example, Gold and Wegner's (1995) premise that "thought suppression" actually makes those thoughts more accessible. If so, when a person is provoked and tries to push the thought out of attention, anger-related thoughts and emotions will become even more available. In turn, their heightened accessibility may lower the threshold for future aggressive behavior in response to a subsequent provocation that is of trivial intensity. Our meta-analytic results, showing that a negative interaction setting increased the likelihood of displaced aggression, are consistent with this interpretation. Similarly, our meta-analytic finding that displaced aggression is augmented by similarity between provocateur and target of displaced aggression also may accord well with a ruminative explanation. When ruminating about the initial provocation, cues signaling similarity between a target and the initial provocateur may simultaneously make that target appear more negative and deserving of aggression.

These ideas, along with outcomes such as those found for these moderator variables, also fit with our theoretical emphasis on the potential importance of minor provoking actions on the part of a potential target for displaced aggression that function as triggers for the expression of ruminative aggression (Miller & Marcus-Newhall, 1997). They suggest that ongoing aggressive ruminative thought will prime attention to the occurrence of such triggering actions and will function to augment the degree to which they are seen as hostile and intentional. Consequently, trivially minor acts

that provoke or frustrate a previously provoked actor can produce intensities of aggressive response that seem unrelated to, incommensurate with, or unjustified by the nature of the social interaction that preceded their occurrence.

Cognitive neoassociationistic perspective. When Berkowitz (1989, 1990, 1993a, 1993b) presented his cognitive neoassociationistic model, he did not directly discuss displaced aggression and therefore the issue of temporal gap between initial provocation and displaced aggression is not considered. However, the model is primarily cognitive, allowing for the inclusion of temporal gaps during which ruminative processes may occur. Berkowitz argues that aversive events generate a negatively charged emotional reaction accompanied by associated thoughts, memories, feelings, motor responses, and physiological reactions. This negative affect produces: (a) aggression-related tendencies (fight responses) and the experience of "rudimentary" anger and (b) escape-related tendencies (flight responses) and the expression of "rudimentary" fear. Additional thought, in the form of higher order and further associative processing, differentiates anger and fear into more specific emotions such as irritation, annoyance, or anger by suppressing some feelings and enhancing others. Thus, emotions are part of an associative network whereby each emotion is connected to other feelings, thoughts, memories, and behaviors. The activation of any one component activates the others.

This analysis obviously parallels much of our previous discussion of ruminative processes. In the context of displaced aggression, initial provocation induces negative affect which, in turn, activates associated thoughts, memories, physiological reactions, and motor responses. Because of situational constraints, such as fear of punishment or unavailability of the provocateur, direct retaliation is not possible. The associated network remains activated in a fashion similar to the postulated underlying processes in rumination. If so, this may help us to understand the process by which a sensitization or lowered threshold effect might lead to the displacement of aggression.

Excitation Transfer and Displaced Aggression

A final issue to consider is the relation between displaced aggression and excitation transfer. It is important to note that our theoretical analysis of triggered displaced aggression appears to share some conceptual similarities with Zillman's (1971, 1979) excitation transfer theory. In Zillman's typical paradigm, a manipulation of the presence or absence of an initial provocation is followed by a subsequent manipulation of arousal such as noise (e.g., Donnerstein & Wilson, 1976; Konecni, 1975), an erotic film (e.g., Cantor, Zillman, & Einsiedel, 1978; Donnerstein, Donnerstein, & Evans, 1975; Zillman, 1971), or physical exercise (e.g., Zillman, Katcher, & Milavsky, 1972). In general, Zillman's results show that the nonprovoking subsequent arousal only increases aggression when it is preceded by an initial provocation, although there are exceptions in which arousal-induced increases in aggression are seen in the absence of prior provocation (e.g., Jaffe, Malamuth, Feingold, & Feshbach, 1974).

