


1968

## Verbal Conditioning and its Generalization

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VERBAL CONDITIONING AND ITS GENERALIZATION



A Thesis  
Presented to  
The Graduate Faculty  
Central Washington State College

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Education



by  
Grace Evica Keesling

August, 1968

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#### ACKNOWLEDGEMENT

The author wishes to thank Dr. Frank Nelson for his patience and assistance in helping her refine and terminate this thesis project.

Appreciation is also expressed to Dr. Persis Sturges, for her contributions to the design of the study.

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## CHAPTER I

### INTRODUCTION

A major concern of psychology is the control, modification, and prediction of behavior. Learning, as an area of behavior, is the focus of inquiry in both psychology and education. Today, a prime concern of educators is the study of the conditions which affect learning. Since most learning occurs in a verbal context, the relevance of verbal conditions that affect learning is self-evident. One approach to the examination of verbal conditions which affect learning is the application of operant conditioning techniques. In past years, researchers have been concerned with operant conditioning as a means of modifying verbal behavior. The technique of verbal conditioning has evolved from these concerns.

Verbal conditioning may be defined as an increase in the rate of verbal response when the response is followed by a reinforcing stimulus. A common sense example of this definition might be "an experiment," the purpose of which was to condition subjects to make comments about safe driving. The response class included statements elicited from the subject such as "One should not exceed the posted speed," or "I always slow down before approaching an intersection." Immediately after these comments were voiced, the experimenter said, "Good," or "That's a fine idea," attempting to reinforce and increase the number of statements from the subject about safe driving.

Verbal conditioning as an end in itself has value in the laboratory situation. Its practical application, however, separate from or combined

with other techniques, may lie in the realm of behavior modification. It seems necessary, therefore, to explore verbal conditioning in terms of its effect on related behavior. Further, if an individual's verbal responses can be manipulated and if it can be demonstrated that the change is due to the reinforcing stimulus, a question arises, "How reliably will this change generalize to other activities after verbal conditioning has occurred?"

### Review of the Literature

A review of research applying operant conditioning techniques to verbal learning (verbal conditioning) has produced conflicting results. Several studies have reported positive results utilizing verbal conditioning techniques. Rogers (1960) reinforced the self-reference statements of his subjects, resulting in increased occurrence of such statements. Matthews and Dixon (1968), in a well-controlled study, demonstrated conditioning of verbs. Insko and Butzine (1967) increased the number of positive statements about pay television as a result of verbal reinforcement. Other researchers reporting positive results of verbal conditioning were Binder, McConnell, and Sjöholm (1957), Simkins (1961), and Zedek (1959).

As indicated, many attempts to condition verbal responses have been unproductive. Johns and Quay (1962) in their research with military personnel and Lockert and Bryan (1963), using college students as subjects, were unable to significantly increase the rate of verbal response of the reinforced group. In an experiment designed to investigate the possibility of obtaining verbal conditioning under conversational conditions,

Sullivan and Calvin (1959) failed to affect verbal conditioning in a population of female undergraduates.

Research related to verbal conditioning must be examined in terms of response class as well as in terms of general findings, for some psychological theories hold that mediating processes affect the overt behavioral response. An examination by response class allows one to investigate the possibility of response class as an intervening variable. The following studies suggest the wide variation of response classes which have been chosen for reinforcement. Rogers (1960) reinforced the self-reference statements of his subjects. Wilson and Verplanck (1956) chose to increase the subject's selection of words about travel. An affect statement response class was used by Salzinger and Pisoni (1960) with normal, hospitalized subjects. Haas (1962) reinforced emotionally-toned endings to spoken incomplete sentences.

A response class, which has lent itself to verbal conditioning is "hostile" verbs. Binder, McConnell, and Sjöholm (1957) report increasing the rate of emission of this response class, as did Simkins (1961) in his research with undergraduate students. A similar verbal response class having negative cultural connotations and including hostile verbs was successfully increased by Zedek (1959).

Another area in the research deals with a question previously posed in this chapter. That is, once verbal conditioning has been demonstrated, does a generalizing effect occur? Studies dealing with such generalizing factors have met with varying degrees of success. Weide (1960) reported that three different response classes showed

evidence of conditioning, and one (malevolent words) generalized to the post-conditioning task. Carpenter (1960) demonstrated conditioning for one of four word length response classes and obtained results suggesting that generalization occurred around the reinforced word length. Using the spontaneous emission of words technique, Timmons (1962) reinforced "building" words (words relating to construction of houses). Following the conditioning of this class of words, the subjects were asked "to draw something." Results showed that more drawings of buildings were produced by the reinforced group than by the control group. Thaver and Oakes (1967) showed verbal conditioning of hostile verbs and a generalizing effect was noted in the responses evoked by the Thematic Apperception Test.

However, a generalizing effect has not been obtained in other studies which did demonstrate verbal conditioning. For example, Rosenberg (1961) found that the rate at which verbally reinforced male undergraduates selected negative adjectives for sentence construction differed significantly from non-reinforced subjects. This conditioned behavior failed to generalize to the post-conditioning task which utilized negative adjectives in describing photographs. The researcher suggested that failure to achieve generalization may have occurred because the learning and generalization tasks differed.

Research techniques employed to investigate verbal conditioning have been of two general types. The first of these, used in the Greenspoon study (1955), is unstructured. The experimenter instructed the subject to say words randomly and then reinforced a predetermined

type of word. The second technique was developed by Taffel (1955). Here the subject was asked to construct sentences using a structured, rather than a spontaneous, setting. A list of words given the subject included a predetermined response class, the rate of which was to be increased. Both conditioning techniques used a type of social reinforcement ("That's good," "Fine," or "You're right").

