



Aggression in Children and Youth

Edited by

Robert M. Kaplan, Vladimir J. Konečni
and Raymond W. Novaco

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About the book

Family violence, rape, assault, armed robbery, murder, terrorism, and war are all instances of aggressive behavior. The scientific understanding and social regulation and control of such acts could make an important contribution to the improvement of the quality of human life.

Aggressive acts in children and youth, specifically, require to be understood for several reasons. Most Western cultures are witnessing an increasing involvement in violence by youths. The aggressive dispositions formed early in life may set the tone for, or contribute to, adult aggression. Finally, the quality of childhood and the formation of personality are influenced by both the expression and inhibition of aggression. The regulation and control of aggression in children and youth can have a profound effect on the institutions of the family and the educational system as well as on society at large.

In order to explore the recent theoretical, experimental, and methodological advances in the research on aggression in children and youth, NATO sponsored an Advanced Study Institute which brought together recognized experts from six countries, and was held in Maratea, Italy, in June of 1981. The chapters in this book are revised and updated versions of the lectures presented at the Institute, and in many ways represent an account of the current "state of the art" in this important area of scientific inquiry.

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PREFACE

Human aggression is a fascinating research topic, but it is of much more than academic importance. To a large extent, the quality of life and perhaps even world survival depend on an adequate understanding of human aggression. Family violence (child battering and spouse abuse), rape, assault, armed robbery, murder, terrorism, and war are all instances of various types of aggression. The ability to regulate and control such acts could have a crucial contribution to the improvement of the quality of life.

Aggressive acts in children and youth need to be understood for three major reasons. First, most Western cultures are witnessing an increasing involvement in violence by youths. Second, the aggressive dispositions formed early in life may set the tone for or contribute to adult aggression. Third, the quality of childhood and the formation of personality are influenced by both the expression and inhibition of aggression. The regulation and control of aggression in children and youth can have a profound effect on the institutions of the family and the educational system as well as on society at large. Most societies are dedicated to maintaining harmony and to providing nonviolent solutions to human problems and social conflict.

A substantial amount of knowledge has accumulated about aggression and its regulation from empirical research, theory, and clinical sources. Because of the social importance of aggression, the study of human aggression in children and youth has become a popular area for scientific research. Knowledge in the area of human aggression has grown considerably in the past decade and very recent research in both Europe and the United States has forced major changes in thought about the development and control of human aggression. Further, there have been major methodological advances which have changed our thinking about the meaning of scientific data.

In order to explore the topic of aggression in children and youth, the North Atlantic Treaty Organization (NATO) sponsored an Advanced Study Institute which brought together recognized experts from 6 countries, and was held in Maratea, Italy, between June 17 and 28, 1981. The format for the Institute included formal lectures, group and panel discussions, and informal discussions. The chapters in this book are revisions of the formal lectures presented at the Institute and reflect the fact that the contributors' ideas changed as a function of interacting with their colleagues.

In addition to the faculty of the Institute, 43 participants from 10 countries attended the meetings. Their names are listed in Appendix 1.

Many people contributed to the completion of this volume. Connie Toevs provided many forms of assistance to the Institute Director. Linda Friend, Paige Gilman, and Sherry Merryman labored at the computer terminal to complete the typing and endless correspondence. Dori Joyner also provided valuable editorial assistance. Without their efforts, the entire project would not have been possible. In addition, we would like to thank the many people who contributed to the success of the Advanced Study Institute. These include Mario DiLullo, Director of the Advanced Study Institute Program, Tilo and Barbara Kester of International Transfer of Science and Technology, and A. Guzzardi of the Villa del Mare Conference Center in Maratea.

We are most grateful to NATO for supporting the meeting. Also we very much appreciate the additional support contributed by the University of California, Irvine, Los Angeles, and Riverside campuses.

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I. METHODOLOGICAL AND THEORETICAL ISSUES

METHODOLOGICAL ISSUES IN HUMAN AGGRESSION RESEARCH

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It is generally assumed in the philosophy of science that the quality of conclusions one can legitimately draw from research largely depends on the quality of the methodology that was used. In other words, "answers" are only as sound as "questions" that led to them. In an empirical science, whether of the hypothetico-deductive or inductive variety, an extremely close relationship between theory and method is assumed to exist; with some justification, one could go as far as to claim that the methodological and theoretical aspects of research fully constrain and complement each other, sometimes blending to the point of being indistinguishable.

For the purpose of this chapter, methodological issues can be outlined as follows: (a) "Conceptual translation" of theoretical ideas dealing with the causes of the phenomenon under investigation into concrete experimental operations, designated as independent variables ("operationalization" procedures); (b) choice of subjects, research settings, and experimental design; (c) the definition and measurement of the phenomenon in question, that is, of its observable or inferable manifestations, designated as dependent variables; and (d) the various relationships between the above three sets of issues, including, for example, questions of reliability and validity.

When one thinks of methodological issues in aggression research, social psychology and its practitioners spring readily to mind. First of all, social

psychologists have undoubtedly been one of the most active groups doing aggression research, at least on humans. Furthermore, they can reasonably be claimed to have been on the cutting edge of methodological astuteness and sophistication in psychology, and unusually sensitive to intricate connections among methodology, design, statistical analysis, and theoretical conclusions. Their contributions range from experimenter-expectancy issues (Rosenthal, 1969), and complicated aspects of experimental design (Campbell & Stanley, 1963), to a major contribution by Webb, Campbell, Schwartz, and Sechrest (1966) on "nonreactive measurement", perhaps the soundest advice that social scientists have given each other for a safe passage through the analogue of the quagmires Heisenberg outlined in physics in his "uncertainty principle".

However, perhaps as a function of the otherwise very impressive diversification of social psychology, the work on aggression has not profited from the methodological advances as much as could have been expected, and one of the purposes of this chapter is to drive that point home. Another major objective is to provide a classification of independent and dependent variables used in human-aggression research.

The remainder of the chapter is organized as follows: (1) A classification of independent variables and a brief examination of the rationale for their operationalization; (2) a classification of dependent variables; and (3) a discussion of a number of past and present controversies and theoretical/experimental problems in the aggression literature which could have been avoided had the methodological issues been approached with more precision and less naivete.

Independent Variables

An attempt to classify the independent variables that have been used over the years in the research on human aggression is presented in Table 1. Criteria that governed the inclusion of variables in this table are briefly discussed first.

The table reflects an emphasis on studies which deal with the experimentally-manipulated precursors of aggressive behavior, rather than its organismic, demographic, psychodynamic, or personality-trait alleged causes. Despite these constraints, the variables included come from studies whose authors have been inspired by a relatively broad variety of theoretical ideas about aggressive behavior, including the revised frustration-aggression hypothesis (e.g., Berkowitz, 1969), social learning (e.g., Bandura, 1973), the

excitation-transfer hypothesis (e.g., Zillmann, 1971), the bidirectional-causality anger-aggression model (e.g., Konečni, 1975a), attribution-theory-inspired research on aggressive behavior (e.g., Rule, Ferguson, & Nesdale, 1978; Rule & Nesdale, 1976), and other positions.

Independent variables which satisfied the criteria for inclusion were then divided into groups (columns in Table 1) primarily on the basis of the neo-Jamesian theories of emotion and arousal (e.g., Konečni, 1975a; Mandler, 1975; Schachter, 1964; Zillmann, 1971), and the relationship between various emotional states and aggressive behavior (e.g., Konečni, 1975a; Zillmann, 1971), especially anger (Averill, 1978; Buss, 1961; Donnerstein & Wilson, 1976; Konečni, 1979a; Zillmann, 1971). In this context, the classificatory scheme also reflects the writer's bias toward: (a) an emphasis on facial and postural cues as determinants of emotional states in addition to the arousal and cognitive-labeling issues stressed by other neo-Jamesian theories; and (b) an emphasis on bi-directional causal effects between internal states (the level of arousal, the degree of an emotion, such as anger), on one hand, and the behavioral manifestations of aggression, on the other, which results in a feedback-loop model that deals with emotional states and aggressive behavior in the same unified causal sequence and pays attention to both the antecedents and consequences of aggression, and for both the (human) target of aggression and for the aggressor. [These ideas on the perception and judgment of emotion in oneself and others, on aggressive behavior, and the relationships between them have been elaborated in other papers (e.g., Konečni, 1975a, 1975b; 1978; 1979a, 1979b)].

TABLE 1

INDEPENDENT VARIABLES IN HUMAN-AGGRESSION EXPERIMENTS

I	II	III	IV
Arousal only	Arousal and emotional state other than anger	Arousal and aggression- relevant context	Arousal and Aversiveness
Complex melodies (at comfortable listening level, e.g., 70-73 dB)	Erotic stimuli (written passages; slides films, etc.)	Aggression- related stimuli (aggressive films, aggressive models, aggressive sports, aggressive car- toons, aggressive stories, weapons)	Fear-inducing stimuli (threat of shock, noise, immersion in cold water)
White noise (60-70 dB)	Humorous stimuli (car- toons, films, etc.)	Presence of an angry confederate	Melodies/ noise at loud listening levels (over 90 dB)
Mild shock	Videotaped interactions inducing mirth/disgust	Aggressive play	High ambient temperature (92-95° F)
Exciting films with neutral content	Presence of a euphoric confederate		Nonsocial frustration (goal blocking)
Physical exercise	Alcohol		Nonarbitrary severe shock
Cognitive tasks with arousal- raising potential	Marijuana		
Frustration-free competitive play			

(V through VII continues on next page)

TABLE 1 (continued)

INDEPENDENT VARIABLES IN HUMAN-AGGRESSION EXPERIMENTS

V	VI	VII
Arousal and Aversiveness and the cognitive label of anger	Consequences to the anger instigator	Facial configuration manipulations
Noise, shock, arbitrarily ad- ministered	Instigator is hurt/not hurt by the subject	Instructions to assume facial configurations indicative of an emotion (without mentioning emotional labels)
Socially-induced frustration	Instigator is hurt/not hurt by someone else	Instructions to imagine scenes varying in emo- tional content
Insults	Instigator has a positive/ negative experience	Instructions to suppress or exaggerate felt emotion (pain, mirth, disgust)
	Instigator is exposed to the subject's verbal aggression	Instructions to mimic videotaped emotional expressions
	The subject en- gages in aggres- sive fantasy or aggression against a substitute target	

The classificatory scheme is meant to summarize some of these considerations and not represent a complete and exhaustive list of every independent variable that fits the criteria.

