EXTRAVERSION, NEUROTICISM AND PERSONAL TIME PERSPECTIVE

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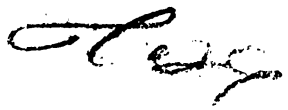

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By

Jean A. Pope

This experiment was designed to examine the relationships between personal time perspective extension and density and the personality characteristics of extraversion-introversion and neuroticism-adjustment.

The time perspective variables were assessed by a personal association measure scored for length of extension into past and future and for the number of events falling into the density categories of past, present, and future. The personality variables were assessed by the E and N scales of the Maudsley Personality Inventory. Subjects were 184 university undergraduate students.

Predictions were made that (1) extraversion would be negatively related to total extension scores, (2) extraversion would be positively related to present density, (3) neuroticism would be associated with the high and low extremes of extension scores, and (4) neuroticism would be positively related to past density. The

results failed to support these predictions. Additional findings relating to sex differences were reported. For men, extraversion was negatively related to extension into the past and positively related to extension into the future. For women, neuroticism was negatively related to total extension.

Possible explanations for the failure to achieve significant results for the predicted relationships were discussed, and suggestions were made for future research.

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AND

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INTRODUCTION

The way in which man experiences and conceptualizes time has historically been a subject of interest to philosophers and, more recently, has become the focus of a growing body of research by social scientists. For a broad view of theoretical conceptualizations and review of the literature, the reader may refer to Wallace and Rabin (1960) and Fraisse (1963). Chosen from among many aspects of the ever-broadening scope of the psychology of time, the specific focus of the present research effort is that of Time Perspective.

Theoretical foundations. -- Theoretical bases for the construct of time perspective which will be examined in this study derive primarily from the work of K. Lewin, P. Fraisse, and L. K. Frank. In elaborating the field theory concept of an individual's "psychological life space," Lewin (1951) places considerable emphasis on the development and differentiation of the temporal dimension. He defines time perspective as "the totality of the individual's views of his psychological future and his psychlogical

past existing at a given time" (p. 75). From this broad and encompassing kind of definition, it is possible to abstract a "topological" continuum of psychological time, which is structured and maintained by the individual, consistent with his own life experience and personal needs. An individual localizes himself at some focal point or within a certain range along the path of his own temporal trajectory. In order to do this, he maintains symbolic representation of certain events, in both his past experiences and his future expectations, which serve as anchoring points along the temporal dimension.

Fraisse's (1963) concept of "temporal horizons" and Frank's (1948) ideas regarding the interrelationship of past, present, and future are essentially in agreement with the construct of time perspective just described. The views of Fraisse and Frank will be described in more detail in the discussion of individual differences below.

Methodological considerations. --A considerable number of studies have been done under the rubric of Time Perspective. However, because of many conceptual and methodological differences between these studies, the comparability of their reported results is seriously questioned (Wallace & Rabin, 1960). Kastenbaum (1964) contributed some conceptual clarification in pointing out the need for

researchers to qualify their discussions of time perspective by specifying whether their reference is to "personal" or to "impersonal" time perspective and whether the frame of reference is "longitudinal" or "situational" in character.

These quasi-dimensions suggested by Kastenbaum differentiate several types of techniques used to assess what is referred to as time perspective (TP). For example, TP measured by action-time span of story productions to TAT cards (Fink, 1953) or to story fragments (Barndt & Johnson, 1955; Davids & Parenti, 1958), as well as the temporal focus of verb tense usage (Bonier & Rokeach, 1957), would be classified as "impersonal" and "situational." Assessment of the timing and ordering of an individual's own life events as they have been experienced or are projected into the future (Wallace, 1956; Levine & Spivack, 1957; Stein & Craik, 1965) would be classified as "personal" and "longitudinal." Another combination of these categories would be the "impersonal," "longitudinal" technique employed by Thor (1962) in which subjects give approximate times of occurrence of public or historical events as a measure of TP extension. An example of a "personal," "situational" technique would be Eson's (1951) measure of what he terms "time orientation" by examining the temporal focus of subjects' reported thoughts and conversations from the very recent past.

The doubtful generality of results of studies employing these diverse techniques is supported by studies such as Lessing (1967) and Ruiz et al. (1967), which report little or no relationship between an individual's scores on different instruments which purport to measure the construct of time perspective.

In line with the need for conceptual specificity, the present study will concern itself with a measure of time perspective which would be classified as "personal" and "longitudinal" under Kastenbaum's suggested framework. Also, the studies cited in subsequent discussions will be limited to those using comparable measuring techniques. While the majority of the studies reported in the literature have focused exclusively on future time perspective (FTP), the present effort will attempt to assess temporal perspective extending in both directions, including past as well as future perspectives.

Individual differences in time perspective: review of relevant literature. --Since time perspective is thought to develop as a result of an individual's more or less unique past experience and to be maintained in accordance with his needs, one might expect considerable variability among individuals in the characteristics exhibited in measures of personal time perspective, such as extension and density. Extension refers to the distance into the past or

future that an individual extends his temporal perspective, and density refers to the number of events, or anchoring points, that he maintains along various segments of his temporal path.

Fraisse's (1963) discussion of "temporal horizons" offers some speculation, based to some extent on empirical findings, about factors involved in determining individual differences in extension, or length, of time perspective and the relative emphases on past, present, and future time.

There are developmental considerations, of course. As a child becomes more capable of differentiating and transforming his experience into intellectual symbols, he is able to go beyond his initial experience of time as a succession of events. He is able to mentally reconstitute such a succession, establishing a goal sequence in which the wished-for future serves to organize his present behavior. His memory of past actions and events serves as a guide for structuring the future. As Frank (1948) states it, "Past and future . . . are but two aspects of behavior, the past being the persistent modifications in the behaving organism and the future the controlling direction or pattern imposed upon the unfolding behavior according to those persisting modifications" (p. 351).