Evaluation of the research and the research techniques reported above is complicated by the kinds of controls included in the research design. Therefore, parallel studies sometimes exhibit different findings, dependent upon the type of controls employed. Suspecting that more stringent controls were needed in verbal conditioning studies, Azrin, Ulrich, and Goldiamond (1961), attempted to replicate a study by Verplanck (1959). In the Verplanck study, student experimenters reportedly exerted control over conversations in informal settings (dormitory, cafe). When Azrin, et al., duplicated the Verplanck procedures, using both students and trained experimenters, the following difficulties were identified: (1) maintaining experimenter objectivity, (2) scoring, and, (3) timing and recording of responses. The Azrin experiment pointed out a need for greater control in research design and execution and suggested the inclusion of objective programming of stimulus and response. Also, this study indicated the need to free the experimenter from the dual responsibility of reinforcing and recording. This separation could increase accuracy as well as objectivity.

Three comprehensive reviews, Krasner (1958), Salzinger (1959), and Greenspoon (1962) further emphasize the need for more conclusive

research before verbal conditioning techniques are applied to therapeutic and education settings.

#### Summary of Research Findings

The following generalizations derive from the findings of the studies reported above. First, when applied to verbal learning (verbal conditioning), operant conditioning techniques have had conflicting results in terms of increasing the desired verbal responses.

Second, mediating processes and intervening variables such as the affective loading of certain response classes and social and cultural connotations of response classes may affect overt behavioral responses. Other intervening factors have been reported by Matthews and Dixon (1968) who suggest that the subjects' reactions to the characteristics of the examiner's voice may influence the reinforcing stimulus and by Insko and Butzine (1967) whose research suggested that the degree of rapport existing between the experimenter and subject has an interactive effect with reinforcement. It is also possible that the subject and experimenter may differ in their semantic interpretation (denotation and/or connotation) of the verbal response.

Third, conflicting results exist concerning the generalization effect of verbal conditioning. Differences in conditioning and generalization tasks as well as in difficulty of tasks may affect generalization.

Fourth, two research techniques (one structured and one unstructured) are commonly used to investigate verbal conditioning. No preferences seem to exist relevant to the use of either technique.

Fifth, controls established and procedures used by the experimenter

may influence results. These differences in design disallow direct comparison of apparently similar studies.

The preceding factors were instrumental in determining the controls and selecting the conditioning criteria employed in the present study.

#### Statement of the Problem

The present study will attempt to produce verbal conditioning in a carefully controlled experimental situation and to investigate its generalization to a similar activity. The purpose is then two-fold: (1) to obtain a measure of verbal conditioning, and (2) to investigate whether there is a relationship between increased verbal response (verbal conditioning) and a related type of behavior.

#### Hypotheses to be Tested

1. Verbal conditioning will occur in the experimental group.
2. The effects of conditioning will generalize to a related activity.
3. Significant sex differences in individual conditioning scores and generalizing effects will occur.



## CHAPTER II

### METHOD AND PROCEDURE

To be presented in this chapter are the hypotheses, the apparatus setting and sample, the selection of materials, the experimental procedure, and the recording procedure.

#### Hypotheses to be Tested:

1. Verbal conditioning will occur in the experimental group.
2. The effects of conditioning will generalize to a related activity.
3. Significant sex differences in individual conditioning scores and generalizing effects will occur.

#### Apparatus and Setting

The study was conducted during the months of July and August, 1963 in two conference rooms in the library at Central Washington State College. The only furniture in the room was the experimental equipment. In the first room ("A") was found: a table, three feet by six feet, divided by a four by six foot opaque screen. This screen was used to prevent the experimenter from being visible to subjects during the experiment. A tape recorder was used to give taped directions to each subject. A packet of cards contained aggressive and neutral words. Master word sheets were used to record the subject's responses.

The second room ("B") contained the following equipment: four booklets of aggressive and neutral pictures to be viewed by the subject were placed on a table, a screen, eight by ten feet, given an opaque

quality by illumination from two 100 watt lamps. The screen served the purpose of separating the experimenter from the subject. This permitted the experimenter to view the subject's responses without herself being seen. An electric timer was used in recording the duration of the subject's picture viewing responses. Picture manipulation record forms were used to record the time, number, and type of pictures viewed by the subject. A student aide was present during the entire experimental procedure to assist in recording. The aide was also screened from the subject's view. The physical layout of the experimental rooms is detailed in item A of the Appendix.

### Subjects

The subjects were fifty-three education and psychology students. All were volunteers. The control group was composed of twelve males and thirteen females. The experimental group consisted of thirteen males and fifteen females. Subjects ranging in age from nineteen to forty-one were grouped as closely as possible with regard to age.

### Response Class

For both verbal conditioning and the related behavior a single response class was designated. This response class included any verb or picture depicting or symbolizing aggression. All other words and pictures were designated as neutral responses. For this study aggression is defined as "destructive or hostile action, such as offensive action or procedure, an aggression upon one's rights, or the practice of making assaults or attacks."

### Reinforcement

Reinforcement consisted of the experimenter saying, "That was a good one," "Good sentence," "Very good," or "That's fine." These phrases were used randomly as reinforcement to make the experimenter's responses seem less stereotyped. Reinforcement was given immediately after the sentence was spoken by the subject. To the control group, reinforcement was given once during each conditioning period and only following a neutral response. To the experimental group, reinforcement was given after each aggressive response. Reinforcement was not given to either group during the operant period in which the first twenty cards were self-presented by the subject from the stack of 100 cards.

