Convergent and discriminant validity of the Experiential world inventory

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CONVERGENT AND DISCRIMINANT VALIDITY OF
THE EXPERIENTIAL WORLD INVENTORY

By

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ABSTRACT

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The present investigation examined the convergent and discriminant validity of the Experiential World Inventory (El-Meligi and Osmond, 1970) through the use of the multi-trait multimethod matrix approach of Campbell and Fiske. Data were obtained from 101 subjects diagnosed as psychotic and 21 residents of a drug rehabilitation program on four objective tests, twelve self ratings and twelve staff ratings. Minimal support was found for the convergent and discriminant validity of this inventory. It was concluded that the EWI does not measure the construct variables and/or traits it was intended to measure. What it does appear to be assessing is global pathology or degree of adjustment as evidenced by a person's ability to describe himself in a socially desirable manner. Specific limitations of the instrument were noted and suggestions were made regarding future research with the EWI. The assumptions underlying the traditional trait approach to personality were questioned and an alternative perspective emphasizing the analysis of person variables and situational variables was endorsed.
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Although the important role that perception can play in an individual's organization, interpretation and relations with his world has long been recognized (Rorschach, 1942; Lewis and Piotrowski, 1954; Kaplan, 1964; Chapman, 1966), no self-report measure has been developed to date which can reliably and validly assess the extent to which disturbed perception contributes to difficulties in interpersonal functioning and/or psychopathology. It is important at this point to clearly describe what is meant by perception. El-Meligi and Osmond (1970) define perception as not only sensation and impression, but also a complex and global activity in which are implicated recognition, selection, association, imagination, anticipation, and attribution of the significance of perception. To them perception is an active process of organizing and interpreting reality. El-Meligi and Osmond further state that perceptual disturbances are a major contributor to severe problems in living, and that at least a partial explanation for peculiar affect, behavior and thinking can be provided through a consideration of these perceptual differences. When they refer to disturbances
in perception, El-Meligi and Osmond mean more than dysfunctions of specific sensory modalities or gross sensory abnormalities such as hallucinations. In addition, they include: "a wide range of phenomena such as breakdowns in perceptual constancy, changes in appearance of objects, peculiar modes of spatial organization, changes in perspective, ascribing new meanings to objects and events, body image peculiarities, experiences of identity change, distortions in perception of people, and alterations in time sense (p. 1)." Basically, they are referring to a maladaptive and/or interpersonally discomforting lack of correspondence between the way an object or event is commonly perceived and the way a given individual perceives it under a given set of conditions. They propose that the close connection of these phenomena with related symptoms, such as mood swings and delusions, will become more apparent upon more sensitive consideration.

In an attempt to assess the extent to which disturbances in perception can contribute to problems in living and/or pathology, El-Meligi and Osmond (1970) developed the Experiential World Inventory (EWI). Before attempting to assess the contribution that the EWI can make in the psychotherapeutic enterprise, it is helpful to know the authors' purposes in developing the test and the underlying rationale. El-Meligi and Osmond's intention in constructing the EWI was to develop an effective diagnostic tool which could supplement the existing instruments through a quantification of
perception and eventually lead to an integrated theory of perception. The test rationale derives from a phenomenological approach to psychopathology. Specifically, the phenomenological approach emphasizes the premise that a person's behavior is determined by the phenomena of experience rather than by objective, physically described reality, and can only be understood in the context of the total experience. Therefore, to understand a person's behavior we must discover the meaning that he assigns to it. This position contends that we can only gain access to a person's phenomenal or experiential world; that is, the world as experienced by him at a given time, with his assistance. It is felt that the EWI can assess abnormality as reflected in the immediate experience of disturbed individuals and therefore fulfill its main objective of "helping the clinician learn how the client perceives the world about him, how he views himself in relation to it, and how he feels about the changes occurring within himself (p. 11)." Through a quantification of a person's performance in various hypothesized perceptual dimensions, that they feel will lead to a more thorough understanding of his subjective experience, the authors intend to assist the client and therapist in more specifically articulating the nature of the person's perceptual experiences and the necessary resolutions of his problems in living. The authors conceive of psychotherapy sessions as a mutual undertaking in which the client and therapist are partners in a common enterprise.
After the client reveals his perceptual world to the therapist through the use of the EWI and subsequent interviews, it is felt that his behavior can be altered by revealing to him his modes of perception, and how they affect his thinking, moods, and interpersonal relations. The EWI can then be used in the future to monitor treatment effectiveness and client progress.