A major difference between studies of displaced aggression and research on excitation transfer theory, however, is that Zillman investigates direct retaliatory aggression toward the initial provocateur. He does not examine displaced aggression. Nevertheless, although the targets for the excitation transfer and the displaced aggression paradigms differ, an affective carry-over process may

underlie both. That is, in accord with the effects of excitation transfer, if noise or exercise is replaced by a strong triggering provocation from a second person, subsequent opportunity to retaliate against the initial provocateur might well result in amplified aggressive responding, in accord with Zillman's model. Thus, although Zillman investigated direct retaliatory aggression, the key theoretical process in excitation transfer research of the carry-over of Time 2 arousal may well parallel the underlying process that accounts for the results in existing studies of displaced aggression. As we have argued, however, such affective carry-over processes will only be relevant to situations in which the temporal gap between initial provocation and opportunity for displaced aggression does not exceed the 15- or 20-min interval that characterizes the existing literature. Therefore, if displaced aggression is shown to occur in circumstances in which there are longer intervals, there can be no sharing of the underlying affective carry-over process invoked by excitation transfer theory.

Lastly, in excitation transfer research, the Time 2 provocation typically is of moderate to strong intensity. By contrast, we have argued that minor as opposed to strong Time 2 triggering provocations are more likely to produce an interactive effect in which the level of displaced aggression exceeds that expected from the additive effects of the initial and triggering provocations. On the basis of existing empirical results, however, it appears unlikely that such low levels of Time 2 arousal will have any effect in the excitation transfer paradigm.

Conclusion

Our results show that displaced aggression is indeed alive and well. They call attention to the appropriateness of resurrecting the concept in the chapters of our textbooks that are concerned with aggression. Our confirmation of the moderating effects of provocation intensity, negative situational features, and similarity between provocateur and target is also important. It sets the stage for experimental research that will establish their causal roles. Perhaps most important, however, is that our evidence provides an explanation for real-world events in which benign persons undeservedly receive aggressive attacks for no apparent reason.

References

- References marked with an asterisk indicate studies included in the meta-analysis.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Bandura, A. (1971). Social learning theory of aggression. In J. F. Knutson (Ed.), *Control of aggression: Implications from basic research*. Chicago, IL: Aldine-Atherton.
- Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Baron, R. A. (1971). Magnitude of victim's pain cues and level of prior anger arousal as determinants of adult aggressive behavior. *Journal of Personality and Social Psychology*, 17, 236-243.
- * Baron, R. A. (1972). Aggression as a function of ambient temperature and prior anger arousal. *Journal of Personality and Social Psychology*, 21, 183-189.
- * Baron, R. A., & Bell, P. A. (1975). Aggression and heat: Mediating effects of prior provocation and exposure to an aggressive model. *Journal of Personality and Social Psychology*, 31, 825-832.
- * Baron, R. A., & Bell, P. A. (1976). Aggression and heat: The influence

