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AUTHOR Kotsch, William E.
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ABSTRACT

This study investigated the effects of three gaze patterns-staring, normal looking, glancing and avoiding eye contact-and verbal insult on instrumental aggression. It was hypothesized that the experimental manipulation of verbal insult will: (1) not affect shock intensity or duration (2) not increase the subjects self-reported hostility, and (3) cause the subjects to report greater dislike for the insulting victim. In regards to the victim's gaze patterns, it was hypothesized that: (4) the victim's stare will decrease intensity and duration of shock delivered by the subjects and that (5) the victim's visual avoidance behavior will cause the subjects to administer shocks of greater intensity and duration. Forty-eight male undergraduate subjects were randomly assigned to the cells in a 2x3x3 factorial design. The major measurement apparatus was a modified Bus Aggression Machine (BAM). The results showed that the insult condition was apparently not effective in arousing the subjects emotionally, and that gaze patterns did not significantly influence the intensity of the subjects' emotions. (Author/BW)

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William E. Kotsch

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Department of Psychology

Vanderbilt University

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The Committee:

C. E. Izard, Ph.D.
Thesis Supervisor

Jum C. Nunnally, Ph.D.
Coordinator of Honors Program
in Psychology

draft

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William E. Kotsch

Vanderbilt University

Introduction

Nonverbal and verbal communication from the victim--speech, other vocalizations, facial expressions, and gaze patterns--has probably been a source of variance in most studies of aggression in the laboratory. However, in only a few of the many studies of aggression have investigators manipulated or controlled the victim's communications to the aggressor.

Savitsky (1970) summarized research concerned with the effects of the victim's communication on the subsequent aggression of the subject. The results of these studies were inconsistent in that knowledge of the target's reaction increased aggression in some cases but decreased it in others. Savitsky pointed out that the results become more meaningful if the prior emotional arousal of the subject is taken into account. For the most part those studies in which the experimenter did not insult the subjects (Buss, 1966a, 1966b), the subjects showed no increase in aggression. In studies in which the experimenter did employ insult (Wheeler & Caggiula, 1966; Feshback, Stle, & Bitter, 1967; Hartmann, 1969), the subject's increased their aggressive responses. This suggests that it is when subjects have been emotionally aroused that perception of the victim's response may increase aggression. A study by Savitsky, Izard, Kotsch, & Christy (1971) failed to confirm this hypothesis. Contrary to expectation, the insulted group did not exhibit significantly more aggression than the noninsulted group. Nor did insulted subjects report greater anger or hostility toward their victim. Insulted subjects did express a greater dislike

for the victim.

Buss (1966) has reported that a victim's vocalization in response to pain, either verbal reports or grunts, decreases the intensity of shocks being delivered to him by subjects. The Savitsky, et al. study showed that a victim's facial expression also affects the instrumental aggression of subjects in the laboratory setting. The victim's facial expressions of joy increased aggression in subjects, while expressions of anger decreased aggression.

While one's gaze direction is probably a component of facial expressions, a victim's gaze pattern may influence the magnitude of aggression directed against him, independent of facial expression. Certain gaze patterns are components of more general behavior patterns such as the threat and appeasement displays which regulate intraspecific aggression among primates. Appeasement gestures are submissive postural and facial displays which communicate to an aggressor that his victim is discontinuing the fight and wants peace. Threat gestures serve to indicate an animal's hostile intention. Van Hoof (1969) described hard staring as a component of threatening or aggressive displays in rhesus macaque monkeys. In contrast, averted eyes were seen as accompaniments of submissive displays.

The importance of the eyes in aggression-related communication is evidenced by the fact that the eyes or eye-like markings are employed in threat and intimidation by a wide variety of lower animals (Cott, 1957). These aspects of visual displays even function between animals of different species, e.g., between prey and preditor, (Hingston, 1933). Furthermore, this evidence suggests that the eyes themselves may elicit arousal in the recipient. Field studies of ethologists have reported that the mutual glance between primates trigger mutual threat displays which re-establishes the place of each in the dominance heirarchy (Hall & Devore, 1965; Hinde & Rowell, 1962; Jay, 1965; & Shaller, 1963).