A clear implication of this developmental formulation is that both maturational level and intellectual capacity will influence

characteristics of an individual's time perspective. Empirical support for the influence of these two factors on the length of future time perspective is given by studies such as those by Lessing (1968), Klineberg (1967), and Stein et al. (1968).

More in line with the influence of personality variables, Fraisse discusses a character trait, a more or less polarized dimension, of "primary vs. secondary." He quotes a description by LeSenne,

> Primary man lives in the present and is renewed with it: primarity is the fountain of youth. The secondary man, on the other hand, deadens the present . . . by a structure which weighs it down, facing the present even with the repercussion of a multitude of past impressions. (p. 187)

In other words, the "primary" individual acts with a view to immediate results, is eager for change, and is more or less submerged in present impressions, while the "secondary" individual is a creature of habit, who is attached to old memories, constant in his affections, and far-seeing in his actions.

Although the dimensions are far from identical, there is some overlap between characteristics attributed to "primarity vs. secondarity" and those attributed to "extraversion-introversion," one of the personality traits which will be included in the present study. Of the extraversion-introversion dimension, Eysenck gives the following description of extreme types.

> The typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or styding by himself. He craves excitement, takes changes, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change. He is carefree, easygoing, optimistic, and likes to "laugh and be merry." He prefers to keep moving and doing things, tends to be aggressive and may lose his temper quickly. His feelings are not kept under tight control, and he is not always a reliable person.
>
> The typical introvert is a quiet, retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, "looks before he leaps," and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards. (Knapp, 1962, p. 4)

With regard to time, then, the extravert, like LeSenne's "primary man," is occupied with present ongoing events, while the introvert, like "secondary man," is more cognizant of past experiences and more involved in cognitively structuring the future.

Although the literature contains no studies which examine time perspective in relation to a measure of extraversion-introversion per se, there are a few studies which examine personality characteristics which are conceptually related to the extravert's attributed impulsivity. Using a behavioral rating measure of preference for delayed vs. immediate gratification, Graves (1962) found that

preference for delayed gratification was associated with longer future time extension in his high school student subjects. Other studies have reported a relationship between longer time extension and a higher degree of impulse control as measured by (1) motor inhibition (tracing a circle as slowly as possible) (Siegman, 1961b) or (2) cognitive inhibition (response latency when required to respond with a word other than the learned association to a stimulus word) (Levine et al., 1959).

Another group of studies which have implications related to impulse control are those which compare time perspective scores of delinquents to those of non-delinquent controls. With considerable consistency, the findings have been lower time perspective extension scores among delinquents (Stein et al., 1968; Levine &Spivack, 1959; Craik, 1964; Klineberg, 1967).

In regard to the other personality dimension which will be examined in the present study, neuroticism-adjustment, the time perspective literature contains few studies which are conceptually comparable. Most of these studies compare the time perspective scores of psychiatric criterion groups with those of normal controls. Shorter time perspective is usually found among psychiatric patients categorized as "depressives," "schizophrenics" (Dilling & Rabin, 1967), and "alcoholics" (Smart, 1968). Theoretical explanations of

these findings emphasize the relatively exclusive preoccupation of the depressive with the unhappy events of the past, such that the future is viewed only as a "shapeless gap" (Wallace & Rabin, 1960). In the case of schizophrenics and alcoholics, it may be that some degree of cognitive disorganization, as well as fearful expectations, serves to truncate temporal extension into the future.

It is conceivable, also, that anxiety or "maladjustment" might affect an individual's time perspective in other ways than to simply constrict the future, particularly in individuals who manage to maintain some level of functioning in society outside of psychiatric hospitals. For example, one might avoid painful memories and present fears either by escaping to the distant future through wish-fulfilling fantasies, or one might resort to obsessively detailed plans and activities for the present and very near future, thereby avoiding both memories of the past and expectations for the future. In contrast, the "normal" adult would exhibit a broader, more balanced time perspective, indicating the experience of continuity between his past, present, and future.

STATEMENT OF HYPOTHESES

In view of the foregoing discussion, four specific hypotheses are proposed in regard to the relationship between the personality variables of extraversion-introversion and neuroticism-adjustment and the two time perspective variables, extension and density.

Extraversion-introversion. --From theoretical descriptions of the extravert as a "here-and-now" kind of person who is reactive to immediate stimulation rather than planful, and from the implications of research related to impulsivity, one might reasonably expect high scores on extraversion to be associated with constriction of time perspective extension and a high concentration of significant events in the present.

Hypothesis I: There is a negative relationship between extraversion and time perspective extension.

Hypothesis II: There is a positive relationship between extraversion and time perspective density in the present.

Neuroticism-adjustment. --In line with the various possible effects of neuroticism on time perspective discussed in the previous section, it seems unlikely that the relationship between these two variables is a simple linear one. Perhaps it is reasonable to expect neuroticism to be associated with the extremes of time perspective, allowing for either truncation of past or future or escape to the distant past or future. The frequent reports of preoccupation with past events among neurotics, especially depressives, however, form some basis for predicting that neuroticism will be associated with a preponderance of significant events in the past.

Hypothesis III: Neuroticism is associated with the extremes, very short or very long, extension into the past and the future.

Hypothesis IV: There is a positive relationship between neuroticism and time perspective density in the past.

METHOD

Subjects. --Subjects for this study were 184* Michigan State University undergraduate students. Ninety-six of these subjects were enrolled in an Introductory Psychology course and volunteered for this study to fulfill research requirements for course credit. Eighty-eight subjects were enrolled in a more advanced course, Abnormal Psychology, and were tested during class time at the request of their professor. The subjects ranged in age from 17 to 43, with a mean age of 20 years. There were 91 men and 93 women.

