THE EFFECTS OF STRESS ON TIME ORIENTATION IN DELINQUENT AND....

M. Reich, 1969

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REICH, Melvyn Leon, 1939-

THE EFFECTS OF STRESS ON TIME ORIENTATION IN DELINQUENT AND NON-DELINQUENT ADOLESCENT MALES.

The University of Connecticut, Ph.D., 1969
Education, psychology

University Microfilms, Inc., Ann Arbor, Michigan

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Brown University, 1961

Rhode Island College, 1965

A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at

The University of Connecticut

1969

APPROVAL PAGE

Doctor of Philosophy Dissertation

THE EFFECTS OF STRESS ON TIME ORIENTATION IN DELINQUENT AND NON-DELINQUENT ADOLESCENT MALES

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1969

Acknowledgements

The writer wishes to express his gratitude to the many people who contributed their encouragement and advice during the experimental and reporting phases of this study.

The doctoral committee provided guidance and assistance that substantially aided in bringing this project to fruition. Special thanks are due to Dr. A. J. Pappanikou, committee chairman, for his wise tutelage and valued friendship.

Recognition is tendered to Dr. Paul V. Sherlock for his making the road easier and giving a slight shove.

Above all, that special support that only a wife can give was so generously supplied by Barbara.

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Chapter 1

The Problem

Introduction

Increasing concern has been and is being manifested by community law enforcement officials as well as by federal government officials responsible for crime prevention and law enforcement about the continually rising rates of juvenile delinquency and recidivism (Schreiber, 1960; Redman, 1960). The rate of juvenile delinquency has been increasing faster than an increase in population for comparable time periods.

For many years, one approach to the problem of juvenile delinquency has been prevention through prediction. The underlying notion was that if predisposing factors towards delinquency could be identified early enough, the delinquents could be kept from pursuing careers leading towards eventual arrest, trial and incarceration. The classic predictive study of the Gluecks (1959), as well as attempts at verifying juvenile delinquency via "proneness" scales by Kvaraceus (1956) are examples of the trends towards approaching the problem of delinquency during the early 1950's.

More current literature relating to social and cultural forces and their relationship to the act of arrest are also well known. Albert Cohen (1955) feels that for certain types of delinquents, group reinforcement occurs as the result of performing a delinquent act. Likewise, study of the cultural norms and values of the lower socioeconomic classes in this country has pointed to the acceptability in various subcultural elements of the delinquent act.

Adolescent. Any child whose age encompasses the period between his eleventh and sixteenth birthdays.

Non-delinquent. An individual attending a public or parochial school who is not, at current, remanded to the care of an institution as the result of some adjudicated unlawful behavior.

Stress. A noxious circumstance stimulated by the inability of an individual to attain a goal. Lazarus, Deese and Osler (1952, p. 295) state that stress is "...built upon the relationship between a primary concept, motivation, and the situation in which motivated behavior appears; it would (appear) then that stress occurred when a particular situation threatens the attainment of some goal."

Time orientation. That phenomenon in which an individual orients himself towards temporal experience, either past, present or future.

Review of the Literature

Delinquent Personality. Various attempts at gaining insight into the delinquent personality, if such a clear cut entity exists, were summarized rather adequately by Quay (1965). He concluded (p. 166) that rather than study a theoretically homogeneous amalgam labelled "the delinquent," more fruitful avenues of investigation lie in studying "primary personality mechanisms." One might infer that "delinquent" means many things to many people and that the psychological mechanisms manifested by them be the grouping factors for future study.

Peterson, Quay and Tiffany (1961) in replicating prior factorial research attempts, concluded as did these prior studies, that typologies

of psychopathy and neuroticism can be isolated within the general delinquent population (p. 371).

Socioeconomic status and delinquency are strongly related (Gordon, 1967, p. 927), with lower socioeconomic groups manifesting higher rates of delinquency (p. 943). Other factors such as low academic achievement, retardation, absenteeism and over-ageness are also consistent in the overall make up of the delinquent (Gordon, 1967, Miller, 1959). In addition to these school-related failures, Douglas (1966), in a study of five thousand children, concluded that poor academic achievement when not predictable from non-verbal intelligence scores is a valid prediction of children who will later wind up in trouble.

Bandura and Walters (1958) studied aggressive middle class children from intact families. They found that conscience development was retarded when comparisons were made to non-delinquent peers. Furthermore, they concluded that "the anti-social boy is in many respects like a child whose impulses are held in check by external threats rather than by self control (p. 65)." This characteristic is also discussed by Block (1952).