- of ambient temperature, negative affect, and a cooling drink on physical aggression. *Journal of Personality and Social Psychology*, 33, 245–255.
- Baron, R. A., & Richardson, D. R. (1994). *Human aggression* (2nd ed.). New York: Plenum Press.
- * Baum, A., & Greenberg, C. I. (1975). Waiting for a crowd: The behavioral and perceptual effects of anticipated crowding. *Journal of Personality and Social Psychology*, 32, 671–679.
- * Bell, P. A., & Baron, R. A. (1976). Aggression and heat: The mediating role of negative affect. *Journal of Applied Social Psychology*, 1, 18–30.
- * Bell, P. A., & Baron, R. A. (1977). Aggression and ambient temperature: The facilitating and inhibiting effects of hot and cold environments. *Bulletin of the Psychonomic Society*, 9, 443–445.
- Berkowitz, L. (1962). *Aggression: A social psychological analysis*. New York: McGraw-Hill.
- * Berkowitz, L. (1965). Some aspects of observed aggression. *Journal of Personality and Social Psychology*, 2, 359–369.
- * Berkowitz, L. (1981). On the difference between internal and external reactions to legitimate frustrations: A demonstration. *Aggressive Behavior*, 7, 83–96.
- Berkowitz, L. (1982). Aversive conditions as stimuli to aggression. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 15). Orlando, FL: Academic Press.
- Berkowitz, L. (1983). The experience of anger as a parallel process in the display of impulsive, “angry” aggression. In R. Geen & E. Donnerstein (Eds.), *Aggression: Theoretical and empirical reviews* (Vol. 1). New York: Academic Press.
- Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin*, 106, 59–73.
- Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassociationistic analysis. *American Psychologist*, 45, 494–503.
- Berkowitz, L. (1993a). *Aggression: Its causes, consequences, and control*. New York: McGraw-Hill.
- Berkowitz, L. (1993b). Perspectives on anger and emotion. In R. S. Wyer & T. K. Srull (Eds.), *Advances in social cognition* (Vol. 6, pp. 1–45). Hillsdale, NJ: Erlbaum.
- Berkowitz, L. (1997). Some thoughts extending Bargh’s argument. In R. S. Wyer (Ed.), *Advances in social cognition* (Vol. 10, pp. 83–94). Mahwah, NJ: Erlbaum.
- * Berkowitz, L., Cochran, S. T., & Embree, M. C. (1981). Physical pain and the goal of aversively stimulated aggression. *Journal of Personality and Social Psychology*, 40, 687–700.
- * Berkowitz, L., & Embree, M. C. (1987). The effect of escape possibility on aversively stimulated aggression. *Journal of Research in Personality*, 21, 405–416.
- * Berkowitz, L., & Frodi, A. (1979). Reactions to a child’s mistakes as affected by her/his looks and speech. *Social Psychology Quarterly*, 42, 420–425.
- * Berkowitz, L., & Green, J. A. (1962). The stimulus qualities of the scapegoat. *Journal of Abnormal and Social Psychology*, 64, 293–301.
- * Berkowitz, L., & Knurek, D. A. (1969). Label-mediated hostility generalization. *Journal of Personality and Social Psychology*, 13, 200–206.
- Berkowitz, L., & LePage, A. (1967). Weapons as aggression-eliciting stimuli. *Journal of Personality and Social Psychology*, 7, 202–207.
- * Berkowitz, L., & Thome, P. R. (1987). Pain expectation, negative affect, and angry aggression. *Motivation and Emotion*, 11, 183–193.
- Bettencourt, B. A., & Miller, N. (1996). Gender differences in aggression as a function of provocation: A meta-analysis. *Psychological Bulletin*, 119, 422–447.
- Bower, G. H. (1981). Mood and memory. *American Psychologist*, 36, 129–148.
- Bower, G. H. (1991). Mood congruity of social judgments. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 31–53). Oxford, England: Pergamon Press.
- Bowers, T. G., & Clum, G. A. (1988). Relative contribution of specific and nonspecific treatment effects: Meta-analysis of placebo-controlled behavior therapy research. *Psychological Bulletin*, 103, 315–323.
- * Burnstein, E., & Worchel, P. (1962). Arbitrariness of frustration and its consequences for aggression in a social situation. *Journal of Personality*, 45, 528–540.
- Buss, A. H. (1961). *The psychology of aggression*. New York: Wiley.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Byrne, D., Clore, G. L., & Smeaton, G. (1986). The attraction hypothesis: Do similar attitudes affect anything? *Journal of Personality and Social Psychology*, 51, 1167–1170.
- Campbell, D. T. (1956). Enhancement of contrast as composite habit. *Journal of Applied Social Psychology*, 53, 350–355.
- Cantor, J. R., Zillman, D., & Einsiedel, E. F. (1978). Female responses to provocation after exposure to aggressive and erotic films. *Communication Research*, 5, 395–411.
- * Caprara, G. V. (1982). A comparison of the frustration-aggression and emotional susceptibility hypotheses. *Aggressive Behavior*, 8, 234–236.
- * Caprara, G. V., Renzi, P., Alcini, P., D’Imperio, G., & Travaglia, G. (1983). Instigation to aggress and escalation of aggression examined from a personological perspective: The role of irritability and of emotional susceptibility. *Aggressive Behavior*, 9, 345–351.
- * Caprara, G. V., Renzi, P., Amolini, P., D’Imperio, G., & Travaglia, G. (1984). The eliciting cue value of aggressive slides reconsidered in a personological perspective: The weapons effect and irritability. *European Journal of Social Psychology*, 14, 313–322.
- Carlson, M. (1988). *Toward understanding the relationship between unpleasant stimulation and aggressive behavior in humans*. Unpublished doctoral dissertation, University of Southern California, Los Angeles.
- Carlson, M., Charlin, V., & Miller, N. (1988). Positive mood and helping behavior: A test of six hypotheses. *Journal of Personality and Social Psychology*, 55, 211–229.
- Carlson, M., Marcus-Newhall, A., & Miller, N. (1989). Evidence for a general construct of aggression. *Personality and Social Psychology Bulletin*, 15, 377–389.
- Carlson, M., Marcus-Newhall, A., & Miller, N. (1990). Effects of situational aggression cues: A quantitative review. *Journal of Personality and Social Psychology*, 58, 622–633.
- Carlson, M., & Miller, N. (1987). Explanation of the relation between negative mood and helping. *Psychological Bulletin*, 102, 91–108.
- Carlson, M., & Miller, N. (1988). The differential effects of social and nonsocial negative events on aggressiveness. *Sociology and Social Research*, 72, 155–158.
- * Carver, C. S., & Glass, D. C. (1978). Coronary-prone behavior pattern and interpersonal aggression. *Journal of Personality and Social Psychology*, 36, 361–366.
- Cialdini, R. B., & Fultz, J. (1990). Interpreting the negative mood-helping literature via “mega”-analysis: A contrary view. *Psychological Bulletin*, 107, 210–214.
- Clark, M. S., & Isen, A. M. (1981). Towards understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive Social Psychology* (pp. 73–108). New York: Elsevier North-Holland.
- Cohen, J. (1988). *Statistical power analyses for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Cooper, H. M. (1989). *Integrating research: A guide for literature reviews*. Newbury Park, CA: Sage.
- * Cowen, E. L., Landes, J., & Schaet, D. E. (1959). The effects of mild frustration on the expression of prejudiced attitudes. *Journal of Abnormal and Social Psychology*, 58, 33–38.
- Curran, W., & Johnston, A. (1996). Three-dimensional curvature contrast: Geometric or brightness illusion? *Vision Research*, 36, 3641–3653.
- Davis, M. H., & Stephan, W. G. (1980). Attributions for exam performance. *Journal of Applied Social Psychology*, 10, 235–248.
- Deaux, K. (1996). Social identification. In A. W. Kruglanski & E. T.