Procedure. --The measures used in this study were administered in a group situation. There were four administration groups, containing 24, 88, 12, and 60 subjects, respectively. The test materials were presented to each subject in an ordered set (see Appendix II) consisting of (1) a cover sheet requesting information such as the subject's age, sex, and grade-point average; (2) the Personal Associations Scale; and (3) the Maudsley Personality Inventory.

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*There were originally 200 subjects; 16 subjects were eliminated because they failed to complete all of the testing.

Each part of the test series included written instructions. These instructions were read aloud by the experimentor and additional instructive comments were made in order to clarify the procedures. The subjects were encouraged to ask questions if further clarification was needed.

The Maudsley Personality Inventory (MPI). --The independent variables of Extraversion and Neuroticism were assessed by using the extraversion-introversion (E) scale and the neuroticism-stability (N) scale of the MPI. This 48-item questionnaire, developed by H. J. Eysenck (1959), grew out of Eysenck's research and theoretical formulations in the area of basic personality traits (see Eysenck, 1947, 1952, 1957, 1960).

The Personal Associations Scale (PA). --The PA scale, used in this study to measure several aspects of time perspective, is essentially the same as that used and described by Wohlford (1966). Subjects were asked to list 20 personal events which had happened in the past or which may happen in the future. When this listing was completed, the subjects were asked to give the actual or approximate time from the present that the event occurred or probably will occur.

Each of the 20 responses were scored for Protension (future extension) if the event was anticipated, or for Retrotension (past

extension) if the event had already occurred. Both protension (E-Pro) and retrotension (E-Ret) scores were based on a 7-point scale of distance from the immediate present: 0 = under 2 hours; 1 = 2 hours to under 1 week; 2 = 1 week to under 1 month; 3 = 1 to 4 months; 4 = 4 to 12 months; 5 = 1 to 4 years; 6 = over 4 years. An overall extension score (E-TOT) was the sum of an individual's PRO and RET scores. The specific time intervals used in this scoring procedure were considered by Wohlford to be appropriate temporal segments for a university student population. Wohlford reported high reliability (93% to 96% identical scores given by two independent scorers) for this scoring procedure.

Some indication of the reliability of the PA scale itself is given by the odd-even split-half correlations reported by Wohlford for the measure of protension. These were .69 for women (N = 77), .78 for men (N = 70), and .74 for the total sample (N = 147). Reliability coefficients were not reported for retrotension or total extension scores.

In addition to Wohlford's scoring system for extension, the PA scale was used to compute density scores for each subject. For judging density, the temporal dimension was divided into the present (D-PR): 1 month or less from the immediate present; the past (D-P): more than 1 month previous to the immediate present; and the

future (D-F): more than 1 month into the future. Density scores for D-P, D-PR, and D-F were the number of a subject's responses which fell within each given time category.

Several problems arose in the process of scoring the PA scale. Forty subjects (13 men, 27 women) failed to give the requested 20 responses. Since 40 is a relatively large proportion of the present sample, and since there was not a significant correlation between failure to complete this scale and scores on the independent variables (with neuroticism, $r = -.02$; with extraversion, $r = -.03$) a decision was made to retain these subjects. For purposes of analysis, incomplete scores on the PA scale were proportionately increased to be comparable with completed scale scores.

For individual responses which were not clearly identified as either past or future events, the scoring decision was based on which temporal direction made sense in the light of response content. For example, one subject might give a response item, "graduated from high school," a time designation of 2 years from the present, but not indicate whether it was in the past or in the future. Since the subject was a college student, this was clearly a past event.

In some cases (approximately 25), subjects gave an indefinite rather than a specific time designation to an event listed.

Those responses designated simply "future," rather than a specific period of time, were given a PRO score of 5. Designations of continuous conditions, such as "always," were either scored 0 for immediate present or were given a PRO score of 3 on a random basis.

Statistical analysis. --Pearson product-moment correlation coefficients were computed for each pair of variables, including age, course level (CLASS), and adjusted (incomplete) vs. complete PA scale scores (ADJ), as well as extraversion, neuroticism, the extension measures (E-RET, E-PRO, E-TOT), and the density measures (D-P, D-PR, D-F) of time perspective. Separate correlations were computed for men, women and the total sample, in order to assess possible sex differences.

To test the hypothesis that neuroticism is associated with the extremes of past and future temporal extension, two sets of analyses of variance were performed with E-RET and E-PRO as independent variables and neuroticism as the dependent variable. In the first set, the independent variables were dichotomozed into extreme and middle groups, based on combining the highest and lowest 25% of the scores to form the extreme category and leaving the remaining 50% to constitute the middle category. In the second

set, the independent variables were divided into thirds, forming high, middle, and low groups.

To test differences of interest between men's and women's scores, t-tests of the difference between two means were computed.

RESULTS[1]

Extraversion and time perspective. --Examination of the relevant correlation coefficients reveals that, while the correlations are in the predicted direction, they do not reach a level of significance ($< .05$) which would warrant their being regarded as supportive of the predicted relationships between extraversion and time perspective extension and density.

Hypothesis I predicted a negative relationship between extraversion and total extension scores (E-TOT). Correlations between these scores were not significant (see Table 1).

While specific predictions were not made regarding the relationships between extraversion and either E-RET or E-PRO, it is interesting to note in Table 1 that for men, extraversion scores were negatively related to E-RET ($r = -.21$, $p < .05$) and positively related to E-PRO, though the latter does not reach significance ($r = .19$, $p > .05$).

