

Laboratory aggression related to aggression in naturalistic social situations: Effects of an aggressive model on the behavior of college student and prisoner observers*

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Twenty male college students and 20 male prisoners of comparable age were first angered by a confederate of the E and then permitted to aggress against this individual by means of electric shock. Before aggressing, half of the Ss in each of these two groups were exposed to the behavior of an aggressive model, while the remaining individuals attacked the anger instigator in the absence of such experience. Results indicated that the prisoners delivered significantly more intense shocks to the victim than did the students. In addition, exposure to the model was highly effective in raising the level of aggression on the part of Ss in both groups. These results were discussed in terms of the evidence they provide for the validity of laboratory techniques for the study of human aggression.

In recent years, a set of procedures devised by Buss (1961) for the laboratory investigation of physical aggression has attained widespread acceptance and use. During the course of these procedures, Ss are informed that they are participating in an experiment concerned with the effects of punishment on learning and are instructed to deliver electric shocks to another individual (a confederate of the E) on occasions when he appears to make errors in a learning task. Two dependent measures of aggression based on the intensity and duration of the shocks they employ are then readily attained.

Although some variation of these procedures has been employed in a large number of recent experiments concerned with human aggression (e.g., Baron, 1971a, b, c; Buss, 1966; Geen, 1968), little attention has been directed to the basic question of whether or not they do, in fact, provide a useful and valid means for investigating this dangerous form of behavior. More specifically, virtually no attempt has been made to determine if behavior in this laboratory situation is related in any manner to the performance of overt aggressive acts in naturalistic social settings. The present experiment was

primarily concerned with this issue.

It was reasoned that one means of investigating the relationship between behavior in the laboratory task devised by Buss and aggression in life situations would be to compare the performance in this situation of individuals drawn from populations known to exhibit sharply contrasting levels of violence outside the laboratory. The appearance of appropriate differences in their behavior would then be suggestive of a direct link between behavior in the laboratory task and aggression in naturalistic social settings.

The populations chosen for comparison in the present study were college students and prisoners of comparable age incarcerated in the maximum security division of a state institution for young offenders. These latter individuals had been confined to their present location as a result of a long history of violent acts. Thus, it was predicted that they would evidence a higher level of aggression in the standard laboratory task (Buss, 1961) than would the students.

It should be emphasized at this point that the purpose of the present experiment was merely that of determining whether or not the clearly different levels of aggression shown by these two groups of Ss outside the laboratory would be reflected in their performance on the Buss "aggression machine." Thus, the fact that they differed in respects other than previous aggressive history (e.g., socioeconomic status, prior education) was not deemed to be of crucial significance for this limited goal.

A second purpose of the present research involved the investigation of the influence of an aggressive model on the behavior of both the students

and prisoners. In accordance with the findings of a large number of earlier studies (e.g., Bandura, Ross, & Ross, 1963; Baron, 1971c), it was predicted that the model would be effective in inducing heightened aggression among both groups of Ss. In addition, on the basis of the assumption that the prisoners would have somewhat weaker inhibitions against engaging in acts of physical violence, it was also tentatively suggested that they would be influenced to a greater extent than the students by the actions of the model.

SUBJECTS

Twenty male undergraduates enrolled in sections of elementary psychology at the University of South Carolina and 20 male prisoners incarcerated in the maximum security division of a state penal institution for young offenders participated in the study as volunteer Ss. Both the prisoners and college students ranged in age from 18 to 20 years. The prisoners had been confined to the institution for various offenses but were assigned to their present location because of a history of aggressive acts both within and outside of the prison.

DESIGN AND APPARATUS

A 2 x 2 factorial design based upon the two populations from which Ss were sampled (students, prisoners) and two levels of exposure to an aggressive model (no model, aggressive model) was employed. Ten Ss were assigned randomly to each cell of this design.

The apparatus consisted of a modified Buss "aggression machine," a Lafayette stop clock (Model 20225 A), two different lists of word pairs, and an intercom system. A more detailed description of this equipment is contained in previous articles (Baron, 1971a, b, c).

PROCEDURE

When Ss arrived for the experiment, they were met by the E and two confederates. These latter individuals were dressed in jeans and a work shirt, a style of attire which made it reasonable to introduce them as other prisoners or students in the appropriate conditions. The E then explained that the study was concerned with the effects of punishment on learning and that in order to investigate this topic, two of the individuals would play the role of teachers and the remaining person would play the role of learner. The teachers would have the task of instructing the learner in certain verbal materials, rewarding him for correct answers and punishing him for errors with electric shock.