Mechanisms of perceptual distortion occur within the delinquent personality, as reported by Claster (1967). In comparing forty-two delinquent and sixty-five non-delinquent boys, he found that delinquents perceived themselves as more likely being involved in criminal acts but less likely to be caught, even after repeated incarcerations for participation in delinquent acts (p. 85).

Peterson, Quay and Tiffany (1961), and Tiffany, Peterson and Quay (1961) in factor analytic studies of behavioral traits of delinquents, approached the entire problem from a rather different perspective. The statistical approach to verifying specific behavioral, social and familial characteristics of delinquents offers advantages to the remedial approach to behavior disorders through the identification of specific behaviors which can be remediated.

Thus, while some approaches to the problem of delinquency are aimed at preventative formulae, others are involved with the post-facto attempt to treat a specific behavioral characteristic.

Rates of recedivism are a source of major concern to those responsible for the operation of institutions for custody and rehabilitation of juvenile delinquents. Delinquents become incarcerated for specific periods of time (e.g., a 3 month or 6 month sentence depending upon how heinous the crime was in which the individual participated) through juvenile court procedure, and at the end of that time they are released from custody. The problems of the training school programs, therefore, revolve around the judicial and societal directive to rehabilitate the delinquent within a limited period of time. Often, these adjudicated delinquent individuals are not in a treatment situation long enough to be helped considerably. Further, particular programming varies so much (from strict academic instruction to individual non-directive psychotherapy) that little can be evaluated with reference to attempts at reducing recidivist behavior.

The field of general learning psychology has shown a great deal of interest in studies relating to the measure of efficacy or facility of learning through the manipulation of variables related to anxiety, stress in particular. Yet left to be conclusively demonstrated is the effectiveness of stress in altering psycho-perceptual phenomena.

Statement of the Problem

Overall, then, if a particular behavioral factor can be taught with relative ease, yet likewise, with a relative amount of permanence in the behavioral repertoire, the elimination of this factor in the behavioral repertoire may indeed cause the rate of recidivism (with respect to one individual) to decrease. Specifically, if the time perspective of a juvenile delinquent can be altered so that this perspective becomes more approximate to the time perspective of non-delinquent individuals, such future orientation may, in turn, prevent future incarceration. Thus, this study will attempt to objectively evaluate the following question:

What is the effect of psychological stress on the time orientation of delinquent and non-delinquent individuals?

Definition of Terms

Juvenile delinquent. A juvenile delinquent is one who is committed by judicial process to an institution operated for the retention, custody and rehabilitation of law breakers under the age of eighteen years.

That familial considerations are in some way related to delinquency has also been subsumed from many studies. The Gluecks' prediction scale (1954), Kvaraceus K-D Scale and Checklist (1956) and other studies by Glueck (1966) lean heavily on family structure items for prediction of future delinquent involvements. Validation studies on the K-D, for example, lend credence to the interplay of kinship factors in etiological considerations of delinquency (Bechtold, 1964).

In summary, the delinquent male often comes from lower socio-economic environments where family structures are quite different from middle class environments. He often deceives himself relative to the possibility of incarceration for delinquent acts, is more "impulse-ridden," maintains records of poor school achievement and can often be determined as neurotic or psychopathological. This cursory prelude to the more pertinent studies is necessary as a framework from which one might gain some understandings of the studies to be reported next.

Time orientation. Barndt and Johnson (1955) utilized an incomplete story stem to elicit stories from delinquent and non-delinquent groups of adolescent males. Stories were scored according to the amount of time covered in the story content. If the content covered a period of less than one hour, for example, a score of one was assigned; if the content covered three months or more, the maximum score (6) was assigned. They found that delinquents were significantly more oriented towards matters involving the present than were their non-delinquent peers. Davids, Kidder and Reich (1962), in a replication of the Barndt and Johnson investigation found the same results, when they compared their

delinquent groups to Barndt and Johnson's non-delinquent groups. The Davids, Kidder and Reich groups were similar in age and IQ to the Barndt and Johnson delinquent group.

This was a technique that had been modified from a procedure employed by LeShan (1952). LeShan, rather than utilizing a story stem simply asked his 117 eight to ten year old subjects to "Tell me a story." He found "astonishingly significant differences" between stories of children from two different socioeconomic classes, with lower socio-economic children being more present oriented. Judson and Tuttle (1966), employing different techniques on sixth grade children, could not corroborate the LeShan findings.

Teahan (1958), utilizing two story stems, found high achievers to have higher time orientation scores (i.e., were more future oriented) than students who had histories of poor grades in school. Relative to this time orientation technique, however, he noted low reliability of time orientation scores between the two stories. Teahan's findings were similar to those of Davids and Sidman (1962). The latter investigators found that "bright, high achievers" were more future oriented than a sample of "bright underachievers" who were matched to the high achieving group.