In the first column of Table 1 is a list of variables whose effects have been shown (or may be expected) to be limited to increases in the level of physiological arousal (marked changes in systolic and diastolic blood pressure, heart rate, respiration rate, and so on, and recorded by the customary psychophysiological procedures), without having other relevant effects. The point here is that although a perceptible change in the subject's physiological system occurs (detectable by measurement devices and, in some cases, perceivable by observers or the subjects themselves), these changes are not of the type or magnitude (or both) that would lead the subjects (a) to regard the situation and/or the resultant internal state as aversive, and (b) to be able to report (if queried) a clear unambiguous emotional label (such as anger or fear) for the resultant state.

For example, complex computer-generated melodies (9.17 bits per tone) used by Konečni, Crozier, and Doob (1975) have been found to raise the level of physiological arousal, but do not result in any reportable emotional state. Nor are they found by the subjects to be aversive: The subjects do not verbally label them as aversive; they do not learn melody-terminating (escape) responses when given a chance; and the melodies are listened to, in a free-choice situation, as much as the less arousing, simple melodies (4.00 bits per tone). Similar statements can be made about the effects of hammering nails, squeezing a wrist-strengthener, pounding a lever arm with a mallet, or riding an exercise bicycle for a few minutes (e.g., Holmes, 1966; Hornberger, 1959; Konečni & Wood, 1982; Ryan, 1970; Zillmann, Katcher, & Milavski, 1972), about 60 dB white noise (Donnerstein & Wilson, 1976), and about exciting films with neutral content (track competition events) used in some of the studies by Berkowitz and Geen (e.g., Berkowitz & Geen, 1966). Very mild electric shock, cognitive tasks with arousal-raising potential, and frustration-free competitive play (no prizes, declared winners, etc.) can reasonably be expected to have similar effects (e.g., Konečni & Day, 1977; Konečni & Sargent-Pollock, 1976).

Experimental variables which have been shown, or may be expected, to induce not only an increase in the level of physiological arousal, but also an unambiguous, reportable, emotional state--other than anger--are listed in the second column of Table 1. These

variables include erotic stimuli, which result in high arousal and sexual excitation (e.g., Baron & Bell, 1977; Donnerstein, Donnerstein, & Evans, 1975; Malamuth, Feshbach, & Jaffe, 1977; Zillmann, 1971) and humorous stimuli, which lead to raised arousal and feelings of mirth and amusement (e.g., Baron, 1978; Leak, 1974; Mueller & Donnerstein, 1977). It would seem that analogous effects may result from the subject's exposure to the emotional behavior of another person, such as a (live) euphoric confederate (Schachter, 1964) or the high-activity, emotional (positive and negative), videotaped interactions between a mother and her child (used by Konečni and Franco, 1974; in different, skillfully-acted sequences, the mother plays joyfully with, or severely physically punishes, her 6-year-old child).

The subject's consumption of alcohol and marijuana (e.g., Lang, Goeckner, Adesso, & Marlatt, 1975; Mariaskin, Lupper, & D'Encarnacao, 1976; Shuntich & Taylor, 1972; Taylor & Gammon, 1975; Taylor, Vardaris, Rawtich, Gammon, Cranston, & Lubetkin, 1976) has also been classified in Column II, but tentatively. The precise effects of these drugs on arousal are still somewhat unclear, and whether the euphoria and other mood changes that they produce are genuine emotions is open to debate. Possible alternative candidates are Columns I and IV; the latter is the poorer of the two, because the dosages administered in the cited experiments were too low to produce aversive effects in regular users (all of the subjects were).

Experimental operations which are more directly aggression-relevant than those in Columns I and II are presented in Column III. They include the presentation of live or filmed aggressive models (e.g., Bandura, Ross, & Ross, 1961, 1963; Hanratty, Liebert, Morris, & Fernandez, 1969; Hicks, 1965; Parton & Geshuri, 1971), aggressive cartoons (e.g., Hapkiwicz & Roden, 1971; Lövaas, 1961; Mussen & Rutherford, 1961; Osborn & Endsley, 1971), aggressive stories (e.g., Larder, 1962), aggressive films (e.g., Berkowitz, 1965; Berkowitz & Geen, 1967; Berkowitz & Rawlings, 1963; Doob & Climie, 1972; Doob & Kirshenbaum, 1973; Feshbach, 1961; Geen & Berkowitz, 1966, 1967; Hartmann, 1969; Kuhn, Madsen, & Becker, 1967; Steuer, Applefield, & Smith, 1971; Walters & Thomas, 1963) and other aggressive displays, including aggressive sports, such as football and ice-hockey (e.g., Arms, Russell, & Sandilands, 1977; Goldstein & Arms, 1971), as well as the presence of weapons in the experimental setting (e.g., Berkowitz & LePage, 1967; Page & Scheidt, 1971; Turner & Simons, 1974), and the presence of an angry, malevolent confederate (Schachter, 1964; the confederate's state was, however,

neither caused by, or directed at, the subject). In other studies, children were allowed to engage in aggressive play (e.g., Feshbach, 1956; Kenny, 1953; Mallick & McCandless, 1966), and adults to punch boxing bags (e.g., Konečni & Wood, 1982), or participate in a vigorous contest (Ryan, 1970).

The magnitude of the effects of these variables presumably depends on the details of the operationalization, but it is probable that they all: (a) Raise the level of arousal (e.g., Doob & Climie, 1972; Doob & Kirshenbaum, 1973; Osborn & Endsley, 1971); (b) are not perceived as aversive by the subjects; (c) increase the probability that the subjects will view the experimental setting as one where aggressive behavior is sanctioned, or, in behaviorist parlance, bring aggression closer to the top of the hierarchy of behavioral alternatives ("disinhibition" and "facilitation" of aggression, but see Konečni and Ebbesen, 1976, for a discussion of different meanings of the term "disinhibition"); and (d) do not result in an unambiguous reportable, emotional label, at least not the label of anger. In summary, variables in Column III have components of those listed in Columns I and II, and, in addition, introduce an aggression-relevant or aggression-sanctioning context.

Procedures and stimuli which, unlike those in Columns I-III, have been shown, or may be expected, to be both arousing and aversive, are listed in Column IV. They include: Threats of physical suffering [e.g., the possibility of hearing extremely loud bursts of noise (Konečni, 1979a, Experiment 6) and the possibility of limb-immersion in even colder water than what the subject had already experienced (Konečni & Frank, 1977)]; considerable physical discomfort [complex melodies and white noise at over 90 dB, as in Konečni (1975b), and Donnerstein and Wilson (1976), respectively, and high (92-95° F) ambient temperature, as in Baron and Bell (1976) and Bell and Baron (1976); these stimuli are administered as a "part of the experiment" and thus not attributable to a cruel or capricious human source]; psychological discomfort (nonsocial frustration or goal-blocking not easily attributable to a malevolent human source; cf. Buss, 1961; Kulik & Brown, 1979); and actual pain (induced by, for example, electric shock, but again received, as in the control conditions of Berkowitz and Geen, 1966, and Holmes, 1966, as a "part of the experiment", and not easily attributable by the subject to a capricious human source).

All of these procedures are clearly arousing and aversive, and would result in avoidance or escape responses if the subjects were given an opportunity.

Some (such as the threat of pain) led the subjects to experience the emotion of fear, whereas others resulted in acute discomfort or pain (whether pain should be considered as emotion is debatable; my personal bias is against such a classification); but despite the arousal and aversiveness, none presumably led the subjects to consider themselves angry. The reason for this is that the aversive stimuli were not administered by an arbitrary, malevolent, obnoxious, aggressive human being, but rather "clinically", as "part of the experiment", for "scientific objectives".

The emotional impact (or lack of it) of an aversive stimulus has been repeatedly shown to be dependent on its source, the source's perceived ulterior motives, and the general context in which it is administered (e.g., Konečni, 1975a, 1975b; 1979b; Nickel, 1974; Pastore, 1952; Rule, Dyck, & Nesdale, 1978; Rule, et al, 1978). Moreover, the same aversive stimulus may result in different negative emotions, depending on the estimated utility of various behavioral alternatives to which these emotions lead (for example, a 12-year-old-boy, physically threatened by his father, would presumably experience fear and engage in escape behavior; the identical threat uttered by a 6-year-old neighbor would probably result in anger, and possibly aggression; thus the emotion-labeling process is assumed to take into account the consequences of emotion-congruent behavior).

In Column V are listed procedures which are, except for insults, identical to those in Column IV, with the important difference that the subject can blame their administration not on "science", but on an arbitrary and obnoxious person (usually an experimental confederate or experimenter; e.g., Hanratty, O'Neal, & Sulzer, 1972; Hokanson & Burgess, 1962a; Kulik & Brown, 1979; Mallick & McCandless, 1966; Turner, Simons, Berkowitz, & Frodi, 1977; Zillmann, 1971). For this reason, these procedures are not merely arousing and aversive, but also lead to anger, and thus highly increase the probability and intensity of the subject's aggression against both the anger instigator and substitute targets (e.g., Frost & Holmes, 1979; Konečni & Doob, 1972).

An insult is a prototypic social aversive event and leads to all three consequences that define Column V. Some experimental procedures (for example, the one used by Doob and Wood, 1972, Konečni and Doob, 1972, Konečni, 1975a, 1975b, and Konečni and Ebbesen, 1976, in which a well-trained confederate repeatedly insults the subject over a 7-minute period in a face-to-face situation) are no less physiologically arousing than

are very painful physical stimuli; this procedure results in considerably more anger and dislike of the confederate (by self-report measures), and physical aggression against this person (by behavioral measures, such as the number of "electric shocks" delivered) than is the case in control conditions. A set of very pronounced physiological, emotional, behavioral, and attitudinal changes takes place as a consequence of the insults uttered by a complete stranger over a brief period.