The EWI is a paper and pencil test which can be administered individually or in small groups. While there is no time limitation, people normally take between 40 and 60 minutes to complete it. The EWI consists of 400 true/false questions arranged into 8 scales designed to measure different though interrelated experiential dimensions. El-Meligi and Osmond (1973) state that "the items have been compiled from a variety of sources: (1) personal documents such as autobiographies of mental patients (Schreber, 1955; Kaplan, 1964; Landis, 1964); (2) verbal reports of patients examined by the authors; (3) verbal reports of normal subjects about their experiences with hallucinogens; and (4) from phenomenological and existential literature (Jaspers, 1963; Camus, 1942, 1947, 1952; Sartre, 1943; Schilder, 1950; Dostoyevsky, 1951) (p. 345)."

The EWI is concerned with 4 major areas of experience: perception, thinking, affect, and volition. The first five scales (Sensory Perception, Time Perception, Body Perception, Self-Perception, and Perception of Others) deal with different aspects of perception in an attempt to determine
the idiosyncratic manner in which the client's phenomenal world is organized; that is, how he views the world at that moment. The remaining three scales (Ideation, Dysphoria, and Impulse Regulation) are concerned with thinking, affect, and volition. The scales have been divided into equivalent halves, allowing repeated testing when desirable. In further describing the construction of the inventory El-Meligi and Osmond (1973) note that "all scales are scored in the pathological direction: higher scores indicate greater abnormality and lower scores indicate less abnormality. Individual items are weighted according to the degree of abnormality they imply. Thus some are given a weight of 2 while others are given a weight of 1. The weights have been determined empirically (El-Meligi and Osmond, 1970) (p. 345)." Each item is contained in one scale only and in this sense the scales are mutually exclusive as the authors contend. However, the relatively elevated positive inter-correlations (.44-.88) of the scales reported in the EWI manual (El-Meligi and Osmond, 1970) seriously calls into question their factorial independence. In addition, some question has been raised concerning the homogeneity of the items composing some of the EWI scales.

El-Meligi and Osmond (1968, 1970, 1973) have reported a considerable number of studies related to the reliability of the EWI scales. They reported (El-Meligi and Osmond, 1973) split-half reliability coefficients for each scale that were obtained from twelve samples of subjects: six samples of
psychiatric patients, one sample of prison inmates, and five samples of normal subjects. The total number of subjects was 1,865. The characteristics of each sample including the subject's diagnosis, number of subjects, sex, and split-half reliability coefficients on each scale can be found in appendix G. In addition, the relative reliability of the scales with different subject populations can be assessed by examining the separate means and ranges of reliability coefficients obtained from the various populations sampled (see appendix G). Examination of the results of the previous studies revealed that the corrected (Spearman-Brown) split-half reliability coefficients ranged from .66 to .96 in the six clinical groups, .57 to .92 in the five normal groups, and from .50 to .84 with the prison inmate group. The split-half reliability coefficients were satisfactory across all groups with 66 percent of them exceeding .80. Particularly noteworthy was the finding that 87 percent of the split-half reliability coefficients exceeded .80 in the psychiatric populations sampled. The coefficients were highest in the psychiatric groups, followed by the normals, with the prison inmates obtaining relatively lower correlations. The time perception scale yielded statistically significant, yet consistently lower, correlations across all groups emphasizing the heterogeneity of its content. The previously reported split-half reliability coefficients indicate that the EWI scales possess a fairly high degree of internal consistency
and that psychiatric patients, in particular, respond to the two halves of the test in a highly consistent manner.

As an additional test of the internal consistency of the scales when various client populations were assessed, the authors correlated the scores on each half of the scales with the scores on the full scales. This was computed for each of the psychiatric categories employed in the final standardization of the test. Correlations were quite high with over 80 percent of them exceeding .90. Therefore, it appears that either half of the EWI may be substituted for the entire test. This finding has particular applicability to situations where time is a factor or retesting may be desirable.