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[1]Complete correlation matrices of all the variables for men, women, and the total sample may be found in Tables 7, 8, and 9. Table 10 gives the means and standard deviations for all the variables for men, women, and the total sample. These tables are in Appendix I.

TABLE 1

Correlations between Extraversion and Extension

	E-RET	E-PRO	E-TOT
Men	-.21*	.19	-.04
Women	-.07	.00	-.10
Total Sample	-.13	.10	-.07

*$p < .05$

Hypothesis II predicted a positive relationship between extraversion and present density scores. From Table 2, it can be seen that these scores do not correlate significantly.

TABLE 2

Correlations between Extraversion and Density

	D-Past	D-Present	D-Future
Men	-.18	.05	.18
Women	-.08	.12	.01
Total Sample	-.13	.08	.10

Neuroticism and time perspective. -- The relevant correlation coefficients and analysis of variance F-ratios fail to support either of the stated hypotheses regarding relationships between

neuroticism and time perspective measures of extension and density.

Hypothesis III predicted that neuroticism would be associated with the extreme scores, high and low, of past and future extension. Analyses of variance for the total sample showed no significant differences between the neuroticism scores of those subjects categorized as extreme and those categorized as middle on either E-RET ($F = .0032$) or E-PRO ($F = .1359$). Similarly, total sample analyses of variance showed no significant between-groups difference in neuroticism scores when subjects were divided into thirds (high, middle, and low) based on scores on E-RET ($F = .1621$) and E-PRO ($F = .7558$). However, these latter group means and standard deviations may be of interest (see Table 3).

TABLE 3

Neuroticism Scores of E-RET and E-PRO Groups

	E-RET		E-PRO	
	Mean	SD	Mean	SD
High	26.44	10.31	26.03	9.61
Middle	26.00	10.69	25.66	11.15
Low	27.07	10.26	27.82	10.33

Separate analyses of variance were not done for men and women, since scatterplots of these data showed no trend toward the predicted relationship.

TABLE 4

Correlations between Neuroticism and Extension

	E-RET	E-PRO	E-TOT
Men	.04	-.11	-.01
Women	-.16	.02	-.22*
Total Sample	-.06	-.06	-.13

*$p < .05$

While linear relationships were not predicted between neuroticism and extension scores, it is of interest to note in Table 4 that for women, there was a significant negative relationship between neuroticism and E-TOT ($r = -.22$, $p < .05$).

TABLE 5

Correlations between Neuroticism and Density

	D-Past	D-Present	D-Future
Men	.09	-.01	-.09
Women	-.08	.06	.06
Total Sample	.01	.02	-.03

Hypothesis IV predicted a positive relationship between neuroticism and past density scores. Only negligible correlations between these scores were obtained (see Table 5).

Intercorrelations between time perspective measures. -- Table 6 shows the intercorrelations between measures of time perspective extension and density for the total sample (see Tables 7 and 8 in Appendix I for separate intercorrelations of these measures for men and women).

TABLE 6

Intercorrelations between Extension and Density

	E-RET	E-PRO	E-TOT	D-P	D-PR	D-F
E-RET		-.73	.63	.94	-.60	-.73
E-PRO			.02	-.77	.06	.97
E-TOT				.56	-.87	-.01
D-P					-.65	-.77
D-PR						.02
D-F						

Since extension scores were to a large extent simply weighted past and future density scores, the high positive correlations between E-PRO and D-F ($r = .97$) and between E-RET and D-P ($r = .94$)

were expected. For similar reasons, the negative relationship between E-TOT and D-PR ($r = -.87$) was also not surprising. A somewhat unexpected finding was that E-TOT was positively related to E-RET ($r = .63$) and to D-P ($r = .56$) but was not significantly related to E-PRO ($r = .02$) or to D-F ($r = -.01$). However, it seems likely that this is simply due to the fact that, for this sample, mean past extension and density scores are considerably higher than the mean future extension and density scores (see Table 10 in Appendix I).

Sex differences. --In addition to differences between men and women in correlates of extraversion and neuroticism mentioned above, there was a trend for men to have higher E-PRO and E-TOT scores than women, and for women to have higher E-RET scores (see Table 10 in Appendix I). However, t-tests of the differences between these means failed to reach the .05 level of significance.

For women, G.P.A. was positively related to E-TOT ($r = .28$, $p < .01$) and negatively related to D-PR ($r = -.24$), $p < .05$), while for men, G.P.A. was not significantly related to any of the time measures.

DISCUSSION

The most striking feature of the results reported in the previous section is the almost complete failure to find significant relationships between the personality and time perspective variables examined in this study. Now we must consider some factors which may have had some influence in producing such an outcome.

First of all, it is obvious that the stated hypotheses were highly speculative. The two hypotheses regarding time perspective and extraversion were based on (1) the descriptive conceptualization of the extravert as "here-and-now" person who is more responsive to immediate stimulation than planful for the future, and (2) implications of studies of impulsivity, which were done primarily with "delinquent" subjects. In regard to the descriptive element, one might expect the predicted constriction of time perspective among subjects with high extraversion scores to be greatly diluted due to the fact that the subjects were college students. Being enrolled in a university indicates that a person is relatively planful for the future, perhaps in addition to being highly responsive to his social environment.

In relation to the relevance of the inpulsivity studies, two circumstances are apparent. Although there is some conceptual overlap, impulsivity is a much narrower construct than extraversion, and as such, it does not provide the soundest basis for making inferences about relationships between extraversion and other variables. Some empirical support for this point is given by Eysenck & Eysenck (1963), who report that extraversion as measured by the MPI is composed of two differentiable factors, impulsivity and sociability. It may be that in a college population, the sociability component contributes most heavily to the extraversion scores.

