Winter 1977

THE EFFECT OF NOISE LEVEL ON THE ABILITY TO NOTICE AND INTERPRET AN EVENT AS ONE IN WHICH HELP IS NEEDED

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by

JANET SAMUELS
M.A., University of New Hampshire, 1975

A DISSERTATION
Submitted to the University of New Hampshire
In Partial Fulfillment of
The Requirements for the Degree of

Doctor of Philosophy
Graduate School
Department of Psychology
December, 1977

This thesis has been examined and approved.

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October 21, 1977
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ACKNOWLEDGMENTS

I thank Lance Canon, the chairman of my dissertation committee, for sharing with me his philosophy of work and play, for his low pressure encouragement, criticism without attack, realistic perspective, wit, and for the warm acceptance and praise which have meant more to me than the degree itself.

The members of the dissertation committee, Allan Lind, Marty Schmidt, Arnold Linsky and Tom Chase, offered constructive criticism from the planning stage of the dissertation through the final oral. I thank these men for their help and for a very pleasant and thought provoking final oral.

I greatly appreciate the help which was given to me by members of Media Services. Margie Munroe, Rick Littlefield, Dave Mendelsohn and Jim Whitney were willing to experiment with some new techniques to put together the videotape used in my experiment. I thank them for their competent assistance, for the good times, and for the house call.

I thank Petra Gazzolla for starring in the videotape as the bookdropper.

Patricia Craig, computer consultant, taught me a great deal about computers during the summer that I analyzed the data for this dissertation. I thank her for encouraging me through what could have been a very frustrating summer,

for training me as a C. Q. I. T. and for laughing with me during successes and set-backs.

Linda Morley, friend and colleague, deserves special praise for her careful help with proof-reading, for sharing pre-final-oral tales of depression, and for her generous willingness to help during critical times.

I thank Frank Lyons, unofficial committee member, for providing valuable insight into the benefits of completing my research, and for his support throughout the process.

I wish to thank Sister Irene Tremblay, CSC for her professional attitude, her accurate typing and for her ability to perform well under time constraints.

Most of all, I thank George Samuels. He has helped in innumerable ways by giving me intellectual and technical assistance. He has been a sounding board for my ideas. I thank him for his continuous encouragement, emotional support and especially for his love.

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ABSTRACT

THE EFFECT OF NOISE LEVEL ON THE ABILITY TO NOTICE AND INTERPRET AN EVENT AS ONE IN WHICH HELP IS NEEDED

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The results of numerous studies on the effect of noise on non-social tasks indicate that under high noise levels attention to peripheral information decreases while the detection of information which is central to the task is not decreased. An implication of this effect for interpersonal behavior is that in noisy environments people may be less attentive to subtle cues which may communicate the meaning of another's actions. The authors of a series of studies on the effects of noise level on helping behavior have assumed that participants were less likely to help under high noise conditions because they may not have noticed that the other needed help. However, in none of these studies was this actually determined.

In order to examine the effects of noise level on attention to peripheral social cues, in the present study participants performed a word memorization task (primary task) under one of three noise conditions (65, 77 or 85 dB)

in which they were instructed to recall twenty, four letter words. The words were flashed over a videotape of persons walking in a hallway. The last person who appeared on the videotape dropped her books and unsuccessfully attempted to pick them up. At the conclusion of the tape participants wrote down the words they recalled and answered open-ended and multiple choice questions designed to assess their ability to notice the persons and actions on the videotape.

Past experiments have found that manipulation of the costs-for-helping and of certain characteristics of a person in need of help (attractiveness, blame, dependency, number of unsuccessful attempts at self-help) affect the frequency of helping. It seems possible that the annoyance which is associated with high noise levels may affect evaluations of the characteristics of others and evaluations of the difficulty and time required to help the other. In order to determine whether evaluations of the person in need of help are affected by noise, subjects rated the bookdropper on the characteristics mentioned above. In addition, participants rated the anticipated costs-for-helping.

As predicted, noise did not affect performance on the primary task (word memorization). Contrary to prediction noise did not affect scores on noticing details about the bookdropper or about the other persons depicted on the videotape. Moreover, evaluations of the bookdropper were

not affected by noise level. However, costs-for-helping decreased as noise level increased, a result which was in the opposite direction to the result which was predicted.

The results are explained by examining differences between past research and the present study on the extent to which peripheral information may be perceived to offer potential interference to performance on the primary task and the extent to which peripheral information is considered to be useful to performance on the primary task. It is suggested that the methods used to measure noticing in the present study did not assess attention to subtle cues for helping which may have been affected by noise level. The lack of significant results for the effect of noise level on evaluations is examined. The possibility is raised that derogation of victims under high noise may occur only when an opportunity to help exists. Major problems for future analysis are identified. Suggestions are made for more adequate assessment of the effect of noise on attention to and evaluation of social information.

CHAPTER I

INTRODUCTION

The large body of research which exists on the effects of noise on non-social tasks (e.g., Broadbent, 1971; Kryter, 1970; Glass and Singer, 1972) supports the contention that there are detrimental effects of exposure to high intensity noise.

In a series of experiments Glass and Singer have shown that high-intensity noise adversely affects performance on complex tasks, and is perceived as more unpleasant and irritating than low-intensity noise. Glass and Singer suggest that "unpredictable noise should affect aggressiveness, exploitative behavior, liking for others and general irritability in interpersonal relations" (p. 159, 1972). However, investigations on the effects of noise on interpersonal behaviors is limited. Studies have been done on the relationship between noise and aggression (Geen & O'Neal, 1969; Geen & Powers, 1971; Donnerstein et. al., 1975), conformity (Dustin, 1968), verbal disinhibition (Holmes & Holzman, 1966) and ratings of attraction to attitudinally similar or dissimilar strangers (Bull, et. al., 1972).

Several studies have been done which have investigated the effect of noise on helping behavior. Two of these studies have manipulated S's perceptions of their

ability to control the noise. Staff (reported in Glass & Singer, 1972) found that S's who have heard a 105 dB unpredictable noise who believed that they had been given a choice between working while listening to that noise or being in the no-noise condition subsequently volunteered to help the E for a longer period of time than Ss who were not given a choice. In an experiment by Sherrod and Downs (1974) Ss proofread a passage and simultaneously noted the frequency of the number "2" which was being said on an audio tape which was superimposed over a recording of Dixieland jazz plus a second male voice reading nonrelevant prose. One half of the participants were told that they could terminate the disturbing stimulation if they found it necessary. Ss who perceived themselves to have control over the termination of the noise later helped a confederate (by working on arithmetic problems) for a significantly greater amount of time than Ss who did not think they could terminate the noise. The results of both of these studies indicate lowered helping after exposure to uncontrollable noise. However, no attempt was made to determine the effect of the intensity of the noise, a factor which Glass and Singer (1972) found to be important in studies of performance on non-social tasks.

Attention-restriction

The effect of noise intensity on helping behavior has been examined in a series of experiments (Mathews &

Canon, 1975; Page, 1975). These experimenters suggest that high noise levels may lead people to screen out certain informational inputs which may mediate helping behavior. Mathews & Canon state that under high noise levels people may decrease their attention to social cues which are peripheral to their focus of attention. They reason that an individual's interpretation of a situation in which help is needed may be based upon information from peripheral cues. They agree with Latane and Darley (1968) that such an interpretation seems necessarily to precede helping behavior.

Mathews and Canon base their attention-restriction approach on the results of research by Broadbent (1958; 1959) and Easterbrook (1959) which suggest that noxious stimulation is associated with a reduction in cue utilization. Easterbrook describes cue utilization: "A singular cue can be said to have been used when a related response has occurred. In multicue situations a particular cue can be said to have been used if the ensuing response takes a form which it normally takes when that cue is present" (1959, p. 188). The range of cue utilization, according to Easterbrook, is "the total number of environmental cues in any situation that an organism observes, maintains an orientation to, responds to, or associates with a response" (p. 183). The first cues which are excluded when cue utilization is restricted are those which are considered

to be peripheral to ongoing activity and concerns. Performance on tasks will be facilitated by focussing available attention on cues which are relevant to the task. Performance may be hindered if relevant cues are excluded.

The experimental situation out of which the model of cue utilization was developed, required participants to perform non-social tasks. Glass and Singer (1972) summarize the research on the effects of noise on such tasks. They write that single source tasks are not detrimentally affected by noise. However, in complex tasks (e.g., those which require S to "work on two tasks simultaneously, or to maintain continual vigilance" (p. 152) of multiple sources), in which the noise which is presented is unpredictable or uncontrollable, a decrement in performance on the secondary (less important) task will occur.

Recent studies on the effects of noise on non-social tasks support the contention that noise decreases the ability to detect and respond to peripheral events, while the detection of information which is central to the task is not decreased. In a vigilance task, Ss working under high noise conditions (100 dB) were told that their primary task was to track a dot moving in front of them. The tracking display was a window in which a target pointer moved from side to side. S's task was to keep a second pointer aligned with the target. This could be accomplished by moving a control handle. Participants were told that their

second (less important) task was to identify lights which lit up beside and in front of them. The Ss in the high noise condition performed as well as low noise Ss on the primary task. However, their detection of the side lights decreased significantly more than low noise Ss (70 dB) (Hockey, 1970). In an incidental learning experiment, O'Malley & Poplawsky (1971) found that Ss working under high noise (100 dB) remembered as many of the words which were presented centrally as did Ss working under low (75 dB) or medium noise (85 dB). However, high noise and medium noise participants were able to remember significantly fewer of the peripherally presented words than those participants who had worked under low noise. In the same article, O'Malley and Poplawsky report that performance on the Stroop color-word test was superior under high noise (85 dB) than no noise. In this task subjects must state the color of the ink in which words shown to them are printed. Each word spells out the name of a color which is different than the color of the ink in which the word is printed. Thus, by not attending to one aspect of the information presented to them, e.g., the meaning of the word, Ss are better able to perform on this task. Similar effects of noise on the Stroop test are reported by others (Houston & Jones, 1967; Houston, 1969).

Welch and Welch (1970) summarize the results of studies done to determine the physiological effects of

noise on vision. They report a study in which workers who had been exposed to 110-124 dB for 8 hours each day, over a period of years, had narrowed fields of vision. It is unclear from the description whether these workers no longer had the physiological capacity for a wider field of vision, or had become habituated to using a narrowed field of vision. These authors report that "brief exposure" to noise of approximately 100 dB, has been associated with diminished night vision and with problems of depth perception. Altered color perception was found among boiler makers and wire mill workers who had been exposed to 100 decibel noise over several years. Welch and Welch do not state whether controls were used in these studies in order to determine whether viable alternate explanations exist for the results which were found. These results seem to indicate that a narrowing of visual abilities may occur after both brief and long term exposure to noise.

Using the attention-restriction position Mathews and Canon (1975) predicted that with an increase in noise level a decrease in the tendency to help would occur. Mathews and Canon performed a lab and a field experiment. The laboratory experiment involved a book-dropping situation and three levels of noise. In the field study a manipulation was added to produce incidental cues which would signal two degrees of the accomplice's need for help. Arguing from the framework advanced in the

attention-restriction position, it may be predicted that the presence of a peripheral cue suggesting a high need for help would be associated with a higher probability of assistance only in the low noise condition.

In the lab experiment the male subject was told to wait in a room before the study "began". A male confederate was seated reading one of the articles he held on his lap. The E reappeared, and asked the confederate to come with him. The confederate then walked in front of S awkwardly holding his two books, five journals and several papers, and these materials slipped away from him, landing on the floor. The confederate immediately moved to pick up the materials which had scattered in at least a three square foot area. Three conditons of noise were used in this experiment: a) a natural level of 48 dB (the no noise condition); b) a broadband white noise of 65 dB produced by a white noise generator (the low noise condition); c) a broadband white noise level of 85 dB (the high noise condition).

The dependent variable was the presence or absence of helping behavior by the subject. The S was considered to have helped if he rose and assisted the confederate in picking up the dropped materials. A marginally significant difference was found between mean helping rates for the three noise levels ($p < .10$) A test for linear trend revealed that increased noise levels were linearly related to decreased helping.

The authors suspected that in noisy environments persons may be less aware of cues that may signal the other's meaning or intentions or may more clearly explain their behavior. In their field experiment, Mathews and Canon manipulated the presence of a cue which was designed to indicate the degree of the confederate's need for help, by having the confederate wear a cast which covered his full arm during half of the staged help situations. The helping responses of 80 male subjects were observed in a natural setting. The experiment took place on a tree-lined, curving street with low traffic movement. Several confederates were used. One signalled that an appropriate subject (a male walking alone) was approaching. At the time at which the first confederate signalled that the subject was 12 feet from the second confederate, the following activities occurred: the second confederate picked up two boxes from the rear seat of his car, turned, began walking toward a house in the background. When the S was approximately 6 feet from the confederate two of the books fell from the boxes, and as the confederate tried to retrieve them several more books scattered on the sidewalk. The confederate paused as if considering that he would need to put down the two heavy boxes in order to pick up the books. The confederate did not indicate that he wished assistance.