Experimentation has also supported this hypothesis. Brain stem response to experimentally induced cortical stimulation, a response inversely related to attention in primates, is greatly depressed while a monkey is aware that it is under the gaze of an experimenter (Wada, 1961). Further, Exline (1971) has shown that experimenter-monkey eye contact regularly elicited the threat response in 18 month old rhesus macaques.

Evidence indicates that arousal in human subjects elicited by eye contact can be of a pleasant nature, as indicated by work on the mother-infant relationship (Sptiz & Wolff, 1949; Ambrose, 1961; Kistiakovskaia, 1965). Furthermore, direct gaze expresses positive affect toward another (Exline, 1965a), and this positive affect is communicated to the recipient of the gaze (Mehrabian, 1966).

The amount of direct gaze employed in interpersonal interaction seems to depend on the situation and the characteristics of the "looker." Exline (1963) has shown that subjects high in "need affiliation" seek more eye contact in a co-operative situation than in a competitive situation, but subjects low in "need affiliation" seek more eye contact in a competitive situation than in a cooperative situation. These results indicate that both intra person and interpersonal variables provide context which influence the meaning of eye contact.

Gaze is not always an expression of positive affect for another. Man has long believed in the threatening power of the eyes. Elworthy (1895) considered the belief in the evil eye one of the most ancient, universal, and persistent superstitions. To cite a modern example, Gifford (cited in Tomkins, 1963) reported that a witness appearing before a labor rackets committee had used the evil eye to keep employees at work. A business man hired him "to come in once or twice every week or so and glare at employees."

During a conversation, looks at the other are intermittant. After reviewing the literature on visual interaction, Argyle (1969) concluded that the pro-

portion of time spent looking at the other in a typical two person interaction is usually between 25 and 75% and that the looks vary in length, usually between 1 and 10 seconds.

One's visual pattern is affected by many variables, for example, looking behavior is different while speaking and listening (Exline, 1965b; Kendon, 1967). Kendon found that the speaker looked at his listener when he was sure of what he wanted to say, and looked away during disruptive utterances (i.e., stuttering). Kendon also found that the speaker tended to look up at the end of an utterance, presumably to obtain feedback as to how his statements were perceived. Argyle (1969) hypothesized that dependent people need more feedback than do dominant people, and thus they exhibit more of this information seeking behavior.

Argyle suggested that to look away during a mutual gaze may function as a submissive display. Exline (1965b) found that subjects, under the constant gaze of an interviewer, who were asked embarassing questions or given negative reinforcement (criticism) looked less at the interviewer. Exline (1965a) has speculated, that lacking other means of escape, the averted eyes represent a symbolic disassociation of the self from the other.

In our view, aggression may involve the motor system (vocal or motor act), cognition system (aim or intention), and emotion system (an emotion or pattern of emotions). All aggression necessarily contains the first of these components, but the presence of the latter two depends on the types of aggression.

In the present study, we adopted Kaufman's (1965) definition of aggression as our definition of an aggressive act--a vocal, physical, or some other signal capable of reaching and being perceived by a recipient of the same species and of being sensed or judged as noxious by both recipient and perpetrator. We recognized two types of aggression, instrumental and hostile, as did Feshback

(1964). Instrumental aggression was considered to be the deliverence of a noxious stimulus is incidental to other goals. We defined hostility as a cognition-emotion interaction, an intent to harm interacting with one or more of the fundamental emotions of anger, disgust, and contempt and hositle aggression as hostility plus the deliverance of a noxious stimulus (Izard, in press). The present study was designed as an investigation of instrumental aggression, with varied interpersonal communications.

Our experiment investigated the effects of three gaze patterns--staring, normal looking, glancing and avoiding eye contact--and verbal insult on instrumental aggression. The staring condition was defined so as to avoid any component of the facial expression of anger, in order to separate the effects of a stare from an angry look.