The second circumstance is the questionable comparability of delinquent and college student populations. It is highly unlikely that degree of extraversion, whether measured by a questionnaire or the absence of enough impulse control to avoid being arrested by police, is the only factor in these two populations which might influence an individual's time perspective. Other relevant variables on which these groups are likely to differ include intelligence, social class, and simply being institutionalized and not in control of one's future.

The two hypotheses regarding time perspective and neuroticism were even more precariously perched on top of tenuously-drawn inferences from the literature than were the hypotheses about

extraversion. In addition to the very doubtful comparability of college student and psychiatric patient populations, there is the larger issue of whether a questionnaire measure of adjustment is at all comparable to psychiatric diagnosis. In a questionnaire, the subject answers questions about himself, leaving open the probability that some people will be inclined to deny any symptoms of anxiety or maladjustment which may be present. Psychiatric diagnosis, on the other hand, is usually based at least as much on the diagnostician's inferences based on the subject's behavior as on the subject's simple statement of symptoms.

In addition, while many "maladjusted" people may experience and acknowledge the presence of symptoms such as those included in the MPI Neuroticism scale, the way in which these people cope with their symptoms may be more related to the structure of their personal time perspectives than the mere presence of such symptoms.

Aside from the possible inappropriateness of the specific hypotheses made, the general failure to find significant relationships between measures of time perspective and the personality measures examined in this study may reflect the general inadequacy of personality trait differences alone in accounting for differences in time perspective. Other personality measures which have failed to

correlate significantly with future time perspective scores include the California Test of Personality (Lessing, 1968) and the Myers-Briggs Personality Types instrument (Vincent, 1965, cited in Lessing, 1968).

Another source of variation which would weigh against finding significant relationships between the variables examined in this study is the presence of several testing circumstances which may have introduced the influence of "negative affect" on the time perspective scores. The majority of subjects (N = 124) were tested approximately one week before final exams in May, 1969. If this circumstance can be considered analagous to Wolford's (1966) arousal of negative affect by having subjects anticipate an unpleasant event, one might expect a similar effect: shortening of protension and lengthening of retrotension. (The remaining 60 subjects were tested in October, 1969, near the beginning of the school term, and consequently may not have been subject to this kind of effect.) There was a definite trend toward greater density and extension into the past than into the future in the total sample, but this is difficult to evaluate since no time perspective norms have been developed. Also, Wolford reported only changes in scores as a result of affect conditions and did not include the overall time perspective statistic for his sample.

Of the 124 subjects tested in May, 88 (the Abnormal Psychology class) were tested immediately following a class exam, a circumstance which had not been known before testing was underway. CLASS was included as a variable in order to examine possible effects of this post-exam testing situation, but the few significant correlations obtained indicate little overall influence on the experimental variables.

Additional findings. --While the stated hypotheses were not supported, several significant relationships between the personality and time perspective variables did emerge which relate to differences between the sexes. Again, these relationships are not immediately interpretable but may be of some interest for further research.

Men with higher extraversion scores tended to have shorter extension into the past (E-RET) and longer extension into the future (E-PRO), while the relationships between these variables were near zero for women. These two relationships among men might be interpretable when viewed in terms of the likelihood that sociability is a large component of their extraversion scores (discussed above). Perhaps extraverted college men tend to plan for the future, even though they are not very likely to ruminate about past events.

An interesting constellation of relationships appeared among women. Women with higher scores on neuroticism tended to have

shorter total extension scores (E-TOT), to have lower extraversion scores, and to have a lower G.P.A. The picture which emerges, of the neurotic, introverted, constricted young woman who is not doing well in her schoolwork, is not unbelievable.

Cultural sex-role expectations offer only a vague suggestion of an explanation for the observed differences between men and women. The absence of significant relationships between neuroticism and the other variables for men may be due in part to there being less social acceptance of a man's acknowledging neurotic symptoms. Hence, men would be more likely to score lower on neuroticism than women as a result of denial. The fact that women's scores are usually higher on this scale than those of men (Knapp, 1962) lends some credence to this idea.

The sex differences in relation to extraversion, however, are much less clear. While one might impressionistically assume that social expectations of sex roles include a man's being more "extraverted" than a woman, there is little to support such a contention. A common finding is no significant difference between the sexes on the MPI extraversion scale (Knapp, 1962).

Implications for future research. --If the Personal Associations scale is to become a useful and interpretable instrument,

it is clear that future research is needed to establish its reliability, especially stability over time.

However, since structural measures of time perspective, such as extension, have repeatedly failed to correlate significantly with personality measures, perhaps the focus of future research should be shifted to qualitative aspects of time perspective. The variety of response content in the PA protocols collected for this study (see the sample of protocols in Appendix III) suggests that a promising research direction might be exploration of the kinds of responses an individual lists, as well as the temporal direction of the responses.

Summary. --This experiment was designed to examine the relationship between personal time perspective extension and density and the personality characteristics of extraversion-introversion and neuroticism-adjustment.

The time perspective variables were assessed by a personal association measure scored for length of extension into past and future and for the number of events falling into the density categories of past, present, and future. The personality variables were assessed by the E and N scales of the Maudsley Personality Inventory. Subjects were 184 university undergraduate students.

Predictions were made that (1) extraversion would be negatively related to total extension scores, (2) extraversion would be positively related to present density, (3) neuroticism would be associated with the high and low extremes of extension scores, and (4) neuroticism would be positively related to past density. The results failed to support these predictions. Additional findings relating to sex differences were reported. For men, extraversion was negatively related to extension into the past and positively related to extension into the future. For women, neuroticism was negatively related to total extension.

Possible explanations for the failure to achieve significant results for the predicted relationships were discussed, and suggestions were made for future research.

