FUTURE TIME PERCEPTION AS RELATED TO ANXIETY

APPROVED:

[Signatures of Major Professor, Minor Professor, and Dean of the Graduate School]
FUTURE TIME PERCEPTION AS RELATED TO ANXIETY

THESIS

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MASTER OF SCIENCE

By

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CHAPTER I

FACTORS RELATED TO TIME PERCEPTION

AS A FUNCTION OF ANXIETY

There has been much research on the temporal perspective of individuals under various conditions. D. H. Thor, for example, found that a person's time perspective varied as a function of the time of day (26). Rokeach found that the amount of time a person had to consider a situation [time availability to perceive], influenced rigidity and concrete thought (25). It has also been observed that the amount of stress in a given situation influences the major dimensions of perceptual functioning, including the perception of time (3, 24). As persecuted groups during World War II were:

Driven from place to place, oppressed, threatened, terrorized, often faced with an apparently closed and hopeless future, these subjects finally got into the habit of not thinking of the future and also stifling all memories of their past lives. They live only in the present . . . (2, p. 13).

Similar results were noted in numerous other studies (3, 6, 12, 14, 18).

Sociocultural factors have also been found to influence the perception of time. Bernot and Blancard believed that ethnic background was a major factor in the organization of the temporal perspective and what this perspective included (2).
Similarly, Leshan conducted an investigation to determine if there was a significant difference in the manner in which the social classes were oriented towards the concept of time. He found that the "high" classes were oriented towards the past—their history and record. The "middle" classes were found to be oriented towards the future—"what may happen." Finally, the "working" classes seemed to be oriented neither to the future nor the past; they exist in the present, having significantly shorter time-goal orientation than the other classes (20). A further study by Ellis seemed to confirm these findings (11).

Doob studied the responses of three African tribes to such questions as, "Is it true that making plans for the future is a waste of time?" He found that the more educated people showed an increased ability for temporal reasoning, while the less educated were concerned mainly with the present (10). Following a similar approach, Gulliksen found that occupation influenced the perception of time, especially the perception of the passage of time. The results seemed to indicate that, the more removed from tension the individual was at the time, the faster time seemed to pass (15).

It is fairly evident, then, that a person's physical and social environment is a significant contributing factor in the organization of the perception of time. The next obvious question to ask is, "Does the person's psychological environment enter into the determining of time perspective?" Byrd found
that, according to the results of a Cattell 16 Personality Factor Test, five out of six factors indicated increased anxiety in old age [median age: 75] (7). Also, according to Merleau-Ponty, the concept of death seems to be excluded from the temporal perspective in all ages, especially in old-age groups (21). This is also pointed out by Minkowski, who states that old age results in a dimming of past and future, with the principal orientation being in the present (22). It would seem, then, that the temporal perspective is greatly influenced by what is perceived to be threatening to the individual.

Several studies have been done with juvenile delinquents. Barndt and Johnson found that the future time perspective of juvenile delinquents was significantly limited in comparison with non-delinquent children of the same age (1). In a similar study, the delinquent was found to be present-oriented and quite similar to younger emotionally disturbed children (8). They were also noted to have a low level of anxiety (23). It is interesting to note that emotionally disturbed adolescents also show a limited future time perspective (19). Fraisse explains this in part by saying, "Generally speaking, the future only unfolds in so far as we imagine a future which seems to us to be realizable" (13, p. 172). As Bruner and Postman pointed out, perception is a function of the nature of the stimuli and the assumptions with which we receive them (6).
Concerning the pathological influences on the perception of time, Dobson's study shows a definite relationship between pathology and anxiety (9). This view is also held by Bergler and Roheim (4). While Minkowski said that, "Our life is essentially oriented towards the future . . . " (22, p. 279), he found this not to be true in pathological cases. Speaking of mental deficient's, "They see no further than enjoyment of the present; the rest is more or less outside the bounds of their appreciation" (22, p. 335). He also found this to be true of manics. LaGarza and Worche] discovered that schizophrenics had significantly poorer scores on space and time orientation tests (17). Wallace obtained similar results (27). Fraisse tells us that neurotics often obliterate the past and live only in the present or future [or vice versa] (13).