Davids and Parenti (1958) employed similar time orientation data gathering techniques in emotionally disturbed, hospitalized children of ages eleven to thirteen, approximately. Both the disturbed and a control group of "normal" children were found to be significantly less future oriented than the Barndt and Johnson non-delinquents.

Similar methodology was employed by Kahn (1965) using forty-four third and fourth graders who were also of average intelligence. High reading achievers were found to have higher averaged time orientation scores than did their lower achieving counterparts. On this same group Kahn (1966) reports that future time orientation "was related to high cognitive organization."

With regard to time orientation, it is relatively clear that most of the studies using story completion methodologies find the pathological or "troubled" groups to be more present oriented than the "normal" or "star" groups. Further evidence utilizing time estimation and other methodologies seem to confirm this general finding (Greenacre, 1945; Dobson, 1954; Wallace, 1956; Siegman, 1961; Melges and Fougerousse, 1966).

Effects of stress upon performance. Psychological stress has been found to affect changes in learning behavior in a number of studies summarized by Pappanikou (1962):

> According to the findings of studies on "normals," stress facilitates learning in simple learning situations. However, on complex learning situations the effects of stress are dependent upon the dominant response tendency (p. 72).

Lazarus, Deese and Osler (1952) point out that some studies see failure-stress situations (situations which heighten stress because goal attainment is experimentally impossible) may cause persistence of needs or ego defensive behavior (p. 311). Thus, following Pappanikou's summary, in situations where failure-stress is applied, reactions should depend upon dominant response tendencies which either maintain need persistence or cause ego-defensive behavior.

Hoffman, Mitsos and Protz (1958) report that achievement performance rises uniformly with respect to rewarding stimuli but that "middle-class reward-induced increases in striving" either raise the performance level or trigger anxious responses (p. 403). The source of this anxiety was not clear-cut however. These conclusions were consistent with the earlier findings of Taylor and Farber (1948) who reported that basically submissive children who failed a task manifested significantly lower performance on firm boards than basically ascendant children who also failed. Helmreich and Hamilton (1968) suggest a tendency in normals to acquiesce under stressful situations. Thus, when stress occurs in lower-class individuals as a result of performing a task (story-telling), reinforcement of such acquiescence might well produce striving towards the reinforced goal.

Goldstein and Adams (1967) found that physiological reactions to stress were lower for individuals manifesting successful defenses as opposed to those who evidenced unsuccessful defenses. This finding may, in some way, account for the results reported by Wachs and Cromwell (1966): retardates who received failure-stress set showed a higher degree of visual-perceptual distortions than a similar group who were not administered this set. These distortions were made about visual material presented tachistoscopically.

Whyman and Moos (1967), in a time estimation study with small samples of hospitalized mental patients, found that anxiety played a factor in the ability of patients to guess fifteen and ninety second intervals. Eight patients who were labelled "high-anxiety" produced more distorted estimations of these intervals that did nine "low-

anxiety" patients. Falk and Bindra (1954) presented somewhat similar results when anticipation of mild shock was utilized as a stress agent with college students. Although no significant differences were found, a trend in this direction appeared to exist. These findings appear to support the Wachs and Cromwell (1966) study, only in a temporal rather than visual modality.

Lieblich (1968) studied the effect of stress on risk taking in college students. Generally, she found that stress induced higher rates of risk taking. Such a finding lends even further support to the body of studies leaning towards perceptual distortion as a result of stress.

This review of the literature seems to reveal the following generalizations which are pertinent to the study:

1 - Psychological stress alters perceptual behavior, more often than not.

2 - Time orientation appears to be geared more towards the present for "pathological" or "afflicted" groups than for "normals."

3 - Juvenile delinquents appear to be concerned more about the immediate present (characterized, e.g., by impulsivity) than their non-delinquent counterparts.

Purpose and Significance of the Study

The purpose of the present study, then, is to compare the effects of psychological stress on the time orientation of adolescent delinquent and non-delinquent males. The significance of the study is its attempt to determine the efficacy of utilizing the stress variable in the treatment of delinquents.

Null Hypotheses

1. There are no differences in time orientation between the stressed and non-stressed delinquent groups.
2. There are no differences in time orientation between delinquent and non-delinquent stressed groups.
3. There are no differences in time orientation between the delinquent stress group and the non-delinquent non-stress group.
4. There are no differences in time orientation between the non-delinquent stress group and the delinquent non-stress group.
5. There are no differences in time orientation between stressed and non-stressed non-delinquent groups.
6. There are no differences in time orientation between delinquent and non-delinquent non-stressed groups.
7. There are no differences in time orientation between total stressed and non-stressed groups.
8. There is no difference in time orientation between total delinquent and non-delinquent groups.