The insult condition will provide a check on the findings of Savitsky. Half the aggressors will be exposed to an insulting confederate (future victim of the subject's aggression), and half will be treated neutrally and not insulted.

The predictions relating to insult were influenced by Tomkin's (1963) and Izard's (1971) theory and the experiment of Savitsky et al. (1970). It was hypothesized that the experimental manipulation of verbal insult (1) will not affect shock intensity or duration (2) or increase the subject's self-reported hostility, (3) but will cause the subject's to report greater dislike for the insulting victim.

In regard to the effects of the victim's gaze patterns, hypotheses were based on the additional considerations of animal data and research on visual patterns. It was hypothesized that (4) the victim's stare will decrease intensity and duration of shock delivered by the subjects and that (5) the victim's visual avoidance behavior will cause the subjects to administer shocks

of greater intensity and duration.

Method

Participants and design

Forty-eight subjects were randomly assigned in equal numbers to the cells of a 2 x 3 x 3 factorial design. (Eight participants who demonstrated in post experimental inquiry that they saw through the deception were excluded and replaced.) The subjects were male undergraduates from Vanderbilt and Middle Tennessee State Universities. All were volunteers and all received $2.00 for their participation. The first set of conditions for this experiment was (a) a mildly disagreeing experimental partner, and (b) a violently disagreeing (insulting) partner. The second set of conditions was the quantity of the victim's visual reaction to the subject: (a) staring, (b) "normal looking, and (c) eye contact avoidance. Two male college students switched roles as experimenter and victim an equal number of times within each condition in a randomized order.

Apparatus and Experimental Set-up

Buss Aggression Machine. The major measurement apparatus of this study was a modified Buss Aggression Machine (BAM), (Buss, 1961). This consisted of a panel containing ten buttons in a horizontal row. The right-most two buttons were labeled "use with caution" and were red in contrast to the eight other black buttons. Lights connected to the three right-most buttons indicated to the victim when buttons labeled with high intensity ratings had been pressed. The subject was told that each button delivered increasing intensities of shock to his experimental partner. Suggestion that the BAM actually delivered shock was given in several ways. First, prior to the start of the experimental task, the subject was administered two low shock intensities. Secondly, as the subject pressed any of the ten buttons he could feel the hum of electricity through

his fingers. Also the needle of the volt meter next to the button console swung farther to the right with increased shock intensities. Unknown to the subject the shock level and the duration of the time spent in each button-press were automatically recorded in another room.

Experimental Set-up. The subjects and victims were seated at opposite ends of a table, six feet in length, a distance which Argyle and Dean (1965) found to be a comfortable distance for interaction. A partition 16 inches high was set in front of the victim which enabled the subject to see only the top of the victim's face, from the nose up. The victim sat with his back about two feet from a blank wall so the subject was not distracted and the victims eyes were the center of his attention.

Differential Emotion Scale II. The Differential Emotion Scale II (DES II) (Izard & Dougherty, in preparation), was used to assess the subjects emotional state during the experiment. The DES II consists of 33 items, three for each of the ten discrete emotions of anger, fear, joy, disgust, interest, surprise, guilt, distress, contempt, and shyness, and three for the non-emotional factor of fatigue. Subjects rated each item on two five point scales, one for frequency and one for intensity. On a separate DES II subjects indicated how they perceived their partner's feelings during the experiment.

First Impression Rating Scale. Subjects described the victim by completing the fifteen bipolar semantic differential type items of the First Impression Rating Scale (FIRS) (Izard & Nunnally, 1965). Factor analysis of this scale has shown that a factor defined as "feeling of like or dislike of another person" accounts for some 60% of this scale's variance.

Post-experimental Questionnaire. A Post-experimental Questionnaire gave the subject an opportunity to indicate his hypothesis about the experiment and to determine if there were any suspicions about the deceptions used in the ex-

perimental procedure. Specifically this questionnaire was used to learn if the subject believed that the victim was not actually receiving shock or that he was really the experimenter's confederate. Also the subject was given the opportunity to express his hypothesis about the purpose of this study.