Finally, anxiety has been found to be a variable of time perception. Beier found a definite loss of "abstract ability and flexibility of intellectual function" under conditions of induced anxiety (3). Goldstein also noted that the "preferred behavior" of a person narrows in a situation of stress; behavior becomes "compulsive and stereotyped" (14). This view is also held by many others (16, 18, 19). Postman and Bruner state that, under conditions of anxiety,

Perceptual behavior is disrupted, becomes less well controlled than under normal conditions, and hence is less adaptive. The major dimensions of perceptual function are affected: selection of precepts from a complex field becomes less adequate and sense is less well differentiated from nonsense . . . " (24).
According to Fraisse, "The future perspectives of an individual depend . . . on his capacity for anticipating what is to come" (13, p. 176). "To sum up, time perspectives may be absent owing to a congenital or pathological deficiency or they may be banished by those who fear their threat; finally, they may be there, but be underestimated because they are submerged by the resonance of present impressions" (13, p. 189). In the final analysis, we find that, "extreme distortions of the temporal horizon . . . are determined by numerous factors, of which we have stressed the most important: age, education, social position, and also temperament and mental structure" (13, p. 198).

Of major concern in the present study will be the effects of anxiety on future time perception. As it has been shown that a person's perception becomes significantly limited in a situation of stress, it would also seem to follow that future time perception and anxiety would be closely related. In every nosological group considered, with the possible exception of the juvenile delinquent, a loss of future time perspective was noted in conjunction with the presence of anxiety. The study herein reported will be concerned with demonstrating that there is a definite relationship between anxiety and future time perception. On the basis of these data, the major hypothesis is that subjects with high anxiety scores, as measured by the IPAT Self Analysis Form, will have significantly shorter future time perception than those subjects with low
anxiety scores. Future time perception shall be considered as consisting of extension - the length of future time span which is conceptualized, following the suggestion of Wallace (27).
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CHAPTER II

METHODOLOGY AND RESULTS OF THE STUDY

The subjects utilized in this study were 86 college students, all of which were enrolled in freshman psychology classes. This should, for all practical purposes, eliminate the need for equating of age and education. As was previously stated, the main factor to be considered was the extension of future time perception. The following procedure was taken from Wallace(3), with some adaptations for the sake of simplicity.

The tasks:

1. Each student was given ten cards. They were to put their name and actual age on top of each card. "Tell ten events that refer to things that may happen to you during the rest of your life—from now until you die." No example was given. Their responses were completely spontaneous. Then the subjects were told to put each event on a separate card without numbering them. When this had been completed, they were told to "state how old you might be when ... by each event ... Try to be as specific as possible."

2. Each student was given a sheet containing fifteen life-events. They were to put their name and actual age at the top of this sheet. The instructions were: "These are fifteen statements describing common life events. I want you to state
how old you think you might be by each statement." For those events where the age given was indefinite or unanswered the subject was given credit for his or her age.

Your first grandchild is born?

You die?

You lose interest in sexual activities?

You are too old to be physically active?

Your son achieves his greatest success in life?

You retire?

Your youngest child leaves home?

Your mother dies?

You feel that you have reached old age?

Your last sexual intercourse occurs?

You have reached middle age?

Your father dies?

You can no longer have children?

Your first great-grandchild is born?

You can say that you have most of the things that you want?

On task 1: Extension - range of years between actual age and most distant age given.

On task 2: Extension - range of years between actual age and oldest age given.

The IPAT Self Analysis Form, authored by R. B. Cattell and I. H. Scheier, was administered during the same class period to determine anxious and non-anxious subjects. The
scale is described as "A brief, valid, and non-stressful questionnaire scale, measuring anxiety level in adults and young adults down to fourteen or fifteen years of age" (1). It is composed of forty questions to which the subjects could answer by one of three choices. The items on the IPAT were designed to show both covert and overt anxiety. For the purposes of the present study a general level of anxiety was used, derived from the total raw score.