### Selection of Words

The procedure for selection of words for use in this study consisted of three parts described in detail in the Appendix. In the verbal conditioning session 400 words were used as stimulus material for the subjects.

### Selection of Pictures

One hundred pictures were selected for use in the study according to a detailed procedure described in the Appendix. The pictures were mounted in booklets so that there were two booklets comprised of "aggressive" pictures and two booklets containing neutral pictures.

### Pre-experimental Procedural Evaluation

A brief pilot study was conducted in the experimental suite prior to the actual study. The purpose of this pilot study was to evaluate

the general procedure. Ten students from psychology and education classes served as subjects. All of the materials described were utilized in the evaluation study. The effect of directions and procedure, construction and handling of materials, and the length of the experimental procedure was tested. Changes suggested by this evaluation were incorporated into the actual experiment in order to provide greater objectivity and control.

### Procedure

Each subject was seen individually for one forty-five minute session. The verbal conditioning period was followed by the related activity period.

### Verbal Conditioning Period

Each subject was met by the experimenter and after being seated in the experimental room, was given these taped instructions:

This is a study concerned with the preference of everyday words. I am going to show you some cards on which there are four different words. Read all the words aloud first, then select a word and make up a sentence using it. Just use one word from each card. Your sentences don't have to be grammatically correct; they may even be phrases. Just say the first one that comes to your mind. Are there any questions? (Appropriate parts of the instructions were repeated if the subject had any questions.) You may begin. (If the subject talked too fast, the experimenter said, "Say them slowly enough for me to record them.")

The conditioning session involved the use of 100 cards on which were typed four words. Each card presented one aggressive and three neutral words. The word cards were numbered to assure that they were viewed by each subject in the same order.

To facilitate scoring, the 100 verbs selected by the subjects were divided into five sections of twenty words each. The first twenty words were designated an operant, or baseline period; the remaining four sections of twenty words each were designated as conditioning periods I, II, III, IV.

For the subjects in the experimental group the conditioning procedure was as follows: In the operant period, for the subject's first twenty sentences, the experimenter said nothing. In the four conditioning periods, the subject's remaining eighty sentences, the experimenter reinforced every aggressive verb response. For each subject in the control group, the procedure was as follows: In the operant period the experimenter said nothing. In each of the four conditioning periods the experimenter randomly reinforced one neutral response.

### Recording

A master word sheet was used to record performance and words selected by each individual subject (See Appendix F). The master word sheet contained a list of all the aggressive and neutral words used in the study. For scoring ease, all aggressive words were underlined. Each word selected by the subject for sentence construction was checked. A summation of aggressive responses was used to determine the subject's operant and conditioning scores. Both the experimenter and the aide separately recorded the response of each subject on master word sheets. Only those records which showed total agreement were used as data. This section of the experiment yielded two different conditioning scores for each subject.

### Related Activity Period

This part of the experiment consisted of five minute exposure of the subject to the booklets which contained aggressive and neutral pictures. The exposure period began when all the word cards were presented and all sentences were constructed. The following directions were then played on the tape recorder to each subject:

Thank you for your sentences. They were very good. Now for the next part of our experiment. I am going to take you into the next room where, on the table are some groups of pictures. I want you to look at the pictures until I say, "Stop." During that time you may look at any of the pictures as long as you wish.

Each subject was then conducted to the next room where he stood facing the screen and the picture table. The experimenter and the aide were screened while observing and recording. As the subject viewed the pictures the experimenter recorded the number viewed. The time spent viewing each booklet was also recorded. After the subject viewed the pictures for the permitted time, the experimenter re-entered the room, thanked him for his participation and excused him. The order of the picture booklets was rearranged by using a table of random numbers after each subject viewed the booklets. This was to control picture viewing choice by the position of the booklets rather than by the subject's interest.

### Recording

Both the experimenter and the aide separately recorded the number and type of aggressive and neutral pictures viewed by each subject, as well as the time each picture was viewed. Each of the four picture booklets was held together with large metal rings to facilitate turning

ease. As the pictures were turned, a pre-assigned symbol was visible only to the observers. This recording symbol provided for tallying the number and types of pictures viewed. Timing was accomplished with the aid of an electric timer.

The subject's behavior was recorded on individual picture manipulation recording sheets (See Appendix G). These were mimeographed forms composed of four vertical columns numbered one to twenty-five inclusive. The particular randomized order or the booklet position on the table was recorded correspondingly on the columns. As the subject viewed a booklet, the number of pictures he viewed was recorded in the appropriate column. The amount of time he viewed aggressive and neutral pictures was also recorded.

This section of the experiment yielded two different scores for each subject: (1) aggressive pictures viewed (number of pictures) and (2) aggressive viewing time (time spent viewing aggressive pictures in the allotted five minute time period).

## CHAPTER III

### RESULTS

Of primary importance to this study was the establishment of conditioning of an aggressive response. A generalization effect for related activities was also sought when picture viewing (a related activity) occurred.

Two measures were used with regard to the viewing of aggressive designated pictures: (1) the total time was obtained which indicated the number of minutes spent in viewing the aggressive pictures and (2) the total number of aggressive designated pictures viewed during the five minute viewing period.