Procedure

The subject was conducted into an experimental room and told that he was participating in the control group of an experiment designed to measure the effects of TV teaching and punishment in our educational system. The subject was told that the purpose of the control group was to determine the effects of just the physical presence of the teacher on the amount of learning.

The Experimental Task. The subject was given a teaching manual which contained the experimental task. This task consisted of a 30 item paired-associate word list. The subject orally presented the list to the victim then tested him by presenting the stimulus word and waiting for the correct response. The subject was instructed to present each stimulus, give the victim two chances to respond correctly, and shock him for each of his mistakes. The subject was told to present and test the word list three times and that his pupil would improve on each test.

Shock Machine. The subject was connected to the shock apparatus and given two mild shocks, which he was told, were intensities two and three. The apparatus was then explained in detail. The subjects were told to use which ever buttons they wished. However they were told that any one stimulus soon loses its effectiveness and therefore it was advisable to use a somewhat random pattern of shock intensities.

Insult

After explaining the instructions, the subject was told that he must conduct an interview with his pupil (the victim). The interview question dealt

with the use of TV teaching in our educational system. The subject was instructed to read the question to his pupil and take a stand on the question and then ask his pupil to disagree with what he had said. In half the trials the victim disagreed by logically presenting another view. In the other half of the trials the victim disagreed by personally belittling the subject's view.

The Victim's Reaction

During the interview the victim assumed a normal pattern of looking. After the interview, the experimenter attached a shock apparatus to the victim. The subject was told to begin the experiment. The experimenter left the room saying that he saying that he would return when the experiment was over. The victim continued the normal pattern of looking until he was presented with the first stimulus word. He missed the word and upon receiving the shock he began the pattern of looking designated for that particular trial.

The following outline describes the gaze behavior of the Vs: In order to be sure that the subject could tell when he was not being looked in the eye, we restricted the victim's gaze to a visual field 12" to 36" to the right or left of the victim's nose (Gibson and Pick, 1963), or to a point below the victim's line of vision.

1. Normal gazing
    a. Victim gives subject
        (1) about thirteen seven-second glances, while speaking and listening, looking approximately 40% of total time taken by the learning task.
        (2) Looking was unrelated to shock intensity (shock signal light was disconnected).
2. Staring (long, frequent gazes)
    a. victim gives subject

(1) about sixteen fifteen-second looks, amounting to 80% of total time

b. victim is not the first to break eye contact

c. victim looks more while speaking than while listening

d. victim always looks after a high intensity shock (if not already doing so)

e. victim always looks with eyes opened widly and brow slightly raised (to prevent eyebrows and forehead from lowering and conforming to the expression of anger)

3. Eye contact avoidance (short, infrequent looks or glances)

a. victim makes about twenty-three two second glances, amounting to 15% of total time

b. victim breaks off eye contact quickly

c. victim looks immediately after speaking

d. victim avoids looking after high intensity shocks, but changes gaze direction several times in quick succession as a response to the shock.

A separate group of subjects indicated the % of time they were looked at by the victim during the experiment (normal pattern until 1st shock, the visual pattern for particular trial). Results of the analysis showed 80% for stare, 55% for the normal, and 37.9% for the eye contact avoidance ($F = 12.86$, $p = .0002$).

Results

The intensity and duration of shocks delivered by the subject were analyzed in separate 2 x 3 x 3 analysis of variance with the factors of insult, gaze pattern, and trials. A subject's scores on a given trial were the mean intensity and duration of shock, recorded after each of the three administrations of the paired-associate recall test. Table I presents the overall analysis of variance for shock intensity and Figure I presents the means of shock intensity separated gaze patterns and trials.