A t test was used to determine whether or not there was a significant difference between the high anxiety and low anxiety group extension scores [extension scores being the range of years between actual age and oldest age given]. In addition, the scores on both Task 1 and Task 2 were correlated with the results of the IPAT. The mean difference between the performance on Task 1 and Task 2 was compared with regards to the high and low anxiety groups. Also, the mean Task 1 scores were compared between male and female groups.

The mean extension score for Task 1 was 30.49, with a standard deviation of 17.27; the mean extension score for Task 2 was 58.52, with a standard deviation of 11.09; and sten mean for the IPAT was 5.56 with a standard deviation of 1.96.

As described in the IPAT handbook, "Sten (standard ten) scales are fixed at a range of ten points running from 1 to 10 in equal-interval units, each one-half a standard deviation
in width ..." (1, p. 10). According to the handbook, a sten of one, two, or three indicates stability and relatively low anxiety, whereas a sten of eight, nine, or ten indicates definite psychological morbidity, or high anxiety. For the purposes of the present study, normalized sten scores were derived from the norms for the college student population (men and women together).

**TABLE I**

**CORRELATION BETWEEN MEAN TASK SCORES AND IPAT**

<table>
<thead>
<tr>
<th></th>
<th>Mean Score</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>Task 1</td>
<td>30.49</td>
<td>17.27</td>
<td>-.06</td>
</tr>
<tr>
<td>Task 2</td>
<td>58.52</td>
<td>11.09</td>
<td>-.20</td>
</tr>
<tr>
<td>IPAT</td>
<td>5.56</td>
<td>1.96</td>
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It can be seen that the extension scores on Task 1 and Task 2 were quite heterogeneous in nature while the scores on the IPAT were homogeneous with little variance. This might help explain the following results. The correlation between Task 1 and the IPAT scores was -.06 and between Task 2 and the IPAT, -.20. Obviously, there was a definite lack of relevant relationship shown between the two.

Due to the lack of positive results, further and more detailed analysis was made of the data. Those subjects who scored between stens 0-3 and 8-10 on the IPAT were placed
in low and high anxiety groups, respectively (1). There were
eighteen subjects in the low anxiety group and thirteen sub-
jects in the high anxiety group. The means of the two groups
were compared in respect to Task 1 [Task 2 was omitted because
of the relatively stable scorings and because it was decided
that its items were too much subject to current literature
and opinions]. The mean score of the low anxiety group was
34.5 and the mean score of the high anxiety group was 33.5.
This obviously did not constitute a significant difference.

TABLE II

HIGH AND LOW ANXIETY MEANS AND MEAN DIFFERENCES

<table>
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<th>Tests</th>
<th>Task 1 Mean</th>
<th>Mean Difference Tasks 1 and 2</th>
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<tr>
<td>High Anxiety</td>
<td>33.5</td>
<td>22.1</td>
</tr>
<tr>
<td>Low Anxiety</td>
<td>34.5</td>
<td>26.5</td>
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The differences [or range, as you will] of the scores
between Task 1 and Task 2 were measured and compared with
the high and low anxiety groups. The mean difference for
the high anxiety group was 22.1 and for the low anxiety
group, 26.5. The Fisher $t$ test of significance was used
and showed a $t$ of -.66 with a "df" of 29. The results
showed the difference between the two groups to be at the
0.5 "$P$" level, in other words, there was not a significant
difference between the two groups.
As has been suggested in recent literature, sex differences have played an important part in the results of numerous studies. Davids, et al. (2), however, found, using a story completion technique, that there was essentially no difference in time orientation in delinquent boys and girls. Due to these conflicting opinions, the mean Task 1 scores were compared between the male and female subjects. There were thirty-two male subjects and fifty-four female subjects. The mean score for the male subjects was found to be 31.5 and the mean score for the female subjects, 29.9. Once again it was determined that there was no significant difference between the two sexes.