Organization of the Present Investigation

This chapter attempted to state the problem to be studied as well as its importance, and definitively state the questions to be researched. A review of the literature relevant to the variables being investigated in this study was also presented. The focus of Chapter II will be the particular method of investigation as well as the statistical instrumentation to be utilized in an evaluation of the data obtained. Chapter

3 will detail the results of the various statistical analyses of the data and Chapter 4 will summarize the study as well as draw appropriate conclusions with relevance to the specific hypotheses.

Chapter 2

Methods and Procedures

Methods

The present study was undertaken in a state residential training school for adjudicated delinquents and in a public junior high school considered representative of the variety of socioeconomic conditions. The training school's primary function was detention and rehabilitation of youthful law breakers. Individuals were sentenced for a minimum of three months or more at the discretion of the state Family Court. The town population of the junior high school consisted of three specific segments: highly transient families of military service personnel; "landed" long time residents who have watched their once rural, agriculturally oriented village grow into a large town; and the "industrialized" families who were recent arrivals in town and who worked at various military and industrial operations in geographically adjacent towns.

In each of these two situations, the primary authority (director of education at the training school and principal of the high school) carried extensive power in the minds of the youth. The director of education at the training school maintained sole authority for removing smoking priveleges from groups and isolation, to the extent of solitary confinement, in severe disciplinary outbursts in the school. His disciplinary rapport with the students was well established. The principal of the junior high school could call immediate parent conferences, invoke after-school discipline and initiate temporary individual school suspensions. Thus, the possibility of contact with the authority figure

in each school situation as a result of performing a task poorly was considered a stress invoking situation.

Lazarus, et al., (1952), referred to this specific method of inducing psychological stress. It was their thesis that one way in which the criterion for success was unattainable, while presenting the alternative of some noxious consequence. It would seem, therefore, that the threat of reporting a subject to the authority figure in a particular school would evoke a degree of psychological stress.

Selection of subjects.

All 45 male students that were enrolled in the academic classes of the training school program constituted the pool from which delinquent subjects were selected. Two groups of ten subjects were equated on the basis of age and IQ (California Test of Mental Maturity). Subjects were first grouped by age and secondly by IQ.

Non-delinquent subjects were equated to the two selected delinquent groups by the same procedure. That is, the permanent record cards of the junior high school were scrutinized for all males falling into the same age range as the delinquent group. The non-delinquent group was further narrowed down according to California IQ score matching as closely as possible that of a delinquent subject of the same or similar chronological age.

One of the two delinquent groups was arbitrarily designated as the experimental group. Likewise for one of the two non-delinquent groups. Table 1 presents a breakdown of the age and IQ of the total group of subjects.

Table 1

Mean and Variance of Age and IQ of the Current Subjects

		Delinquent		Non-Delinquent	
		Stress	Non-Stress	Stress	Non-Stress
C.A. (mos.)	$\bar{X}$	177.1	178.6	176.1	175.8
	s^2	139.0	97.2	80.1	120.4
IQ	$\bar{X}$	91.5	89.2	92.9	88.7
	s^2	88.7	96.6	68.6	70.5
N		10	10	10	10

The sample. A two-way analysis of variance was performed to test the hypothesis that there were no significant differences between all four sub-groups on the criteria of age and California IQ. Table 2 depicts the results for the comparison of subgroups on the age variable and Table 3 for the IQ variable. As can be observed, the hypothesis of no significant difference between groups on the age and IQ criteria could not be rejected.

Table 2

Two-way Analysis of Variance: All Groups on Chronological Age

Source	df	M.S.	F
Del. vs. Non-Delinquent	1	36	.33
Potential Stress vs. Non-Stress	1	4	.04
Interaction	1	8	.07
Within	36	109.1	

Table 3

Two-Way Analysis of Variance: All Groups on California IQ

Source	df	M.S.	F
Del. vs. Non-Delinquent	1	2	.02
Potential Stress vs. Non-Stress	1	106	1.31
Interaction	1	9	.11
Within	36	81.1	

In view of the fact that California IQ scores may not be as high for delinquent populations as non-delinquent populations, comparisons between California IQ and Wechsler Intelligence Scale for Children (WISC) Performance IQ for these groups were performed. The results are reported in Table 4 and Table 5. As can be seen, no statistically significant results were reported for either analysis. Thus, there was validity to the utilization of California IQ scores for equating the groups in this study on the intelligence criterion.