A third assistant provided the noise manipulation. This assistant was in the yard of an adjacent house (25

feet from the book drop) kneeling next to a lawn mower, attentively examining the throttle. In the low noise condition the lawn mower was off, and a 50 dB (average) noise was present. An 87 dB (approximate) "high" noise level was created at the place of the book drop by running the lawn mower without its muffler.

The field results support those of the lab. Increased noise in the field produced a significant decrease in the number of Ss helping (50% helped in the low noise condition while 12.5% helped in the high noise condition). A significantly greater number of Ss helped when the confederate was wearing a cast. A noise-by-cue interaction revealed that the presence of the cast significantly increased the helping responses of the Ss in the low noise condition while the effect of this cue was nonsignificant for the high noise condition.

The basic results of Mathews and Canon's two experiments are consistent: with increasing noise levels the probability of a simple helping behavior decreases. A visual cue which signalled the dependency of the confederate influenced the likelihood of his being helped only in the low noise condition of the field study. This result supports the attention-restriction position.

The results of the second series of experiments on the effects of noise level on helping were reported by Page (1975) who performed three experiments in natural

settings. In Experiment I noise was played in a pedestrian tunnel (50 dB, 80 dB and 100 dB). A female confederate dropped twenty index cards as the confederate and S approached and were eight feet from one another. The S was the only other person in the tunnel. The cards were dropped directly in the path of the confederate. A chi-square test revealed nonsignificant effects of noise. However, the results were in the expected direction. Page reran the study in a location which would allow the observation of a larger sample. In Experiment II the setting was an urban construction site in which jackhammers were used for fifteen to twenty minutes (high noise = 92 dB $\pm$ 4 dB). When a person approached walking alone with no other pedestrians in the immediate vicinity the E dropped a small package directly in S's path and walked on as if he did not notice he had dropped the package.

An analysis of the results showed that significantly less help (physical and verbal help versus no help) occurred in the high noise condition. While 90% of all S's gave either physical or verbal help in the low noise condition, only 80% helped in the high noise condition.

Page was concerned that he was unable to determine the extent to which the difference in helping was a result of high noise S's not noticing that the package had fallen. Page devised a situation to maximize the probability that all Ss would be aware of a need for help: Male and female

confederates at the construction site approached Ss from the direction of a telephone booth, held out a quarter and asked for change to use for the telephone. The frequency of help was significantly higher in the low noise condition than the high noise condition. While all Ss in the low noise condition checked for change or replied that they had none, 95% responded in the high noise condition and 5% of the high noise condition Ss ignored the request. Page suggests that the effects may have been small because the construction had been going on for months and people may have become habituated to it, or because they may have felt a minimal annoyance to a noise which was the result of a project of social value. The results of Page's studies indicate that noise level significantly decreases helping. Persons who were exposed briefly to a construction noise of high intensity were less likely to help another than were those individuals who had been exposed to a noise of lower intensity.

Mathews and Canon and Page each suggest that subjects in their high noise conditions may have noticed fewer of the cues of the help situation than did subjects in the low noise condition. However, in none of their studies was this actually determined. Neither Mathews and Canon, nor Page interviewed the subjects in their experiments after the book/package dropping incidents. Had they done interviews, the answers of subjects to the question "Did you see the

cast/package as you walked towards the person?" would not necessarily reveal what S had perceived. If the S had not helped and had noticed the cast/package they might have responded "No" because of evaluation apprehension. Of the Ss who had helped in Mathews and Canon's study, some may not have noticed the cast until they had already begun to move toward the confederate with the intention of helping him to pick up the books. The order of perceiving the cast, deciding to help and actually helping may not be discernible.

Page, unlike Mathews and Canon, did not add a cue for the dependency of the confederate. It is necessary in Page's study that we assume that all subjects who helped did notice the cues for help which were present (e.g., either see the index cards, or see the package falling, or see the person holding out the quarter, or hear the request for change).

It is unclear in the Mathews and Canon study whether a greater number of participants in the high than low noise condition actually did not notice the cast on the arm of the confederate. It is also undetermined in both the Page and Mathews and Canon studies whether the Ss who did not help in the low or high noise conditions did or did not notice the cues for helping. In the present study specific steps were taken to measure the extent to which persons were able to notice cues for helping under high and low noise levels.

Alternative explanations: desire to escape and negative mood

Both Mathews and Canon (1975) and Page (1975) suggest alternate explanations for the results of their experiments. Page briefly lists negative mood and the desire to escape among the possible reasons to hypothesize that high noise would be associated with less help. Mathews and Canon evaluate each of these alternatives in light of empirical evidence. An explanation based upon the aversive quality of loud noise is examined by these experimenters. They suggest that participants in the high noise condition in their field experiment who walked past the dropped books without helping may have wanted to escape quickly from the vicinity of the unpleasant loud noise of the lawn mower. While this argument would seem to be viable for the circumstances of Mathews and Canon's and Page's field studies, this argument is not capable of explaining the results of Mathews and Canon's laboratory study. In the lab study participants were told that they were waiting to participate in an experiment. Failure to help would not be perceived as a response that would allow them to leave the noisy waiting room more quickly. As in the field study, the high noise level was associated with less helping. Therefore, a desire-to-escape explanation cannot adequately account for the results. Since decreased helping under high noise occurs when helping does not require that S increase the time spent hearing the noise, some other factor must be

operating. A related explanation which neither Mathews and Canon nor Page discuss is that participants in the high noise conditions in their field experiments may have walked more quickly to escape the noise, and for this reason, may have noticed fewer of the cues for helping than did Ss in the low noise condition. However, this explanation, like the desire-to-escape explanation, does not account for the results of Mathews and Canon's laboratory study, in which participants were seated during the bookdropping situation.

Mathews and Canon discuss a second explanation based upon Glass and Singer's (1972) report that subjective judgments of annoyance and irritation increase with increased noise intensity. It might be argued that high intensity noise affects mood and that negative mood would lower the tendency to help. However, while extensive support has been found for the association of positive mood and increased helping (Aderman, 1972; Berkowitz and Connor, 1966: Isen 1970; Kazdin & Bryan, 1971; Isen & Levin, 1972; Isen, Horn and Rosenhan, 1973; Moore, Underwood, and Rosenhan, 1973; Rosenhan, Underwood and Moore, 1974) only Moore et. al. (1973) have found a significant decrease in helping when comparing control and negative mood conditions. Mathews & Canon question the viability of attempting to explain lowered helping in noise through the "mood" explanation since it is unclear under which conditions negative mood will or will not affect helping behavior. The next section

will attempt to explore this explanation by examining the way in which mood may mediate evaluations of others and by analyzing the particular ways in which negative mood has been operationally defined in past studies. The rewards and costs which an opportunity to help may offer a person experiencing "negative mood" will be discussed.

Manipulation of the perceived characteristics of the victim on such dimensions as dependency have been found to affect helping behavior (Schopler & Mathews, 1965). It seems possible that the annoyance which is associated with high noise levels may affect evaluations of the characteristics of others. Clore and Byrne (1972) state that affective responses may mediate attraction and evaluations. They suggest that if a person is "consistently associated with a reinforcement, that person becomes a conditioned stimulus evoking an implicit affective response" (p. 544). "The evaluation of the stimulus person is assumed to be dependent on and mediated by the implicit affective response associated with him or generalized to him" (p. 545). Clore and Byrne state that support for their model has been provided by the results of several studies in which the affective state of the participant was manipulated. Such manipulations have been achieved by confining participants in crowded, hot rooms (Griffitt & Veitch, 1971), having Ss watch depressing or happy films (Gouaux, 1971), and by having them listen to a radio announcement of either good

or bad news (Veitch and Griffitt, 1975). In each case attraction ratings were lower in the negative affect conditions. Clore and Byrne (1972), wary of overgeneralization, alert the reader that there are difficulties in predicting who will and who will not be associated with the perceiver's affective state (e.g., when several persons are present).

In the experiments on which Clore and Byrne base their model, Ss are provided with information concerning the attitudes and personality of the other and are asked to rate their like or dislike of the other. In the experiments mentioned above subjects rated only their attraction to the other. Thus, none of these experiments attempted to determine whether affect mediates evaluations of characteristics of the other. However, Clore and Byrne state that the scope of their model encompasses evaluations of activities as well as evaluations of other people. This model suggests that under high noise levels (which are considered to be annoying), the evaluation of a person who is in need of help, who has been associated with the high noise, may be expected to be more negative than the evaluations which would be made if the same person had not been associated with the high noise. As previously mentioned, the manipulation of S's perception of certain of the victim's characteristics has been found to affect helping behavior. Thus, it might be expected that high noise levels would be associated with negative evaluations of the victim and

with lower tendencies to help.

It is this investigator's contention that "negative mood" is a broad term which has not been consistently associated with decreased helping because it has been operationalized in several ways which may differ from one another in more important respects than in ways in which they are similar. Negative mood has been manipulated by leading Ss to believe they have done poorly at a task (Berkowitz and Connor, 1966; Midlarsky, 1971; Kazdin and Bryan, 1971) or by asking them to think of sad thoughts (Moore et. al., 1973), by calling S "names" (Steele, 1975) and by leading Ss to think they were guilty of knocking over E's index cards (Freedman et. al., 1967).

The way in which mood may affect helping behavior may depend on the way in which mood affects evaluations of oneself and of the potential rewards of the helping situation (in terms of allowing for the repair of one's self-image). The method used to manipulate negative mood may determine how negative mood mediates helping behavior. Negative mood may lead to increased helping: Claude Steele (1975) found greater agreement to help a phone caller (who was presumably investigating the possibility of starting a food cooperative) by supplying information about current household purchases after being called "apathetic and self-oriented" by a previous caller. Thus, the rewards of the second opportunity to help, which would allow for

repair of the subject's self-image, may have been more salient to those Ss who had been "called names", who are the same Ss who would be considered to have experienced a negative mood. Similarly, it has been found that Ss who are led to believe they were guilty of spilling a carefully arranged set of index cards were significantly more willing to help a person other than the owner of the cards by volunteering to be in his experiment (Freedman et. al., 1967). Regan, Williams and Sparling (1972) did a field experiment in a shopping center in which subjects' moods were manipulated by telling half of the participants that they had broken someone else's camera. The frequency of helping another person by picking up candy which fell out of their shopping bag was significantly greater among those participants who had been told that they had broken the camera. In each of the experiments mentioned above negative mood led to increased helping.

Byrum and Chase (1971) suggest that in the study by Regan et. al., the knowledge that they had "broken" a camera led Ss to experience a lowered self-esteem in terms of a specific ability (correct use of a camera), rather than to lowered self-esteem in general. They state that persons whose self-esteem is manipulated globally (i.e., they are told they are "good" or "bad") will act consistently with the manipulated self-concept. They would be less likely to help if their self-esteem was lowered

globally, However, Byrum and Chase contend that subjects would not perceive the act of breaking the camera to be a reflection of their global self concept. These authors state that the participant who "breaks" the camera will act to restore self-esteem by helping another. Thus, it seems possible, to this investigator, that negative mood will lead to greater helping if the helping situation is perceived as an opportunity successfully to "make good."

However, if the helping situation is perceived as one which is likely to exacerbate the negative mood or prolong it, helping behavior should be expected to decrease with negative mood. If the manipulation of negative mood involves lowered feelings of competence on the specific behavior required in the help situation, Ss may perceive the help situation as one which is likely to make their incompetence salient, and thus increase the negative mood (Samuels, 1975). The perceived costs for helping in such situations may greatly exceed the expected rewards. Piliavin, Rodin and Piliavin (1969) and Piliavin and Piliavin (1972) have stated that as perceived costs for helping increase, the probability of helping decreases (visa versa for rewards). Costs may include time, effort, physical discomfort, revulsion and potential harm, among others.

Evaluations of the victim and of costs-for-helping

Thus, the evaluation of the potential rewards and costs of the helping situation may affect the tendency to help. It has also been shown that the potential benefactor's evaluations of several characteristics of the person in need of help are important in determining whether help is given: attractiveness (Athanasiou & Greene, 1973); dependency (Berkowitz & Daniels, 1963; Berkowitz and Connor, 1966; Midlarsky, 1968); extent to which the person is to blame for their situation (Schopler & Mathews, 1965; Berkowitz & Connor, 1966), number of unsuccessful attempts at self-help (Eisenberger et. al., 1970), similarity (Aronfreed, 1968; Stotland 1969; Piliavin et. al., 1969; Emswiller et. al., 1971; Piliavin and Piliavin, 1972).

It is the contention of this investigator that noise level may affect the evaluations of costs for helping and evaluations of characteristics of the person in need of help. Cohen (1975) suggests the possibility that people may notice the same social cues under high and low noise, but may be unable to evaluate their meaning under high noise because they lack the necessary attentional capacity required "to determine whether a cue actually represents distress and whether intervention on the part of the potential helper is appropriate" (p. 36). Cohen presents as an example a situation in which a husband

working on the family accounts in a noisy room, notices an "emotional expression on his wife's face" but does not interpret the significance of the expression. Milgram (1970) has written that the experience of living in cities overloads the ability of people to process information. He suggests that people may adapt by screening out certain inputs, which may lead to a de-emphasis of the needs of others. Milgram's interpretation of overload might be applied to a high noise situation. For example, an observer in a high noise situation sees a person drop a white paper object (which is actually an envelope), and may be more likely than a person in low noise situations to imagine that the object is not terribly important. In such a situation a person may not consider that it might be unlikely that someone else would bring the dropped object to its owner's attention, and thus, would not feel personally responsible for helping. Or people who are in need of help may be derogated. "Derogation of victims seems to be both a result of confronting a situation in which one ought to act prosocially and also a determiner of the failure to act. When in a situation where we might act and fail to do so, our failure to act leads to derogation which in turn makes it even easier to refrain from action" (p. 41, Gergen, 1974). Thus, the observer may think that the person deserves to lose the envelope since he or she was not careful with it. As previously mentioned, a

negative evaluation of the victim under high noise would be predicted by Clore and Byrne's (1972) model.