Prior to evaluating this relationship, a measure of verbal conditioning scores were used in this study. The first score ( $\bar{X}$  4 CP - Operant) for each subject was obtained by subtracting the number of aggressive verbal responses given in the operant period from the mean number of aggressive responses given in the four conditioning periods. The second verbal conditioning score (4 - Operant) for each subject was obtained by subtracting the number of aggressive verbal responses given in the operant period from the number of aggressive verbal responses given in the fourth conditioning period.

#### Analysis of Verbal Conditioning Data

To determine if the experimental group showed conditioning of the chosen response class, aggressive verbs, t tests of significance were used. Both types of conditioning scores were utilized and with neither



measure was a significant difference obtained between the experimental and control groups. (See Table 1 and 2.) Therefore there was no evidence obtained to indicate that verbal conditioning had occurred.

Separate comparisons were made of the conditioning scores for the males and females in the two groups by means of a  $t$  test. The  $\bar{X}$  4 CP - Operant conditioning score was used. None of the comparisons showed significant differences. (See Table 3.)

A comparison was made of the number of responses given in each of the conditioning periods and the operant period for the experimental and control groups. None of the comparisons were significant. (See Table 4 and Figure 1.)

#### Analysis of Related Behavior Data

Comparisons were made between the experimental and control groups on the two measures of aggressive related behavior (time of viewing and number of pictures viewed). There was no significant difference between groups on either measure. (See Tables 5 and 6.)

Separate comparisons were made of the picture viewing behavior for the males and females of the two groups. None of the comparisons were significant. (See Table 7.) As is readily apparent from the tables reporting the data, the results of the study did not support the hypotheses.

TABLE 1

Comparisons of Mean Number of Aggressive Responses given in four Conditioning Periods minus Operant Periods for Experimental and Control Groups.

( $\bar{X}$  4 CP - Operant)

	N	MEAN	t	df	P
Experimental	28	.429	.192	51	---*
Control	25	.530			

\*None of the comparisons were significant.

TABLE 2

Comparisons of Number of Aggressive Responses given in Fourth Conditioning Period minus Operant Period for Experimental and Control Groups.

(4 - Operant)

	N	MEAN	t	df	P
Experimental	28	.679	.798	51	---*
Control	25	.800			

\*None of the comparisons were significant.

TABLE 3

Comparison of Mean Number of Aggressive Responses given in four Conditioning Periods minus Operant Period for male and female subjects.

	N	MEAN	t	df	P
Experimental (males)	13	.038	.948	26	----*
Experimental (females)	15	.833			
Experimental (males)	13	.038	.656	23	----*
Control (males)	12	.437			
Experimental (females)	15	.833	.805	26	----*
Control (females)	13	.615			
Control (females)	13	.615	.235	23	----*
Control (males)	12	.437			

\*None of the comparisons were significant.

TABLE 4

Comparison between Experimental and Control Groups of Number of Aggressive Responses emitted during Conditioning Periods.

	N	MEAN	t	df	P
Operant Period					
Experimental	28	4.56	.998	51	---*
Control	25	4.00			
Conditioning Period I					
Experimental	28	5.00	.626	51	---*
Control	25	4.68			
Conditioning Period II					
Experimental	28	5.14	1.41	51	---*
Control	25	4.32			
Conditioning Period III					
Experimental	28	4.57	.389	51	---*
Control	25	4.32			
Conditioning Period IV					
Experimental	28	5.21	.609	51	---*
Control	25	4.80			

\*None of the comparisons were significant.

FIGURE I

Comparison between Experimental and Control Groups for Mean Number of Aggressive Verbal Responses emitted during Conditioning Periods.