Table 4

Two-Way Analysis of Variance: Delinquent and Non-Delinquent Groups on California IQ and WISC Performance IQ

Source	df	M.S.	F
Cal. IQ vs WISC PIQ	1	207	1.54
Del. vs. Non-Delinquent	1	99	.74
Interaction	1	64	.48
Within	76	134.6	

Table 5

Two-Way Analysis of Variance: Stress and Non-Stress Groups on California IQ and WISC Performance IQ

Source	df	M.S.	F
Cal. IQ vs. WISC PIQ	1	207	1.54
Stress vs. Non-Stress	1	143	1.06
Interaction	1	7	.05
Within	76	134.8	

In order to further analyze this WISC - California relationship, Pearson Product-Moment Correlations were computed for the delinquent groups and the non-delinquent group. The resulting r's were statistically significant, as can be seen in Table 6. While the relationships are low, these results lend further validity to the utilization of the California IQ as an equating criterion in this study.

Table 6

Pearson Correlation Coefficients between California IQ and WISC Performance IQ for Delinquent and Non-Delinquent Samples

Group	r	p	df
Delinquent	.46	.025	19
Non-Delinquent	.39	.05	19

Procedure

All data were collected from one subgroup at a time according to the following order:

Delinquent Non-Stress

Delinquent Stress

Non-Delinquent Non-Stress

Non-Delinquent Stress

It has been suggested in the literature concerning experimentation with psychological stress that the non-stress procedures be administered first (Lazarus, Deese and Osler, 1952). This is because stress among waiting subjects through random presentation could turn the non-stressed subjects into stress subjects.

All groups were asked to tell a story started by the experimenter according to a similar procedure employed by other researchers in the area of time orientation (Barndt and Johnson, 1955; Davids, Kidder and Reich, 1962):

> I want to see what kind of a story you can tell. I'll start a story and then let you finish it any way you want to. You can make it any kind of story you wish. Let's see how good a story you can tell. I'll start it now:
>
> About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town.....

Now you start there and finish the story any way you want to. At the end of the subjects' stories, the experimenter asked "What time was this? How long did the story take to happen?"

All responses, including the story were recorded on a coded answer sheet by the experimenter. Also, the amount of time spent in telling the story, measured in seconds, was also recorded (these measurements are referred to in succeeding sections as latency scores).

Control groups received the following directions at the end of the first story:

> Now, let's see if you can tell another story. I'll start the story and you finish it any way you want to.

> About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town....
>
> Now you start there and finish the story any way you want to.

Experimental groups received psychological stress administered through the following directions:

> That wasn't a very good story at all...In fact, it's one of the worst of all the ones I've heard at this school. The other fellas told much better stories. Let's try it again. If you don't tell a better story, I'll have to report you to Mr. _____ and tell him that you weren't very cooperative. Now, I'll start the story again and then let you finish it any way you want to. You can make it any kind of story you wish. Let's see how good a story you can tell. I'll start it now:
>
> About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town.....
>
> Now you start there and finish the story any way you want to.

Information similar to that recorded at the end of the first story was gathered after the second story was elicited. Experimental subjects were then told that their second stories were better and that they would not be reported to the respective authority figure. Appendix B is the data collection sheet for non-stress (control) subjects while Appendix C contains the data collection sheet for the stress (experimental) groups.

All stories were coded at the time that the data were collected. After all data had been collected, the stories were thoroughly shuffled so that all treatments and subjects were in random order. Each story was assigned a time orientation score of one to six, depending upon the amount of time covered in the actual story related by the subject. These scores were assigned according to the scale utilized by LeShan (1952):

1. Under one hour
2. One hour or more but less than five hours
3. Five hours or more but less than twelve hours
4. Twelve hours or more but less than one week
5. One week or more but less than three months
6. Three months or more.

Thus, for each subject in the current study, a total of four measures were obtained, two for each story:

Story #1. Time Orientation Score
Latency Score

Story #2 Time Orientation Score
Latency Score.

Statistical Analysis of the Data

The data were analyzed utilizing a two-way analysis of variance (fixed constants model) to determine homogeneity of measures for each story completion. This same statistical procedure was also employed to analyze the gain scores (differences between Story #1 and Story #2 measures) for each subgroup.

Chapter 3

Results

The present study attempted to examine the effect of psychological stress upon the time orientation of delinquent and non-delinquent male adolescents. This chapter deals with the statistical findings of the current investigation.

Time Orientation Story #1

Since the conditions for the recording of data for Story #1 were similar for all subjects (i.e., the results for this story can be considered pre-test data), it was felt that the scores could be considered basal and that any future changes in story scores would be a result of the experimental interference (stress variable) in the baseline scores.