However, experimental evidence on the effects of noise on evaluative behavior is very limited. Bull, Burbage, Crandall, Fletcher, Ravenberg & Rockett (1972) found that male and female Ss exposed to attitudinally similar or dissimilar strangers tended to give slightly more negative attraction responses when the noise level was 84 dB than when it was 40 dB. Female Ss tended to rate similar others more positively when exposed to the high noise level. The noise effects were small and perhaps of questionable reliability.

In Experiment III of Page's study (1975) the E attempted to maximize the possibility that all Ss would notice the confederate's need for help. The confederate stood near a phone booth, held out a quarter and asked for change. While all of the participants in the low noise condition responded to the request, five percent of the persons in the high noise condition "ignored the request." It may be suggested that if in fact these Ss did notice the confederate (holding out the quarter and/or heard the request for change) that their interpretation of the situation and/or evaluation of the person holding out the quarter may have been different than those made by persons who did not ignore their request.

Purpose of this study

Latane and Darley (1968), have suggested that the first two steps in the decision to give help in an emergency are 1) noticing the event and 2) interpreting it as an emergency. In the present study it is more appropriate that Ss interpret it as a situation in which help is needed. The two explanations which have been discussed in this paper are directly related to Latane & Darley's proposal: the attention-restriction position suggests that attention may be restricted in high noise so that persons are less likely to notice cues indicating a need for help. The interpretive position suggests that noise may influence the evaluations of the person who is in need of help and the evaluations of the costs for helping.

It is the purpose of the present study to investigate the effect of noise level on each of the steps proposed by Latane & Darley. The empirical evidence and theoretical support for the attention-restriction position far outweigh those of the interpretive position. However, an investigation of the effects noise level may have on the interpretation of an event as one in which help is needed is exploratory and the results potentially even more interesting than those of an investigation limited solely to the attention-restriction position.

In order to investigate both of these positions it was necessary to design an experiment which would enable E to collect two sets of measurements: the extent to which Ss notice the event, and a measure of the interpretation of the event including attributions made to the person in need of help.

In order to design such an experiment certain requirements had to be met. In everyday helping situations the event which signifies a need for assistance may occur peripherally, i.e., people are engaged in thoughts and activities which are central to their attention. In the present experiment it was necessary to simulate a situation in which the event occurred peripherally to the S's attention. It was necessary that Ss were engaged in a central activity which required attention yet allowed them to notice visually the help needing event. In order to be able to measure Ss' attention to the central task, performance on the central task had to be measureable. In order to determine which Ss noticed the event and interpreted it as one in which help is needed, it was necessary to avoid evaluation apprehension. In the present experiment S did not have an opportunity to help, and thus there was no need for S to answer on the basis of whether he or she actually helped (i.e. Ss had no reason to justify not helping by incorrectly stating that they had not noticed the helping situation).

The presentation of the helping event occurred as follows: Ss viewed a videotape of people walking around in the main hallway of the Memorial Union Building (a student activity building, located on the University of New Hampshire Campus). Ten persons were seen on the videotape (appearing one at a time or in pairs), engaged in a variety of activities and holding various objects. The last person who appeared on the videotape was a young woman who dropped a large number of books and tried, unsuccessfully, several times, to pick them up.

It was hypothesized that 1) Ss in the high noise condition would notice fewer details of the action tape and 2) fewer details concerning the book dropper's appearance and actions than Ss in the low noise condition. It was also predicted that 3) high noise Ss who noticed the event would evaluate the bookdropper as less in need of and/or less deserving of help than would Ss in the low noise condition, and that 4) high noise Ss would estimate the costs-for-helping to be greater than would the low noise Ss.

CHAPTER II

METHOD

Subjects

Students at the University of New Hampshire (56 females and 47 males) participated in this study as part of their introductory psychology course requirements. Five subjects were scheduled to come to the lab at a time.

Equipment

The room in which the experiment took place was 10' 9" x 11' 2" and 8' 4" from floor to ceiling. Five standard size wooden chairs were positioned close to the back wall so that the front of each chair was 22 inches from the back wall. The front of the center chair was 7' 7" from the stand on which the television monitor stood. The screen was 15 inches wide and 12 inches high. The two windows in the room were closed and covered by shades in order to minimize the sounds from the street and to eliminate the glare of sunlight on the screen. The videotape player (Sony AV 3C50) which was located in the hallway (in order to eliminate the mechanical noise which it produced) was remotely controlled.

Decibel readings were taken before the first session on each day the experiment was run and before the end of each session in order to determine the ambient noise level

and to check that the intended noise levels were being produced. A Triplett Corporation Sound Pressure Level Meter, Model 370, which was used for these purposes, was set at the "C" weighting and at the "slow" setting. To ensure that the sound pressure level meter was functioning correctly, its calibrations were checked (using a Sound Level Calibrator, Model 371, Triplett Corporation) before the first session of each day.

Procedure

The experimenter met the participants at the waiting area, accompanied them to the laboratory and asked them to sit by sex in every other seat. Subjects were told:

> In order to make sure everyone who takes part in this experiment gets the same instructions I have put the instructions on a cassette tape player. (On the tape) Educational television shows often teach their viewers words by flashing words on the screen while animated figures or people move around in the background behind the words. A sound track usually is played as the words are flashed. Shows like Sesame Street and The Electric Company use these techniques. Today's experiment will investigate the effect of the techniques used in these programs on memorizing words. You will be seeing words flashed on the screen while hearing a construction noise. The words will be flashed over a videotape of people walking around. The background action and sound were recorded during the January vacation. In order to tape the background action and sound track a hidden videotape camera was left in the hallway of the Memorial Union Building one afternoon while some construction was being done in the building. You will be hearing the construction noise which was present during the filming. The same noise which you will hear was heard by the people walking in the hallway. Please try to keep your eyes on the bottom center of the screen where the words will appear. You will see

> twenty different words. Each word will appear on the screen for either two, three or four seconds. A large asterisk will appear on the screen to mark one full presentation of the list of twenty words. The list will be immediately repeated two more times. You will see each word three times in all. The length of time each particular word appears on the screen will differ each time you see it. Although you are not expected to remember all twenty words, you should try to remember as many as you can. Later, you will be asked to write down all the words you can remember in any order. Please wait for instructions after the videotape ends.

E turns off the cassette, and begins to hand out pencils. E said:

> Any questions? (pause) Does anyone wear glasses for watching television or reading who isn't wearing them now? Please put them on. You'll be writing the words in the booklet. All multiple choice questions should be indicated on the answer sheet. Don't turn back to pages which you have finished working on. Write all answers on the answer sheet unless you are specifically instructed to write them in the booklet.
>
> It is important for the experiment that you are silent during the videotape. Please try not to shuffle your feet or papers or make any noise, vocal or subvocal, that may distract the others.

E then walked over to the monitor and with her back to the participants, picked up a wheel which was composed of two cardboard circles which were placed one on top of the other and attached at the center so that the top one could be moved clockwise or counterclockwise. On the edge of the bottom piece of cardboard which extended beyond the edge of the top piece, E had written the dates and time of day of each experimental session. A small "window" had been cut out of the edge of the top piece of cardboard which E now moved so that it was lined up with

the time and date of the current session. Through this "window" E read the noise level which was to be used in the current session. The noise levels had been written on the bottom piece of cardboard prior to the entire experiment by another person who randomly assigned subject groups to the noise conditions, counterbalancing times of day. E was "blind" to the current condition until she positioned the wheel. E then set the volume on the monitor, turned the videotape deck on, turned off the light and sat down in front and to the side of the subject seated closest to the door (to the left of the screen).

The first word appeared on the screen five seconds after the background activity and noise began. The words were flashed on the screen over a videotape of persons engaged in the following actions: a couple walks up the hallway; a woman wheels a baby in a stroller down the hallway; the couple returns, the woman now drinking a soda as the man smokes a pipe; a woman walks down the hall eating an apple; two males meet in the center of the hall, check their watches and walk off together; a man walks down to the center of the hall, lights his pipe and walks off; a man walks to the end of the hall carrying skis. At this point in the videotape the words in the middle of the last presentation of the list are being flashed. A young woman wearing a down coat, mittens, carrying a large number of books (10) and a knapsack walks into the hallway. Her

knapsack is being carried by one strap over her lower arm. She pushes it back up her arm to her shoulder. Her books scatter in front of her. She bends down and attempts to arrange her books. She pushes her knapsack up her arm and attempts to pick up the books, still wearing her mittens. She removes her mittens and again attempts to arrange the books. She tries to push her knapsack onto her shoulder. It slides down her arm. The books fall again. She continues to arrange the books. She puts her mittens back on. As the last word is flashed on the screen she is still trying to pick up her books. The screen goes blank. (She has been on the screen for 51 seconds. The entire videotape is 4 minutes 20 seconds long.) The pattern of movement of the persons on the videotape was choreographed before the taping. The persons included on the tape are the husband of the experimenter, six graduate students from the psychology department of the University of New Hampshire, one faculty member and her infant son, and one neighbor (who plays the victim's role).

The independent variable was the noise level in the room measured at the ear level (approximate) of the person sitting in the middle of the five Ss. Three conditions were employed. Each was produced using the sound of an electric skilsaw which had been recorded onto the audio track of the videotape. In the low noise condition a noise level of 65 dB $\pm$ 2 was produced. In the medium noise con-

dition the noise level was 77 dB $\pm$ 2 and in the high noise condition the noise level was 85 dB $\pm$ 2.

The intensity of the high noise level was chosen because it was loud enough to be annoying and yet was a level of intensity which was likely to be present in participants' every day experience. This noise level had been associated with lowered helping in Mathews and Canon's study (1975), and with a lowered number of peripherally remembered words in O'Malley and Poplawsky's study of incidental learning (1971).

Since E could not be blind to the noise conditions, several precautions were taken to minimize experimenter bias. E was unaware of the noise condition until just before turning on the monitor. All instructions from that point on were given by cassette recorder and by written instructions in the questionnaires. During the videotape E sat with hands folded and legs crossed and kept her eyes on the words on the screen. As soon as the videotape ended E turned off the volume control, the tape deck, turned on the light, and turned on the cassette tape deck, all without looking at the participants.

(On the tape cassette) "You will have ninety seconds to write down as many words as you can remember in any order. When I say 'Start' please open your booklets and begin. (Pause) Start. (90 seconds later) 'Time is up. Please turn the page, read the instructions and begin

to answer each of the questionnaire items.'" (E turns the cassette off).

The assessment of noticing and evaluation

The questionnaire contained four sections (see Appendix A). The first section consisted of items designed to assess S's perception of how annoying and loud the noise was. The second section was made up of questions to assess S's ability to notice the persons and actions on the action tape. At the beginning of this section S read instructions which emphasized that although participants were asked to try to keep their eyes on the bottom of the screen, it was very likely that they noticed some of the action tape. These instructions mention that an important purpose of this study is to determine what parts of the action tape they did notice. This information was included in the questionnaire to minimize the possibility that Ss would hesitate to reveal truthfully what they noticed because of evaluation apprehension based upon the initial instructions to keep their eyes on the bottom of the screen. The questions in this section include open-ended items which ask S to describe what the people on the background tape were doing and an open-ended question asking for a description of the female who appeared last on the screen (the bookdropper) as well as her actions.

The open-ended questions were scored in the following way: one point was given for each correct identifying characteristic or action which was specified. For example, if for the former question a participant wrote that they had seen a man light a cigarette, they were given one point for correctly identifying the sex of the person and one point for correctly noticing that something had been lit. Since a pipe rather than a cigarette was lit, no extra point was added to their score. Similarly, each correct detail given about the bookdropper's attire and actions was scored as one point.

In order to more specifically assess the extent to which participants noticed the action tape, Ss were asked to indicate which items of a list of twelve persons/objects/events were present on the screen. Six of these items were not present. S's score on these items was corrected for guessing. One point for each incorrect answer was subtracted from the score for the correct answers. Several multiple-choice items follow which ask participants to indicate what the bookdropper was holding, wearing and doing. Using the items in the "noticing" section of the questionnaire, it was possible to compute an overall score for the extent to which Ss noticed the background persons and actions, as well as a score for the extent to which they noticed the bookdropper and her actions (the specific noticing score).