El-Meligi and Osmond (1970) reported test re-test stability coefficients for three different groups. A table containing information regarding the sample sizes, sex of subjects, and each group's test re-test stability coefficients on each scale can be found in appendix G. The 47-member psychiatric group's stability coefficients ranged from .59 to .73 after an average time lapse of 34 days. A second group composed of 51 chronic male alcoholic patients ranged from .74 to .92 after an average time lapse of 10 days. The alcoholic group was much more homogenous than the psychiatric group. As El-Meligi and Osmond (1970) pointed out "all members were males; all were voluntary patients; they were much less varied with regard to the secondary diagnosis, and the time lapse between the test and re-test was much shorter than
that of the former sample. In view of these factors, the stability coefficients were considerably higher (p. 26)."
The third group contained 76 normal male college students and ranged from .23 to .74 after an average of 95 days. The authors claimed they expected these reduced correlations since the EWI attempts to measure pathological experiences rarely found among normal subjects. They stated that this tends to minimize the variance and so reduces the size of the correlation coefficients. However, the finding that six of these eight stability coefficients exceeded .60 after 95 days calls into question the strength and logical consistency of this assertion. It would appear warranted to conclude that the EWI has demonstrated an adequate degree of test re-test stability. However, a conclusion cannot be made at this time concerning one of the test's other stated objectives--whether or not the EWI can accurately evaluate change in the client.

Several studies have been reported by El-Meligi and Osmond (1970, 1973) which provide information related to the validity of the EWI as an instrument for the assessment of psychiatric illness. As El-Meligi and Osmond (1973) have noted, the validity studies fall into three general categories: 1) Studies which showed that the EWI agrees with psychiatric judgment; 2) Studies of score configurations as the basis for differentiation between groups; and 3) Correlational studies relating certain scales to other psychological tests. El-Meligi and Osmond (1970) reported four studies related
to the EWI's concurrence with diagnoses furnished by fully qualified psychiatrists. Since the authors stated that "the primary purpose of the EWI is to measure the severity of pathology as reflected in the immediate experience of patients," they felt that "the validity of the test as a measure of the severity of pathology would be supported if normal subjects obtained significantly lower scores than any psychiatric sample; and if the scores of different psychiatric samples were proportionate to the (presumed) severity of their disorders (p. 28)."

In the first study reported, four samples of male subjects were evaluated: 1) schizophrenics (N = 161); 2) alcoholics (N = 200); 3) neurotics (N = 33); and normals (N = 181). The obtained "t" values for the raw score differences on the EWI scales between the above groups can be found in appendix H. The results of this study indicated that: 1) schizophrenics could be strongly differentiated from normals on all scales (p < .005); 2) all scales with the exception of Scale 7, Dysphoria, were able to differentiate between schizophrenics and alcoholics (p < .01). In addition, the schizophrenics' scores were more elevated on each scale; 3) the perceptual scales (scales 1 to 5) differentiated the higher scoring schizophrenics from the neurotics (p < .05). The differences on the last three scales were not significant but in the predicted direction; 4) alcoholics obtained more elevated scores than neurotics on all but Scale 8, Impulse
Regulation. However, none of the differences were statistically significant; and 5) three scales, Self-Perception, Ideation and Dysphoria, differentiated between normals and neurotics \( (p < .01) \). The basic scales' raw scores were able to discriminate very well between schizophrenics and those subjects suffering from some presumably less severe disorder such as alcoholism or neurosis. However, the raw score differences were not as impressive in distinguishing between a neurotic and alcoholic group or between neurotics and normals. In addition, no attempt was made to more precisely differentiate between patients within these broad categories. The results of this study would seem to be mainly supportive of the employment of the EWI as a gross screening instrument—hardly what the developers had in mind in constructing it.

In the second study a group of 88 male alcoholics was compared with 88 normal males. Since the normals had been younger and more educated than their alcoholic counterparts in the previous study, it was decided to match the groups in regard to age, education, race, and as much as possible on vocation and religious affiliation. The mean scores, standard deviations, and "t" values for the significance of differences between these two groups can be found in appendix H. The raw scores obtained by the alcoholics were more elevated than those obtained by the normals and clearly differentiated between them on all scales \( (p < .005) \).