A two-way analysis of variance was computed for all subjects on the variable of time orientation scores for Story #1. Table 7 summarizes the results of that computation. No statistically significant differences were found between the time orientation scores of delinquents and non-delinquents in the pre-test situation.

Table 7

Two-Way Analysis of Variance: All Groups on Story #1 Time Orientation Scores

Source	df	M.S.	F
Del. vs. Non-Delinquent	1	.40	.173
Potential Stress vs. Non-Stress	1	1.60	.692
Interaction	1	.10	.043
Within	36	2.31	

Likewise, no statistically significant differences were found in the potential stress and non-stress groups.

Latency scores were also examined on this variable by means of a two-way analysis variance, but statistical significance was similarly not achieved between delinquent and non-delinquent groups or between potential stress and non-stress groups. A summary of this analysis is found in Table 8.

Table 8

Two-Way Analysis of Variance: All Groups on Story #1 Latency Scores

Source	df	M.S.	F
Del.-Non. Del.	1	1346	.063
Pot. Str.-Non-Str.	1	340	.015
Interaction	1	25153	1.178
Within	36	21343	

Thus, there were no differences between delinquent, non-delinquent, potential stress and potential non-stress groups on either the time orientation measure or the latency measure for Story #1. All four sub-groups were therefore considered similar on this baseline data.

Time Orientation Story #2

The same statistical analyses were performed for the second time orientation scores as for the first ones. One half of the delinquent group and one half of the non-delinquent group (referred to in the

future as the delinquent non-stress and the non-delinquent non-stress groups, respectively) were asked to complete a second story to the initial story stem. The remaining halves of each group, (i.e., the delinquent-stress and the non-delinquent stress groups) told a second story after being administered psychological stress.

Table 9

Two-Way Analysis of Variance: All Groups on Story #2 Time Orientation Scores

Source	df	M.S.	F
Del.-Non-Del.	1	2.5	1.03
Stress-Non-Stress	1	2.5	1.03
Interaction	1	1.6	.66
Within	36	2.4	

The results of the two way analysis of variance are presented in Table 9. No statistically significant differences were found between the delinquent and non-delinquent groups or between the stress and non-stress groups. Time orientation scores for all these groups, then, appeared to be similar on Story #2.

A direction was noted in further analysis of the data for the non-delinquent subgroups (Table 10). The mean time orientation score for non-delinquent subjects who did not receive psychological stress decreased for Story #2 while the non-delinquent stress group mean time orientation scores rose. Thus, the gap in time orientation scores for stressed and non-stressed non-delinquents approached statistical significance, which might have been afforded had a larger N been utilized in this study.

Table 10

Differences Between Non-Delinquent Stress and Non-Stress Time Orientation Scores

	Non-delinquent Stress	Non-delinquent Non-stress	F	t
Mean Story Score	3.8	2.9	1.67	1.578
Variance	2.0	1.2		
N	10	10		

Latency scores were compared for all groups on the second story by means of a two-way analysis of variance. Table 11 presents the results of this statistical comparison. No significant differences between latency scores of delinquents and non-delinquents or between the stress and non-stress groups were noted for the second time orientation story.

Table 11

Two-Way Analysis of Variance: All Groups on Story #2 Latency Scores

Source	df	M.S.	F
Del.-Non-Del.	1	6734	.18
Stress-Non-Stress	1	27092	.73
Interaction	1	142	.003
Within	36	37328	

Thus, all subgroups appeared to manifest statistical consistency on Story #2 time orientation scores as well as latency scores. A direction was noted, however, in the difference between the mean time orientation

scores for non-stressed and stressed non-delinquents: the stressed non-delinquents appeared to manifest higher time orientation scores for this story than their non-stressed peers, but this difference only approached statistical significance (p .10).

Time Orientation Gain Score Comparisons

A time orientation gain score was computed for each subject by subtracting his score on Story #1 from his score on Story #2. These gain scores were analyzed according to a two-way analysis of variance. The results of this statistical analysis may be found in Table 12.

As a result of performing this statistical analysis, all of the null hypotheses could not be rejected.

Table 12

Two-Way Analysis of Variance: Gain Scores

Source	df	M.S.	F
Del. vs. Non-Delinquent	1	.90	.305
Stress vs. Non-Stress	1	8.10	2.745
Interaction	1	2.50	.847
Within	36	2.95	

Chapter 4

Summary, Discussion and Conclusions

Summary

Two groups of ten incarcerated juvenile delinquent male adolescents, equated on variables of age and IQ, and two groups of ten male junior high school students, matched on the same variables to the delinquent groups, were the subjects of the current investigation. All subjects were asked, individually to complete a standard story stem started by the experimenter. One group of delinquents and one group of non-delinquents were then asked to relate a second story to the same story stem; these were the control groups. The remaining delinquent and non-delinquent individuals were administered psychological stress (failure plus threat of report to authority figure) and asked to relate a "better" story. The standard story stem was again repeated and the experimental groups related story completions.