- Higgins (Eds.), *Social psychology: Handbook of basic principles* (pp. 777–798). New York: Guilford Press.
- DeCarlo, L. T. (1994). A dynamic theory of proportional judgment: Context and judgment of length, heaviness, and roughness. *Journal of Experimental Psychology: Human Perception & Performance*, *20*, 372–381.
- Doise, W., Deschamps, J. C., & Meyer, G. (1978). The accentuation of intracategory similarities. In H. Tajfel (Ed.), *Differential between social groups*. New York: Academic Press.
- Dollard, J. (1938). Hostility and fear in social life. *Social Forces*, *17*, 15–25.
- Dollard, J., Doob, L. W., Miller, N. E., Mowrer, O. H., & Sears, R. R. (1939). *Frustration and aggression*. New Haven, CT: Yale University Press.
- Donnerstein, E., Donnerstein, M., & Evans, R. (1975). Erotic stimuli and aggression: Facilitation or inhibition. *Journal of Personality and Social Psychology*, *32*, 237–244.
- * Donnerstein, E., & Wilson, D. W. (1976). Effects of noise and perceived control on ongoing and subsequent aggressive behavior. *Journal of Personality and Social Psychology*, *34*, 774–781.
- Eagly, A. H., & Carli, L. L. (1981). Sex of researchers and sex-typed communications as determinants of sex differences in influenceability: A meta-analysis of social influence studies. *Psychological Bulletin*, *90*, 1–20.
- Eagly, A. H., & Crowley, M. (1986). Gender and helping behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, *100*, 283–308.
- Eagly, A. H., & Steffen, V. J. (1986). Gender and aggressive behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, *100*, 309–330.
- Ensari, N., & Miller, N. (1998). Effect of affective reactions by an out-group on preferences for crossed categorization discussion partners. *Journal of Personality and Social Psychology*, *75*, 1503–1527.
- * Epstein, R. (1965). Authoritarianism, displaced aggression, and social status of the target. *Journal of Personality and Social Psychology*, *2*, 585–589.
- Epstein, S., & Taylor, S. P. (1967). Instigation to aggression as a function of degree of defeat and perceived aggressive intent of the opponent. *Journal of Personality*, *35*, 265–289.
- * Feningstein, A., & Buss, A. H. (1974). Association and affect as determinants of displaced aggression. *Journal of Research in Personality*, *7*, 306–313.
- Fennell, M. J. V., & Teasdale, J. D. (1984). Effects of distraction on thinking and affect in depressed patients. *British Journal of Clinical Psychology*, *23*, 65–66.
- Ferguson, T. J., & Rule, B. G. (1983). An attributional perspective on anger and aggression. In R. G. Geen and E. Donnerstein (Eds.), *Aggression: Theoretical and empirical review, Vol. 1: Theoretical and methodological issues*. New York: Academic Press.
- * Fischer, D. G., Kelm, H., & Rose, A. (1969). Knives as aggression-eliciting stimuli. *Psychological Reports*, *24*, 755–760.
- * Fitz, D. (1976). A renewed look at Miller's conflict theory of aggression displacement. *Journal of Personality and Social Psychology*, *6*, 725–732.
- Freud, S. (1920). *A general introduction to psychoanalysis*. New York: Boni & Livewright.
- * Geen, R. (1968). Effects of frustration, attack, and prior training in aggressiveness upon aggressive behavior. *Journal of Personality and Social Psychology*, *9*, 316–321.
- * Geen, R. (1978). Effects of attack and uncontrollable noise on aggression. *Journal of Research in Personality*, *12*, 15–29.
- Geen, R. (1990). *Human aggression*. Pacific Grove, CA: Brooks/Cole.
- * Geen, R., & Berkowitz, L. (1967). Some conditions facilitating the occurrence of aggression after the observation of violence. *Journal of Personality*, *35*, 666–676.