The third study compared the performances of a group of
57 male schizophrenics with 27 male neurotics. The means and standard deviations of the raw scores and "t" values can be found in appendix H. An examination of the data indicated that raw scores on all scales, with the exception of Dysphoria, strongly differentiated between the two groups (p < .01). As expected, the raw scores obtained by the schizophrenic group were consistently more elevated.

In the fourth study a group of 115 female psychotics (schizophrenics or manic-depressives) was compared to a group of 115 female non-psychotic patients (neurotics or behavior disorders). The average age of the psychotics was 41.99 years compared to 33.00 years for the non-psychotic patients. The patients were matched for education, with the psychotics having obtained 11.76 years of education and the non-psychotics 11.67 years. The mean raw scores, standard deviations, and "t" values for the significance between means can be found in appendix H. Inspection of the data revealed that, with the exception of Dysphoria, all scales discriminated between the psychotic and non-psychotic group (p < .01). As predicted, the psychotics consistently obtained more elevated raw scores.

In summary, the validity studies discussed thus far indicate that the EWI basic scales can discriminate at a very high level of significance between normal subjects and subjects diagnosed by psychiatrists as suffering from various types of disorders. The lone exception was the Dysphoria scale which is often as elevated with neurotic clients. In addition, they
are able to adequately differentiate between psychotic and non-psychotic groups of patients. However, no attempt was made to precisely differentiate between patients within these broad categories. The contention that the EWI can concur with psychiatric evaluations would be more strongly supported if these finer discriminations could be demonstrated. The studies reported thus far support the position that the EWI could prove helpful as a gross screening instrument, and are indicative of the direction that more definitive validity studies of this nature could proceed.

Through employing combinations of scores and/or profile configurations the authors state it will be possible to arrive at more accurate differential diagnoses. They reported (El-Meligi and Osmond, 1970, 1973) the results of a few pilot projects completed thus far.

The first study (El-Meligi and Osmond, 1970) found that the ratio composed of the average of Sensory Perception and Body Perception to Dysphoria could significantly differentiate schizophrenics from depressive patients (p < .01). The depressive patients, whether neurotic or psychotic, tended to obtain more elevated (that is, more pathological) scores on Dysphoria than on the two perceptual scales. Conversely, the schizophrenics' scores were higher on the perceptual scales.

A second configuration they found useful in differentiating between schizophrenics and depressives was the ratio of Self-Perception to Perception of Others. The schizophrenics'
score on the Perception of Others scale was more elevated than their score on the Self-Perception scale. The reverse was consistently true for the depressives. This single ratio was able to significantly differentiate between the two groups \( (p < .01) \). The authors interpreted this finding as indicating that schizophrenics develop distorted perceptions of people more often than of themselves, while depressives develop distorted perceptions of self more frequently than of other people. Unfortunately these cited ratios were not sufficient to make a similar distinction as basic as one between schizophrenics and neurotics.

El-Meligi and Osmond (1973) reported that examination of elevations of particular scales was helpful in differentiating between two groups of delinquents— those with a history of violence and those with a history of drug abuse. They noted that the most frequently elevated scales from the records of violent delinquents were Sensory Perception and Perception of Others. In the drug abusers, Ideation and Impulse Regulation were the most frequently elevated scales. However, since this post hoc study provided no statistical information, it was difficult to evaluate the significance and implications of these results.

In summation, these preliminary findings suggest that relationships between EWI standard scores, irrespective of their magnitude, may prove helpful in differential diagnosis. Two obvious shortcomings of the research efforts thus far are
the small number of differentiations between populations attempted through these comparisons of particular scale elevations, and the limited application of the proposed ratios. Therefore, the above research findings must be considered as merely suggestive of the possibilities that may be available for achieving high levels of accuracy in differential diagnosis using configural analysis with the EWI. The authors speculated that further research relying upon indices which consider both the magnitude of scores and their interrelationships will significantly improve differential diagnosis. At this time it remains an interesting empirical question.