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REFERENCES

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APPENDIX I

ADDITIONAL DATA

TABLE 7

Correlations between the Variables--Men*

	AGE	CLASS	G.P.A.	NEUROT	EXTRAV	E-RET	E-PRO	E-TOT	D-P	D-PR	D-F	ADJ
AGE		.47	-.14	-.30	-.08	.14	-.13	.14	.03	-.01	-.14	.07
CLASS			.18	-.23	-.08	.08	.00	.09	.01	.00	-.02	.19
G.P.A.				-.06	-.23	.05	-.15	-.09	.10	.05	-.17	.00
NEUROT					-.18	.04	-.11	-.01	.09	-.01	-.09	-.05
EXTRAV						-.21	.19	-.04	-.18	.05	.18	.07
E-RET							-.71	.56	.92	-.56	-.70	-.09
E-PRO								.10	-.75	-.03	.98	.00
E-TOT									.54	-.92	.09	-.15
D-P										-.62	-.75	-.09
D-PR											-.06	.10
D-F												.01
ADJ												

*With df = 90, $\underline{r}$ needed for significance at .05 level = .205; at .01 level, .267.

TABLE 8

Correlations between the Variables--Women

	AGE	CLASS	G.P.A.	NEUROT	EXTRAV	E-RET	E-PRO	E-TOT	D-P	D-PR	D-F	ADJ
AGE		.45	.29	-.38	-.22	.18	-.14	.13	.13	-.06	-.12	.03
CLASS			.28	-.16	-.03	.02	-.16	-.16	.01	.18	-.17	.20
G.P.A.				-.27	-.23	.20	-.06	.28	.18	-.24	-.05	.11
NEUROT					-.29	-.16	.02	-.22	-.08	.06	.06	-.03
EXTRAV						-.07	.00	-.10	-.08	.12	.01	-.12
E-RET							-.77	.71	.95	-.65	-.76	.00
E-PRO								-.09	-.80	.16	.96	-.02
E-TOT									.59	-.83	-.12	-.01
D-P										-.69	-.80	.04
D-PR											.11	-.09
D-F												.02
ADJ												

*With df = 90, $\underline{r}$ needed for significance at .05 level = .205; at .01 level, .267.

TABLE 9

Correlations between the Variables--Total Sample

	AGE	CLASS	G.P.A.	NEUROT	EXTRAV	E-RET	E-PRO	E-TOT	D-P	D-PR	D-F	ADJ	SEX
AGE		.45	.12	-.33	-.15	.16	-.08	.13	.08	-.13	-.08	.05	.00
CLASS			.22	-.16	-.05	.05	-.09	-.06	.02	.09	-.10	.21	-.16
G.P.A.				-.15	-.23	.12	-.12	.06	.14	-.08	-.12	.06	-.04
NEUROT					-.24	-.06	-.06	-.13	.01	.02	-.03	-.02	-.17
EXTRAV						-.13	.10	-.07	-.13	.08	.10	-.04	.01
E-RET							-.73	.63	.94	-.60	-.73	-.03	-.02
E-PRO								.02	-.77	.06	.97	-.02	.10
E-TOT									.56	-.87	-.01	-.09	.11
D-P										-.65	-.77	-.01	-.03
D-PR											.02	.00	-.02
D-F												.01	.06
ADJ													-.13
SEX													

*With df = 175, $\underline{r}$ needed for significance at .05 level = .148; at .01 level, .193.

TABLE 10

Means and Standard Deviations of the Variables

		Men (N = 91)*	Women (N = 93)*	Total Sample (N = 184)*
AGE				
	Mean	20.09	20.11	20.10
	S.D.	2.98	3.15	3.06
G.P.A.				
	Mean	2.74	2.78	2.76
	S.D.	.52	.50	.51
NEUROTICISM				
	Mean	24.77	28.19**	26.40
	S.D.	10.11	10.41	10.38
EXTRAVERSION				
	Mean	28.88	28.70	28.79
	S.D.	8.82	9.35	9.07
EXTENSION				
E-RET				
	Mean	58.76	59.92	59.35
	S.D.	25.88	26.88	26.32
E-PRO				
	Mean	31.25	27.14	29.17
	S.D.	21.28	19.08	20.25
E-TOT				
	Mean	90.84	87.06	88.93
	S.D.	16.91	17.31	17.17
DENSITY				
D-P				
	Mean	11.62	11.93	11.78
	S.D.	4.97	5.12	5.03
D-PR				
	Mean	2.55	2.68	2.61
	S.D.	3.30	3.12	3.20
D-F				
	Mean	5.81	5.39	5.60
	S.D.	3.93	3.75	3.83

*Except for G.P.A., for which N = 79 for Men, 68 for Women, and 147 for Total Sample.

**A test for the difference between mean Neuroticism scores of men and women yielded $t = 2.198$, $p < .05$, two tailed.

APPENDIX II

TEST MATERIALS

GENERAL INFORMATION

Age _____ Sex _____ Quarter hours completed _____ G.P.A. _____

*

Parents:	Age	Years of education	Occupation
Mother	_____	_____	_____
Father	_____	_____	_____

Income Level of Family (annual):

_____ Less than $5,000.00
_____ $5,000.00 to $10,000.00
_____ $10,000.00 to $20,000.00
_____ More than $20,000.00

Other Children in Family:	Sex	Age
	_____	_____
	_____	_____
	_____	_____
	_____	_____

(Do not write below this line.)

E _____ N _____ Ret _____ Pro _____ Ext _____
P _____
Pr _____
F _____

*The bracketed information was not included as part of the present study.