- Gibbons, F. X., Smith, T. W., Ingram, R. E., Pearce, K., Brehm, S. S., & Schroeder, D. (1985). Self-awareness and self-confrontation: Effects of self-focused attention on members of a clinical population. *Journal of Personality and Social Psychology*, *48*, 662–675.
- Gold, D. B., & Wegner, D. M. (1995). Origins of ruminative thought: Trauma, incompleteness, nondisclosure, and suppression. *Journal of Applied Social Psychology*, *25*, 1245–1261.
- * Goldstein, J. H., & Arms, R. L. (1971). Effects of observing athletic contests on hostility. *Sociometry*, *34*, 83–90.
- * Griffitt, W. (1970). Environmental effects on interpersonal affective behavior: Ambient effective temperature and attraction. *Journal of Personality and Social Psychology*, *15*, 240–244.
- * Griffitt, W., & Veitch, R. (1971). Hot and crowded: Influences of population density and temperature on interpersonal affective behavior. *Journal of Personality and Social Psychology*, *17*, 92–98.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. San Diego, CA: Academic Press.
- Helson, H. (1964). *Adaption-level theory*. New York: Harper & Row.
- * Hewitt, L. S. (1975). Attack, inhibition and target of aggression. *European Journal of Social Psychology*, *5*, 35–47.
- Higgins, E. T., & King, G. (1981). Accessibility of social constructs: Information-processing consequences of individual and contextual variability. In N. Cantor & J. F. Kihlstrom (Eds.), *Personality, cognition, and social interaction* (pp. 69–121). Hillsdale, NJ: Erlbaum.
- * Hokanson, J. E., Burgess, M., & Cohen, M. F. (1963). Effects of displaced aggression on systolic blood pressure. *Journal of Abnormal and Social Psychology*, *67*, 214–218.
- Hull, C. L. (1943). *Principles of behavior*. New York: Appleton-Century-Crofts.
- Hull, J. G., & Bond, C. F. (1986). Social and behavioral consequences of alcohol consumption and expectancy: A meta-analysis. *Psychological Bulletin*, *99*, 347–360.
- Ingram, R. E. (1984). Toward an information-processing analysis of depression. *Cognitive Therapy and Research*, *8*, 443–478.
- Isen, A. M. (1984). Toward understanding the role of affect in cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (pp. 179–236). Hillsdale, NJ: Erlbaum.
- Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203–253). New York: Academic Press.
- Isen, A. M., & Shalke, T. E. (1982). The influence of mood state on evaluation of positive, neutral, and negative stimuli: When you "accentuate the positive," do you "eliminate the negative"? *Social Psychology Quarterly*, *45*, 58–63.
- Isen, A. M., Shalke, T. E., Clark, M., & Karp, L. (1978). Affect, accessibility of material in memory and behavior: A cognitive loop? *Journal of Personality and Social Psychology*, *36*, 1–12.
- Ito, T. A., Miller, N., & Pollock, V. E. (1996). Alcohol and aggression: A meta-analysis on the moderating effects of inhibitory cues, triggering events, and self-focused attention. *Psychological Bulletin*, *120*, 60–82.
- Jaffe, Y., Malamuth, N., Feingold, J., & Feshbach, S. (1974). Sexual arousal and behavioral aggression. *Journal of Personality and Social Psychology*, *30*, 759–764.
- Johnson, B. T. (1990). *DSTAT: Software for the meta-analytic review of research literatures*. Hillsdale, NJ: Erlbaum.
- Johnson, B. T., & Eagly, A. H. (1989). Effects of involvement on persuasion: A meta-analysis. *Psychological Bulletin*, *106*, 290–314.
- * Jones, J. W., & Bogat, G. A. (1978). Air pollution and human aggression. *Psychological Reports*, *43*, 721–722.
- Judd, C. M., & Park, B. (1988). Out-group homogeneity: Judgments of variability at the individual and group levels. *Journal of Personality and Social Psychology*, *54*, 778–788.
- Kellaris, J. J., Dahlstrom, R. F., & Boyle, B. A. (1996). Contextual bias in ethical judgment of marketing practices. *Psychology & Marketing*, *13*, 677–694.