Table 1

Analysis of Variance: Shock Intensity

Source	df	MS	F	P
Insult (A)	1	2.37		
Visual Pattern (B)	2	21.48	4.42	.0177
1 - A x B	2	5.15		
Between Error	42	4.86		
Trial (C)	2	3.63	10.85	.0002
A x C	2	.063		
B x C	4	.435		
A x B x C	4	.398		
Within Error	84	.334		

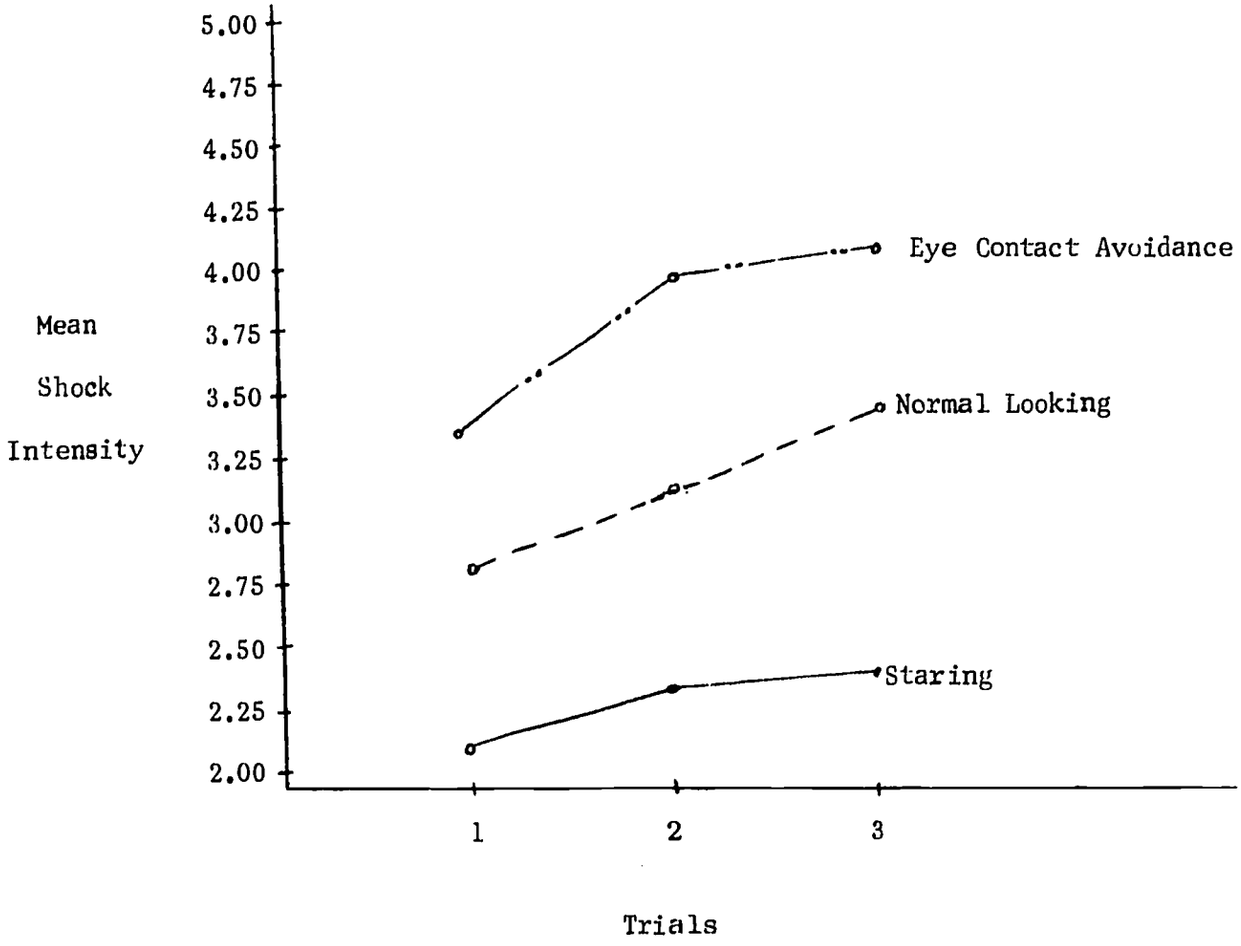

Fig. 1. Mean intensity of shock by trial as a function of the victim's visual pattern.