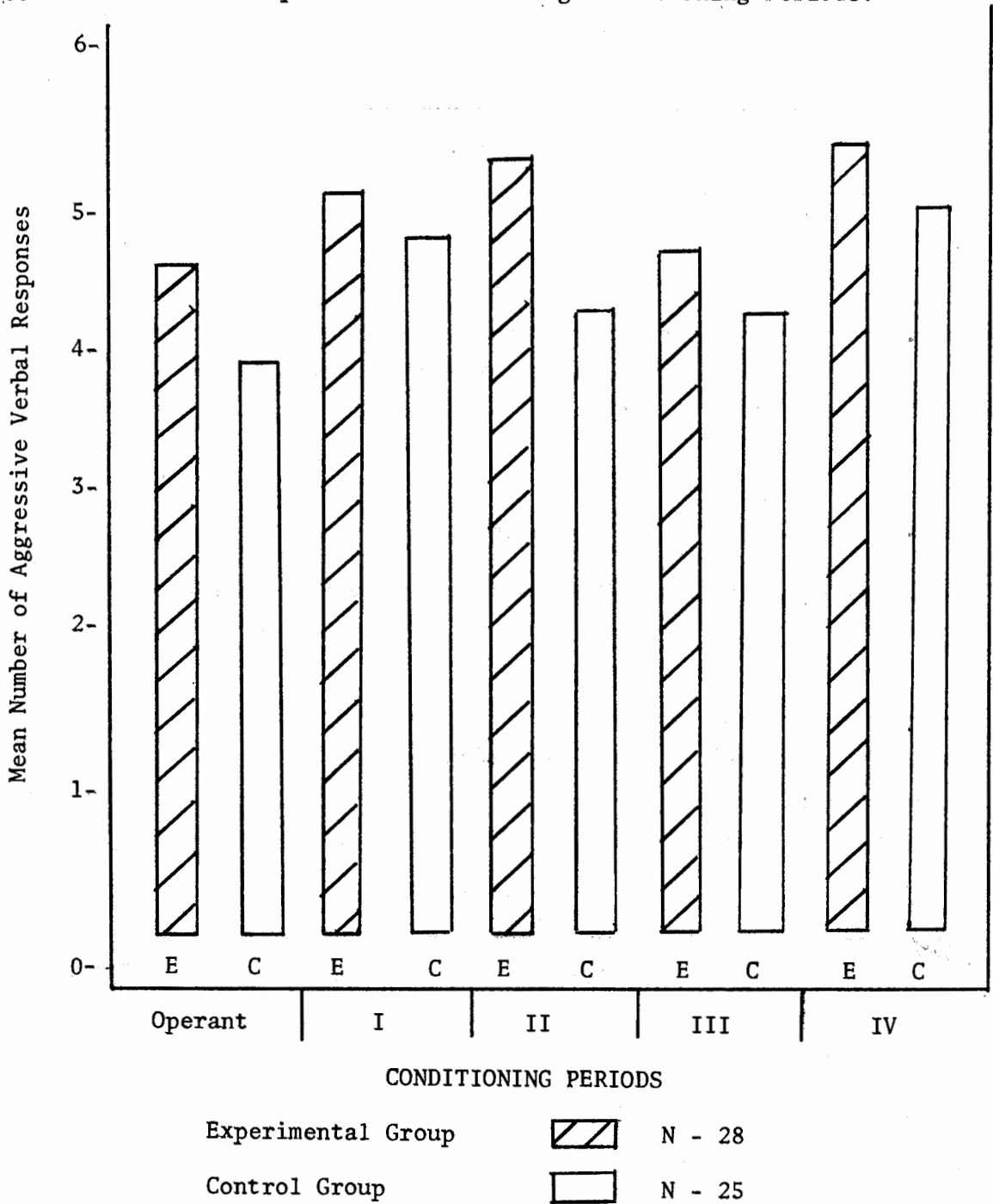


TABLE 5

Comparison of Time Viewing Aggressive Pictures for Experimental and Control Groups.

	N	MEAN	t	df	P
Experimental	28	132.86	.8682	51	----*
Control	25	116.24			

\*None of the comparisons were significant.

TABLE 6

Comparison of Number of Aggressive Pictures Viewed for Experimental and Control Groups.

	N	MEAN	t	df	P
Experimental	28	37.57	.7289	51	----*
Control	25	33.44			

\*None of the comparisons were significant.

TABLE 7

Comparisons of picture viewing behavior for males and females of Experimental and Control Groups.

	N	MEAN	t	df	P
Aggressive pictures viewed:					
Experimental (females)	15	31.47	.1110	26	----*
Control (females)	13	32.38			
Experimental (males)	13	44.62	1.523	26	----*
Experimental (females)	15	31.87			
Aggressive viewing time:					
Experimental (females)	15	117.87	.3701	26	----*
Control (females)	13	107.62			
Experimental (males)	13	150.15	1.1618	26	----*
Experimental (females)	15	117.87			

\*None of the comparisons were significant.

## CHAPTER IV

### DISCUSSION

The general aim of this study was to control the factors involved in verbal conditioning. Additionally, possible generalization effects were sought. However, before this latter issue can be discussed, the absence of an overall conditioning effect must be dealt with. In this study the experimental subjects as a group did not show the expected conditioning, nor did separate comparisons of the conditioning scores of male and female subjects produce evidence that conditioning occurred.

The first factor which may contribute to this lack of conditioning is the nature of the response class, i.e., verbs depicting aggression. Prutsman (1961) found that a larger response class, such as plural nouns, represents approximately twelve per cent of an individual's total verbal output. Plural nouns were more readily affected by reinforcement than were a smaller response class (modifiers) which represents approximately four per cent of the total verbal output. Aggressive verbs fall into the smaller response class of modifiers. Because of their lack of frequency or emission in the spoken language they may have less susceptibility to reinforcement.

However, evidence is to be found supporting the contention that the response class used in this experiment can be successfully conditioned. Studies already cited including that of Weide (1960) indicate that benevolent, malevolent, and neutral words were capable of conditioning. The operant level (natural tendency to emit without reinforcement) of malevolent words was slightly lower than benevolent or neutral words so



## CHAPTER IV

### DISCUSSION

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that less of an increase was needed to show conditioning. Zedek (1959) was able to affect conditioning of words having negative cultural connotations, as have Binder, et al. (1957), and Simkin (1961) using hostile and aggressive verbal response classes.

The second factor which may contribute to the lack of conditioning relates to the actual design of the study. The study was intentionally conducted in a neutral setting, controlling for possible subject-experimenter interaction. Also, precise recording of responses was carried out. This study provided reinforcement of neutral responses made by the control group. This assured at least minimal subject participation. The descriptions of the physical conditions of other studies typically have not been clearly presented. Some took place in "conversational settings" and hospitals. Subjects showing evidence of conditioning may have altered their verbal responses because of non-verbal cues given by the experimenter rather than his verbal reinforcements. In this study the experimenter had minimal physical contact with the subject except for the short initial greeting. To maintain even greater standardization of the procedure all directions were taped and the subject's view of the experimenter was cut off by screens during the actual experiment.

Solley and Long (1958) reported that if the experimenter and subject "chit-chatted" prior to the experiment there was a higher probability that conditioning would occur than if there was no pre-experimental interaction. Kanfer and Karas (1959) systematically manipulated interactions. An initial task was provided to the subject. He was

then criticized, praised, or ignored. Subjects who had prior interaction with the experimenter evidenced greater conditionability. These results suggest that pre-experimental interaction may have a facilitating effect on conditioning. The present experiment minimized pre-experimental interaction.