Several questions followed on which participants were asked to rate: the bookdropper's attractiveness, the extent to which she was to blame for being in the situation she was in, the extent to which she attempted to help herself and the degree to which she could use help. Participants' perceptions of the costs-for-helping were assessed through their answers to questions which asked them to rate the likelihood that the bookdropper would reject an offer of help, and how difficult and time consuming the act of helping her pick up her books would be. For each of the five possible ratings on each item a score was determined according to whether the variable had been associated positively or negatively with helping in past studies. For example if a subject chose "A" for the following item "She is to blame for the situation she is in",

completely A B C D E not at all

the item was scored as a 1 (one) since S's perception of the extent of the other's blame is negatively associated with helping. Had the person chosen "E" (the space next to "not at all") the item would have been scored as a 5.

A single score was determined for the interpretation questions. When comparing two scores the larger of the two indicated interpretations which have been associated with greater helping in past studies. It was possible to determine mean scores for each condition for questions relating to each specific helping variable: attraction, dependency, blame, self-help, and costs-for-helping.

CHAPTER III

RESULTS

Deletions from the sample

Twelve participants indicated on their questionnaires their belief that the persons they saw on the videotape were actors. The results of a chi-square analysis revealed that these subjects were equally represented in the three noise conditions, χ^2 (4) = 6.10,ns. The responses of these subjects were omitted from the statistical analyses of the data. The responses of participants who had specific noticing scores of five or less (the operational definition of a person as one who did not notice the bookdropper) were omitted from the analysis of evaluations of the bookdropper, because their ratings of the bookdropper would be based upon extremely limited information. It seems reasonable to assume that such participants could only have been guessing when indicating answers to the evaluative ratings.

The results of a chi-square analysis revealed that the fifteen persons who had specific noticing scores of five or less were equally distributed among the three noise levels, χ (2) = .95,ns. The data of one of these fifteen participants had already been removed from the analyses because the person believed that the videotape was staged. Among the 79 participants who did not indicate that they believed the action videotape was a staged event, and who

received a score of six points or more for specific noticing (based upon open-ended and multiple choice questions concerning the appearance and actions of the bookdropper), one person in the medium noise condition omitted two evaluative ratings and one person in the high noise condition omitted four evaluative ratings from their questionnaires. The responses of these two subjects were omitted only from the analyses of the specific evaluative variables for which they failed to provide a rating.

Manipulation checks

None of the major hypotheses was supported by the results of statistical analysis of the data. This cannot be attributed to failure to induce different perceived intensities of noise, however. The success of the manipulation of the perceived level of noise was supported by the results of two, 2x3 analyses of variance, using noise and sex as independent variables. Participants' perceptions of the loudness of the noise which they heard while watching the words, F (2,85) = 11.78, $p < .001$, and the ratings of the loudness of the noise in the hallway in which the people seen on the videotape were walking, F (2,85) = 17.12, $p < .001$, were significantly different in the noise conditions. The results of a linear trend test which was applied to these two variables support the conclusion that perceptions of noise intensity increased as noise level

increased, F loudness in room $(1,85) = 21.53$, $p < .001$; F loudness of hallway $(1,85) = 31.94$, $p < .001$.

Analysis of noticing scores

It was predicted that Ss in the highest noise condition would notice fewer of the details of the background (peripheral information) than subjects in the low noise condition. In order to determine whether any differences existed between noise conditions for noticing scores, 2x3 analyses of variance were applied to the data. Participants' scores on the extent to which they noticed the people, actions, and objects which appeared on the action videotape (total noticing score), F (2,85) = .45,ns, (see Table 1 for means) and their scores on the accuracy of their recollection and recognition of the bookdropper's appearance and actions (specific noticing score), F (2,85) = .14,ns, were both nonsignificantly related to noise level (see Table 2 for means). Thus, noticing scores were not significantly different in the three noise conditions. In order to determine whether noticing scores decreased as noise level increased, a linear trend test was applied to the data. The results of these analyses for total noticing, F (1,85) = .84,ns, and specific noticing F (1,85) = .20,ns, indicate that there was no linear trend for noise for either total or specific noticing.

TABLE 1

Mean Total Noticing Scores

	Low	Medium	High
Females	18.27	20.86	20.53
Males	18.00	17.38	18.75

TABLE 2

Mean Specific Noticing Scores

	Low	Medium	High
Females	9.73	10.33	9.47
Males	8.70	7.81	8.00

Analysis of evaluative responses

It was hypothesized for those participants who did notice the bookdrop event, that subjects' evaluations of the bookdropper's need for help and/or deservedness for help would be related to noise level. The hypothesized main effects for noise for participants' perception of the bookdropper's need for help, F (2,70) = .94,ns; blame for the situation she was in, F (2,70) = .32,ns; attractiveness, F (2,70) = .56,ns; and number of unsuccessful attempts to help herself, F (2,71) = .53,ns, were found to be non-significant from the results of 2x2 analyses of variance.

Costs-for-helping

A series of 2x3 analyses of variance was applied to the cost-for-helping data. There was no main effect for noise for the components of the cost variable: time, F (2,72) = 2.91,ns; difficulty of helping the bookdropper, F (2,71) = 1.90,ns; S's expectation of the type of response the bookdropper would make to an offer of help, F (2,70) = 2.01,ns. A significant main effect for noise was found for the variable "cost" (which consists of the average for each S of the three variables mentioned above), F (2,70) = 4.36, $p < .016$. In order to describe more precisely the effect of noise on the composite cost variable and on its components, a linear trend test was applied to the data. A significant linear trend was found for noise for the

cost variable, $\underline{F}$ (1,71) = 8.55, $p < .005$, and for noise and ratings of the time necessary to help, $\underline{F}$ (1,71) = 5.16, $p < .026$. As noise level increased, perceived costs for helping decreased (see Table 3 for means). This result is in the opposite direction to the hypothesized relationship of noise and perceived costs for helping.

Total interpretation

An overall interpretation score was computed for each $\underline{S}$ as an average of the following variables: the individual components of the cost variable, ratings of the bookdropper's need for help, worthiness (lack of blame), attractiveness, and number of unsuccessful attempts to help herself. The total interpretation score was nonsignificantly related to noise level, $\underline{F}$ (2,70) = 1.52,ns, in a 2x3 analysis of variance.

Sex of subject

Sex of subject was included with noise level as an independent variable in a series of 2x3 analyses of variance in order to determine whether sex differences occurred for noticing or interpretation or interacted with noise. A main effect of sex was found for specific noticing scores, $\underline{F}$ (1,85) = 5.48, $p < .022$, indicating that females noticed more details of the bookdropper's actions and appearance than did males. The difference between males and females

TABLE 3

Mean Costs-For-Helping Ratings

	Low	Medium	High
Females	3.95	4.30	4.67
Males	4.46	4.44	4.70

Note. Higher numbers signify lower costs-for-helping ratings.

on total noticing scores was not significant, $\underline{F}$ (1,85) = 2.97,ns. Women did not notice more of the peripheral information in general, however. Females did not remember more words than did males, $\underline{F}$ (1.85) = 2.97,ns. The fact that females remembered approximately the same number of words as did males, but had noticed more details about the bookdropper, suggests the possibility that if males and females were statistically equated on noticing scores, there might be a sex effect for the number of words remembered. The results of an analysis of covariance suggest that with specific noticing scores held constant, females were able to recall more words than were males $\underline{F}$ (1,84) = 5.33, $p < .023$. No main effects of sex or interaction of sex with noise were found in tests of 2x3 analyses of variance for any of the individual evaluative variables, for cost, $\underline{F}$ (1,69) = 1.50,ns, or for the total interpretation score, $\underline{F}$ (1,69) = .61,ns.

CHAPTER IV

DISCUSSION

Review of major results

Although the manipulation of the perceived intensity of the noise levels was successful, none of the hypothesized results were supported by the data. Increased noise level was not associated with lower specific noticing scores or with lower total noticing scores. These results appear to be inconsistent with the results of prior studies of the effect of noise on peripheral attention (Houston & Jones, 1967; Houston, 1969; Hockey, 1970; and O'Malley & Poplawsky, 1971). It was predicted that subjects who saw the book-dropping incident would evaluate the bookdropper as less in need of help and less deserving of help in the high noise condition. The present investigation of the effect of noise level on the interpretation of the event as one in which help is needed, and of the effect of noise level on evaluations of the bookdropper, is exploratory. This study tests speculations concerning the effect of noise on attributions made of victim's characteristics. As mentioned earlier, past studies which attempted to determine the effect of certain characteristics of the victim on helping behavior manipulated these characteristics and measured helping behavior. The hypotheses of this research, concerning evaluations of the bookdropper, are based on an assumption

that Ss' perceptions of these characteristics affect the decision to give help. The present study was designed partly to measure Ss' perceptions of the victim's (unmanipulated) characteristics, under different noise levels.

In order to examine the apparent inconsistency of the noticing and evaluative results of this study with the results of past studies, for each separate hypothesis, the discussion will focus on relevant similarities and differences between the present study and prior ones. Theoretical implications of the results will be suggested.

Noticing and the difficulty of the task

It might be suggested that no noise effect was found for total noticing and specific noticing because the word memorization task (primary task) was too simple and allowed participants time to look directly at the background action while easily memorizing words. However, the correlation between the number of words remembered and specific noticing scores was negative and significant, $r = -.19$, $p < .026$. Therefore, a high score on word memorization was associated with a low specific noticing score. The average number of words remembered by participants in each condition was slightly more than half the words. The means were: 10.75 for the low noise group, 11.94 for the medium noise group, and 11.63 for the high noise subjects.

The range of words remembered was 15 (4 was the lowest and 19 the highest number of words).

The difficulty of the task used in the present research may be compared to that used in O'Malley & Poplawsky's (1971) study of incidental learning. Ss in the present research were told to write the words they recalled in any order, while O'Malley & Poplawsky required serial learning of words. The words in O'Malley and Poplawsky's experiment appeared on the screen for five seconds each, with one second between consecutive slides. O'Malley and Poplawsky's method of presenting words seems as if it would better facilitate memorization than the word presentation used in the present research, where words were presented at random intervals of two, three or four seconds (with one second between words).

The word memorization task in the present study was not considered to be particularly easy or difficult by participants. The mean difficulty rating was 3.08 on a scale of one to five. The standard deviation was .71. The difficulty of the task was considered to be approximately the same in the three noise levels, F (2,85) = 1.51,ns. If subjects in the high noise levels had memorized fewer words than low noise Ss it might be suggested that they were watching the background more than low noise Ss. If this was true it might explain why noticing scores did not decrease as noise level increased. However, there was no

significant main effect of noise on the number of words recalled, $\underline{F}$ (2,85) = 1.76,ns.

Noise level, predictability, and peripheral attention

The ability of subjects to notice peripheral information may be a function of the type of noise presented during the tasks. The loud noise used in the present study was a continuous 85 dB ($\pm$2) noise produced by the recording of a skilsaw. There is support for using this decibel in the high noise condition. O'Malley & Poplawsky (1971) and Mathews & Canon (1975) found significant noise effects using this level of high noise. O'Malley & Poplawsky used unpredictable bursts of noise and specifically measured the extent to which Ss noticed peripheral information, while Mathews & Canon used a continuous white noise and inferred a narrowing of peripheral attention under high noise from their results.

Glass and Singer (1972) conclude that although a periodic (unpredictable) noise is not associated with greater primary task decrement, it is associated with greater negative after-effects than is predictable noise. In the present experiment, evaluations of the bookdropper were made after the presentation of noise had ended. Predictable, continuous noise was used in order to minimize the possibility that evaluations would be negative as a result of after effects of noise.

Peripheral task: a source of interference or of useful information

In past studies of the effect of noise level on peripheral attention, attention to the peripheral information or secondary task would be likely to interfere with Ss' ability to perform the primary task: reading the peripheral words might interfere with Ss' ability to remember the central words in the incidental learning experiment (O'Malley & Poplawsky, 1971). Looking at the side lights in Hockey's experiment (1970) would require taking one's eyes off of the centrally located target dot in this vigilance task. Similarly, since the words in the Stroop test conflict with the required task, (e.g., if the stimulus is "blue", the word would be printed in a different color than blue) focussing on the word itself may be considered costly to the subject who is trying to ignore the word. Houston (1969) refers to the words as an "interfering cue" in the Stroop test. It is interesting to note that neither Hockey (1970) nor O'Malley and Poplawsky (1971) refer to the peripheral information in their studies as offering potential interference to participants' primary task. O'Malley and Poplawsky refer to the peripheral words as "irrelevant" information. They suggest that Ss remembered fewer peripheral words under high noise because they voluntarily concentrated on the serial word task in order to overcome the distracting influence of the noise. The

distracting influence of the peripheral words is not mentioned.

There are several possible reasons which may help to explain the lack of significant noise effects for noticing in the present research. In this experiment the primary task stimuli are words, while the peripheral information is provided by a videotape of people who are walking in a hallway. It may be suggested that the participants in the present study did not think that looking at the background in between looking at words would interfere greatly with their ability to perform the primary task of memorizing the words. If the peripheral information was considered to be detrimental to the primary task by all Ss, it might be expected that high noise Ss, who are more annoyed by the noise than low noise Ss, $F\ (2,84) = 3.27$, $p < .04$, would be more likely to attempt to limit their focussing on the source of the potential interference. However, for all subjects in the present study, attention to the background action would require only a small shift in gaze away from the words flashed on the screen. Of greater potential importance is the fact that the source of the primary task information was words flashed on the screen, while the peripheral information was provided by images of people whose appearance and actions were visible on the screen. The peripheral information may have been considered sufficiently different than the words so that negative transfer

between them would be unlikely. It seems possible that the decrement in peripheral attention which was found in past noise studies for high noise may to some extent be due to anticipated interference of the peripheral information with Ss' ability to perform well on the primary task.