The stories were scored, according to a six-point scale, for time orientation: the amount of time conveyed in the content of each story. Further, the amount of time taken to relate each story (latency score) was also recorded for each subject. Thus, two time orientation scores and two latency scores were the main data to be analyzed for all forty subjects. The principal statistical comparisons were undertaken by means of two-way analysis of variance (fixed-constants model) and two-way analysis of variance of gain scores.

On the initial time orientation story, there were no differences between all groups on time orientation scores or latency scores. Like-

wise, no differences were found between all groups on Story #2 time orientation measures as well as latency score measures. A difference was evident, however, in that for non-delinquent groups, those who received psychological stress had higher time orientation scores than those who had not received the stress on Story #2.

The time orientation gains (time orientation score #2 subtracted from time orientation score #1) were analyzed for all subgroups against each other as well as for the delinquent vs. non-delinquent and stress vs. non-stress comparisons. None of these differences was statistically significant. The direction of non-delinquents who received stress having higher time orientation scores than the non-stress non-delinquents was not upheld. That is, the time orientation gains between Story #1 and Story #2 for the non-delinquent stress group was not significantly higher than those for the non-delinquent non-stress group. Thus, stress positively affected the time orientation scores of non-delinquents, but not at a significant level of confidence, when compared with a similar group not receiving stress. The time orientation scores of the latter were more oriented to the present.

Discussion

Stress. As Pappanikou (1962) has pointed out, the effects of stress are relevant to the dominant response tendency in complex learning tasks. Stress, of the type utilized in this investigation made no observable impact on the delinquent group probably because time orientation, as a learned perceptual phenomenon, was already

too ingrained into the adolescent delinquent's personality.

Another explanation may be the phenomenon of adaptability to stress. For, delinquents may have reacted to the stress brought on by repeated legal encounters, incarceration and institutional life as well as problems of interpersonal and interfamilial adjustment. Thus, habituation to stress may have been such, in the delinquent groups, that failure and threat of reporting to an authority figure may have been just another part of reality and really not all that stressful.

As can be implied from this study, then, stress of the type used in this study cannot be considered a significant intervention strategy with adolescent delinquent males. Rather, the non-delinquent population, in a design such as this one, was of necessity only on the fringes of normality. To find the appropriate group, high school students were too old. Thus, the non-delinquent group consisted mainly of the oldest of the junior high school students. Probably, many of these students repeated at least one year of school and some manifested behavior problems on a regular basis in the school. To a degree then, one could say that the difference between the delinquent and non-delinquent group was simply a matter of who was incarcerated and who was not incarcerated.

A non-delinquent group achieved higher time orientation scores, as a result of the application of psychological stress, than did a comparable group receiving no stress. Perhaps, then, the difference between adolescents who get caught and those that get away or do not perform delinquent acts is the ability to foresee and utilize positively a possibly stressful situation.

Latency. That differences in latency scores between groups did not exist was considered to be evidence that changes in behavior as a result of stress take very little cognitive time in which to operate. Apparently the cognitive response to stress is nearly automatic.

Time orientation. The findings for time orientation Story #1 in this study are in contradiction to the previously mentioned results of Barndt and Johnson (1955) and Davids, Kidder and Reich (1962), who found significant differences between the time orientation scores of delinquent and non-delinquent adolescent groups.

The current delinquent group may have presented inflated time orientation scores. The reasons for such a possibility are extremely remote, however. The investigators were the same for all data collection. Furthermore, there was plenty of time in which to collect all data. Thus, data collection methods do not seem to offer a solution. The delinquent population itself was drawn from a total institutional population and there appeared to be no bias in sample selection.

A probable answer lies in Teahan's (1958) finding that shows little reliability in the time orientation scores of subjects from one story to a second story. The previous studies averaged two time orientation scores whereas the current study utilized a single measure.

Another explanation of this finding of no difference between the time orientation of delinquent and non-delinquent groups lies in the finding of Davids and Sidman (1962) that underachievers are more present oriented than bright high achievers. Thus, as discussed previously, the underachievement probabilities of all four treatment groups might well have caused the lack of significant time orientation differences.

Conclusions

It can be concluded that the variable of psychological stress operates to increase (but not significantly) the time orientation of non-delinquent adolescent males while evidencing no observable effect on a matched group of delinquents. The implications of this finding support, in part, previous studies that found stress to be an effective motivator. The utilization of stress to alter the psycho-perceptual habit of time orientation in adolescent delinquents may not have been effective due to adaptability to stress. The delinquents were probably already habituated to stress, not only legally but also socially and economically. This may explain the high rates of delinquent recidivism.