Another variable which affects conditioning is the nature of the reinforcement given the subject. Simkins (1961) mentions that a satiation effect may be produced in the subject by using a social approval form of reinforcement. He suggests that social disapproval and criticism may facilitate the learning of hostile materials. However, the conclusions of Katkin, Rish, and Spielbierger (1966) indicate that the need for social approval is unrelated to verbal conditioning performance.

Taffel (1955) found that subjects with low anxiety levels failed to condition. The subjects in the present experiment were college students. However, there was no objective measure of anxiety obtained for the subjects.

The directions given in the experiment were purposefully vague and the sentence construction task was relatively simple. The students' preconceptions concerning the experiment may well have interfered with identification and thus interfered with overall conditioning.

Sex and personality characteristics of the experimenter have been suggested by existing research as variables which may exert an influence on the subjects' changes in verbal behavior. Cieutat (1962) found that reinforcement was more effective when administered by persons of the same sex as the subject. Binder, et al. (1957) used both female and male

experimenters and a response class consisting of hostile verbs. In a "face to face" encounter situation, the female experimenter was able to condition subjects of both sexes. The male experimenter was not able to do this. In the present experiment, while both the experimenter and the aide were females, the expected facilitation did not occur. (See Table 3.)

A possible criticism of the study is the inadequate control of the related activity phase of the experiment. The provision of an operant level for each subject in the related activity may be a desirable condition for similar future studies. Also, subject's behavior in relation to time lapse before viewing and while re-viewing certain pictures should be carefully noted. This might aid in eliminating any pictures, either aggressive or neutral, which were highly appealing or highly unpleasant to the subject.

Further improvements on the present research might include:

(1) the selection of a more definable response class (cultural expectations may be weighted against the expression of aggression), (2) comparison between college students and subjects who had no prior experimental participation, (3) investigation of age differences of subjects in verbal conditioning, (4) further work on the influence of an individual's mediating processes affecting verbal conditioning, (5) careful tallying and recording of scores, (6) complete taping of each subject's oral responses might insure an even greater objectivity.

While there is a lack of conclusive evidence concerning verbal conditioning as a means of modifying behavior, such conditioning is

being used experimentally in conjunction with other techniques both in educational and therapeutic settings. Schell, Stark, and Gidden (1967) report progress in the language acquisition of an autistic child when candy and food were used as initial reinforcers followed by positive social reinforcement ("That's a good boy," "That's fine,"). During normal language development a child receives a type of verbal conditioning and reinforcement for producing sounds. A smile, hug, pat, or an exclamation, "Fine!", "That's it!" tend to increase the rate of verbalizing.

Currently, operant conditioning techniques are being employed with exceptional children. Quasi-laboratory settings employing programmed instruction and appropriate reinforcements (both verbal and non-verbal) tend to focus the students' attention and to facilitate learning.

The University of Washington Developmental Psychology Laboratory is currently engaged in researching behavior modification of pre-school children with learning problems. Significant changes have been reported in the activity of the children when social reinforcement is given by adults.

Social reinforcement is viewed by this group as attention to the child in the form of praise, approval, or adult verbalization of any kind. Social reinforcement is combined with the typical physical contacts with the child that are a part of the pre-school teacher's role. These include such behavior as picking the child up and brushing him off after a tumble, helping the child with clothing or giving him a friendly pat. The teacher frequently provides for the child in a direct physical sense by giving him snacks, special activities and extra materials. All, or any combination of these, are designated as adult social reinforcement.

In summary, it is suggested that it is the combination of verbal and social reinforcement which accounts for conditioning and behavior change. An experimental situation in which behavior is carefully controlled and verbal reinforcement is a voice coming from behind a screen may be too impersonal or vague for the subject to associate with the desired behavior change.

### Conclusion

This study has raised a number of questions which are difficult to answer. Verbal conditioning did not occur as has been reported in other studies' situations. An attempt was made to account for the lack of verbal conditioning in terms of (1) experimental design, (2) nature of the response class, and (3) subject-experimenter interaction.

## CHAPTER V

### SUMMARY

This study investigated the effect of reinforcement of a verbal response on a related behavior. A total of fifty-three subjects were assigned to two groups, experimental and controlled. The response class chosen for reinforcement was use of an aggressive designated verb in the verbal conditioning session. The related behavior consisted of viewing aggressive designated pictures. Subjects in the experimental group were reinforced for aggressive verbal response choices. Control subjects received no reinforcement for aggressive responses but were randomly reinforced once during each conditioning period for a neutral response.

The verbal conditioning session consisted of a forty-five minute presentation of 100 word cards. Each card provided the subject a choice of four words. The task was to construct a sentence using one of the four words. The first twenty word cards and related sentences constituted the operant, or baseline period and no reinforcement was given. The remaining words were divided into four conditioning periods for scoring purposes. Two conditioning scores were obtained for each subject: (1) a score determined by subtracting his aggressive responses emitted in the operant period from those in the fourth conditioning period and, (2) a score determined by subtracting aggressive responses emitted in the operant period from the mean number of those obtained in the four conditioning periods.

The related activity period consisted of the presentation and viewing of aggressive and neutral pictures. Each subject viewed the

pictures for a five minute period. This activity yielded two different scores for each subject. One score reported aggressive pictures viewed (number of pictures); the second score reported aggressive viewing time (time spent viewing aggressive pictures in allotted time period).