Column VI contains experimental procedures that manipulate what happens to the person (e.g., a confederate) who had instigated the subject's anger. Typically, these independent variables are administered in the second phase (after anger induction) of aggression experiments dealing with one or another aspect of "catharsis". The subjects are, for example, given an opportunity to deliver a fixed number of "electric shocks" to the confederate in the course of a pseudo-learning task, indeed are forced by the instructions and the confederate's (programmed) errors to do so (e.g., Konečni & Doob, 1972; in the control condition, the subjects have no opportunity to "hurt" the confederate after being insulted by this person). In other experiments, the subjects viewed the experimenter deliver "shocks" to the confederate (Doob & Wood, 1972), or read a derogatory letter written about the insulting person (Fromkin, Goldstein, & Brock, 1977). In an experiment by Bramel, Taub, and Blum (1969), the subjects watched a videotape in which the annoying confederate was portrayed as experiencing either a bad or a pleasant drug-related experience some time in the past. Finally, the subjects were given an opportunity to aggress against the anger instigator verbally, usually through a written communication (e.g., de Charms & Wilkins, 1963; Kahn, 1966; Pepitone & Reichling, 1955; Rosenbaum & deCharms, 1960; Thibaut & Coules, 1952; Worchel, 1957). However, whether the subjects considered the confederate even psychologically "hurt" by their behavior in these experiments is dubious. Also, on the reasonable assumption that few psychotic or delusional subjects had been used, it must have been perfectly clear to the subjects provided with an opportunity to engage in aggressive fantasy (e.g., Baker & Schaie, 1969; Berkowitz, 1960; Feshbach, 1955; Hokanson & Burgess, 1962b; Hornberger, 1959) that their behavior had no effect whatsoever on the anger instigator. The same is presumably true of studies in which the subjects were given an opportunity to aggress physically against a person other than the anger instigator (e.g., Gambaro & Rabin, 1969; Frost & Holmes, 1979; Hokanson, Burgess, & Cohen, 1963; Holmes, 1966; Konečni & Doob, 1972; Konečni & Spees, 1977).

As it turns out, the events that befall the obnoxious confederate (especially when the subject himself does the hurting, and it is physical) have a considerable impact on the subject's arousal, emotions, and subsequent behavior, especially aggression. An angry person, who has been given an opportunity to "hurt" the anger instigator, subsequently aggresses less against this person, feels less angry, and is less aroused (in comparison to the appropriate control conditions). His/her attitudes about the confederate do not change, however: That person continues to be disliked. These findings are discussed at length by Konečni (1975a) and form the basis of one part of the bidirectional-causality anger-aggression model.

Precisely what an angry subject does in control conditions of these and similar experiments (i.e., when (s)he is not given an opportunity to hurt the confederate) is also very important for the purpose of predicting the amount of subsequent aggression, especially if the interpolated activity has an effect on the level of arousal (and therefore on the degree of anger, since the arousal provides the physiological justification for the emotion, in the neo-Jamesian view). In various experiments, angry subjects in control conditions have worked on mathematical problems or waited idly (Konečni, 1975a; Mallick & McCandless, 1966), given shocks to an innocent third person (Frost & Holmes, 1979; Konečni & Doob, 1972; Konečni & Spees, 1977), performed "aggressive" actions against inanimate objects, such as throwing darts at targets (e.g., Mallick & McCandless, 1966), and so on, or were, alternatively, exposed to manipulations listed in Columns I-III. Generally speaking, interpolated activities and procedures which raise the level of arousal increase the amount of subsequent aggression of subjects who had been angered; arousal-decreasing procedures have the opposite effect on the aggressive behavior of such subjects.

Finally, Column VII of Table 1 deals with experimental procedures designed to alter the subject's facial expression--for the effect that the proprioceptive feedback from the facial musculature has on a person's judgment of his/her emotional state and its intensity, rather than for what different facial expressions communicate to others.

Laird (1974) developed a procedure in which the subject is instructed to contort or relax certain facial muscles and thus, in effect, adopt a facial expression indicative of an emotion (anger, joy), without these labels being explicitly mentioned (in order to minimize the experimenter-demand contamination

of the dependent measure, which was a self-report of emotion experienced while watching relatively neutral slides). This procedure was subsequently used by Konečni and Zellensky (1976) in conjunction with the anger manipulation; among other results, angry subjects, who had been instructed (indirectly) to adopt a frowning face during the dependent-measure phase, administered more punishments to the anger instigator than did subjects in the various control conditions.

In another condition of the Konečni-Zellensky experiment, angered and non-angered subjects were asked to imagine scenes with different emotional content (i.e., events that had recently made subjects angry or happy). This procedure, originally used by Schwartz (1976) to test the notion that emotional imagery is detectable by electromyographic measurement of facial muscles, produced results--in the Konečni-Zellensky experiment--analogous to those obtained by using Laird's procedure (e.g., angry subjects imagining annoying events delivered more "shocks" than controls).

The remaining two procedures listed in Column VII have not been used in aggression experiments proper, but are nevertheless relevant (self-report of emotional state, including anger, was one of the dependent measures in some of the experiments in question). Lanzetta, Cartwright-Smith, and Kleck (1976) found that instructing subjects to suppress or exaggerate facial expression of pain in response to electric shocks decreased and increased, respectively, both physiological arousal and the subject's experience of pain. In her doctoral dissertation, Sargent-Pollock (1978) obtained analogous results with other emotions (mirth, disgust).

Konečni and Sargent-Pollock (1977) used a "facial shadowing" task ("shadowing" in the sense that the term is used in the dichotic-listening paradigm in cognitive psychology) to study the effects, on the subjects' emotional state, of mimicking for 30 seconds a videotape of a person whose face gradually changes from neutral to the peak of an emotion (e.g., anger) and back to neutral. The original videotapes were made by professional actresses facially acting out different emotions in the neutral/peak/neutral sequence, in accordance with a "facial-muscle-activation script" given to them by the authors. "First-generation" subjects mimicked these tapes and were themselves videotaped while doing so; the facial expressions on their tapes were mimicked by the second-generation subjects, and so on. This "facial rumor" paradigm was used to study the selective disappearance/augmentation of facial expressions across generations of mimickers "shadowing" a particular

emotional state, such as anger, as well as other questions of theoretical importance. One of the findings of the Konečni/Sargent-Pollock study that is relevant here was that subjects mimicking an angry facial expression reported feeling significantly more angry than did subjects who merely watched the same tape.

In summary, various procedures designed to manipulate a subject's facial expression, notably that indicative of anger, seem to have similar effects, and, when the question has been addressed experimentally, seem to increase the amount of aggressive behavior performed by an angry individual--presumably by augmenting the degree of anger through the proprioceptive feedback from the facial musculature.

Dependent Variables

The rationale underlying the classification of dependent measures in aggression experiments, presented in Table 2, is self-evident.

Three methods of measuring direct physical aggression are described in Column I. One employs the familiar "aggression machine" (Buss, 1961; Milgram, 1961, has made a claim of independent discovery), which has been used in literally hundreds of experiments by Berkowitz, Geen, R. A. Baron, E. Donnerstein, Zillmann, their colleagues, and countless other researchers. The subject is forced by the instructions to press one of 10 levers on each of a number of trials, and his/her choice consists of which level of punishment to deliver. The average intensity of "shocks" or "blasts of noise" (on a scale from 1 to 10) supposedly delivered by the subject to the confederate is usually reported, often separately for blocks of 3-10 trials; occasionally, average and/or total duration of shocks is also computed and reported.

TABLE 2

DEPENDENT VARIABLES IN HUMAN-AGGRESSION EXPERIMENTS

I	II	III	IV
Direct physical aggression	Displaced physical aggression	Aggression against inanimate objects	Direct verbal aggression
"Shocks" or "blasts of noise" using the Buss "aggression machine" (duration, intensity) administered by the subject to the anger instigator	"Shocks" using the Doob-Konecni pseudo-creativity task (number, duration), administered by the subject to a person other than the anger instigator	Beating up Bobo doll	Verbal analogue of the Buss "aggression machine"
"Shocks" (intensity) administered by the subject in the course of Taylor's pseudo-reaction-time task	Knocking down the opponent's towers of building blocks	Slamming down telephone receiver	Written or oral comments with potential negative consequences for the anger instigator
"Shocks" or "blasts of noise" using the Doob-Konecni pseudo-creativity task (number, duration) administered by the subject to the anger instigator	Pressing a button which "slows down" the opponent's progress on a task	Shooting toy gun while playing "soldiers"	
	Frequency of high voice-responses (yelling) in reading a text to the opponent	Throwing a wet sponge at a carnival clown	
		Horn honking	

(V through VII continued on next page)

TABLE 2 (continued)

DEPENDENT VARIABLES IN HUMAN-AGGRESSION EXPERIMENTS

V	VI	VII
Displaced verbal aggression	Physiological indices	Miscellaneous
Written or oral comments without negative consequences for the anger instigator (including projective-test responses)	Systolic and/or diastolic blood pressure	Self-report of own emotional/arousal state (rating-scale, questionnaire, and interview responses)
	Heart rate	Amount of tip
	Pulse rate	Alcohol consumption
	Skin conductance	Performance on the digit-symbol task
	Finger temperature	Choice between complex and simple computer-generated melodies
	Respiration rate	

The procedure used by Taylor (1967) is a derivative of the one developed by Buss; the average intensity of the subjects' shocks over trials (in response to an ascending series of shocks received from the confederate) is reported, by blocks of 5-6 trials, and usually compared to the intensity of the subject's first, unprovoked, shock to the confederate, which serves as the baseline for an experimental condition.

The third procedure in Column I has been used extensively by Doob, Konečni, and others (e.g., Doob & Wood, 1972; Frost & Holmes, 1979; Konečni, 1975a; Konečni & Doob, 1972) and involves a pseudo-creativity task. On each of many trials (25-50), the subject reads aloud a word from a list provided by the experimenter. The confederate is supposed to give a "creative" one-word response within three seconds (these responses are preprogrammed and of mediocre creativity). The subject's task is to judge the creativity of each answer (no criteria are provided) and press the "shock" (or "noise") button if (s)he judges it to be uncreative. It is the differential harshness of the subjects' criteria of what constitutes a "creative" response that sharply distinguishes the experimental conditions; the number, and occasionally, the average or total duration, of shocks (or blasts of noise) are reported.

Common and essential to all three methods is the experimenter's hope that the subjects do not see through the deception (no shocks are actually delivered to the confederate). [In fact, the subjects' perceived certainty that the shocks are delivered to the confederate was experimentally manipulated by Konečni and Manley (1977); moreover, this factor--the certainty that a "blow" has actually "landed" on, and hurt, the intended target--is formally a part of Konečni's bidirectional-causality anger-aggression model (a decrease in certainty is expected to weaken the arousal-decreasing effect of angry persons' physical aggression)].

In this line of research, no effort is therefore spared to increase the effectiveness of the deception and to minimize the subjects' suspicion, including extensive pretesting, the use of elaborate and convincing cover stories, the recruitment of experimentally-naive subjects (including high school students), and in-depth, "funnel" postexperimental interviews.

Some examples of "displaced" aggression (where the subjects' actions are directed at someone other than the anger instigator) are listed in Column II. The first entry refers to one of the conditions in the

Konečni-Doob (1972) study and its subsequent replications by Konečni and Spees (1977), and by Frost and Holmes (1979); after being angered or treated neutrally, and aggressing against the anger instigator or waiting idly, subjects had the opportunity to deliver shocks to another confederate (while working on the previously described pseudo-creativity task).