- Konecni, V. J. (1975). The mediation of aggressive behavior: Arousal level versus anger and cognitive labeling. *Journal of Personality and Social Psychology, 32*, 706-712.
- * Konecni, V. J., & Doob, A. N. (1972). Catharsis through displacement of aggression. *Journal of Personality and Social Psychology, 23*, 379-387.
- Lang, P. J. (1984). Cognition in emotion: Concept and action. In C. Izard, J. Kagan, & R. B. Zajonc (Eds.), *Emotions, cognitions, and behavior* (pp. 192-226). New York: Cambridge University Press.
- Larwood, L. (1978). Swine flu: A field study of self-serving biases. *Journal of Applied Social Psychology, 8*, 283-289.
- Lawless, H. T. (1991). A sequential contrast effect in odor perception. *Bulletin of the Psychonomic Society, 29*, 317-319.
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology, 65*, 339-349.
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1994). Effects of self-focused rumination on negative thinking and interpersonal problem-solving. *Journal of Personality and Social Psychology, 69*, 176-190.
- Madigan, N. K., Ehrlichman, H., & Borod, J. C. (1994). Hedonic ratings of odors as a function of odor sequence in older adults. *Perceptual & Motor Skills, 79*, 27-32.
- Marcus-Newhall, A., Miller, N., Holtz, R., & Brewer, M. B. (1993). Cross-cutting category membership with role assignment: A means of reducing intergroup bias. *British Journal of Social Psychology, 32*, 125-146.
- Martin, L. L., & Tesser, A. (1989). Toward a motivational and structural theory of ruminative thought. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 306-326). New York: Guilford Press.
- * Matthews, R. W., Paulus, P. B., & Baron, R. A. (1979). Physical aggression after being crowded. *Journal of Nonverbal Behavior, 4*, 5-17.
- Melburg, V. M., & Tedeschi, J. T. (1989). Displaced aggression: Frustration or impression management. *European Journal of Social Psychology, 19*, 139-145.
- Miller, A. G. (1972). Role playing: An alternative to deception? A review of the evidence. *American Psychologist, 27*, 623-636.
- Miller, N. E. (1941). The frustration-aggression hypothesis. *Psychological Review, 48*, 337-342.
- Miller, N. E. (1948). Theory and experiment relating psychoanalytic displacement to stimulus-response generalization. *Journal of Abnormal and Social Psychology, 43*, 155-178.
- * Miller, N. E., & Bugelski, R. (1948). Minor studies in aggression: II. The influence of frustrations imposed by the in-group on attitudes expressed toward out-groups. *The Journal of Psychology, 25*, 437-442.
- Miller, N., & Carlson, M. (1990). Valid theory-testing meta-analyses further question the negative state relief model of helping. *Psychological Bulletin, 107*, 215-225.
- Miller, N., Lee, J. Y., & Carlson, M. (1991). The validity of inferential judgments when used in theory-testing meta-analysis. *Personality and Social Psychology Bulletin, 17*, 335-343.
- Miller, N., & Marcus-Newhall, A. (1997). A conceptual analysis of displaced aggression. In R. Ben-Ari & Y. Rich (Eds.), *Enhancing education in heterogeneous schools* (pp. 69-108). Ramat-Gan, Israel: Bar-Ilan University Press.
- Moore, S. G. (1964). Displaced aggression in young children. *Journal of Abnormal and Social Psychology, 68*, 200-204.
- Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology, 58*, 519-527.
- * Mosher, D. L., & Proenza, L. M. (1968). Intensity of attack, displacement, and verbal aggression. *Psychonomic Science, 12*, 359-360.
- Mullen, B., Atkins, J., Champion, D., Edwards, C., Hardy, D., Story, J., & Vanderklok, M. (1985). The false consensus effect: A meta-analysis of 115 hypothesis tests. *Journal of Experimental Social Psychology, 21*, 262-283.
- Mullen, B., & Hu, L. (1988). Social projection as a function of cognitive mechanisms: Two meta-analytic integrations. *British Journal of Social Psychology, 27*, 333-356.