In past studies of the effects of noise on attention, the peripheral information may have been considerably less interesting to subjects (relative to the primary task) than the peripheral information used in the present study. The cover story used in this study may have unwittingly increased the probability that Ss would watch the background while attempting to memorize the words. It was explained to subjects that the purpose of the experiment was to investigate the ability to learn words which are flashed on a screen while a soundtrack is played and background action is shown. Participants were told that children's educational television shows frequently use such techniques. They were told that they would hear a construction noise and that the background action would consist of people walking around in a hallway. Although participants were directed to try to keep their eyes on the bottom center of the screen, where the words appeared, Ss in all conditions may have monitored the background action expecting to see actions which were related to the words on the screen. The animated characters and objects which appear on the screen during word presentations on children's educational shows frequently act out

or portray the meaning of the words as they appear. Ss were not given any indication that the background action would be unrelated to the words. Thus, the possibility exists that Ss not only did not consider the background information as offering interference to their performance on the word memorization task, but also may have expected the background to provide information which could be of use in memorizing the words. Ss' perceptions of the usefulness of the background information were not assessed. However, a measurement of Ss' perception of the extent to which they felt distracted by the action was made. There was no significant noise effect for Ss' ratings of how distracting the action tape was, F (2,84) = .50,ns. This result is consistent with the finding that the noticing scores were approximately equal in the three noise conditions.

The results of Hockey's study (1970) are particularly relevant to a discussion of the situational determinants of the effect of noise on peripheral attention. Hockey found, that under high noise Ss were better able to monitor those light sources which were close to the central location of their primary task (a tracking task). Hockey notes that the probability that the central light sources would light up was greater than those of the lights located to the side. Thus location and probability were confounded, making interpretation of the results unclear. However,

the results may indicate that when interference with primary task performance is minimal (Ss could keep their eyes forward for the tracking task and to monitor the central lights), and the utility of attending to peripheral information is high, (probability of central lights was high), peripheral information will not receive less attention under high noise than low noise.

The words in the present study included: trim, barn, fade, duck, bind, dwell, knit, loan, bend, tool, deer, curl, ripe, belt, seal, veil, arch, care, navy, and lamb. If Ss looked at the background to find examples of the words on the screen, the connections would not be obvious, and it might be expected that they would not continue to pay attention to the background. However, the cover story may have led Ss to believe that the background would be useful to them.

There is reason to believe that subjects used the background to aid memory. In the questionnaire booklets, Ss were asked to indicate which of several techniques they used to remember the words. If Ss used a technique not mentioned on the list, they were asked to describe the technique which they used. Several persons wrote that they associated particular words with parts of the background action. Two participants indicated that the word "trim" appeared on the screen as a thin girl walked down the hall. Four persons wrote that they associated the word "belt"

with the appearance on the screen of two males who wore belts. One person noted that the word "curl" was presented as the baby was wheeled down the hallway. Although the baby's hair was not particularly curly, this S used the image of a baby's curls to help her remember the word. As previously mentioned, the twenty words were presented in the same order three times, while the background action changed throughout the videotape. Thus, the other two presentations of each of the words given above occurred while background action different than those mentioned was seen. In addition to providing images which might aid in remembering the words, the background action may have offered a diversion from the words. It may have been considered to be eye-catching and to offer low interference with the primary task. For these reasons, participants may have continued to monitor the background action.

Several reasons have been suggested to explain how differences between past research and the present research may help to explain the fact that noticing scores were not related to noise level. Milgram (1970), proposed that people may experience an overload of their ability to process information and may screen out certain inputs to deal with the overload. It had been assumed, in the present research, that an overload would be experienced under high noise and that the input which would be screened out under high noise in the present study would be the background

information. However, if, as stated previously, the background information was not believed by Ss to interfere with word memorization, the overload of ability to process information (which Milgram discusses) may not have occurred for high noise Ss in the present study. In addition, if, as stated above, the background information was considered to be potentially useful for performance on the primary task, the peripheral information may not have been screened out. In order to understand the effect of noise on attention-restriction, it is necessary to investigate under what circumstances peripheral information will be screened out. Neisser (1967), has described "preattentive processes" as continuous cognitive processes which allow people to monitor the potential or actual significance to them of stimulii. Preattentive processes aid people in selecting that information which may be important to them (and in allowing that information to be examined more closely) and in filtering out information which is not important to them. According to Neisser, we are aware to different extents of the events occurring around us. For example, a person may be engaged in a conversation at a loud party and may become aware that someone has mentioned her name across the room, although a moment before, the person may believe she did not notice what was being said outside of her own conversation.

Unlike the peripheral information used in O'Malley & Poplawsky's incidental learning experiment (1971), the peripheral events in the present study differred a great deal from one another. Each presentation of peripheral information in the incidental learning study consisted of four, three letter words, located on the periphery of a slide. In the present research, each subsequent peripheral event was different from the next. People walked across the hallway from different entrance points, each carrying or doing something different. Cohen (1975) states that research on attentional selectivity indicates that people are sensitive to novel and surprising information. Those subjects who may have expected to gain useful information from the background action, may have noted each appearance on the screen of a new person. Among those who did not expect to gain information relevant to the primary task, each appearance of a new person on the screen or movement of a previous actor, may have been momentarily distracting for people in all conditions. Subjects in the high noise condition may have noted the presence of each person on the screen as frequently as did Ss in the low and medium noise group (see Appendix B).

The peripheral information which was of particular importance in the present investigation was provided by the scenes in which the books were dropped. These events were notably different than the other peripheral events on the

videotape. The bookdropper remained in approximately the same location on the screen for fifty-one seconds, a period of time longer than any of the other actors. It appeared as if the bookdropper's books landed directly onto the top of the word which was on the screen at the time of the drop. The action of the books dropping was more abrupt and potentially eye-catching than any of the other actions on the screen. If participants were looking directly at the word which was on the screen as she dropped the books, it would require little shifting of their gaze to see that books had been dropped and were being picked up. Thus, there would be low cost to Ss to look at these actions because they would not need to shift their gaze a great distance from the words. They would still be able to note the appearance of the next word. The abruptness of the bookdropper's moves, the contrast between her position on the screen and that of the other actors, may have served as cues that by looking at her, Ss might receive information which was novel and perhaps relevant to the primary task (or to unstated purposes of the experiment). These actions may have been considered to be interesting and to offer a brief diversion from the word memorization task.

The reactions of some of the participants during the experiment support the assertion that the bookdropper's actions were unexpected and eye-catching. In 28% of the trials during which the videotape was shown for this study,

one person in the room made a noise at the moment that the books dropped which E interpreted as suggesting surprise. (These noises consisted of gasps, snorts, and short vocalizations such as "huh"). A complex chi-square which was applied to the frequency of these sounds, yielded results which indicate a nonsignificant relationship between noise levels and the occurrence of these sounds. E recorded each utterance and nasal/oral emission of the type mentioned above which she heard. In order to assess whether other sounds of surprise occurred, after each trial, and before debriefing participants, E asked those in the room to tell her what noises they recalled hearing during the videotape other than those from the television speaker. Pearson correlations were done to determine whether specific noticing scores or interpretations were significantly related to groups in which a person had made a noise at the time at which the books dropped. None of these correlations was significant.

Methods of assessing peripheral information

The discussion thus far has focussed on aspects of the experimental situation and task which may have led participants to expect that the background information would contain information which was relevant to the primary task (word memorization), rather than considering the peripheral information to be a potential source of interference

with their ability to memorize words. The identification of differences between prior studies and the present research, in terms of the possible perceived relationship of the peripheral information to the primary task (helpful versus a hindrance), may be critical in understanding the apparent inconsistency between the results of the past and present studies on the effect of noise on attention-restriction.

It may be asserted that the differences which exist between the types of peripheral information used in the past and in the current study require different methods of assessing peripheral attention. In prior studies, the indicators of peripheral attention were: Ss' ability to recall peripherally presented words; identification of lights that have lit up; and, in the Stroop test, naming the color which the word represents, rather than naming the color of the ink in which the word is printed. For the stated purposes of these studies, a non-detailed response was adequate to indicate whether or not the peripheral information was noticed. However, the present study is investigating the effect of noise level on the ability to notice and interpret an event as one in which help is needed. The measurement of noticing in this study should, therefore, assess the way in which noise affects the ability to notice those details of the peripheral information which are relevant to the interpretation of the event as one in which help is needed.

It is possible that the methods of measuring noticing which were used in the present study did not provide adequate indicators of noticing relevant details of the peripheral information. The methods used to assess total noticing in the present study, required participants to indicate the presence or absence of objects on the screen and the presence or absence of persons who were engaged in particular activities on the screen. In addition, Ss received credit towards their total noticing score for each correct detail which they recalled concerning the appearance or activity of the persons on the action videotape. The specific questions which were presented to participants concerning the bookdropper were in the form of multiple choice questions. In these questions, subjects were asked to indicate what the bookdropper was holding and wearing, and to choose whether she had dropped her books, bent down to tie her shoelace, ate an apple, stopped to check her watch, or, stood in the hallway smoking a cigarette. Mathews and Canon (1975) state that "...with noisy environments, individuals may become less aware of relatively subtle cues produced in interpersonal interactions that more clearly define other's meanings, intentions, and behavior" (p. 572). The questions used to assess noticing in the present experiment do not ask for recall of information which contains particularly subtle cues that may communicate the bookdropper's need for help. Some examples

of questions that may better assess noticing details which are relevant to the bookdropper's need for help are: how many times did she drop her books, how many times did she attempt to pick them up, how many books did she drop, how heavy were the books, how heavy/awkward did the knapsack she was carrying appear to be, did she ever successfully pick up her books, did she walk away with the books in her arms after picking them all up? Ss might be asked whether they noticed any facial expressions, or body movements which they felt indicated embarrassment, struggling, anger, feelings of helplessness, confidence, perseverance or other reactions of the bookdropper which might be considered to be cues to her need for help.

In naturally occurring situations, the decision to give help may depend upon the extent to which the potential benefactor believes that they personally have a responsibility to help (Latane and Darley, 1968). Studies of bystander intervention have suggested that the assessment of personal responsibility in a helping situation depends upon the potential benefactor's assessment of the likelihood that someone else will come to the aid of the victim. Although there is no opportunity to help in the present study, and no need for Ss to feel personal responsibility to help, it may be that noise level may affect noticing of subtle cues which may suggest, to the observer, the probability that someone would walk by while the bookdropper was still bent

down and which might suggest the probability that someone would help the bookdropper. Examples of questions which might be used to assess this include: how frequently did people come by the spot where the bookdropper was standing; how quickly did the other people walk through the hall; how disturbed did the other people look; was the atmosphere friendly in the hallway? (It should be noted that the difference between noticing and evaluation may be blurred at times: "I noticed that you looked upset".)

Although the measurement of specific noticing was able to discriminate between subjects (the range of scores was seventeen points. The mean was 9.11 and the standard deviation was 3.54), it is possible that the measurement method was not sensitive to the extent to which subjects noticed subtle cues. Although there was no noise effect for noticing the relatively gross details assessed by the questionnaire, it remains unknown whether with increasing noise level, there was a decrement in noticing the subtle (and perhaps more relevant) cues contained in the peripheral information.

Confidence

In Sherrod & Down's (1974) and Hockey's (1970) studies, Ss performed a primary and a secondary task. The secondary task for the Ss in both of these experiments required subjects to report each appearance of the peri-

pheral stimulii (a light which went on, or the auditory presentation of the number "2"). There was no cost to Ss for mistakenly indicating the presence of the peripheral stimulii. In an actual helping situation, the victim's appearance and actions are not initially the primary focus of the potential benefactor. They are peripheral to the potential benefactor's attention. It seems likely that in the field it is not solely a person's awareness that they may have noticed a person in need of help which is used in their decision to help, but their confidence that the cues they have received to indicate that the other person needs help and desires help. People may not wish to risk the possibility of being rebuffed or embarrassed by offering help or by initiating what they think is a helpful action, if the other is not in need of help. Thus, the investigation of the effects of noise on the ability to notice and interpret an event as one in which help is needed should entail a measurement of participants' confidence that they have, in fact, noticed cues which signal a need for help. In the present experiment Ss were asked to indicate their confidence that they had seen the bookdropper perform each of the following actions: holding books; carrying a knapsack which slid down her arm; dropped her books; bent down to pick them up; dropped her books a second time. An analysis of covariance (holding specific noticing scores constant) yielded a significant noise effect for a variable

which consisted of the average of the individual confidence ratings, F (1,70) = 4.22, $p < .044$. The direction of the effect is not as predicted. The results of a linear trend test indicate that mean confidence ratings did not decrease with noise level. A Newman-Keuls test was applied to the data in order to determine which condition or conditions differed from each other on mean confidence ratings. The high noise Ss are significantly higher than the medium noise Ss, but are not different than the low noise Ss. In interpreting this main effect for noise, for mean confidence ratings, it is important to note that the statements for which participants indicated their confidence are relatively gross indicators of noticing.