The second entry in Column II is more problematic for classification purposes. It refers to a study by Rocha and Rogers (1976) in which an unobtrusive measure of aggression consists of a child's knocking over of an opponent's tower of building blocks. The action differs from those listed in Column III in that the tower clearly belongs to the opponent, and from those in Column I, in that the opponent is not directly physically hurt. It is a relatively rare analogue in the aggression literature of what must be a very frequent real-life behavior-- deliberate and malicious destruction (or theft) of an enemy's property.

The third entry in Column II is also difficult to classify. In one of the experiments by Mallick and McCandless (1966), the dependent measure was the subjects' pressing a button which supposedly slowed down the anger instigator's progress on a task. Thus, the behavior affects the opponent directly, and in a negative way, but, unlike the actions in Column I, the effect is not physically injurious or painful. As in the preceding case, one could easily think of many real-life counterparts of this dependent variable.

The final entry in Column II is conceptually similar to the one just described. Fitz and Stephan (1976) used the frequency of subjects' high voice-volume responses as the main dependent measure. High voice volume could apparently somewhat interfere with the opponent's performance, but certainly not physically hurt him. [Since the subjects were asked by the experimenter to read the text (on which occasion the voice volume was measured), and since this text had nothing to do with the opponent, I have not classified the subjects' behavior as an instance of either direct or displaced verbal aggression (Columns IV and V).]

Column III contains examples of high-magnitude behaviors which have been termed "aggressive" in various studies, presumably because of their morphological similarity to aggressive actions; however, no one gets hurt and no opponent's or anger instigator's property gets damaged. These actions range from children "beating up" a Bobo doll in the well-known Bandura et al. (1961) studies (this activity was termed "aggressive play" by Kaplan and Singer, 1976) to slamming down the

telephone receiver on a confederate who refuses to comply to the subjects' plea for a charitable donation (Kulik & Brown, 1979; it would seem from the report that although subjects put the receiver down harder when they were frustrated, they did so at the natural end of the conversation, not in order to terminate it; this behavior should not, therefore, be regarded as an instance of direct aggression, intended by the subject to cause even psychological harm to the confederate). In another experiment (Feshbach, 1956), shooting a toy gun while playing "soldiers" was one of the dependent measures of aggression--an impure case of aggression against inanimate objects, but clearly related to the aggressive-play measure used in the Bandura et al. studies.

The final two examples in Column III are difficult to classify and were only tentatively placed in this column. It is not clear to what extent throwing a wet sponge at someone (Turner et al., 1977) is aggression, as opposed to being a playful behavior expected at a carnival, and to what extent a deindividuated, nonreactive clown's head can be considered a real, as opposed to a somewhat inanimate target (hence the placement in Column III). The meaning of horn-honking at a stalled pick-up truck (Turner et al., 1977) is also ambiguous, and for several reasons. Were the horn-honking motorists aware that the truck was stalled deliberately? Was the intent of the horn-honking aggressive or merely communicative (we are waiting behind you)? If the intent was aggressive, what sort of damage does this behavior produce? Would it have been more reasonable to classify it together with insults, as causing psychological harm?

It should be noted that the instances of "aggression" against inanimate objects which are listed in Column III differ somewhat from activities that used to be employed in Kleinian "aggressive play" therapies; there, a "hyperaggressive" child was frequently encouraged to attack a symbolic object (e.g., use a pair of scissors on a doll named the same as the child's brother or sister).

Columns IV and V are analogous to I and II, except that verbal aggression is involved (written or orally expressed comments or ratings). What I have classified as direct verbal aggression includes: (a) A verbal attack which the subject knows (or believes) is communicated to the target, thus having at least the potential of causing psychological harm through its negative or insulting nature; and (b) a verbal attack or negative evaluation which though communicated to a third party, may subsequently (or so the subject believes) be

conveyed to the intended target, or otherwise adversely affect that person (e.g., (s)he may lose the job by virtue of the third party acting upon the subjects' negative performance evaluation). The two instances may be called "insult" and "malicious gossip", respectively. A clear example of the former is the verbal analogue of the Buss "aggression machine" used by Goldstein, Davis, and Herman (1975), in which the subjects call out remarks from an escalating series of insults to the confederate (instead of pushing buttons on an ascending shock-intensity scale). Examples of the latter (verbal aggression via a third party) are found in studies by Bramel, Taub, and Blum (1968) and Kahn (1966), in both of which the subjects were led to believe that their negative evaluations may have adverse effects on their antagonist (in terms of his job standing, etc.).

In contrast, the overwhelming majority of subjects whose behavior is referred to in Column V would be very hard pressed to imagine how their verbal behavior could conceivably affect their target in an adverse way. For this reason, I have labeled these measures "displaced" verbal aggression, although "verbal expression of negative feelings without consequences for any target" is more accurate ("displaced" aggression implies a substitute target, which is not the case here). The measures range from projective-test "aggressive" responses (e.g., Buss & Folliart, 1958; Kenny, 1953) and "aggressive stories" involving the antagonist, to a host of different formats of negative verbal ratings and evaluations of experimenters and confederates who managed to cross the subjects (e.g., Berkowitz, 1960; Berkowitz, Green & Macaulay, 1962; deCharms & Wilkins, 1963; Feshbach, 1955; Hornberger, 1959; Pepitone & Reichling, 1955; Rosenbaum & deCharms, 1960; Thibart & Coules, 1952; Worchel, 1957). This is a very incomplete list and, moreover, contains only studies in which verbal aggression (via evaluations, etc.) was the main dependent measure. Literally hundreds of other studies in which a human being had been used to induce anger or frustration in subjects also employed verbal-aggression measures--as "manipulation checks", in addition to the main dependent variable(s).

Some of the physiological indices that have been most commonly used in aggression experiments as main dependent measures are listed in Column VI. The use of these measures reflects the fact that many of the theoretical issues in human aggression have traditionally been couched in emotional/motivational or physiological-arousal terms. Among the indices used: Systolic blood pressure (e.g., Baker & Schaie, 1969; Doob & Kirshenbaum, 1973; Frost & Holmes, 1979;

Hokanson & Burgess, 1962a; 1962b; Hokanson, Burgess & Cohen, 1963; Hokanson & Edelman, 1966; Hokanson & Shetler, 1961; Holmes, 1966; Kahn, 1966), diastolic blood pressure (e.g., Frost & Holmes, 1979; Gambaro & Rabin, 1969; Hokanson & Edelman, 1966; Holmes, 1966; Kahn, 1966), heart rate (e.g., Hokanson & Burgess, 1962a, 1962b; Hokanson & Edelman, 1966; Holmes, 1966), pulse rate (Baker & Schaie, 1969; Frost & Holmes, 1979), skin conductance and finger temperature (Kahn, 1966), and respiration rate (Baker & Schaie, 1969). Following these early studies, many subsequent ones have used the same or similar physiological indices. However, the tendency has been to use them as auxiliary measures, in conjunction with the behavioral ones, or, more importantly, as a means of scaling the impact and/or the timecourse of certain (especially arousal-related) experimental variables, either in pretesting or in the experiment proper (for example, in the work of Donnerstein, Konečni, Zillmann, and others). Such work has sometimes made possible a reconciliation of seemingly contradictory findings from earlier studies which had ignored the changing impact of experimental variables (on the level of arousal, etc.) over time.

Finally, some other behaviors that have been used as dependent variables in aggression experiments are listed in Column VII. This list is by no means exhaustive and is only meant to illustrate the diversity of measures that have been used. The variables listed range from self-report measures of own emotional/arousal state, used in countless studies, and naturalistic alternatives to the verbal/evaluative measures, such as the size of tip given to a frustrating taxi driver (Fromkin, Goldstein, & Brock, 1977), to a miscellany of behaviors which have in common a responsiveness to anger- and aggression-induced fluctuations in the level of arousal, including alcohol consumption (Marlatt, Kosturn & Lang, 1975), performance on the digit-symbol task (Doob & Climie, 1972; Worchel, 1957), and choice between complex and simple melodies (Konečni, et al, 1975). These diverse measures are, in a sense, a reflection of attempts to integrate aggression phenomena into more general theoretical frameworks that relate emotional and physiological processes to behavior.

Implications

Perhaps the first thing that might strike one looking at Tables 1 and 2 is the relatively large number of columns and entries in each column. For the independent variables, this variety would appear healthy--presumably indicative of an active, well-researched field, in which multiple causes of the

phenomenon in question ("aggressive behavior") have been established. However, a close scrutiny of the bewildering variety of dependent measures challenges any such optimistic conclusion about independent variables and is worrisome in its own right. The use of numerous different measures of the (allegedly) "same thing", both within a single study and across studies, is an excellent strategy in the Webb et al. (1966) "triangulation" sense, if one is lucky enough that they all come out in such a way as to isolate a common, central core of the phenomenon (Webb et al. unfortunately have nothing to say about the cases where this does not happen and the measures suggest different, nonoverlapping conclusions, cf. Konecni and Ebbesen, 1979). As it happens, when one goes through the human-aggression literature study by study, more often than not there are discrepancies among the different dependent measures within single studies which had not been predicted by the theories that motivated the studies; moreover, when different dependent measures are used in different studies, and the results, collectively, come out such that they cannot be explained by any one theory, it becomes impossible to compare these studies, or to think of the results and the studies as a cumulative building-block type of scientific effort. In addition, of course, by no means has every independent variable from Table 1 been used in combination with every dependent variable from Table 2. For reasons of convenience, tradition, and lack of foresight, researchers have tended to use only certain independent and dependent variables together. Thus, researchers from different theoretical orientations have relied on different "slices" of Tables 1 and 2, which further complicates any meaningful comparison of theories, lines of research, or even of the work coming out of different laboratories. It is partly for this reason that every "grand" theory of aggressive behavior has been pronounced dead or moribund by some other school, and perhaps for good reason, since few of these theories have much to say about the clustering of various dependent variables, nor can they--in their pure form, and with few parameters--explain a sizeable number of findings in the literature.

In the rest of this section, I will attempt to give specific examples of how the neglect of methodological details--alluded to above in very general terms--has obfuscated theoretical issues, clouded the validity of applications of basic research, and needlessly sapped research efforts. The objective is to provide a concise listing of illustrative examples, rather than an exhaustive and detailed analysis that would utilize all features of the classification of independent and dependent variables in the previous two

sections.

The list is composed of three parts: (a) methodological problems specifically related to the administration of independent variables; (b) methodological problems related to the nature and collection of dependent variables; and (c) combined problems.

(a) Methodological problems related to independent variables.