- * Nacci, P. L., & Tedeschi, J. T. (1977). Displaced aggression: Drive reduction or equity restoration. *Human Relations, 30*, 1157-1167.
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and distress following a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology, 61*, 105-121.
- Raymond, J. E., & Isaak, M. (1998). Successive episodes produce direction contrast effects in motion perception. *Vision Research, 38*, 579-589.
- Rime, B., Philippot, P., Boca, S., & Mesquita, B. (1992). Long-lasting cognitive and social consequences of emotion: Social sharing and rumination. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 3, pp. 225-258). Chichester, England: Wiley.
- Rojahn, K., & Pettigrew, T. F. (1992). Memory for schema-relevant information: A meta-analytic resolution. *British Journal of Social Psychology, 31*, 81-109.
- Rosenbaum, M. E. (1986). The repulsion hypothesis: On the nondevelopment of relationships. *Journal of Personality and Social Psychology, 51*, 1156-1166.
- Rosenthal, R. (1979). The "file-drawer problem" and tolerance for null results. *Psychological Bulletin, 86*, 638-641.
- Rosenthal, R. (1991). *Meta-analytic procedures for social research*. Newbury Park, CA: Sage.
- Ross, M., & Sicoly, F. (1979). Egocentric biases in availability and attribution. *Journal of Personality and Social Psychology, 37*, 322-336.
- * Rotton, J., Barry, T., Frey, J., & Soler, E. (1978). Air pollution and interpersonal attraction. *Journal of Applied Social Psychology, 8*, 57-71.
- * Rule, B. G., & Hewitt, L. S. (1971). Effects of thwarting on cardiac response and physical aggression. *Journal of Personality and Social Psychology, 19*, 181-187.
- Rusting, C. L., & Nolen-Hoeksema, S. (1998). Regulating responses to anger: Effects of rumination and distraction on angry mood. *Journal of Personality and Social Psychology, 74*, 790-803.
- Schiffstein, H. N. J., & Oudejans, I. M. (1996). Determinants of cumulative successive contrast in saltiness intensity judgments. *Perception & Psychophysics, 58*, 713-724.
- Schopler, J., & Insko, C. A. (1992). The discontinuity effect in interpersonal and intergroup relations: Generality and mediation. In W. Stroebe & M. Hewstone, (Eds.), *European review of social psychology* (Vol. 3, pp. 121-152). Chichester, England: Wiley.
- Simonoff, E., Pickles, A., Hervas, A., Silberg, J. L., Rutter, M., & Eaves, L. (1998). Genetic influences on childhood hyperactivity: Contrast effects imply parental rating bias, not sibling interaction. *Psychological Medicine, 28*, 825-837.
- Smeaton, G., Byrne, D., & Murnen, S. K. (1989). The repulsion hypothesis revisited: Similarity irrelevance or dissimilarity bias? *Journal of Personality and Social Psychology, 56*, 54-59.
- Steele, C. M., & Southwick, L. (1985). Alcohol and social behavior: I. The psychology of drunken excess. *Journal of Personality and Social Psychology, 48*, 18-34.
- * Strube, M. J., Turner, C. W., Cerro, D., Stevens, J., & Hinchey, F. (1984). Interpersonal aggression and the Type A coronary-prone behavior pattern: A theoretical distinction and practical implications. *Journal of Personality and Social Psychology, 47*, 839-847.
- Sumer, H. C., & Knight, P. A. (1996). Assimilation and contrast effects in performance ratings: Effects of rating the previous performance on rating subsequent performance. *Journal of Applied Psychology, 81*, 436-442.
- Suzuki, S., & Cavanagh, P. (1998). A shape-contrast effect for briefly presented stimuli. *Journal of Experimental Psychology: Human Perception and Performance, 24*, 1315-1341.
- * Swart, C., & Berkowitz, L. (1976). Effects of a stimulus associated with a victim's pain on later aggression. *Journal of Personality and Social Psychology, 33*, 623-631.