A limitation of this study is that the results cannot be generalized to other populations. The unusual nature of the samples precludes such an extension of the findings.

Further research is needed in evaluating the effects of stress on younger delinquents or pre-delinquents. The comparison of a "delinquent-prone" population (selected according to one of the predictive instruments) at an eight or nine year chronological level, matched on the variables of age, IQ and socioeconomic status with a non-delinquent group might prove fruitful. Wallace and Rabin (1960) suggested a sequential development of time sense. The utilization of younger subjects would take their theory into account.

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Appendix A

Central Tendency Measures of Various Data Groupings

Story #1 Time Orientation and Latency Scores

	Time Orientation		Latency		
Group	$\bar{X}$	S^2	$\bar{X}$	S^2	N
Delinquent Stress	3.1	3.7	254.9	34184	10
Delinquent Non-Stress	3.4	2.3	232.5	12531	10
Non-Delinquent Stress	2.8	1.3	266.0	31932	10
Non-Delinquent Non-Stress	3.3	2.0	198.2	19858	10
Total Delinquent	3.3	2.8	243.7	22260	20
Total Non-Delinquent	3.1	1.6	232.1	25742	20
Total Stress	3.0	2.4	260.5	31351	20
Total Non-Stress	3.4	2.0	215.4	15683	20

Story #2 Time Orientation and Latency Scores

Group	Time Orientation		Latency		N
	$\bar{X}$	S^2	$\bar{X}$	S^2	
Delinquent Stress	3.9	3.7	338.7	22345	10
Delinquent Non-Stress	3.8	2.8	290.4	56135	10
Non-Delinquent Stress	3.8	2.0	316.5	45406	10
Non-Delinquent Non-Stress	2.9	1.2	260.7	25427	10
Total Delinquent	3.9	3.1	314.6	44424	20
Total Non-Delinquent	3.4	1.7	288.6	34372	20
Total Stress	3.9	2.7	327.6	32222	20
Total Non-Stress	3.4	2.1	275.6	38867	20

Time Orientation Gain Scores

Group	$\bar{X}$	S^2	N
Delinquent Stress	0.8	5.57	10
Delinquent Non-Stress	0.4	1.82	10
Non-Delinquent Stress	1.0	1.00	10
Non-Delinquent Non-Stress	-0.4	2.25	10
Total Delinquent	0.9	4.97	20
Total Non-Delinquent	0.3	4.04	20
Total Stress	0.9	4.97	20
Total Non-Stress	0.0	4.41	20

Appendix B

Data Collection Sheet for Non-Stress Subjects

Code____ Sec._____"

Examiner: I want to see what kind of a story you can tell. I'll start a story and then let you finish it any way you want to. You can make it any kind of story you wish. Let's see how good a story you can tell. I'll start it now:

About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town....

Now you start there and finish the story any way you want to.

WHEN THE STORY IS FINISHED, ASK: What time was this? How long did the story take to happen?_____.

CONTINUED

1 OF 2

Code._____ Sec._____"

Now, let's see if you can tell another story. I'll start the story and you finish it any way you want to.

About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town....

Now you start there and finish the story any way you want to.

WHEN THE STORY IS FINISHED, ASK: What time was this? How long did the story take to happen?_____.

Appendix C

Data Collection Sheet for Stress Subjects

Code_____ Sec._____"

Examiner: I want to see what kind of a story you can tell. I'll start a story and then let you finish it any way you want to. You can make it any kind of story you wish. Let's see how good a story you can tell. I'll start it now:

About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town....

Now you start there and finish the story any way you want to.

WHEN THE STORY IS FINISHED, ASK: What time was this? How long did the story take to happen?_____.

Code_____ Sec._____"

That wasn't a very good story at all...In fact, it's one of the worst of all the ones I've heard at this school. The other fellas told much better stories. Let's try it again. If you don't tell a better story, I'll have to report you to Mr. Devine Mr. Mink and tell him that you weren't very cooperative. Now, I'll start the story again and then let you finish it any way you want to. You can make it any kind of story you wish. Let's see how good a story you can tell. I'll start it now:

About three o'clock one bright, sunny afternoon in May, two boys were walking along a street near the end of town....

Now you start there and finish the story any way you want to.

WHEN THE STORY IS FINISHED, ASK: What time was this? How long did the story take to happen?_____.
THAT WAS MUCH BETTER. I WON'T HAVE TO REPORT YOU.

END