### Results

The mean scores for the experimental and control groups were tested for significant differences by means of the t test. Conditioning did not occur. Comparisons made of the difference in mean scores for the related activity showed no significant difference. The results did not support the hypotheses.

The lack of verbal conditioning during the course of the study is explained as perhaps due to choice of response class, possible subject-experimenter interaction, and sex differences in conditioning ability. Suggestions were made for improving research and implications for education cited.



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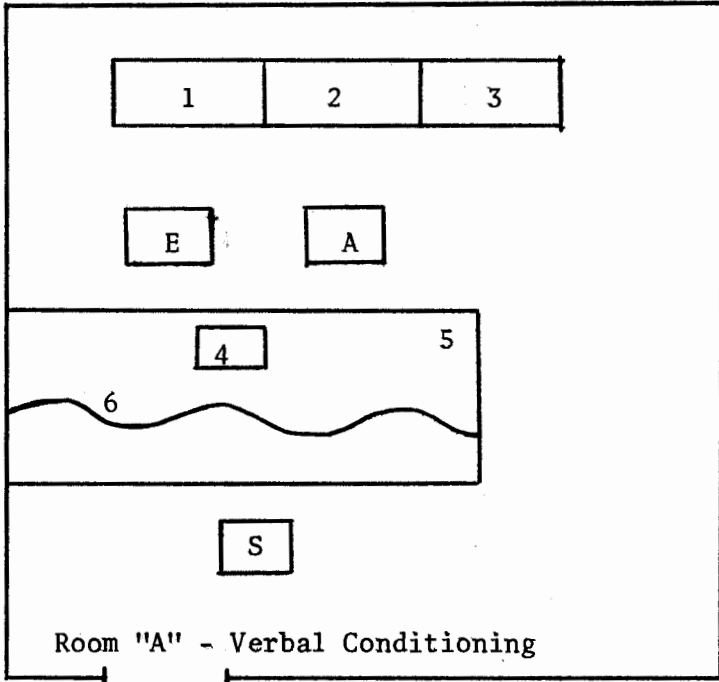
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## APPENDIX

APPENDIX A

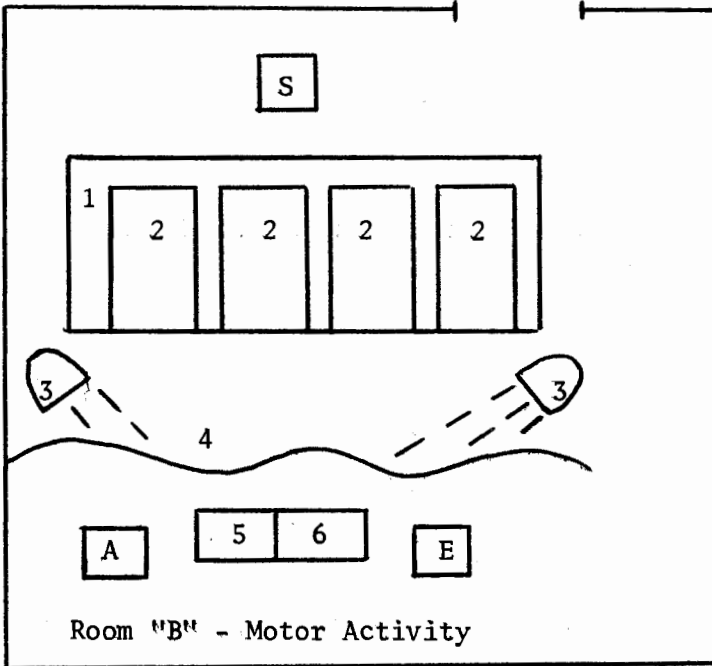
FLOOR PLAN OF EXPERIMENTAL SUITE



- E - experimenter
- A - aide
- S - subject
- 1 - tape recorder
- 2 - tape recorder
- 3 - master word sheets
- 4 - word cards
- 5 - table
- 6 - opaque screen
- 7 - chair



Hall



- 1 - table
- 2 - picture booklets
- 3 - lamps
- 4 - screen
- 5 - record sheets
- 6 - timer

## APPENDIX B

## SELECTION OF WORDS

The verbs used were selected from the Taffel list (Appendix D), the Klein list (Appendix E), and others added by the experimenter. The words were matched for frequency of usage in the English language.

Two rating sessions were conducted prior to the study to determine the quality and appropriateness of the aggressive and neutral words. First, the verbs were presented to four graduate students on mimeographed lists with the following directions:

Here is a list of words and a definition. I want you to select the words that best fit the definition. Check all the words in the Y (yes) category which you think fit this definition in any sense: The violation of the rights of any one person or animal by another. An offensive action or procedure; an aggression upon one's rights. The practice of making attacks or assaults that are hostile or destructive in nature.

If a word does not fit the definition, or if it is of the opposite meaning, place a check in the N (no) category.

If you cannot decide in which category the word fits, make a check in the ? (question) space.

Finally, look over the words, particularly the ones you have checked ? (question), and see if they will fit another (Y or N) category.

On the direction sheet, the definition was underlined in red to focus the attention of the reader. A total of 597 words were rated. Those about which there was unanimous agreement by all four raters were selected for the study.

The second rating session was conducted to determine the existence of any pre-experimental word preference. The remaining 448 words were presented on mimeographed lists to a class of 31 under-graduate students. Matched according to length, the words were arranged in groups of four.