MAUDSLEY PERSONALITY INVENTORY

By H. J. Eysenck

Name_____ Age_____ Sex_____

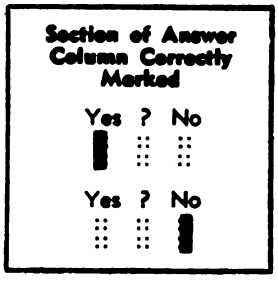
Grade or Occupation_____ Date_____

School or Firm_____ Marital Status_____

INSTRUCTIONS

Here are some questions regarding the way you behave, feel and act. After each question is a space for answering "Yes," "?" or "No."

Try and decide whether "Yes," or "No" represents your usual way of acting or feeling. Then blacken in the space under the column headed "Yes" or "No." If you find it absolutely impossible to decide, blacken in the space headed "?", but use this answer only occasionally.



Work quickly, and don't spend too much time over any question; we want your first reaction, not a long drawn-out thought process. The whole questionnaire shouldn't take more than a few minutes. Be sure not to omit any questions. Now turn the page over and go ahead. Work quickly, and remember to answer every question. There are no right or wrong answers, and this isn't a test of intelligence or ability, but simply a measure of the way you behave.

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E N ?

		Yes	?	No
1.	Are you happiest when you get involved in some project that calls for rapid action?			
2.	Do you sometimes feel happy, sometimes depressed, without any apparent reason?			
3.	Does your mind often wander while you are trying to concentrate?			
4.	Do you usually take the initiative in making new friends?			
5.	Are you inclined to be quick and sure in your actions?			
6.	Are you frequently "lost in thought" even when supposed to be taking part in a conversation?			
7.	Are you sometimes bubbling over with energy and sometimes very sluggish?			
8.	Would you rate yourself as a lively individual?			
9.	Would you be very unhappy if you were prevented from making numerous social contacts?			
10.	Are you inclined to be moody?			
11.	Do you have frequent ups and downs in mood, either with or without apparent cause?			
12.	Do you prefer action to planning for action?			
13.	Are your daydreams frequently about things that can never come true?			
14.	Are you inclined to keep in the background on social occasions?			
15.	Are you inclined to ponder over your past?			
16.	Is it difficult to "lose yourself" even at a lively party?			
17.	Do you ever feel "just miserable" for no good reason at all?			
18.	Are you inclined to be overconscientious?			
19.	Do you often find that you have made up your mind too late?			
20.	Do you like to mix socially with people?			
21.	Have you often lost sleep over your worries?			
22.	Are you inclined to limit your acquaintances to a select few?			
23.	Are you often troubled about feelings of guilt?			
24.	Do you ever take your work as if it were a matter of life or death?			
25.	Are your feelings rather easily hurt?			
26.	Do you like to have many social engagements?			
27.	Would you rate yourself as a tense or "highly-strung" individual?			
28.	Do you generally prefer to take the lead in group activities?			
29.	Do you often experience periods of loneliness?			
30.	Are you inclined to be shy in the presence of the opposite sex?			
31.	Do you like to indulge in a reverie (daydreaming)?			
32.	Do you nearly always have a "ready answer" for remarks directed at you?			
33.	Do you spend much time in thinking over good times you have had in the past?			
34.	Would you rate yourself as a happy-go-lucky individual?			
35.	Have you often felt listless and tired for no good reason?			
36.	Are you inclined to keep quiet when out in a social group?			
37.	After a critical moment is over, do you usually think of something you should have done but failed to do?			
38.	Can you usually let yourself go and have a hilariously good time at a gay party?			
39.	Do ideas run through your head so that you cannot sleep?			
40.	Do you like work that requires considerable attention?			
41.	Have you ever been bothered by having a useless thought come into your mind repeatedly?			
42.	Are you inclined to take your work casually, that is as a matter of course?			
43.	Are you touchy on various subjects?			
44.	Do other people regard you as a lively individual?			
45.	Do you often feel disgruntled?			
46.	Would you rate yourself as a talkative individual?			
47.	Do you have periods of such great restlessness that you cannot sit long in a chair?			
48.	Do you like to play pranks upon others?			

PERSONAL ASSOCIATIONS

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

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

THE TIMING OF PERSONAL EVENTS

For each of the events you listed on the previous page, list in the right-hand column the amount of time which has elapsed since the event occurred, or which may elapse before the event is expected to occur. Give the time in hours, days, weeks, months, or years, whichever is most appropriate.

APPENDIX III

SAMPLE PERSONAL ASSOCIATIONS PROTOCOLS

(Woman, age 19)

PERSONAL ASSOCIATIONS

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1. parent's separation	1. 1 week ago
2. high school graduation	2. 1 year ago
3. overdose of pills	3. several times last 2 years
4. tried marijuana	4. 6 months ago
5. closing of my highschool	5. 1 month (future)
6. best friend in psychiatric hospital	6. 1½ years
7. death of best friends dad	7. 2 yrs. ago
8. be a teacher	8. 5 yrs. (future)
9. my brother's marriage	9. 10 mths. ago.
10. little brother almost died (hit by a car)	10. 3 yrs ago
11. coming to college	11. 1 year ago
12. tutoring in the inner city	12. 1 year ago
13. seeing a psychiatrist	13. 2 weeks ago
14. car accident	14. 1 yr. ago
15. getting a summer job	15. 1 mth (future)
16. going to new york	16. 3 mths. (future)
17. being away from the family	17. present
18. younger brother leaving highschool	18. 8 mths ago
19. older brother dropping college	19. 4 mths ago
20. older sister graduating	20. 2 months ago

(Woman, age 20)