One of the confederates was then selected to serve as the learner, and the E led him to an adjoining room where she presented instructions for his task

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in the study and answered his questions concerning the procedures. During this interchange, the confederate managed to make several insulting comments concerning the S, derogating his intelligence and maturity in a most obnoxious manner. This provided the instigation to aggression in the present study.

Following these procedures, the E returned and presented detailed instructions for their task as teachers to the S and second confederate. After administering sample shocks from Buttons 4 and 5 of the aggression machine (36 and 50 V, respectively) in order to demonstrate that this apparatus was in fact operational, she then selected one of them to play the role of first teacher. In the aggressive-model condition, the confederate was chosen to play this role. This individual then acted in a highly aggressive manner toward the learner, pushing Buttons 8, 9, or 10 on the aggression machine whenever he appeared to make an error. Thus, Ss in this group were exposed to the actions of a highly aggressive model before being given their own opportunity to attack the anger instigator. In the no-model condition, in contrast, the S was designated as the first teacher. Thus, in this condition, Ss aggressed against the learner before being exposed to the behavior of the model. As was the case in the aggressive-model condition, however, the confederate acted in a highly aggressive manner toward the learner when it was his turn to serve as teacher. The learner appeared to make a total of 20 errors while learning each list but seemed to master both as the session progressed.

RESULTS

The two dependent measures of aggression were the intensity and duration of shocks delivered to the learner by Ss on occasions when he appeared to make errors in the experimental task. The data for the intensity measure are presented in Table 1. Inspection of this table suggests that the level of shocks directed against the learner by Ss was strongly influenced by both independent variables under investigation. Thus, prisoners delivered more intense shocks to the learner than did students, and the level of

Table 1
Mean Intensity of Shocks Delivered to the Learner by Ss in Four Groups

| Population | Presence of an Aggressive Model | |
|------------|---------------------------------|-------------|
| | No Model | Model |
| Students | 4.92 (5.23) | 7.37 (4.19) |
| Prisoners | 6.27 (7.61) | 8.51 (0.81) |

Note—Numbers in parentheses represent the SD for each mean.

shock employed by Ss in both these groups was raised by exposure to the model.

An analysis of variance performed on the data shown in Table 1 indicated that the main effects of population ($F = 5.15$, $df = 1/36$, $p < .05$) and exposure to the model ($F = 18.14$, $df = 1/36$, $p < .001$) were both significant. Thus, as suggested by Table 1, aggression was facilitated by exposure to an aggressive model, and prisoners were more aggressive than college students.

A similar analysis performed on the data for the duration measure yielded no significant effects. Thus, neither independent variable exerted a significant influence upon the duration of the shocks employed by Ss.

DISCUSSION

Results obtained with the intensity measure indicated that, as predicted, prisoners directed more intense attacks against the anger instigator than did college students. Thus, differences in the level of aggression shown by these two groups of Ss in naturalistic social situations were reflected in their performance in the laboratory task devised by Buss (1961). This finding appears to have important implications, for it suggests that laboratory measures of aggression do, in fact, assess the strength of Ss' tendencies to attack and seek to harm another human being. It should be noted, however, that a degree of ambiguity is introduced into the acceptance of this interpretation by the fact that the student and prisoner populations differed in several respects other than their previous history of aggressive acts (e.g., socioeconomic status, prior education). Thus, these differences may also have contributed to their contrasting levels of performance on the "aggression

machine." Future experiments may seek to eliminate or at least lessen this problem by employing groups of Ss who evidence distinctly different levels of aggression in life situations but who are highly similar in terms of the factors mentioned above (e.g., prisoners incarcerated for aggressive or nonaggressive crimes).

The finding that exposure to the model was effective in facilitating subsequent aggression by the prisoners as well as the students serves to extend the results of previous research (e.g., Bandura, Ross, & Ross, 1963; Baron, 1971c) by demonstrating the occurrence of strong modeling effects among members of a S population not previously investigated. The additional finding that the model exerted approximately equal effects upon the behavior of the students and prisoners suggests that, at least in some instances, the influence of such an individual may be largely independent of the initial strength of Os' aggressive tendencies. Thus, it appears that violent models may be equally effective in eliciting increased aggression among Os drawn from many different segments of society.

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