As predicted, the analysis of shock intensity revealed that insult manipulation had no effect. There was a significant main effect for gaze pattern ($p = .0177$) which accounted for 12.6% of the variance between subjects ($w^2 = .126$). The Dunn's test of the three pairwise comparisons failed to show any significant differences ($p = .05$). A one tailed t test between the stare and the eye contact avoidant pattern was significant ($p < .05$).

It was predicted that the analyses of shock intensity and shock duration would reveal similar results. However the analysis of shock duration failed to indicate any main effects. There was an unexpected insult x gaze pattern interaction.

The FIRS was subjected to a 2 x 3 analysis of variance. As predicted, results indicated that subjects reported greater dislike for the insulting victim ($p = .043$).

The score for each DES II factor for both the subject's emotions and the subject's perception of the victims' emotions, were subjected to 2 x 3 analyses of variance. Results failed to indicate any significant effects on the subjects' emotions. The subjects' self-reported anger score was very low, as predicted. However, subjects preceived the insulting victims as being significantly more surprised and disgusted than the noninsulting victims ($p < .01$).

In each of the three analyses of variance for the principal components of hsotility--anger, disgust, contempt--there was a significant visual pattern x insult interaction (anger, $p < .01$; contempt and disgust, $p < .05$). The means depicting those interactions are shown in Table 2 (see following page). Duncan's new multiple range test showed that perceived anger and disgust were significantly greater in the stare insult condition than in the eye contact avoidant noninsult or stare noninsult conditions. Perceived contempt was significantly greater in the stare insult condition than in the eye contact avoidant noninsult

Table II

Mean Intensity of the Subjects Perception of the Victim's Hostility

DES II Anger, Disgust, and Contempt Scores)

		Visual Pattern			
		Stare	Normal	Visual Avoidance	Means
ANGER	Insult	20.3[a]	4.8	10.3	11.8
	Noninsult	4.9[b]	14.4	4.0[b]	7.8
	Mean	12.6	9.6	7.1	
DISGUST	Insult	27.7[a]	14.3	19.6	20.53
	Noninsult	9.9[b]	17.3	7.6[b]	11.6
	Mean	18.8	15.8	13.6	
CONTEMPT	Insult	16.3[a]	10.3	11.3	12.6
	Noninsult	6.3	13.4	3.9[b]	7.8
	Mean	11.3	11.8	7.6	

Means with different superscrits differ ($p < .01$) by Duncan's New Multiple Range Test.

condition ($p < .01$). The subject's self rating of anger, contempt, and disgust showed similar but insignificant interactions.

Discussion

The insult condition was apparently not effective in arousing the subjects emotionally, as measured by the DES II factors. The failure of insult to affect shock intensity or duration may be explained by the fact that the insult failed to anger the subjects or increase their hostility.

Despite the attempt to insult subjects, the reported intensity of their emotions in all conditions was extremely low, supporting the prediction that the experiment would elicit instrumental aggression. The subjects were not aroused by the victim hence hostility did not play a significant role in the aggression.

Although the insult failed to elicit hostility or increase aggression, it did affect the subjects' perceptions of the victim as shown by the DES II ratings. The insulting victims were seen as significantly more surprised and disgusted, and tended to be perceived as more contemptous and less shy. Further, as indicated by the FIRS, insulted subjects showed an attitude of greater dislike for their victims. The findings relating to the insult condition confirmed those of Savitsky et al. Neither the subjects' liking (FIRS ratings) for the victim, nor their perception of the victim's negative emotions (DES II), influenced their hostility or aggression.

The gaze patterns did not significantly influence the intensity of the subjects' emotions, nor did the gaze patterns have a main effect on the subjects' perception of the victims emotions. However, if the victim had previously verbalized negative feelings towards the subjects, the stare interacted with the insult to increase the subjects' ratings of the victims' hostility. Thus the effect of the stare was different in different interpersonal contexts.