1. Order of administration of independent variables. Among the numerous examples that could be given here, perhaps the clearest involves the placement of the anger/frustration manipulation relative to watching an aggressive display. In Bandura's early studies, the frustration always followed the exposure to the aggressive model; no rationale for this was given, presumably either because the social-learning theory could not say anything about order effects, or because these were implicitly thought to be substantively irrelevant. In the work of Berkowitz and many others, the anger manipulation always preceded the aggressive film, again with no explicit rationale. Conclusions about the combined effects of anger and observed aggression were thus being drawn in literally many dozens of studies without this issue being even acknowledged as one of theoretical and interpretive importance, let alone examined experimentally. Yet, when finally it was submitted to experimental scrutiny (Donnerstein, Donnerstein, & Barrett, 1976), it turned out that the two different orders of inducing anger and exposing subjects to an aggressive film produced very different results, thus casting doubts on years of previous effort by paying attention to a seemingly minor methodological detail. The arousal-related and cognitive factors (summarized by terms such as distraction, attentional shift, cognitive labeling, excitation transfer) which underlie the mentioned order effect have subsequently been incorporated into the theoretical thinking and experimental work of Donnerstein, Konečni, Novaco, and Zillmann, among others.

2. Taking into account that a variable may have more than one effect. This issue is related to 1. above. It consists of the researchers' failure to realize that some of the independent variables they use are not unidimensional, that a variable may have more than one type of impact (especially cognitive and physiological; see Table 1) on the subject, and that these different effects, in the most unfortunate case, may "pull" the behavior in opposite directions (e.g., a

film may raise arousal, but also be an emotion- and behavior-attenuating source of distraction or "attentional shift"). One of the many consequences of the neglect of this issue had been the repeated failure to include a no-film condition in the design of "media violence" experiments (as first noted by Weiss, 1969, all of the previous studies included only a nonaggressive-film control). Again, when the issue was finally experimentally tackled by Zillmann and Johnson (1973) and Donnerstein et al. (1976), a very different interpretation of all of the previous findings developed. Conversely, the Bandura et al. 1961 studies used only a no-model control. When a nonaggressive, but highly active, model condition was included in a subsequent study (Bandura et al., 1963b), it was found that watching the aggressive model did not increase novel aggressive responses in comparison to this new control condition.)

3. Taking into account the timecourse of an effect. Remarkably little experimental work has been done on the timecourse of the effects of various independent variables (either in the pretesting or experimental phases), presumably because the arousal aspects of the variables have been either ignored or not understood in their complete psychophysiological sense, that is, as subject to the action of homeostatic mechanisms which are correlated with the passage of time (see Table 1). In the few studies in which the duration of the administration of an independent variable was explicitly manipulated (e.g., Konečni, 1975a), or the length of the delay in the collection of the dependent variable was treated as a factor (e.g., Doob & Climie, 1972; Zillmann & Bryant, 1974), the arousal-related timecourse of a variable's effect proved to be singularly important.

In many studies, the fact that the effects of different variables may have different timecourses is implicitly taken into account, but not (a) explicitly acknowledged, (b) incorporated into theoretical statements, or (c) subjected to pretesting. For example, Geen & O'Neal (1969) first exposed the subjects to an aggressive film and then to 60 dB noise. Presumably, they felt that the effect of the film on aggressive behavior would be longer-lasting than the effect of the noise, but nothing was said about this, nor is there any mention of pretesting. [For that matter, these authors did not even pretest the physiological impact of 60 dB noise (only verbal ratings of the noise were obtained); this low level has--quite reasonably--been used in other studies (e.g., Donnerstein & Wilson, 1976) as a control condition.]

4. Taking into account the arousing, aversive, and anger-inducing potential of a variable (or lack of it). This is a somewhat different aspect of the issue discussed under 2. above, and refers to the material presented in Columns I, IV, and V in Table 1. Ignoring--through a lack of pretesting and proper control groups--the precise "ingredients" of an independent variable, in terms of its arousingness, aversiveness, and anger-inducing potential, is probably both one of the most common and most serious methodological problems in the human-aggression literature. The rationale for drawing these distinctions, their predictive utility, and their theoretical importance have been discussed in conjunction with Table 1 and need not be reiterated here. The number of studies in which these distinctions were ignored when making the predictions is quite large and the readers should have little difficulty in coming up with their own examples. Suffice it to say that studies in which the main independent variable simply raises the level of arousal, or produces high arousal and aversiveness (but not anger), typically have weak and/or irreplicable effects (in terms of behavioral aggression), in comparison to studies in which acute anger is induced. In the former set of studies, the effect is sometimes strengthened by including particularly effective examples from Column III of Table 1 (creating an aggression-sanctioning experimental context); but, this is often at the expense of external validity (at both the independent- and dependent-variable side) and sharply reduces the percent of variance of real-life aggression that the variable in question could possibly account for (cf. Kaplan & Singer, 1976).

5. Taking into account what the subjects consider the consequences of their behavior to be for the target of aggression. This point is in reference to items in Column VI of Table 1, where the independent variable consists of an opportunity (or lack of it) for the subject to "express aggression" toward a confederate (the anger instigator). What form this aggression takes, and the consequences for the target, have been treated rather casually by most researchers, presumably because this issue had not formally been a part of the theoretical positions which inspired their studies. Yet, as it turns out, the very performance of an aggressive act, the form it takes (e.g., physical vs. verbal vs. fantasy), and the consequences for the target (e.g., pain, loss of job, no consequence) have been shown empirically (e.g., Konečni & Manley, 1977; Konečni & Wood, 1982) to make a great deal of difference and to affect the aggressor (his/her arousal level, emotional state, and the amount of subsequent aggressive behavior), as well as the target.

These factors are an explicit part of the bidirectional-causality anger-aggression model (e.g., Konečni, 1975a) which stresses the importance of the emotion-behavior-emotion feedback loop. The conclusions from previous studies (discussed in conjunction with Table 1), in some of which the mode of the subject's aggression appears to have been almost randomly decided upon, and which ignored the subject's thoughts about the consequences (if any) of their behavior for the target (and the effect of these thoughts on the subjects' arousal and emotional state), need to be seriously reexamined.

(b). Methodological problems related to dependent variables.

1. External and construct validity of dependent measures. Perhaps the most frequent, and potentially the most damaging, criticisms of human-aggression research in general have had to do with the types of dependent measures that had been used. Such criticisms can usually be reduced to issues of external or construct validity of the measures, or both.

Considering the number of such criticisms and the airing that they have received, even a mere summary of the issues involved would necessitate a whole article, so I will leave this can of worms alone. However, I am convinced that even a reader only casually glancing at the entries in Table 2 will come to the conclusion that some of the criticisms must be correct. Many of the behaviors that have been used as dependent variables are so esoteric as to strain both credibility and the logic that links them to theoretical ideas supposedly being tested in the experiments in question [some recent claims to the contrary, for example, by Berkowitz and Donnerstein, 1982, notwithstanding]. (For example, what is the purpose of dependent measures which are merely "expressive", in that neither the anger instigator nor anyone else is harmed in the slightest? Presumably, aggressive behavior would not have become such a research focus if the term referred merely to people muttering to themselves, fantasizing, and harmlessly flailing about when no one is in sight, unless these behaviors are highly correlated with the probability of inducing physical, emotional, or economic harm in others--and that remains to be demonstrated.) And the number of empirical attempts to obtain correlations among even the most popular measures (not to mention systematic attempts to examine the external and construct validity of such measures) remains to date woefully small (Shemberg, Leventhal, & Allman, 1968, and Williams, Meyerson, & Eron, 1967, are

the only--and rather modest--exceptions).

2. Taking into account the extent to which subjects have a choice not to aggress at all. Dependent measures that have been used differ in an important, but frequently unrecognized or unacknowledged, way--namely, in the extent to which subjects have a choice not to aggress at all. This factor may well affect the subjects' behavior when it is examined across blocks of trials. For example, in the Buss procedure, the subject--short of discontinuing his/her participation in the experiment--must aggress, by delivering an electric shock to the confederate on each trial, and the question is just one of the intensity (shock level) that is chosen. The meaning of a dependent measure of aggression in a situation where refraining from aggression altogether is not one of the choice alternatives becomes debatable. Moreover, the escalation over blocks of trials that is frequently observed in studies using the Buss procedure may well be an artifact, or at best a spurious by-product of the fact that the choice not to aggress had been eliminated (cf. Konečni & Ebbesen, 1976). In contrast, in the Doob-Konečni procedure (see Table 2), although there is perhaps an implicit pressure to aggress in that some of the confederate's "creative" responses are so poor that they would not meet anyone's criterion of creativity (and, so, that at least some shocks are in order), the subjects are nevertheless free not to give any shocks at all, and some indeed do not.

3. Sequential collection of dependent measures. Many studies of aggressive behavior have used more than one dependent measure, either in the same mode (e.g., two different verbal measures) or in a different mode (e.g., a verbal and a behavioral measure, or a behavioral and a physiological measure). Since the different measures in most cases have had to be collected sequentially, the issue that arises is whether the subject's behavior on one measure changes his/her behavior on the subsequent measure, over and above the effect that the independent variable has on the second measure. The problem is an almost direct extension of Heisenberg's original formulation of the "uncertainty" principle in physics--the effect that the measurement of a particle's position has on its velocity and its measurement (and vice versa).

Just as most theories of aggressive behavior have been insufficiently developed to predict complicated patterns across a multitude of dependent measures, so have investigators remained silent on the topic of order effects (order in the sense of collection of different dependent measures, rather than administration

of independent variables). This is odd, given that studies using more than one measure are the rule, rather than an exception; thus, the order of collection must have been either randomly chosen in the various studies, or the investigators have had implicit theories about its effects that they could not, or have not wished to, verbalize in their experimental reports. When the order-of-collection was systematically examined [by Konečni and Wood (1982), for one behavioral (physical aggression) and two verbal (ratings of self, ratings of the confederate) measures], it proved to be highly important, both statistically and interpretively.

There are several straightforward solutions to the order-of-dependent-measures problem. The simplest way out is to collect secondary measure(s), or "checks on the manipulation", after the main measure, and not read too much into the meaning of such checks or secondary measures (because of their possible "contamination" by the collection of the main dependent measure). A preferable solution is to obtain secondary measures (e.g., physiological ones) and checks on the manipulations in extensive pretesting or in separate experimental conditions in which the main dependent measure is not collected. The best solution clearly is to treat the order of collection of dependent measures as an explicit experimental variable and to formally incorporate this variable in one's theoretical model of aggressive behavior. All of this seems elementary but is unfortunately often ignored.