PERSONAL ASSOCIATIONS

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1.	death of grandmother	1. 5yrs
2.	accedance of college	2. 2yrs
3.	graduation of high school	3. 2yrs
4.	break off with boyfriend	4. 6mths
5.	trip to Bahamas	5. 2wks.
6.	trip to florida	6. 1½ yrs
7.	" to mexico	7. 5yrs
8.	graduation from college	8. 2yrs
9.	move to apt	9. 3wks.
10.	move to house	10. 3½ mths
11.	get new roommate	11. 3wks
12.	get a job	12. 4wks
13.	visit Martinique Island	13. 2mths
14.	see sick grandfather	14. 1wk
15.	vacation mem. weekend	15. 3days
16.	finals - study	16. 1wk.
17.	results of finals	17. 2wks.
18.	this thing sure is time	18. ___
19.	consuming - pain in	19. ___ now
20.	the neck	20. ___

PERSONAL ASSOCIATIONS (Man, age 19)

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1.	Blow my Graepoint	1.	5 weeks
2.	Woke up	2.	12 hr.
3.	Go to Bed	3.	5 hr
4.	Study	4.	½ hr.
5.	Wake up	5.	12 hr
6.	Screw a Girl	6.	4 days
7.	Take Items Mid	7.	2 days
8.	Eat Lunch	8.	1 hr.
9.	Ate Dinner	9.	3 hr.
10.	Wash Clothes	10.	3 hr.
11.	Drove Car	11.	15 min.
12.	Get Married	12.	3 yr
13.	Have Kid(s)	13.	3 yr 9 mo
14.	Get Drafted	14.	3 yr.
15.	Get A Job	15.	3 yr.
16.	Go to Florida	16.	5 weeks
17.	Get Drunk	17.	3 days
18.	Blow Nose	18.	3 sec.
19.	Take Shoes off	19.	1 hr.
20.	Take Shower	20.	5 hr.

PERSONAL ASSOCIATIONS (Man, age 18)

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1. Changing to a public school after 9 years of Catholic grade school	1. 3 yrs	past
2. First starting to date in 9th grade the girl I plan to marry after college	2. 4 yrs	past
3. Coming to Michigan State University	3. 8 months	past
4. My brother's nervous breakdown in 1962	4. 2 yrs	past
5. My own 8 week stay in a sanitarium	5. 4 yrs	past
6. My membership in a rock'n'roll band in high school	6. 2 yrs	past
7. My religious instruction while in Catholic school	7. from 8 - 4 yrs	past
8. My reading of our Puritan heritage in A.T.L.	8. 9 months	past
9. Attending 8 "beer parties" off campus	9. 7 or 1 month	past
10. Going to Europe the summer before graduation from high school	10. 2 yrs	future
11. My hopefull graduation from M.S.U. in '62	11. 3 yrs	future
12. The changing of my major from Math (Education) to Special Education next fall	12. 4 months	future
13. My marrying the girl I've gone with since high school & college	13. 3 yrs	future
14. My living with a new roomate next year	14. 4 months	future
15. My summer job last year in a grocery store	15. 10 months	past
16. My dropping of the Catholic religious faith	16. 1 yr	past
17. The receiving of a letter last week from my girl	17. 1 week	past
18. My 4-F classification in the service because of my stay in a sanitarium	18. 4½ months	past
19. My father's letter to me which hoped that I'd appeal my 4-F for a 1-S classification	19. 4 months	past
20. My realization that no one is really "bad" because of what he has done, but because of what society, his environment and his physiological make-up have done to him.	20. 1 month	past

PERSONAL ASSOCIATIONS

(Woman, age 18)

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1. Birth	1. 18yrs.
2. Baptism	2. 18yrs.
3. Started School - Kindergarten	3. 13yrs.
4. Started Grade School	4. 12yrs.
5. Started taking Music lessons	5. 9yrs.
6. Joined Band	6. 8yrs.
7. Started Taking Piano Lessons	7. 7yrs.
8. Joined Choir	8. 6yrs.
9. Started Taking Organ Lessons	9. 6yrs.
10. Graduated from Grade School	10. 5yrs.
11. Began High School	11. 5yrs.
12. Elected Club representative	12. 4yrs.
13. Flunked Latin	13. 4yrs.
14. Took Driver's Ed.	14. 3yrs.
15. Got my driver's License	15. 2yrs.
16. Took a course in Shakespeare	16. 2yrs.
17. Appointed Editor - Literary Magazine	17. 1yr.
18. Appointed Editor Senior Section of Yearbook	18. 1yr.
19. Graduated High School	19. 1yr.
20. Started College	20. 9mo.

PERSONAL ASSOCIATIONS

(Man, age 17)

List below 20 personal events of some importance to you. These may be things which have occurred before the present time or which you expect to occur after the present time.

1. Realized that I was in love	1. 1½ years ago
2. Stayed in Israel for 7 weeks	2. 3 months ago
3. Graduate	3. 4 years from
4. My best friend expressed her appreciation of me	4. 1½ months pas
5. Became well known in an International Organization (on the state level)	5. 2 years pas
6. Became a SCUBA diver	6. 3½ years pas
7. Get married	7. 6 years fro
8. Become a doctor	8. 8 years fro
9. Developed a philosophy of Man's relationship to Man	9. 1½ years past
10. Realized that I am a "Steppenwolf"	10. 3 weeks past
11. Went to the monetarium	11. 2 weeks past
12. Had to turn down 3 girls who liked me	12. 3½ months pas
13. My sister was married	13. 14 months past
14. Realized that I've never been "happy"	14. 6 months past
15. Was bored "in bed"	15. 3 months pas
16. Made love to a sensuous girl	16. 2 months pas
17. Helped a girl w/ emotional problems	17. 1-1½ years ag
18. See my friends from this summer	18. 2 months ful
19. Join an oceanographic expedition	19. 15 years fro
20. Go living in the Virgin Islands	20. 4 years fro