Missing data

Another potential indicator of Ss' confidence that they have seen details of the bookdropper's actions and appearance may be found by examining the extent to which Ss failed to fill in evaluative ratings of the bookdropper which were asked for in the questionnaire. The results of a chi-square analysis revealed that the number of missing evaluative ratings was significantly related to noise level, χ^2 (2) = 31.04, $p < .001$. Three percent of the total number of evaluative rating questions presented to Ss in the low noise group, two percent of these ratings in the medium noise group, and thirteen percent of the ratings

for the high noise group, were omitted by participants. Nine participants left out at least one evaluative rating. The number of people who left out at least one rating was not significantly related to noise level, χ^2 (2) = 3.61,ns, although the extent to which ratings were omitted was associated with noise level, χ^2 (2) = 31.04, $p < .001$. Of the nine persons who left out evaluative ratings, six had specific noticing scores between zero and five. They were categorized as non-noticers of the bookdropping situation. Among the non-noticers (15 people), one out of the four low noise subjects, one out of the six medium noise subjects, and four out of the five high noise subjects, omitted evaluative ratings.

Although the number of participants who are being referred to in this section of the discussion is small, the extent to which evaluative ratings were omitted in the high noise group may indicate a greater hesitancy among high noise subjects to make an evaluation of the bookdropper based on limited information. In the present study, it may have been assumed by Ss that all questions and evaluative ratings should be answered. Thus, the extent of their feelings of hesitancy to make evaluations of the bookdropper may have been more pervasive than their omissions indicate.

The interpretation of the omitted evaluations as indicating a greater hesitation to make evaluations among high noise Ss is not inconsistent with the fact that subjects

in the high noise group rated their confidence (concerning details of the bookdropping situation they had seen) as strongly as did Ss in either of the other conditions. As discussed earlier in this chapter, the ratings of confidence were not for aspects of the bookdrop situation which are relevant to the evaluative questions. Some examples which illustrate this assertion include: Ss were not asked to rate their confidence that they got a clear look at the bookdropper's face, although they were asked to rate her attractiveness. They were not asked to indicate their confidence that they had seen her attempting several times to pick up her books, although they were asked to rate how much she had helped herself, how unsuccessful her attempts were and how much she needed help. Thus, although high noise is not related to lowered specific noticing scores, or lowered confidence ratings concerning the major events of the bookdropping situation, there is some indication that subjects who noticed few details of the bookdropping situation considered it more difficult to evaluate the bookdropper's characteristics and actions under high noise. Since no measurement was made of subjects' confidence concerning those details which have been described as more subtle cues of the situation, there is no way to determine whether as noise level increases, confidence in having seen subtle cues decreases. However, in an actual helping situation, it is necessary that the potential benefactor make judg-

ments concerning the "victim's" need for help before the decision to give help is made.

Cohen (1975) states that under high noise, a social cue may be "perceived, but lack of available attention makes the person incapable of evaluating its significance. Since distress cues are often ambiguous, an evaluation is usally required in order to determine whether a cue actually represents distress and whether intervention on the part of the potential helper is appropriate" (p. 36). If evaluations are made, it is unclear whether people first evaluate the victim on all or some of the characteristics which have been associated with the helping in past studies (attractiveness, blame for the situation the victim is in, number of unsuccessful attempts to help themself) before making the decision that the situation is one in which help is needed, and before deciding to help. However, if under high noise, people are more hesitant to make such evaluations and judgments, then it may be that the interpretation of the event as one in which help is needed, and perhaps deserved, may not be made.

Misperception

It is interesting to consider the possibility that some participants may have felt highly confident that they saw actions on the videotape which actually did not take place. No direct measurement was made of the extent to which

Ss inaccurately perceived the bookdropper's actions. However there is reason to believe that at least some participants thought that they had seen the bookdropper successfully pick up her books and several thought she had walked away at the end of the videotape with the books in her arms. At the end of the tape she was still arranging her books. Nineteen participants indicated that they thought she had successfully picked up her books. This information was gathered by reading the short essays which Ss wrote describing the bookdropper's appearance and actions. Since participants were not specifically asked to indicate what the bookdropper was doing at the very end of the videotape, there is no way to know how many other persons held the same misperception or to know whether the number of people who had this misperception increased as noise level increased. If, in a naturally occurring situation, like the one on the videotape, observers thought that the person had successfully picked up their books, the situation would not be considered to be one in which help was now needed.[1]

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[1]It is apparent from subjects' answers to open-ended questions that other aspects of the videotape were misperceived. Two persons indicated that they saw a floor buffer being pushed. It is assumed that they were refering to the baby stroller. Seven persons wrote that they saw a construction worker who carried either a ladder, pole or piece of wood. The "construction worker" was a male graduate student who was carrying skis. The types of misperceptions which are mentioned above are consistent with the cover story. Subjects were told that the videotape was made during January vacation while construction was being done in the building. Floors are waxed and buffed during vacations.

Sex and noticing scores

Female participants noticed more of the measured details of the bookdropper's action and attire than males. However, females did not score higher than males on total noticing scores. This might suggest that women were more sensitive to distress cues than were males. Zuckerman et. al. (1975) found that females more accurately interpreted the emotional meaning of nonverbal social cues. This result may be related to the finding that females look more at other persons' faces while speaking, being spoken to or during mutual conversation (Russo, 1975). The higher specific noticing scores of females should not be interpreted as an indication that females would be more likely than males to help in a naturally occurring noisy situation. Women did not differ from men on any of the evaluative questions, including the extent to which the bookdropper needed help. Page (1975) noted that in his second experiment, under low noise women were more likely to give indirect help (i.e., telling the other that they had dropped something) rather than physical help. The frequency of helping by females, but not males, was significantly lower under high noise than under low noise. Thus, in situations in which females are likely to give verbal help, the frequency of help by females may decrease when noise is likely to interfere with verbal communication.

Experience

Although Ss' prior experience working in loud environments was not included as a variable in the research proposal for this study, it was considered a possibility that subjects who had more experience than others might score higher on the specific and total noticing measures. The measurement of prior experience was inexact and represents a gross indication of experience with noise. After subjects were debriefed, they were asked whether they had had experience working under loud noise conditions. The scores of participants who told E that they had had such experience were compared to the scores of Ss who did not report experience with loud noise. It was determined that experience with loud noise was not related to the noise conditions of the experiment, χ^2 (4) = 4.58,ns. Significantly more males reported having worked in loud environments than females, χ^2 (2) = 12.24, $p < .002$. Thus experience was confounded with sex. The potential consequences of the confounding of experience and sex lie in the possibility that levels of experience with loud noises may be associated with evaluations and/or noticing scores. If this were the case, any main effects for sex or interactions of sex with noise would be difficult to interpret. However, the results of tests of Pearson product-moment correlations indicate that experience is unrelated to participants' evaluations, to their scores on total and

specific noticing and it is unrelated to the number of words which were remembered.

Relationship of specific noticing scores to evaluations

It seems obvious that if a person does not notice someone else at all, (and the other person is not brought to their attention), that they will make no evaluation of the other's characteristics. However, it is unclear exactly how increases in noticing details about a person who is in need of help will affect the evaluations made of that person. Although specific noticing scores are not related to most of the evaluative variables of the present study, the specific noticing scores were related to Ss' ratings of how unsuccessful the bookdropper's attempts were to help herself and to their ratings of how much she needs help. The greater the specific noticing score, the more she was considered to be unsuccessful in her attempts at self help, r (87) = .18, $p < .039$. Similarly, participants' ratings of her need for help increased as their specific noticing scores increased, r (97) = .20, $p < .026$. In past studies of helping behavior, the manipulated characteristics of victims (including attractiveness, blame, unsuccessful attempts at self help, dependency) have been found to be associated with frequency of helping. These studies were noted in the introduction. Many of these evaluative variables were not related to specific noticing

scores in the present study. It may be, as stated earlier, that the method of measuring the extent to which Ss noticed the bookdropper did not assess details which were particularly relevant to the evaluative ratings. It may also be suggested that increases in specific noticing scores do not necessarily indicate that S has received additional information which is relevant to a particular evaluation of the bookdropper. For example, a subject who became aware that the bookdropper wore a knapsack will not necessarily change his or her evaluation of her attractiveness on the basis of this new information.

Evaluations: the circumstances under which derogation may occur

In the present study, there were no main effects for noise for: the evaluations of the bookdropper's attractiveness, blame for the situation she was in, assessments of how unsuccessful her attempts at self-help were, assessments of her need for help, perceived difficulty of helping her pick up the books, the time involved in helping her, or anticipations of the type of reaction she would make to an offer of help.

Cohen (1975) suggests that although people may notice the same events under high and low noise conditions, they may interpret the events differently. He suggests that under high noise, people may notice an event but may not evaluate its importance. Gergen (1974) states that

victims may be derogated after a person has failed to act prosocially (by helping) or victims may be derogated before the decision to help or not to help is made, "which makes it even easier" to refrain from action (p. 41).

It is necessary to ask under what circumstances derogation of a victim is likely to occur (see Appendix C). If derogation does occur after a decision not to help is made, it might be argued that no derogation occurred with high noise in the present study (meaning that the evaluations made in the high noise condition were similar to those made in the other two noise conditions) because subjects had no opportunity to help the bookdropper. They had no responsibility to help her and no reason to rationalize not helping her. Such rationalizations might take the form of de-emphasizing her apparent needs or of describing her as not deserving help. Bull et. al's. study (1972) is the only source of information about the measured effects of noise level on evaluations of another person. Bull et. al., in a study which did not involve an opportunity to give help, found that subjects gave more negative attraction ratings to a confederate when the noise level was 84 dB than when it was 40 dB. This result does not necessarily support the idea that noise may lead to derogation of a person who is presented as needing help, in a situation in which there is no opportunity for help, since in Bull et. al's. study, the person who was being evaluated was not

presented as needing help. The results of Bull et. al's. study also suggest that high noise may not be related to lower evaluations of others, at least under some of the circumstances of their study. In their study, females rated an attitudinally similar other more positively under high noise. In the present study no manipulation of similarity was made.

Noise: an annoyance or a challenge

It had been predicted that higher noise would lead to greater annoyance. This result was supported statistically by the results of a linear trend test, F (1,85) = 6.44, $p < .013$. Clore and Byrne (1972) state that affective responses may mediate evaluations of others. Thus, it might be expected that the greater annoyance experienced by high noise Ss might be associated with more negative evaluations of the bookdropper. However, there was no main effect for noise for evaluations of the bookdropper. It may be suggested that although the high noise subjects reported greater annoyance than the Ss in the other conditions, the absolute annoyance which they experienced may have been relatively low. Wilkinson (1969) states that a stressor is more likely to show effects later in the task. The duration of the videotape and noise was four minutes. It may be suggested that if in fact noise does affect evaluations, that some minimum exposure to the noise is

necessary before such effects occur. However, in Mathews and Canon's laboratory study (1975), subjects who had been in a room only for a moment, which had a noise level of 85 dB, were less likely to help a confederate who dropped books, than were Ss who were in the same situation, but who heard either a noise of 65 dB or 48 dB. In Mathews and Canon's study, no measurement was made of Ss' evaluations of the confederate. It is impossible to know whether evaluations differed for high and low noise conditions. Secondly, Ss in their laboratory study had been in the noisy room only for a moment when the confederate dropped his books. Ss may have been temporarily disoriented by the noise. Broadbent (1958) and Kryter (1970) state that a sudden onset of noise is associated with an inability to respond to visual stimulation while attention is focussed on the novel auditory information. The results of Mathews and Canon's laboratory study may be explainable by transient effects of the onset of noise which may have prevented Ss from evaluating the situation as one in which help was needed (Cohen, 1975). In the present study, Ss heard the noise for four minutes (and thus may have wholly or partially adapted to it during the videotape). Participants rated the extent to which they considered the noise to be annoying approximately two minutes after the noise had ended. The noise had been terminated for several minutes before participants were asked to evaluate the bookdropper.

Although there was a significant noise effect for annoyance in the present study, subjects in the three noise conditions did not differ on their ratings of the pleasantness of the task, F (2,85) = .47,ns. It may be that as the noise level increased, subjects considered the task more challenging. Harcum et. al. (1973) state that if subjects are led to believe that noise is relevant to the study, they may work to overcome the noise. Such subjects are aware that they are being stressed. Harcum et. al. suggest that this knowledge will reduce the effects of noise. Glass and Singer (1972) state that the effects of noise will be lessened if participants believe that noise is a necessary part of the experiment. Thus, it may be that the lack of noise effect for evaluations of the bookdropper may be partially due to the fact that subjects in the experiment were told to expect to hear a construction noise and also were told that the effect of noise was being studied.