The subjects were presented with the following directions:

Here is a list of 448 words in 112 groups of four each. I want you to circle the word that you prefer above the other three. There are no right or wrong words, just play your hunches and choose the word that you like best. Thank you for your cooperation.

The data were analyzed by the z approximation of the binomial distribution. Any word on which the number of students choosing the word exceeded the five per cent level of confidence, or twenty plus choices, was then excluded from the list.

The remaining 400 words were typed on 100 five by eight inch notecards for use in the experiment. Each card contained one aggressive and three neutral designated verbs. The position of the verbs (first, second, etc.) was randomized throughout the 100 cards.

## APPENDIX C

## SELECTION OF PICTURES

Prior to the experiment a session was conducted to determine the quality and appropriateness of the aggressive and neutral pictures. One hundred forty-nine similarly mounted pictures were presented individually to four graduate students with the following directions:

Here are a group of pictures and a definition. The definition is written on the card. Please read the definition and place the cards which best fit it under the card. Place the remaining pictures in another pile.

The definition read:

The violation of the rights of one person or animal by another person or animal. An offensive action or procedure: an aggression upon one's rights. The practice of making assaults or attacks that are hostile or destructive in nature.

Each of the four raters choices were tabulated. Only those pictures about which there was complete agreement as to category were selected for use in the study. Twelve pictures were omitted. Of the remaining 137, 100 were selected for use in the study. The mounted pictures were arranged in four booklets according to category. There were two aggressive picture booklets and two neutral picture booklets. All of the pictures in the four booklets were balanced as to the size and presence of absence of color.



## APPENDIX D

## LIST OF VERBS

This list of verbs is from: Taffel, C., Conditioning of verbal behavior on an institutional population and its relation to anxiety level; unpublished doctoral dissertation, Indiana University, 1952.

Acted	Finished	Lost	Saw
Added	Fished	Made	Shut
Ate	Fixed	Missed	Slept
Began	Flowed	Needed	Snipped
Broke	Found	Noticed	Startled
Brought	Furnished	Opened	Stood
Called	Ground	Picked	Struck
Carried	Heard	Planted	Swam
Chewed	Helped	Played	Talked
Chose	Hid	Put	Tapped
Complained	Hit	Reaped	Threw
Cut	Hoped	Received	Told
Danced	Jumped	Ran	Tried
Dragged	Kept	Remembered	Turned
Drank	Knew	Rested	Walked
Dreamed	Laughed	Rowed	Washed
Dressed	Lift	Said	Watched
Drew	Liked	Sand	Weighed
Drove	Loaned	Sat	Went

## APPENDIX E

## LIST OF VERBS

This list of verbs is from: Klein, S., Conditioning and extinction of operant verbal behavior in neuropsychiatric patients; unpublished doctoral dissertation, Indiana University, 1954.

Accused	Fell	Interfered	Notified
Admired	Filled	Investigated	Obeded
Agreed	Fed	Invited	Ordered
Approved	Foiled	Ironed	Painted
Arranged	Forgot	Joined	Parked
Awoke	Gave	Labored	Pasted
Baked	Gathered	Landed	Phoned
Beat	Got	Learned	Placed
Behaved	Grabbed	Lifted	Planned
Bent	Greeted	Listened	Plowed
Bought	Happened	Lived	Pointed
Came	Heated	Loaded	Polished
Cleaned	Hiked	Locked	Promised
Closed	Hired	Looked	Poured
Cocked	Hunted	Mailed	Practiced
Counted	Hurried	Managed	Praised
Covered	Hurt	Married	Purposed
Dropped	Imagined	Masked	Presented
Enjoyed	Improved	Melted	Pulled

## APPENDIX F

## MASTER WORD SHEET (Partial View)

.....  
 \_\_\_\_\_ Name  
 .....  
 \_\_\_\_\_ Date  
 .....  
 \_\_\_\_\_ Group

1. Gripped Called Granted Dreamed
2. Ran Sat Hurt Sent
3. Devide Insulated Sulked Pinch
4. Carried Arrested Gained Calmed
5. Seize Chose Drew Bent
6. Repeated Juggled Grabbed Retired
7. Varnished Reclined Cheated Whimpered
8. Arrest Ventured Refered Hailed
9. Hired Cooked Whipped Guided
10. Undressed Rambled Shattered Vented
11. Wronged Added Threw Boiled
12. Counted Learned Divided Poisoned
13. Slaughtered Canceled Nibbled Trickled
14. Sold Fight Made Agree

R	Sentence	S

Numbers 21 to 40 designated as Conditioning Period I

Numbers 41 to 60 designated as Conditioning Period II

Numbers 61 to 80 designated as Conditioning Period III

Numbers 81 to 100 designated as Conditioning Period IV

Scores of all conditioning periods tallied on last page.

## APPENDIX G

## PICTURE VIEWING RECORDING SHEET

				..... Name
				..... Group
1.	1.	1.	1.	
2.	2.	2.	2.	
3.	3.	3.	3.	
4.	4.	4.	4.	
5.	5.	5.	5.	
6.	6.	6.	6.	
7.	7.	7.	7.	
8.	8.	8.	8.	
9.	9.	9.	9.	
10.	10.	10.	10.	
11.	11.	11.	11.	
12.	12.	12.	12.	
13.	13.	13.	13.	
14.	14.	14.	14.	
15.	15.	15.	15.	
16.	16.	16.	16.	
17.	17.	17.	17.	

(Numbered to 25)

Total	.....	Total	.....	Total	.....	Total	.....
Time	.....	Time	.....	Time	.....	Time	.....