The victims' gaze pattern did significantly influence the instrumental aggression of subjects. The findings that staring victims elicited a lower intensity of aggression and eye contact avoiding victims elicited more aggression could be interpreted as support for the hypothesis that the stare functions as a threat and visual avoidance as an indication of submission. However, this interpretation does not hold if threat is defined as a consequence of perceived hostility. While the stare has a direct effect on instrumental aggression, its effect on the subjects' perception of hostility in the staring victim is dependent on the prior subject victim interaction (insult-noninsult). The DES II data did not establish this threat-appeasement function as the explanation of the effect of the victims' gaze pattern of instrumental aggression.

Another explanation for the effect of the eyes on instrumental aggression is in line with the findings of Zimbardo (1969). He has shown that when a recipient of aggression is exposed to the attacker the recipient's qualities have a great effect on the level of aggression delivered. Victims having fewer definable characteristics elicit greater shock. This suggests that as the aggressor in a situation calling for instrumental aggression is made more aware of his victim as a person or distinct individual, his aggression will be inhibited. An aggressor (or any individual) increases his awareness of another when the other is looking at him. In his research on attention in primates, Wada (1961) has shown that the monkey's level of attention is more intense and persistent when there is eye contact with an experimenter than in a number of other stimulus situations. Furthermore, Kendon (1967) has stated that during a mutual glance each is taking the other into account on a very personal level, and Tomkins (1963) believes the mutual glance is the most intimate nonphysical form of interaction. Perhaps while under the victim's intense gaze, the aggressors' in the present study increased their awareness

of the victim as a differentiated individual to be reckoned with, rather than as an ill-defined being to be punished ad lib.

It is difficult to explain why the victim's stare did not increase emotion (DES II scores). Throughout the literature on visual interaction, both theory and research point to a positive correlation between the amount of visual interaction and intensity of emotion. Possibly the generally low level of emotion reported by the subjects and the failure of the stare to increase the intensity of emotion can be explained by considering the nature of the experimental task. Subjects realized that they had been placed in a position of responsibility and that their behavior was being monitored by the experimenter. As a result, subjects were extremely conscious of the instrumental nature of their aggression, resulting in either a suppression of emotion or a supression of the expression of emotion. In either case, the intensity of reported emotion was depressed. Consistent with the hypothesis of emotion suppression is the fact that several subjects told the experimenter that they had disliked their partners, but had not allowed their feelings to influence their perfórmance as teachers.

Another possible explanation of the effects of gaze pattern on aggression is that the staring victim was perceived as the most interested and the most attentive and that the eye contact avoiding subjects were shocked with greater intensity in order to command their interest and attention. However, both Kendon (1967) and Duke (1968) have found that one typically looks away from one's interactor while thinking; thus eye contact avoidance by the victim while attempting to recall a correct response on the paired-associated learning task could have been perceived as evidence of a good effort. Furthermore, there were no differences in the perceived level of the victim's interest as indicated on the DES II, and the majority of the subjects indicated on the post-experimental questionnaire that the learner was doing his best.

The Savitsky et al. study showed that victims' facially expressing anger elicited decreased aggression, and victims facially expressing joy elicited increased aggression. In the present study, subjects could only see the victims' eyes and forehead. To prevent the expression of anger in the eyebrows and forehead, victims stared at the subject with as neutral as expression as possible, except that the eyes were slightly widened and brow slightly lifted (as in surprise, or interest) in order to assure the absence of any components of the anger expression (e.g., lowered brow; narrowed eyes). As planned, subjects perceived more surprise, fear, and joy than anger in the victim. Yet, this non-hostile stare in the present study had the same effect as the angry expression in the Savitsky et al. study, decreasing instrumental aggression. These results support the conclusion that gaze patterns have an effect on instrumental aggression that is independent of the effect of facial expression.

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