Subjects' expectations of noise level

Unlike past experiments on the effect of noise on peripheral attention in which only noticing was measured, in the present experiment, subjects were required to make evaluations of another person. These evaluations may have been affected by the extent to which the noise which was presented fell below, met, or exceeded Ss' expectations of its intensity. The majority of the participants in the

high noise condition (66%) expected the construction noise to be softer than it was. They may have felt more relieved when their noise ended than did Ss in the other two conditions. In the present study, after the noise and videotape ended, Ss had ninety seconds in which to write the words they remembered, and then answered several questions in their booklets before indicating their evaluations of the bookdropper. The time gap between hearing the noise and making the evaluations may have decreased the effect of noise on evaluations. It is unclear to what extent the effects of noise on evaluations which are made after the noise ends may be generalized to situations in which evaluations are made during the presentation of noise. It might be asserted that the situation under which evaluations were made after the noise ended in the present study, is comparable to evaluations which may be made of victims in real life loud noise situations after the evaluator has left the noisy area. However, the evaluator in real life may have an opportunity to help the victim, unlike participants in the present experiment. If the person in the real life situation derogates the victim after leaving the noisy area, the derogation may be a result of their knowledge that they did not help, or an effect of their lack of help and the effects of noise.

Costs-for-helping and empathy

It had been predicted that as noise level increased, perceived costs for helping would increase. However, the results were in the opposite direction to this prediction. A possible explanation for this result asserts that as noise level increased, the extent to which S was sensitive to the plight of the bookdropper increased and that perceived costs decreased as empathy increased. Intuitively, it would seem that people who have experienced the distress which the person in need of help is experiencing would be more apt to interpret the situation as one in which help is needed and to realize the importance of the situation, as well as the relief which the victim would experience after being helped.

When evaluating costs-for-helping it may be that the potential benefactor considers the ratio of the anticipated relief the victim will experience to their own costs-for-helping. It may be suggested that the perceptions of participants in the high noise group of the potential ratio of the benefits the bookdropper would receive from help to the costs-for-helping, may have been higher than the perception of such a ratio held by Ss in lower noise levels. The source of the distress which the bookdropper is experiencing, in all conditions of the experiment, is the inability successfully to pick up her books. However, it is only in the highest noise level condition that her dis-

tress may be thought of as arising from the inability to successfully pick up books in a loud environment. Thus, only participants in the high noise condition should be considered to have shared part of the same distress as the bookdropper (i.e., distress from loud noise). There is statistical support for the idea that as noise level increased, Ss in the present study experienced more distress. The higher the noise level the greater the annoyance reported by participants.

In a study of the development of empathy by Aronfreed and Paskal (reported in Aronfreed, 1968) it was found that more help was given to end the suffering of a stooge when the subject had previously experienced the discomfort of hearing loud noise through earphones which the stooge later "experienced". Stotland (1969) writes that it is most reasonable to assume empathy is the basis of at least some altruistic behavior, and suggests that "any interpersonal process, symbolic or overt, which causes an individual to imagine himself in another's position would lead him to empathize with the other person." Empathy, the ability to imagine the feelings of another, according to Stotland, will be enhanced by the individual having been in a situation similar to the other's situation. The bookdropper and the participants in each condition of the present study, "experienced" the same level of noise. Although low and medium noise subjects experience the same noise intensity

as the one the bookdropper "experiences", their "shared" experience (hearing a 60 dB or a 77 dB noise) is not out of the ordinary, and would seem to be less likely to form the basis of feelings of similarity. An implication of Stotland's approach for the present study is that participants in the high noise group would be better able to imagine the bookdropper's feelings. Thus, they might be more likely than Ss in other conditions to consider how much she would like to receive help, or to consider the level of annoyance she was experiencing by remaining in the loud hallway.

Thus, Ss in the high noise condition may be more likely to consider the costs-for-helping to be low in relation to the relief which the bookdropper would experience by being helped (and thus able to leave the noisy area). The evaluations of costs-for-helping were made on five point scales, ranging from "very difficult to help" to "not at all difficult to help" and from "a great deal of time" to "very little time". These ratings were relative rather than absolute: i.e. Ss were not asked how many minutes it would take to help. Such evaluations may have been affected by considering the benefits the victim would receive from being helped.

If in fact, Ss in the high noise condition were more sensitive to the plight of the bookdropper, it might be expected that their rating of her need for help would be higher than the ratings given by other Ss. However,

ratings of the bookdropper's need for help did not differ for the three noise conditions. Although participants in the high noise condition did not indicate higher ratings of her need for help, it may be suggested that their knowledge of the annoyance which they experienced from the noise may have affected their evaluation of costs.

The Ss in the high noise condition are no longer listening to the noise at the time at which they rate the costs-for-helping the bookdropper. They may have felt relief at the end of the presentation of the noise and they may think the bookdropper would also experience relief after being helped. The bookdropper presumably would be able to leave the noisy hallway more quickly if she was helped than if she continued unsuccessfully to pick up her books. The decrease in perceived costs-for-helping which was found as noise level increased in the present study may be partially explainable if such a ratio of benefits and costs are considered when evaluating cost, and if the perceived ratio is higher for high noise participants.

Impact of videotaped helping situation

It might be asserted that no noise effects were found for evaluations because the method of presenting the helping situation to participants lacked the impact which would be felt by persons faced with an actual helping situation. In the videotaped presentation of the helping

situation, subjects are separated from the bookdropper both physically and temporally. While the bookdropper was dressed for cold January weather, several of the experimental sessions took place during 70° F April weather. It could be argued that the method of presentation of the helping situation lowered subjects' potential ability to sympathize with the bookdropper. However, the temporal and spatial differences mentioned above were constant for participants in the three noise levels. Lowered involvement or lowered ability to respond to the bookdropper as a real person might be expected to make it easier to derogate her under the more annoying high noise level. However, noise level was not related to evaluations of the bookdropper and the perception of costs-for-helping decreased rather than increased with increases in noise level.

CHAPTER V

CONCLUSION

The problems addressed by this research include the effect of noise on: people's ability to notice peripheral details of a situation in which help is needed, evaluations of the event as one in which help is needed, and evaluations of the characteristics of the person in need of help. The results of this study indicate that noise level affected neither the noticing scores nor the evaluations made by participants. It is suggested that the problems which were raised by this study have not been adequately resolved. Suggestions for future analysis which may better test these problems can be made.

Have the problems been resolved: Noticing

In past studies of the effect of noise on noticing peripheral information, the peripheral information clearly offered potential interference to participants' ability to perform the primary task. However, several aspects of the experimental situation used in the present research (cover story, the use of background information which was dissimilar to the primary task, novelty of each peripheral event) may have led to the perception by participants that attention to the peripheral information did not present potential interference to performance on the primary task, and may have given the impression that the peripheral information

might actually be useful for performance on the primary task. Thus, the background information may have been considered to be part of the cental task.

The results of the present research have theoretical implications for the attention-restriction approach. The generalizability of the results of past studies on the effects of noise on peripheral attention (which have shown a decrement in performance on secondary tasks under high noise) may be limited to certain situations. It may be suggested that secondary tasks may not receive less attention under high noise if attention to the secondary task is considered to have utility for primary task performance and/or is considered to offer potentially little interference with primary task performance. A study in which the utility and potential interference of the secondary task to a primary task are manipulated would allow for a test of this assertion. While authors of past studies most often have described noise as acting upon the participants in their studies, the present approach, like Cohen's (1975), views participants as choosing to allocate their attention under high noise in such a way as to focus on information which they consider to be most relevant to them. Thus, in the present study, Ss in all conditions may have considered the background action to be relevant information.

One of the stated problems which this research attempts to resolve is the extent to which noise affects

the ability to notice social details of the helping situation. No differences were found for participants in the different noise levels for noticing the presence or absence of objects and persons in the background, or for noticing major actions of the bookdropper. It has been suggested that noise may affect the ability to notice subtle cues of social interaction (Mathew and Canon, 1975). The present research did not measure participants' attention to subtle cues which may have signaled the bookdropper's reaction to her own situation, such as her desire for help, her embarrassment or her frustration. Also not measured was attention to subtle details of the situation which may have given clues about the probability that she would receive help in the hallway. Attention to subtle details should be assessed in determining the effect of noise on noticing aspects of social situations.

However, it is not simply that attention to different types of details (subtle versus gross details) must be measured. If the predictions which follow from the attention-restriction approach are to be tested in social situations, it must be considered that in such real helping situations the actions of potential benefactors have consequences with possible costs. For example, a person who has not specifically been asked to help and who starts to help another, risks being told that his or her actions are inappropriate and unwanted. It is important therefore, to

measure the person's confidence that he or she has in fact seen cues which do signify a need for and/or a desire for help.

Evaluations

The second problem which the research addresses is the effect of noise on evaluations of the bookdropper and of the costs-for-helping. The evaluations were similar for all noise levels, unlike the prediction that they would be more negative with higher noise. In order to determine to what extent the present research has resolved this second problem, it is necessary to examine the circumstances under which the evaluations were made. The evaluations were made after the presentation of noise ended. The time lag between the end of the presentation of the noise and the assessment of evaluations may have lowered the effect of noise level on evaluation. The effect of noise on costs-for-helping was in the opposite direction to that which was predicted, such that as noise level increased, perceived costs-for-helping decreased. It may be suggested that, at least under certain circumstances, noise will not lead to more negative evaluations. Examples of such situations may include ones in which participants who have experienced the high noise have no opportunity to help, and are also experiencing relief themselves after the termination of the noise. Under these situations, participants

may indicate evaluations of costs-for-helping which are lower than those indicated by people in the lower noise groups.

In the present experiment, there was no opportunity to help. It was, as a result, possible to gather noticing scores from participants which were unbiased by possible rationalizations for non-help. However, since there was no opportunity to help, the evaluations of the bookdropper may not reflect evaluations which may occur under noise in situations in which helping is possible. It may be that derogation of a victim occurs with noise only if an opportunity to help exists.

Several additional suggestions for further analysis of the problems addressed by this research may be made. This research focussed on measuring the extent to which details of a particular type of social situation were noticed. If such details are noticed in a naturally occurring situation, it is necessary that people decide whether to act or not to act (by giving direct or indirect help). It may be particularly difficult to generalize evaluations of victims made under situations in which no opportunity exists to help to situations in which such an opportunity does exist. It may be suggested that a modification of the design of the present study be used to assess attention to details of a non-helping social situation under several noise levels. For example, peripheral

information in such an experiment could include a person whose more subtle actions may clearly define the meaning or purpose of their actions, which would be ambiguous to others who have no knowledge of these subtle cues. This would allow for a test of the predictions of narrowed attention to social cues under high noise. In a test of the effect of noise on noticing subtle cues of a helping situation, the operational definition of "noticing the subtle cues" should be **presented.** The peripheral information in such a study might include a person who is wearing a cast who has dropped their books. While Mathews and Canon (1975) assumed Ss in their high noise group noticed the cast of their confederate to a lesser extent than participants in the low noise condition, a study like the one suggested above would allow for a direct test of the assertion that the ability to notice this subtle cue of help is diminished under high noise.

Although the present research has not resolved the problems it set out to test, it has identified major problems for future analysis and has offered suggestions for more adequate assessment of the effect of noise on attention and evaluation of social information.

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APPENDIX A

Word Memorization Study

Please write down as many words as you can remember, in any order on this page.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Please do not turn the page until instructed to do so.

While you work on this questionnaire please do not turn back to previous pages.

Use the answer sheet for all multiple choice questions.

2. How well do you think you did on the word task you just completed?

   A. very well

   B. well

   C. fair

   D. poor

   E. very poorly

3. Please blacken the space/s on the answer sheet for each of the specific methods you used to try to remember the words.

   A. tried hard to keep my eyes on the part of the screen where the words appeared

   B. tried to make up a story with the words

   C. tried to think of the words that came before as new words appeared

   D. tried to make a mental picture of the words

   E. other (If you chose E please specify what method you used on this sheet)

4. The word memorization task was

   very difficult A B C D E very easy

5. The word memorization task was

   A. very pleasant

   B. somewhat pleasant

   C. neither pleasant nor unpleasant

   D. somewhat unpleasant

   E. very unpleasant

6. How loud was the noise while you were watching the words?

   very loud A B C D E very quiet

7. How annoying was the noise while you were watching the words?

   not at all annoying A B C D E very annoying

8. How difficult was it to block out the noise?

   very easy A B C D E very difficult

9. How distracting was the movement of the people on the screen?

   not at all A B C D E very distracting

What was the purpose of the experiment? Please write on this page.

What was the purpose of the action tape you saw behind the words on the screen?

Although you were asked to try to keep your eyes on the part of the screen where the words appeared, it is very likely that you did notice some of the action going on behind the words. Since each word was flashed on the screen three times with some time between the presentation of each word, you may have been able to notice various aspects of the background activity. Earlier studies have shown that people who are asked to memorize words are able to recall some information which was presented in the background of the words.

An important purpose of this study is to determine how much of the background activity you did notice. Describe in as much detail as possible what the various people were doing in the hall way. Ten people appeared on the screen.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

On your answer sheet indicate whether each of the following was present on the screen.