While these results were essentially negative, the Fisher t test of significance between Task 1 and Task 2 showed a very significant difference, specifically, a t of 12.69 with a "df" of 84, much beyond the .01 "P" level. In other words, the lower mean extension score on Task 1 [where the subjects were required to think of ten future events] was significantly different from the mean extension score on Task 2 [where the subjects merely responded to a previously prepared list of fifteen life-events]. The standard error of this difference was 2.23. It would seem as though this would merit some further investigation.
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CHAPTER III

DISCUSSION OF THE RESULTS

As was previously mentioned, the heterogeniety of the Task 1 and Task 2 scores do, to a degree, explain the lack of a significant positive correlation with anxiety as measured by the IPAT. It was noted that the mean score on Task 1 [30.49] was significantly lower than the mean score on Task 2 [58.52], this difference being significant at well beyond the one per cent level of probability. The lower mean score of Task 1 could be best explained by the fact that the subjects were forced to draw on their own resources and imagination in order to think of ten life-events. The method of presentation was purposely designed so that the subject would be confronted with Task 1 first, in order to prevent the influence of suggestion. In other words, the performance on Task 1 was completely spontaneous, allowing no previous practice or preparation. Consequently, it was decided that Task 1 was a more representative and valid test of the subject's perception at that time.

Task 2, on the other hand, required that subjects do nothing but estimate what age they thought they would be by each life statement. These life statements were previously prepared, so that the subjects neither had to "invent" them
under a time pressure nor use their own perceptual projection. This would seem to have been much less threatening, necessitating less ego involvement on the part of the individual. Another possible factor explaining the higher mean score could be that, as the subjects did not have to think of the fifteen life-events on Task 2, they probably responded to items, which, if left to their own devices, they would have been unable to perceive. As an example, there were numerous cases where subjects were unable to perceive of their own death on Task 1 and yet were forced to estimate how old they might be on Task 2.

Finally, a factor also possibly influencing the performance on Task 2 was the effects of current literature and popular opinion. For example, a great many subjects reported the same age for retirement. Much has been said and published on the topic of retirement, especially with reference to such questions as "when should a person retire," etc. As a result of being exposed to this type of literature, the subject's estimate of his or her age of retirement was greatly influenced, if not solely determined. Along the same lines, there is reason to believe that the person's environment also had a great deal to do with their Task 2 performance. In other words, the age the parents retired, or relatives retired was probably a determining factor. This is not to say, of course, that these factors and influences were not also very much present in Task 1, but that, because of the less taxing and
less original nature of Task 2, these variables were of
greater magnitude and more extensive availability.

The question might also be investigated as to whether
or not the items on Task 1 and Task 2 actually measure
future time perception. One would be very hard put, indeed,
to demonstrate that future time estimation was not being
measured instead. The question is, then, are the responses
given by the subjects mere estimations or predictions of
the future and not actually perception as such? Or, are these
responses actually indicative of a perception or projection
of the self in the future. While these measurements served
their purpose in the Wallace study (5), there is no assurance
that they may not merely represent mere spontaneity and origi-
inality in the subjects. This question, of course, cannot be
answered with the data available. For the present, it might
be advisable to qualify the meaning of future time perception
in this study with "as measured by the employed methods" and
no more. Indications are, however, that further study would
be necessary in this regard to provide for a more comprehensive
conclusion.

Thor (4) mentioned an interesting fact with regards to
time perspective. This was, that past and future events appear
less distant at mid-day than at early morning or late evening.
In this respect, as all testing for this study was administered
in the early morning, a certain amount of control was used.
It could be that, had the testing been conducted at mid-day,
more pronounced results would have been noted. At any event, this variable was accounted for in all groups. In relation to this, however, there were certain variables which could not be controlled for reasons of practicality. Ideally, all subjects would have been matched on such variables as having eaten an adequate breakfast that morning, the avoidance of using those subjects under a significant degree of stress at the time, i.e., social dilemmas, examinations, etc. These variables, while they may seem insignificant, could very well have had a definite causal effect on performance.

As was previously mentioned, the data were analyzed for possible male and female differences. No significant discrepancies were found between the performance of the two groups.