In some studies, a related, and potentially even more serious, methodological blunder is committed. In part because of the difficulties associated with operationalizing the opportunity to (a) express verbal aggression and (b) fantasize aggressively as independent variables, the distinction between independent and dependent variables is blurred in these studies, raising a host of interpretive problems. What is claimed to be an independent variable (one group of subjects does something, whereas the control group does not) is, in fact, not that, because each subject assigned to the group which supposedly receives the treatment (does something, for example, aggresses verbally, or fantasizes aggressively) is allowed to perform as much as he wishes (i.e., receive the treatment ad libitum), which is, of course, a characteristic of dependent variables. In other words, each subject assigned to a treatment condition decides on the "dosage" he is to receive, which leads not only to a greater variability within groups, but also--more seriously--precludes meaningful comparisons of groups (both within and across studies) which have allegedly received identical

treatments.

Examples from some landmark studies are as glaring as those that can be found in countless more humble efforts buried in the human-aggression literature. In a study by Berkowitz (1960), a "check or the manipulation" was first obtained--a measure of the subject's liking for a person who had attacked them (the same rating was used as the baseline for the second measure of liking obtained later). Subjects were then randomly assigned to either a TAT-fantasy or a self-descriptive questionnaire condition, and this was treated as one of the two main independent variables; yet, in both conditions, the subjects were allowed to behave on an ad libitum basis (e.g., fantasize what and as much as they wanted; respond in whichever way they wanted on the questionnaire). Finally, a second measure of liking was obtained and reported as a change score from the first measure. In an experiment by Feshbach (1955), the subjects' ad libitum TAT fantasy (vs. work on a neutral intellectual task) was similarly treated as a major independent variable and the examination of its effects on the subsequently collected verbal measures (the subjects' opinion of the insulting experimenter expressed through a sentence-completion task and an attitude questionnaire) was the chief objective of the study. Worchel's (1957) insulted subjects were allowed to express as much verbal aggression as they chose (to the insulting experimenter or his assistant), and the effect of this "independent" variable on the main dependent measure (the subjects' performance on the digit-symbol task) was compared to a control condition (talking to the experimenter about a neutral topic). The insulted subjects in an experiment by Thibaut and Coules (1952) were either given or not given an opportunity to send a note back to the insulting person (in the former case the subjects could include as much or as little aggressive content as they pleased) before another verbal dependent measure was collected. Finally, in another often-cited experiment by Berkowitz, Green, and Macaulay (1962), subjects first received either six shocks or one shock from a "fellow-subject", and then either evaluated that person's performance on a task (by giving him shocks ad libitum) or had no opportunity to give shocks. This procedure was both explicitly labeled as a "check or the manipulation" (of the 6- vs. 1-shock variable), and treated as an independent variable expected to affect the two subsequently collected dependent measures (ratings of the "fellow-subject's" friendliness and ratings of own state).

Most of these five classic studies (and many others) had the order-of-collection problem, in addition

to confusing the notion of an independent and a dependent variable: Their results, from a strict philosophy-of-science standpoint, are uninterpretable. Moreover, they have collectively established an unfortunate methodological precedent in the aggression literature.

(c). Combined (independent/dependent-variable) methodological problems: The "catharsis" controversy.

For several reasons, the issue of "catharsis" can easily be claimed to have occupied a central position in the human-aggression research of the last 45 years. I do not say this lightly, and certainly not because the thinking about this issue can be judged--with the benefit of hindsight--to have been terribly profound or correct, starting with the "classical" positions (Aristotle, Plato), and on to the "Renaissance" (Freud), the "Reformation" (the Yale group, 1939-41), the "Romantic" period (Feshbach, 1955-61), the "Neoclassical" period (Berkowitz, 1962-69, Geen, Hokanson, Holmes, Kahn), and the various "moderns" (e.g., A. N. Doob, Konečni, Zillmann). Nor do I think that the folk wisdom regarding catharsis, and its derivatives in political, anthropological, psycho-historical, legal, psychotherapeutic, social, journalistic, and other kinds of thinking have been particularly illuminating or socially beneficial.

Rather, the facts of the matter are: Catharsis (a) has been at some point addressed by just about every researcher who has published an article on human aggression, (b) has been implicated in literally a dozen of other dominant themes in the human-aggression research (ranging from the effects of media violence, and portrayals and availability of erotica, on aggressive and criminal behavior, to the short- and long-term effects of participation in body-contact sports), and, most importantly, (c) has been associated with a three-stage experimental design (induction of frustration-anger/expression of aggression/measure of residual aggression) that can be used to summarize effectively the purpose and the results of literally hundreds of studies in the human-aggression literature.

In large part, the popularity of the concept stems from its long standing as a research issue. Moreover, since almost everyone interpreted "catharsis" to mean some sort of reduction in something vaguely anti-social (aggression, heightened drive, etc.), it became the researchers' social duty to comment on this method of "control" of undesirable emotions, drives, and behaviors, and to have a strong stand--for or against--

-its "truth" and effectiveness.

It is precisely the popularity (or, rather, the notoriety) of the concept of catharsis that makes it a good candidate for illustrating how closely the methodological and theoretical issues are intertwined in the human-aggression research--especially with regard to the combined independent/dependent-variable methodological problems.

The catharsis controversy can be understood in large part by realizing that at its core lie the various researchers' staunch, though most often unacknowledged, allegiances to either the Platonic or the Aristotelian versions of the catharsis hypothesis. These two versions are radically different, however, and the differences lie precisely in what the relevant independent and dependent variables are thought to be, and, above all, what the outcome of putting them together would be.

Aristotle (in Poetics) was of the opinion that watching the performance of tragedies--which have the ability to arouse pity, anger, and fear--would purge such emotions in the spectators and provide a healthy relief. In modern terms, the observation of violent displays should lead to a decrease in arousal level and the degree of negative emotions.

Plato (in The Republic) had this advice for men made angry: "(I)f one man is angry with another, he can take it out of him on the spot, and will be less likely to pursue the quarrel further"--a far more sophisticated (and accurate) statement. Thus, the performance of aggressive actions, provided that one is angry, against the anger instigator, will decrease the probability of further violent actions.

The entire three-stage catharsis paradigm is outlined here: (1) an independent variable dealing with the induction of an aggression-relevant emotional state; (2) another independent variable specifying the type of "expression of aggression" that is relevant (aggression against a particular target); and (3) a specific dependent measure--behavioral aggression, again with the appropriate target specified (the original anger-instigator).

Note the differences between Aristotle and Plato in terms of the independent and dependent variables considered to be relevant, and in the predictions of what would happen when they are brought together. It is my contention that much of the catharsis controversy could have been avoided had the researchers not

confused these two positions and their various ramifications in their theoretical thinking and experimental efforts (especially in the operationalization of the independent and dependent variables). Given this confusion and the formulation of various esoteric theoretical spin-offs, it is not surprising that what appears to be a mind-boggling mishmash of results was generated over the years. [The interested reader can consult Tables 1 and 2 for specific examples of esoteric operationalizations. A detailed discussion of the various versions of the catharsis hypothesis, and of the results and conclusions stemming from the research efforts which these different versions have inspired, are provided in Konečni (1975a) and need not be reiterated here. The same article also outlines--on the basis of empirical evidence--the bidirectional-causality anger-aggression feedback model; this model appears to be capable of accounting for most of the divergent results by making use of theoretical ideas that underlie the classifications in Tables 1 and 2 of the present paper.]

Discovering precisely why the confusion of Aristotle's and Plato's positions has occurred and tracing the history of the controversy--why, for example, researchers expected the manipulation of Aristotelian independent variables to produce a decrease in Platonic dependent measures (most "media-violence" studies can be thus characterized)--could be the subject of an entire paper. One reason for the confusion was undoubtedly the fact that both positions predicted a reduction--in terms of measures that (incorrectly) appeared to many to be interchangeable or synonymous. Another, and probably more important, reason may have been Freud's involvement with the concept. More specifically, one way to unify (or, rather, confuse) Aristotle's and Plato's positions was to assume that the internal (intrapsychic/physiological) mediator linking the Aristotelian independent and dependent variables was the same as that linking the inputs and outputs in Plato's model, namely, a "hydraulic" or "boiling pot" mechanism (which has always been associated with Freud, and subsequently with Lorenz). Yet, neither Aristotle's nor Plato's position necessarily requires such a mediator (cf. Konečni, 1975a); furthermore, both can be accounted by the anger-aggression feedback model which does not make any use of fluid mechanics.

In conclusion, I realize that some would claim that methodological and theoretical controversies and debates are healthy and that they advance science. Perhaps so--in the long run, and provided that the research efforts are cumulative. Whether the rather

elementary methodological and theoretical confusions that have characterized the research on catharsis can be thus described is a moot point. Moreover, I think that the catharsis controversy has needlessly expended valuable research efforts and exposed social psychology's dirty linen (to the general public, the funding agencies and Senator Proxmire), by virtue of the fact that the various participants in the catharsis debate have decided to make (confused and premature) recommendations for changes in public policy, to testify in front of congressional committees, and so on.

In fact, the catharsis controversy is a good example both of the numerous links that exist among methodology, experimentation, theory, generalizations from research, public policy, and the funding of science, and of how these connections can become muddled.

Summary

The main purpose of this article was to demonstrate the remarkably close connections between the methodological and theoretical issues in the human-aggression research, and the extent to which the methodological negligence and naivete have needlessly expended research efforts and led to time-wasting controversies and debates. A secondary objective was an attempt to provide relatively elaborate classifications of independent and dependent variables, respectively; this attempt was guided mainly by the bidirectional-causality anger-aggression feedback model and the related theoretical positions. The implications of these classifications for a variety of experimental and theoretical issues, including several controversies of long standing, were also discussed. When possible, suggestions for avoiding common methodological, experimental, and interpretive pitfalls were made.

References

- Arms, R. L., Russell, G. W., & Sandilands, M. L. Effects of viewing aggressive sports on the hostility of spectators. Unpublished manuscript, University of Lethbridge, Alberta, Canada, 1977.
- Averill, J. R. Anger. Nebraska Symposium on Motivation. Lincoln: University of Nebraska Press, 1978.