- Tabachnik, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper & Row.
- Tait, R., & Silver, R. C. (1989). Coming to terms with major negative life events. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 351–382). New York: Guilford Press.
- * Taylor, S. P., Schmutte, G. T., & Leonard, K. E. (1977). Physical aggression as a function of alcohol and frustration. *Bulletin of the Psychonomic Society*, *9*, 217–218.
- Teasdale, J. D. (1983). Negative thinking in depression: Cause, effect, or reciprocal relationship? *Advances in Behavior Research and Therapy*, *5*, 3–25.
- Tedeschi, J. T., & Norman, N. M. (1985). A social psychological interpretation of displaced aggression. *Advances in Group Processes*, *2*, 29–56.
- Thornton, B., & Maurice, J. (1997). Physique contrast effect: Adverse impact of idealized body images for women. *Sex Roles*, *37*, 433–439.
- Thornton, B., & Moore, S. (1993). Physical attractiveness contrast effect: Implications for self-esteem and evaluations of the social self. *Personality & Social Psychology Bulletin*, *19*, 474–480.
- Turner, J. C. (1984). Social identification and psychological group formation. In H. Tajfel (Ed.), *The social dimension: European developments in social psychology* (Vol. 2, pp. 518–540). Cambridge, England: Cambridge University Press.
- Turner, J. C., Hogg, M., Oakes, P., Reicher, S., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, England: Basil Blackwell.
- Underwood, G. (1994). Subliminal perception on TV. *Nature*, *370*, 103.
- Urban, L. M., & Miller, N. (1998). A theoretical analysis of crossed categorization effects: A meta-analysis. *Journal of Personality and Social Psychology*, *74*, 894–908.
- Wachter, K. W. (1988, September 16). Disturbed by meta-analysis? *Science*, *24*, 1407–1408.
- * White, L. (1979). Erotica and aggression: The influence of sexual arousal, positive affect, and negative affect on aggressive behavior. *Journal of Personality and Social Psychology*, *37*, 591–601.
- Whitley, B. E., & Frieze, I. H. (1986). Measuring causal attributions for success and failure: A meta-analysis of the effects of question-wording style. *Basic & Applied Social Psychology*, *7*, 35–51.
- Wilcox, R. R. (1996). *Statistics for the social sciences*. San Diego: Academic Press.
- Worchel, P. (1960). Hostility: Theory and experimental investigation. In D. Willner (Ed.), *Decision, values, and groups* (Vol. 1, pp. 254–266). New York: Pergamon Press.
- * Worchel, P. (1966). Displacement and the summation of frustration. *Journal of Experimental Research in Personality*, *1*, 256–261.
- * Worchel, S., Hardy, T. W., & Hurley, R. (1976). The effects of commercial interruption of violent and nonviolent films on viewers' subsequent aggression. *Journal of Experimental Social Psychology*, *12*, 220–232.
- * Worchel, S., & Teddlie, C. (1976). The experience of crowding: A two-factor theory. *Journal of Personality and Social Psychology*, *34*, 30–40.
- Zawadzki, B. (1948). Limitations of the scapegoat theory of prejudice. *Journal of Abnormal and Social Psychology*, *43*, 127–147.
- Zeigarnik, B. (1938). On finished and unfinished tasks. In W. D. Ellis (Ed. and Trans.), *A source book of gestalt psychology*. New York: Harcourt, Brace & World. (Original work published 1927)
- Zillman, D. (1971). Excitation transfer in communication-mediated aggressive behavior. *Journal of Experimental Social Psychology*, *7*, 419–434.
- Zillman, D. (1979). *Hostility and aggression*. Hillsdale, NJ: Erlbaum.
- * Zillman, D., Baron, R. A., & Tamborini, R. (1981). Social costs of smoking: Effects of tobacco smoke on hostile behavior. *Journal of Applied Social Psychology*, *11*, 548–561.
- Zillman, D., Katcher, A. H., & Milavsky, B. (1972). Excitation transfer from physical exercise to subsequent aggressive behavior. *Journal of Experimental Social Psychology*, *8*, 247–259.

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