		Yes	No
10.	an infant being carried	A	B
11.	a female smoking a cigarette	A	B
12.	a female eating an apple	A	B
13.	a female pushing a stroller with a baby in it	A	B
14.	a trash can	A	B
15.	a male lighting a pipe	A	B
16.	a dog on a leash	A	B
17.	a female walking with a cane	A	B
18.	a male carrying skis	A	B
19.	a female drinking soda from a can	A	B
20.	a female dropping books	A	B
21.	a female tying her shoelace	A	B

Answer the following questions about the female who was the last person who appeared on the screen. She walked towards you and stopped. She appeared on the screen during the middle of the last presentation of the word list. She was on the screen for the rest of the time the third list was presented, and was on the screen when the last asterisk appeared.

What was she doing while she was on the screen? Please be as specific as possible. It is <u>important</u> that you mention the details you are able to remember. Use the back of this sheet if you need more room.

22. On your answer sheet rate how good a look you got of her.

A. I got a long look at her

B. I got several short looks at her

C. I got a short look at her

D. I caught a glimpse of her

E. I did not notice her at all

Please continue to answer the rest of the questions as best you can. You may continue to work on the rest of the questionnaire.

The next set of questions are <u>also</u> about the last female who was present on the screen.

23. Choose only one of the following: She was holding
    A. her coat
    B. a package
    C. a briefcase
    D. some books
    E. a pocketbook
24. She had with her
    A. gloves
    B. mittens
    C. scarf
    D. none of the above
25. She was wearing
    A. a sweater
    B. a down vest
    C. a down coat
26. She wore on her head
    A. a hat
    B. a hood
    C. nothing
27. She:
    A. bent down to tie her shoelace
    B. dropped her books
    C. stopped to check her watch
    D. stood in the hallway smoking a cigarette
    E. ate an apple

Please write your answer to the following question here.

Why did she drop the books?

On your answer sheet indicate the following:

28. The person who dropped the books looked:
    attractive A B C D E unattractive
29. To what extent is she to blame for the situation she is in?
    completely A B C D E not at all
30. She tried to help herself:
    a great deal A B C D E not at all
31. How successful A B C D E successful

32. Does she need help?

definitely not A B C D E definitely she does

33. You are walking towards her and offer your help. She probably would

A. thankfully accept your offer

B. accept your offer

C. politely reject your offer

D. ignore your offer

E. reject your offer in a nasty way

34. How difficult would it be to help her pick up the books?

not at all A B C D E very difficult

35. If she accepted your offer to help it would probably take you how much time to help her?

a great deal of time A B C D E very little time

Rate how distinctly you saw each of the following. I saw that:

36. she was holding something
saw clearly A B C D E did not see

37. she was holding books
saw clearly A B C D E did not see

38. she had a knapsack with her
saw clearly A B C D E did not see

39. her knapsack slid down her arm
saw clearly A B C D E did not see

40. she dropped her books
saw clearly A B C D E did not see

41. she bent down
saw clearly A B C D E did not see

42. she attempted to pick up her books
saw clearly A B C D E did not see

43. her books dropped a second time
saw clearly A B C D E did not see

In the following questions you will be asked to give some general information concerning the experiment and your reaction to noise.

44. How loud was the noise in the hallway where the people were walking around?
    not loud at all A B C D E very loud

45. Normally, how comfortable is it for you to work in noisy environments?
    very uncomfortable A B C D E very comfortable

46. The experimenter probably expected that the noise would make it
    A. more difficult to memorize the words
    B. easier to memorize the words
    C. neither harder nor easier to memorize the words

47. The experimenter probably expected that the people moving around behind the words would make it
    A. neither harder nor easier to memorize the words
    B. easier to memorize the words
    C. more difficult to memorize the words

48. At the beginning of this experiment when I was told that a noise would be heard during the tape I expected that the noise

    A. would be a great deal louder than it actually was

    B. would be a little louder than it was

    C. would be about as loud as it was

    D. would be a little softer than it was

    E. would be a great deal softer than it was

49. Your sex: A. Female B. Male

APPENDIX B

A study by Cohen and Lezak (1977), reported in a prepublication copy of an article which is scheduled to appear in Environment and Behavior later this year, attempts to test the effects of noise level on attention to social cues. (The manuscript was received September 26, 1977). Cohen and Lezak raise the possibility that under noise attention to social cues may not be attenuated in the same way as it has been found to be with regard to non-social cues because people may be considered more "interesting or response demanding than non-social objects". In this study, subjects were instructed to recall six nonsense syllables which were presented on slides under either unpredictable noise (95 dB $\pm$5) or quiet. Slides of social situations were presented to the right of the nonsense syllables. Each social slide showed either one person or two persons interacting. These slides depicted either calm or distressful situations. In each of the distress slides a person is about to be, or has just been the victim of a simple accident or a life threatening crime. The "calm" slides were nearly identical to the "distress" slides. For example, some participants were shown a slide of a woman holding a bag of groceries, while others were shown a slide of a woman dropping a bag of groceries. Each S was presented with three "calm" and three "distressful" slides.

Subjects were told that the experimenter was tes-

ting the effect of distraction on memory. It was emphasized that the subject's task was to memorize the nonsense syllables regardless of whether or not a picture appeared next to the word. In Cohen and Lezak's study Ss were given a series of practice trials to memorize nonsense syllables prior to the trials involving the presentation of the noise and social slides. During the actual experiment, for each of the six slides S was asked to choose one of four alternatives describing the social cue slide "in terms general enough to apply to both the calm and the distressing situation of a pair" (p. 8).

The results of the study indicate that participants in the high noise condition were unable to remember any of the peripherally presented social slides. Cohen and Lezak state that subjects were not able to remember the slides which contained distress cues better than the slides which did not contain distress cues. (It can be argued that Cohen and Lezak have made an error in logic in stating this conclusion. Since they have found no evidence that participants in the high noise condition saw the slides, these Ss could not have been responsive to the differences in the types of cues depicted by the calm and distressful slides.) As predicted, participants were able to remember a greater number of slides in the low noise than in the high noise condition.

Like this investigator, Cohen and Lezak used a

primary task, which involved memorization and peripheral information which was social. However, several important differences exist between the two studies. Cohen and Lezak used an unpredictable 95 dB noise in their study, while in the present study a predictable 85 dB noise was used in the high noise condition. As mentioned earlier, decrements in peripheral attention and in helping have been found using an 85 dB noise. Thus the different noise intensities used in the two studies do not seem to account sufficiently for the difference in the results. The unpredictable loud noise used in Cohen and Lezak's study may have been considered to be more annoying than that used in the present study, and may partially account for the differences in the results. It seems likely, however, that other procedural differences in the two studies may better account for the differences in the results.

Although Cohen and Lezak describe social cues as more "interesting" and "response demanding" than non-social cues, their method of presentation (still slides) reduces the potential power of the stimuli to "demand" a response. It can be argued that their experimental techniques did not provide an adequate test of attention to social cues and that their social slides were more like non-social cues (i.e., objects) than the social cues which were presented in the present experiment in which people were depicted moving about on the videotape. In the present

study there was no difference in the scores of subjects on noticing peripheral information while in Cohen and Lezak's study subjects in the low noise condition remembered a significantly greater number of peripheral slides than subjects in the high noise condition. The difference in results may be partially explainable by the difference in "response demandingness" of the social cues in the two experiments. It may be that noise will lead to a greater decrease in attention to peripheral social information if that information is still rather than moving. This statement is testable.

Additional differences in the experimental procedures used in these two experiments may help to explain the different results which were found. The cover story used in Cohen and Lezak's experiment, unlike the one used in the present study, included no information which implied that the peripheral information might be useful to participants in memorizing the words. Participants in Cohen and Lezak's study may have considered the peripheral information to be a great deal less useful to them than did participants in the present study, and may have nonitored the peripheral information less closely than did Ss in the present study.

In order to explain the differences in the results of the two studies, differences between the two studies in regard to the utility as well as the potential interference of the peripheral information to the primary task must be

considered. For subjects in Cohen and Lezak's experiment, the contrast between the practice trials, which provided an optimal situation for syllable memorization, and the circumstances under which both noise and social slides were present, may have made salient the idea that the noise and picture slides would interfere with their ability to memorize the syllables. No such practice trials were included in the present experiment. It may be that compared to participants in the present study, participants in Cohen and Lezak's study may have considered the peripheral information to be more likely to interfere with primary task performance. As previously discussed, it may be expected that the extent to which noise will be associated with a decrease in attention to peripheral information will depend upon the extent to which subjects expect that attention to the peripheral information will make it more difficult to perform the primary task.

In summary, the two experiments are superficially similar. Both used memorization as a primary task and social information as the peripheral information. The results of the two studies were strikingly different. While the present study found no decrease in attention to peripheral information under noise, Cohen and Lezak found a significant decrease in peripheral attention under noise, such that high noise subjects' memory of the social slides was no better than that expected by chance. It seems likely

that the differences in the results of the two studies may be accounted for to a great extent by the following: 1) the lower "response-demandingness" of the peripheral information in Cohen and Lezak's experiment; 2) the lower utility of the peripheral information in their experiment than in the present experiment and; 3) the lower potential interference to primary task performance of the peripheral information in the present experiment as compared to the experiment performed by Cohen and Lezak.

APPENDIX C

Articles on the effects of noise level on helping (Mathews & Canon, 1975; Page, 1975) have not presented an integration of results with major theoretical views. They have used descriptive explanations such as those offered by the attention-restriction approach. A movement towards the integration of empirical results with a larger theoretical model offers the potential for greater power in explanation and prediction.

Newcomb's model of balance (Taylor, 1970) is particularly relevant to a discussion of the effects of noise on helping. This model emphasizes the role of communication in systems. Balance theory assumes that cognitive inconsistency will lead to tension, and that actions or changes in cognitions will be made in order to regain balance. Newcomb's theory may be applied to situations in which help is needed and high noise levels are present, thus obscuring communication. There are three elements in this model: the focal person, A, (who we might consider to be the potential benefactor), the other, B, (the victim in the help situation), and the issue, X, (whether the situation is one in which help is needed).

Newcomb deals with the focal person's attitudes and perceptions of the other and of the issue. Thus, A to X in a helping situation might be the extent to which A believes that the situation is one in which help is needed.

B to X signifies the potential benefactor's perception of the victim's desire for help. The potential benefactor's attraction to the victim (e.g., positive or negative evaluations) is the A to B relationship. Newcomb's model takes into consideration the strength of these attitudes and perceptions. Thus, the potential benefactor's confidence that the situation is, in fact, one in which help is needed and their confidence that they desire help, may be described using this model.

The accuracy of the focal person's perceptions of the other's attitude toward the issue may be increased by the receipt of information from the other about the issue. Noise can limit communication by interfering with the receipt of this information. Without communication the potential benefactor may act in a way called "autistic" by Newcomb. The autistic behavior consists of assuming that their perception of the situation is the same as the perception held by the other. Thus, the focal person may assume that the other does not desire help and that the situation is not one in which help is needed.

An example of a balanced situation would be one in which the potential benefactor believes that the situation is not one in which help is needed, believes that the other does not desire help and the potential benefactor has a positive evaluation of the other. An example of an unbalanced situation would be one in which the potential

benefactor believes the situation is not one in which help is needed, has a positive evaluation of the other, and perceives that the other has a positive attitude toward being helped.

In order to regain balance (according to Newcomb's model) despite communication (i.e., despite the cues which the victim is sending which indicate a desire for help) "you convince yourself that he is incompetent to evaluate the issue, or that the issue is of little importance or... (that he) is not being truthful and did not really mean what he said, or you simply deny..." that he wanted help. "Any such autistic perceptions represent attempts on your part to reduce the tension created by unbalance" (Taylor, p. 27). Another alternative would be for the focal person to change their perception of the situation to one in which help is needed.

Although Newcomb does not specify which alternative is likely to be chosen by the focal person in order to regain balance, Rosenberg and Abelson present views on this issue (summarized in Taylor, 1970). These authors suggest that the change or changes which are most likely to occur are those with the least cost to the focal person. Low cost is defined as requiring few sign changes or low expenditure of effort. In a high noise situation a low cost alternative might be to deny that the other really wants help. This would allow the focal person to avoid

remaining in the area of the noise. (This example assumes that the focal person can leave the area more quickly if they do not help). Another alternative would be to derogate the victim, i.e., to change their evaluation of them. Rosenberg and Abelson suggest that the focal person can achieve balance by changing their perception of the issue by considering it to be a special case. An example might be one in which the focal person believes that the situation is one which they normally would consider to be one in which help is needed, but, they reason, the person is responsible for the situation they are in and it would be good for them to extricate themself from the situation.

An implication of Newcomb's model is that interference with communication may prevent strain from occurring (i.e., the focal person may assume that the situation is balanced). In addition, symbolic interaction theory (Goffman, 1959) would suggest that a person's concern with others' perception of them would pressure them to act prosocially, i.e., to help. However, if a person does not desire to help another, noise may be used to protect the image which others have of them by "covering" over the fact that they have perceived the need for help. For example, in a noisy situation the person may act as if they have not noticed that someone was in need of help and will assume that observers would assume that the person did not help because they did not notice the situation.

The results of the present study may be examined using Newcomb's balance model. It has been suggested that derogation did not occur under high noise because there was no opportunity to help. Derogation might be used as a method to regain balance in an unbalanced situation. However, the strain towards balance which would precede derogation would be present only in a situation which provides an opportunity to help, i.e., allows for interaction.