- Baker, J. W., II, & Schaie, K. W. Effects of aggressing "alone" or "with another" on physiological and psychological arousal. Journal of Personality and Social Psychology, 1969, 12, 80-86.
- Bandura, A. Aggression: A social learning analysis. Englewood Cliffs, N. J.: Prentice-Hall, 1973.
- Bandura, A. Influence of a model's reinforcement contingencies or the acquisition of imitative responses. Journal of Personality and Social Psychology, 1965, 1, 589-595.
- Bandura, A., Ross, D., & Ross, S. Transmission of aggression through imitation of aggressive models. Journal of Abnormal and Social Psychology, 1961, 63, 575-582.
- Bandura, A., Ross, D., & Ross, S. Imitation of film-mediated aggressive models. Journal of Abnormal and Social Psychology, 1963, 66, 3-11. (a)
- Bandura, A. Ross, D., & Ross, S. Vicarious reinforcement and imitative learning. Journal of Abnormal and Social Psychology, 1963, 67, 601-607 (b).
- Baron, R. A., The influence of hostile and nonhostile humor upon physical aggression. Personality and Social Psychology Bulletin, 1978, 4, 77-80.
- Baron, R. A., & Bell, P. A. Aggression and heat: The influence of ambient temperature, negative affect, and a cooling drink on physical aggression. Journal of Personality and Social Psychology, 1976, 33, 245-255.
- Baron, R. A., & Bell, P. A. Sexual arousal and aggression by males: Effects of type of erotic stimuli and prior provocation. Journal of Personality and Social Psychology, 1977, 35, 79-87.
- Bell, P. A., & Baron, R. A. Aggression and heat: The mediating role of negative affect. Journal of Applied Social Psychology, 1976, 6, 18-30.
- Berkowitz, L. Some factors affecting the reduction of overt hostility. Journal of Abnormal and Social Psychology, 1960, 60, 14-21.
- Berkowitz, L. Some aspects of observed aggression. Journal of Personality and Social Psychology, 1965, 2, 359-369.
- Berkowitz, L. The frustration-aggression hypothesis

revisited. In L. Berkowitz (Ed.), Roots of aggression: A re-examination of the frustration-aggression hypothesis. New York: Atherton Press, 1969.

- Berkowitz, L., & Donnerstein, E. External validity is more than skin deep. American Psychologist, 1982, 37, 245-257.
- Berkowitz, L., & Geen, R. G. Film violence and the cue properties of available targets. Journal of Personality and Social Psychology, 1966, 3, 525-530.
- Berkowitz, L., & Geen, R. G. Stimulus qualities of the target of aggression: A further study. Journal of Personality and Social Psychology, 1967, 5, 364-368.
- Berkowitz, L., Green, J. A., & Macaulay, J. R. Hostility catharsis as the reduction of emotional tension. Psychiatry, 1962, 25, 23-31.
- Berkowitz, L., & LePage, A. Weapons as aggression-eliciting stimuli. Journal of Personality and Social Psychology, 1967, 7, 202-207.
- Berkowitz, L., & Rawlings, E. Effects of film violence on inhibitions against subsequent aggression. Journal of Abnormal and Social Psychology, 1963, 66, 405-412.
- Bramel, D., Taub, B., & Blum, B. An observer's reaction to the suffering of his enemy. Journal of Personality and Social Psychology, 1968, 8, 384-392.
- Buss, A. H. The psychology of aggression. New York: Wiley, 1961.
- Buss, A. H., & Foliart, R. Role-playing aggression and the catharsis hypothesis. Unpublished manuscript, 1958. (Cited in Buss, 1961.)
- Campbell, D. T., & Stanley, J. C. Experimental and quasi-experimental designs for research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963.
- deCharms, R., & Wilkins, E. J. Some effects of verbal expression of hostility. Journal of Abnormal and Social Psychology, 1963, 66, 462-470.
- Donnerstein, E., Donnerstein, M., & Barrett, G. Where is the facilitation of media violence: The effects of nonexposure and placement of anger arousal. Journal of Research in Personality, 1976, 10, 386-

- Donnerstein, E., Donnerstein, M., & Evans, R. Erotic stimuli and aggression: Facilitation or inhibition. Journal of Personality and Social Psychology, 1975, 32, 237-244.
- Donnerstein, E., & Wilson, D. W. Effects of noise and perceived control on ongoing and subsequent aggressive behavior. Journal of Personality and Social Psychology, 1976, 34, 774-781.
- Doob, A. N., & Climie, R. J. The delay of reinforcement and the effects of film violence. Journal of Experimental Social Psychology, 1972, 3, 136-142.
- Doob, A. N., & Kirshenbaum, H. M. The effects on arousal of frustration and aggressive films. Journal of Experimental Social Psychology, 1973, 9, 57-64.
- Doob, A. N., & Wood, L. Catharsis and aggression: Effects of annoyance and retaliation on aggressive behavior. Journal of Personality and Social Psychology, 1972, 22, 156-162.
- Ebbesen, E. B., Duncan, B., & Konečni, V. J. Effects of content of verbal aggression on future verbal aggression: A field experiment. Journal of Experimental Social Psychology, 1975, 11, 192-204.
- Feshbach, S. The drive reduction function of fantasy behavior. Journal of Abnormal and Social Psychology, 1955, 50, 3-11.
- Feshbach, S. The catharsis hypothesis and some consequences of interaction with aggressive and neutral play objects. Journal of Personality, 1956, 24, 449-462.
- Feshbach, S. The stimulating vs. cathartic effects of vicarious aggressive activity. Journal of Abnormal and Social Psychology, 1961, 63, 381-385.
- Fitz, D., & Stephan, W. G. Effects of direct or displaced cathartic aggression on subsequent aggression. Psychological Reports, 1976, 39, 967-973.
- Fromkin, H. L., Goldstein, J. H., & Brock, T. C. The role of "irrelevant" derogation in vicarious aggression catharsis: A field experiment. Journal of Experimental Social Psychology, 1977, 13, 239-252.
- Frost, R. O. & Holmes, D. S. Displaced aggression by

- annoyed and nonannoyed subjects: Its effect on physiological arousal and subsequent aggression. Journal of Research in Personality, 1979, 13, 221-233.
- Gambaro, S., & Rabin, A. I. Diastolic blood pressure responses following direct and displaced aggression after anger arousal in high- and low-guilt subjects. Journal of Personality and Social Psychology, 1969, 12, 87-94.
- Geen, R., & Berkowitz, L. Name-mediated aggressive cue properties. Journal of Personality, 1966, 34, 456-465.
- Geen, R., & Berkowitz, L. Some conditions facilitating the occurrence of aggression after the observation of violence. Journal of Personality, 1967, 35, 666-676.
- Geen, R. G., & O'Neal, E. C. Activation of cue-elicited aggression by general arousal. Journal of Personality and Social Psychology, 1969, 11, 289-292.
- Goldstein, J. H., & Arms, R. L. Effects of observing athletic contests or hostility. Sociometry, 1971, 34, 83-90.
- Goldstein, J. H., Davis, R. W., & Herman, D. Escalation of aggression: Experimental Studies. Journal of Personality and Social Psychology, 1975, 31, 162-170.
- Hanratty, M. A., Liebert, R. M., Morris, L. W., & Fernandez, L. E. Imitation of film-mediated aggression against live and inanimate victims. Proceedings of the 77th Annual Convention of the APA, 1969. Pp. 457-458.
- Hanratty, M. A., O'Neal, E., & Sulzer, J. L. Effect of frustration upon imitation of aggression. Journal of Personality and Social Psychology, 1972, 21, 30-34.
- Hapkiewicz, W. I., & Roden, A. H. The effect of aggressive cartoons on children's interpersonal play. Child Development, 1971, 42, 1583-1585.
- Hartmann, D. P. Influence of symbolically modeled instrumental aggression and pain cues on aggressive behavior. Journal of Personality and Social Psychology, 1969, 11, 280-288.
- Hicks, D. J. Imitation and retention of film-mediated aggressive peer and adult models. Journal of

- Personality and Social Psychology, 1965, 2, 97-100.
- Hokanson, J. E., & Burgess, M. The effects of status, type of frustration, and aggression on vascular processes. Journal of Abnormal and Social Psychology, 1962, 65, 232-237. (a)
- Hokanson, J. E., & Burgess, M. The effects of three types of aggression on vascular processes. Journal of Abnormal and Social Psychology, 1962, 64, 446-449. (b)
- Hokanson, J. E., Burgess, M., & Cohen, M. F. Effects of displaced aggression on systolic blood pressure. Journal of Abnormal and Social Psychology, 1963, 67, 214-218.
- Hokanson, J. E., & Edelman, R. Effects of three social responses on vascular processes. Journal of Personality and Social Psychology, 1966, 3, 442-447.
- Hokanson, J. E., & Shetler, S. The effect of overt aggression on physiological arousal level. Journal of Abnormal and Social Psychology, 1961, 63, 446-448.
- Holmes, D. S. Effects of overt aggression on level of physiological arousal. Journal of Personality and Social Psychology, 1966, 4, 189-194.
- Hornberger, R. H. The differential reduction of aggressive responses as a function of interpolated activities. American Psychologist, 1959, 14, 354.
- Kahn, M. The physiology of catharsis. Journal of Personality and Social Psychology, 1966, 3, 278-286.
- Kaplan, R. M., & Singer, R. D. Television violence and viewer aggression: A reexamination of the evidence. Journal of Social Issues, 1976, 32, 35-70.
- Kenny, D. T. An experimental test of the catharsis theory of aggression. Ann Arbor: University Microfilms, 1953.
- Konečni, V. J. Annoyance, type and duration of postannoyance activity, and aggression: The "cathartic effect." Journal of Experimental Psychology: General, 1975, 104, 76-102. (a)
- Konečni, V. J. The mediation of aggressive behavior: Arousal level vs. anger and cognitive labeling. Journal of Personality and Social Psychology, 1975, 32, 706-712. (b)

- Konečni, V. J. Perception and labeling of emotional states in oneself and others. Paper presented in the symposium "New perspectives in the research on emotion" at the 86th Annual Convention of the American Psychological Association, Toronto, Canada, 1978.
- Konečni, V. J. Determinants of aesthetic preference and effects of exposure to aesthetic stimuli: Social, emotional, and cognitive factors. In B. Maher (Ed.), Progress in experimental personality research (Vol. 9). New York: Academic Press, 1979 (a).
- Konečni, V. J. The role of aversive events in the development of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), The social psychology of intergroup relations. Monterey, CA: Brooks/Cole 1979 (b).
- Konečni, V. J., Crozier, J. B., & Doob, A. N. Anger and expression of aggression: Effects on aesthetic preference. Scientific Aesthetics/Sciences de l'Art, 1976, 1, 47-55.
- Konečni, V. J., & Day, J. Competition and aggression. Unpublished manuscript, University of California, San Diego, 1977.
- Konečni, V. J., & Doob, A. N. Catharsis through displacement of aggression. Journal of Personality and Social Psychology, 1972, 23, 379-387.
- Konečni, V. J., & Ebbesen, E. B. Disinhibition vs. the cathartic effect: Artifact and substance. Journal of Personality and Social Psychology, 1976, 34, 352-365. (a)
- Konečni, V. J., & Ebbesen, E. B. External validity of research in legal psychology. Law and human behavior, 1979, 3, 39-70.
- Konečni, V. J. & Franco, L. A test of Valins's reinterpretation of the Schachter-Singer results using visually-presented false heart-rate feedback and videotaped emotion-inducing sequences. Unpublished manuscript, University of California, San Diego, 1974.
- Konečni, V. J. & Frank, C. Effects of current and anticipated physical stress, and proprioceptive feedback from facial expression, on judgments of own emotional state. Unpublished manuscript, University of California, San Diego, 1977.