Another factor to consider concerning the apparent lack of a significant relationship between anxiety and future time perception found in this study is that this relationship may only be present in the pathological groups—the extremes. The only studies available in the current literature at this time that show significant results with regards to future time perception are those investigating these "extremes" groups. Wallace (5), for example, found a positive correlation with future time perception [he called it perspective] in schizophrenics versus non-schizophrenics. It would appear, then, that the "normal" population, if this does apply here also, has much more subtle indications of a relationship and must
therefore be tested with more subtle and sensitive means. It was pointed out before that people as a whole live more in the present than in the past or future. Without extreme stress or anxiety, then, it would be extremely difficult to detect any diversion from this norm. To obtain very obvious results would necessitate using the more pathological nosological groups.

Whether or not the IPAT actually measures an anxiety which is related to future time perception is also questionable. What is being measured may very well have little to do with the type of anxiety that would result in a constriction or expansion of perception. For that matter, it cannot be shown for sure that the IPAT is measuring anxiety at all. As Cattell (2) pointed out, anxiety is often confused with stress reactions and neurotic-personality maladjustment. Wallace (5) found positive results with the Taylor Scale of Manifest Anxiety, and yet the IPAT may be measuring some aspect of anxiety [or stress] of a completely different nature (3), different enough to confound the results.

Bruner, et al. (1), also found that tension does not immediately affect perceptual organization, but that after tension is reduced, there is a "post-tension magnification," i.e., perceptual objects related to the source of tension remained "normal" whereas, when the tension was removed, these objects magnified in size. Anxiety, as measured at any one point in time, then, may not significantly affect an individual’s perception, namely, that of the future. This
may, in part, explain why there was a lack of a significant relationship found in this study. The IPAT was administered at the same time the subjects were called upon to perform the tasks. Better results might have been found, had there been more than one measurement of anxiety, e.g., had the design of the study incorporated a "before" and "after" testing.

A confounding variable that also may have been present in regards to the measurement of anxiety could have been that of the subjects interpretation of, and performance on the IPAT. "Test-sophistication," in other words, may have influenced the subject's performance. In any testing situation where the so-called "pencil and paper" test is being used, there is the possibility of the subjects answering the test items as they think the examiner wants them to. As a result, it might be expected that the responses would be markedly confounded in both directions, due to compensation. In trying to respond to the test items in a certain way [what the subject thinks is the right way], over-compensation takes place, resulting in a confounding of the data.

It can be seen that such compensatory efforts on the part of the subjects would yield numerous "extreme" cases which would appear apparently at random, without any detectable relationship to any one variable. There were several examples of this type of "extreme" case in this study. For instance, one subject had an extension score on Task 1 of 9, an extension score on Task 2 of 59, and an IPAT sten of 7
[well within the "normal" range]. At the same time, another subject had a Task 1 extension score of 8, a Task 2 extension score of 76, and an IPAT stem of 3. There is obviously no relationship shown between the task scores and the IPAT scores, as both "high" and "normal" anxiety subjects made similar task scores. The only explanation that could be made would be that of compensation on the part of the subjects.

Wallace (5), in his study, used not only "extension" in measuring future time perception, but also what he called "coherence." Not only did he have his subjects tell "how old they might be when . . ." but also asked them later to list the events in the order they thought they might happen to them. The coherence score was obtained by correlating the ages given on a task with the order in which they were listed. In other words, the coherence score was quite similar to a "consistency" check. This, in a measure, helped take into account the above-mentioned compensation. The use of a "coherence" score obviously makes for a more sensitive measure, less apt to be confounded. In all probability, had this technique been used in this study, more positive results would have been found. It would seem that future studies of this nature would benefit by including coherence measurement into the design.

In summary, it could be said that there were several factors which apparently explained the negation of the original hypothesis. Two of the most important of these factors
were [1] that more sensitive measures are needed to measure both anxiety and future time perception, measures that are not subject to confounding by subject and environmental variables, and [2] more "extreme" pathological groups in order to get more positive results. This is not to say that the possibility of a null hypothesis has been ruled out. Before an acceptance of the null hypothesis is made, however, these variables should be investigated.
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