- Konečni, V. J. & Manley, J. The effects of anger, and the level of certainty that the anger instigator has been hurt, on aggressive behavior. Unpublished manuscript, University of California, San Diego, 1977.
- Konečni, V. J. & Sargent-Pollock, D. A "facial-shadowing" (mimicking) procedure for studying the judgment of own emotional state in a "facial rumor" paradigm. Unpublished manuscript, University of California, San Diego, 1977.
- Konečni, V. J. & Sargent-Pollock, D. Choice between melodies differing in complexity under divided-attention conditions. Journal of Experimental Psychology: Human Perception and Performance, 1976, 2, 347-356.
- Konečni, V. J. & Spees, F. W. A comparison of effects of physical aggression, physical activity, and exposure to noise on subsequent aggression, with special attention to temporal and sequence parameters. Unpublished manuscript, University of California, San Diego, 1977.
- Konečni, V. J. & Wood, S. The effects of aggressive and nonaggressive physical exercise on aggressive behavior. Unpublished manuscript, University of California, San Diego, 1982.
- Konečni, V. J. & Zellensky, D. Effects of socially-induced emotional state and proprioceptive feedback from facial expression on aggressive behavior. Unpublished manuscript, University of California, San Diego, 1976.
- Kuhn, D. Z., Madsen, C. H., & Becker, W. C. Effects of exposure to an aggressive model and "frustration" on children's aggressive behavior. Child Development, 1967, 38, 739-745.
- Kulik, J. A., & Brown, R. Frustration, attribution of blame, and aggression. Journal of Experimental Social Psychology, 1979, 15, 183-194.
- Laird, J. D., Self-attribution of emotion: The effects of expressive behavior on the quality of emotional experience. Journal of Personality and Social Psychology, 1974, 29, 475-486.
- Lang, A. R., Goeckner, D. J., Adesso, V. J., & Marlatt, G. A. Effects of alcohol on aggression in male social drinkers. Journal of Abnormal Psychology, 1975, 84, 508-518.

- Lanzetta, J. T., Cartwright-Smith, J., & Kleck, R. E. Effects of nonverbal dissimulation on emotional experience and autonomic arousal. Journal of Personality and Social Psychology, 1976, 33, 354-370.
- Larder, D. L. Effect of aggressive story content on non-verbal play behavior. Psychological Reports, 1962, 11, 14.
- Leak, G. Effects of hostility arousal and aggressive humor on catharsis and humor preference. Journal of Personality and Social Psychology, 1974, 30, 736-740.
- Lövaas, O. I. Effect of exposure to symbolic aggression on aggressive behavior. Child Development, 1961, 32, 37-44.
- Malamuth, N. M., Feshbach, S., Jaffe, Y. Sexual arousal and aggression: Recent experiments and theoretical issues. Journal of Social Issues, 1977, 33, 110-133.
- Mallick, S., & McCandless, B. R. A study of catharsis of aggression. Journal of Personality and Social Psychology, 1966, 4, 591-596.
- Mandler, G. Mind and emotion. New York: Wiley, 1975.
- Mariaskin, M., Lupfer, M., & D'Encarnacao, P. The effects of alcohol and frustration on aggression and generosity. Paper presented at the 8th Annual Convention of the American Psychological Association, Washington, D. C. 1976.
- Marlatt, G. A., Kosturn, C. F., & Lang, A. R. Provocation to anger and opportunity for retaliation as determinants of alcohol consumption in social drinkers. Journal of Abnormal Psychology, 1975, 84, 652-659.
- Milgram, S. Behavioral study of obedience. Journal of Abnormal and Social Psychology, 1963, 67, 371-378.
- Mueller, C., & Donnerstein, E. The effects of humor induced arousal upon aggressive behavior. Journal of Research in Personality, 1977, 77, 73-82.
- Mussen, P., & Rutherford, E. Effects of aggressive cartoons on children's aggressive play. Journal of Abnormal and Social Psychology, 1961, 62, 461-464.
- Nickel, T. W. The attribution of intention as a crucial factor in the relation between frustration and

- aggression. Journal of Personality, 1974, 42, 482-492.
- Osborn, D. K., & Endsley, R. C. Emotional reactions of young children to television violence. Child Development, 1971, 42, 321-331.
- Page, M. M., & Scheidt, R. J. The elusive weapons effect: Demand awareness, evaluation apprehension, and slightly sophisticated subjects. Journal of Personality and Social Psychology, 1971, 20, 304-318.
- Parton, D. P., & Geshuri, Y. Learning of aggression as a function of presence of a human model, response intensity, and target of the response. Journal of Experimental Child Psychology, 1971, 11, 491-504.
- Pastore, N. The role of arbitrariness in the frustration-aggression hypothesis. Journal of Abnormal and Social Psychology, 1952, 47, 728-731.
- Pepitone, A., & Reichling, G. Group cohesiveness and the expression of hostility. Human Relations, 1955, 8, 327-344.
- Rocha, R. F., & Rogers, R. W. Ares and Babbitt in the classroom: Effects of competition and reward on children's aggression. Journal of Personality and Social Psychology, 1976, 33, 588-593.
- Rosenbaum, M. E., & deCharms, R. Direct and vicarious reduction of hostility. Journal of Abnormal and Social Psychology, 1960, 60, 105-111.
- Rosenthal, R. Interpersonal expectations: Effects of the experimenter's hypothesis. In R. Rosenthal & R. L. Rosnow (Eds.), Artifact in behavioral research. New York: Academic Press, 1969.
- Rule, B. G., Dyck, R., & Nesdale, A. R. Arbitrariness of frustration: Inhibition or instigation effects on aggression. European Journal of Social Psychology, 1978, 8, 237-244.
- Rule, B. G., Ferguson, T. J., & Nesdale, A. R. Emotional arousal, anger, and aggression: The misattribution issue. In P. Pliner, K. Blankstein, & T. Spiegel (Eds.), Advances in communication and effect (Vol. 4). New York: Plenum, 1978.
- Rule, B. G., & Nesdale, A. R. Emotional arousal and aggressive behavior. Psychological Bulletin, 1976, 83, 851-863.

- Ryan, E. D. The cathartic effect of vigorous motor activity on aggressive behavior. Research Quarterly, 1970, 41, 542-551.
- Sargent-Pollock, D. The effects of proprioceptive feedback from facial configuration on emotional experience. Unpublished doctoral dissertation, University of California, San Diego, 1978.
- Schachter, S. The interaction of cognitive and physiological determinants of emotional state. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 1). New York: Academic Press, 1964.
- Schwartz, G. E., Fair, P. L., Salt, P., Mandel, M. R., & Klerman, G. L. Facial muscle patterning to affective imagery in depressed and nondepressed subjects. Science, 1976, 192, 489-491.
- Shemberg, K. M., Leventhal, D. B., & Allman, L. Aggression machine performance and rated aggression. Journal of Experimental Research in Personality, 1968, 3, 117-119.
- Shuntich, R. J. & Taylor, S. P. The effects of alcohol on human physical aggression. Journal of Experimental Research in Personality, 1972, 6, 34-38.
- Steuer, F. B., Applefield, J. M., & Smith, R. Televised aggression and interpersonal aggression of preschool children. Journal of Experimental Child Psychology, 1971, 11, 442-447.
- Taylor, S. P. Aggressive behavior and physiological arousal as a function of provocation and the tendency to inhibit aggression. Journal of Personality, 1967, 35, 297-310.
- Taylor, S. P. & Gammon, C. B. Effects of type and dose of alcohol on human physical aggression. Journal of Personality and Social Psychology, 1975, 32, 169-175.
- Taylor, S. P. & Vardaris, R. M., Rawtich, A. B., Gammon, C. B., Cranston, J. W., & Lubetkin, A. I. The effects of alcohol and delta-9-tetrahydrocannabinol on human physical aggression. Aggressive Behavior, 1976, 2, 153-161.
- Thibaut, J. W., & Coules, J. The role of communication in the reduction of interpersonal hostility. Journal of Abnormal and Social Psychology, 1952, 47, 770-777.

- Turner, C. W., & Simons, L. S. Effects of subject sophistication and evaluation apprehension on aggressive responses to weapons. Journal of Personality and Social Psychology, 1974, 30, 341-348.
- Turner, C. W., Simons, L. S., Berkowitz, L., & Frodie, A. The stimulating and inhibiting effects of weapons on aggressive behavior. Aggressive Behavior, 1977, 3, 355-378.
- Walters, R. H., & Thomas, L. E. Enhancement of punitiveness by visual and audiovisual displays. Canadian Journal of Psychology, 1963, 17, 244-255.
- Webb, E. J., Campbell, D. T., Schwartz, R. D., & Sechrest, L. Unobtrusive measures: Nonreactive research in the social sciences. Chicago: Rand McNally, 1966.
- Weiss, W. Effects of mass media of communication. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology. Reading, Mass.: Addison-Wesley, 1969, Vol. 5.
- Williams, J., Meyerson, L., & Eron, L. Peer-rated aggression and aggressive responses elicited in an experimental situation. Child Development, 1967, 38, 181-189.
- Worchel, P. Catharsis and the relief of hostility. Journal of Abnormal and Social Psychology, 1957, 55, 238-243.
- Zillmann, D. Excitation transfer in communication-mediated aggressive behavior. Journal of Experimental Social Psychology, 1971, 7, 419-434.
- Zillmann, D. & Bryant, J. Effects of residual excitation on the emotional response to provocation and delayed aggressive behavior. Journal of Personal and Social Psychology, 1974, 30, 782-791.
- Zillmann, D., & Johnson, R. C. Motivated aggressiveness perpetuated by exposure to aggressive films and reduced by exposure to nonaggressive films. Journal of Research in Personality, 1973, 7, 261-276.
- Zillmann, D., Katcher, A. H., & Milavsky, B. Excitation transfer from physical exercise to subsequent aggressive behavior. Journal of Experimental Social Psychology, 1972, 8, 247-259.