The third category of studies relevant to the validity of the EWI encompasses those correlational studies relating certain EWI scales to various other psychological tests. In a study conducted with a group of 86 male alcoholic patients (El-Meligi and Osmond, 1970), the MMPI scales found to have the highest correlations with the EWI scales were Sc, Pt and Pa. The entire table of intercorrelations of the EWI scales with themselves and with the MMPI scales can be found in appendix H. Upon examining this pattern of correlations the authors stated that "since Sc and Pa were derived from psychotic patients, and since Pt appears very often as a high point in MMPI profiles of psychotics, it would appear that the EWI is best suited for the detection of psychoticism (p. 44)." However, the authors have not reported any data bearing upon the relative ability of these two instruments in discriminating psychotics from other clients. Another notable correlation
emerging from this study was the MMPI D with Dysphoria \( (r = .62) \). Since both scales were designed to measure depression, this finding strengthens the authors' contention that the EWI Dysphoria scale is measuring what it purports to assess.

Undoubtedly the two most crucial results of this study were: 1) the obtained correlations between the MMPI Sc scale and all of the EWI scales, and 2) the level of intercorrelations discovered among the EWI scales themselves. The rather high correlations obtained between all of the EWI basic scales and the MMPI Sc scale (range of .50 to .67) may be indicating that the EWI is not contributing a considerable amount of new information about these subjects. Perhaps even more revealing was the extremely elevated level of intercorrelations among the EWI scales themselves (range of .44 to .88). This finding alone, resulting from the research efforts of the instrument's founders, seriously calls into doubt the factorial independence of the EWI's basic scales. The implication is that the EWI scales may not be assessing distinct dimensions of experience as El-Meligi and Osmond contend.

As additional support for the validity of the EWI, El-Meligi and Osmond (1970) have cited small but statistically significant correlations obtained between the EWI and a few instruments of questionable validity such as the Body Cathexis-Self Cathexis Scale (Secord and Jourard, 1953) and Body Sophistication (Witkin, Lewis, Hertzman, Machover, Meissner and
Wapner, 1954). This certainly appears to be an area in which additional validation studies are needed before any unequivocal statements can be made regarding the validity of the EWI. While some minimal support for the EWI's validity has been documented through the obtained correlations of its scales with other psychological instruments, it appears that more questions have been raised than answered. Perhaps one of the most needed studies in the near future is a factor analysis of the EWI to determine the extent of the factorial independence of the scales, and precisely just what factors are being measured.

A small number of fairly promising experimental projects employing the EWI have been published thus far. Bonneau (1975a) noted that counselors in high schools and colleges were often presented with a fairly large number of students who were experiencing extreme emotional difficulties during these transitional years of their lives. From discussions with these counselors, he realized that many of these students' problems had gone unnoticed for months or even years prior to their becoming so pervasive as to impair the students' social and intellectual functioning. It was felt that an instrument which could be used to screen the students and detect these psychological difficulties before they have had a chance to become incapacitating would be a significant contribution. Such a test would need to be a group test, capable of being machine scored, and with a language easily
understood by the majority of adults and adolescents. They reported a study in which 37 college students who were on scholastic probation were compared to 237 students whose studies were progressing adequately. The two groups of students were matched for age and intellectual capacity. The scholastically troubled group scored significantly higher on all of the EWI basic scales (p<.01). The author hypothesized that this apparent differential utilization of intellectual capacity could have been due to psychological problems in the scholastically troubled group. However, this inference must be considered as merely speculative at this time due to the small number of subjects examined and the post hoc nature of the study. If the author was able to demonstrate a relatively high level of predictive accuracy in a future study, he would considerably strengthen his case for utilization of the EWI as a screening device with high school and college students in schools inclined toward such an active approach.

Bonneau (1975b) described a large scale project which attempted to measure what he labeled "the evolution of personality changes in a population of normal adolescents." He attempted to accomplish this nebulous task by studying their perceptual world through the use of the EWI. It was hoped that some information would be obtained regarding trends and/or stages of personality development in normal adolescents as well as additional normative data concerning the performance of this age group on the EWI. The 13,500 subjects
were nearly all of the junior high school and high school students in the city of Quebec, Canada, between the ages of 13 and 19. The only students excluded from the study were those who were in special education classes. The students were tested in groups of 30 and the results were scored by machine. Comparisons were made between sexes at each age level as well as between the various age levels tested. Among the vast number of observations resulting from the examination of the obtained data were the following: on those scales dealing with sensory stimulation such as Sensory Perception and Body Perception the adolescents demonstrated a consistent evolution in their performance, with the obtained raw scores decreasing with age. The demonstrated differences between the boys and girls were smaller here than in the other areas tested with the boys' raw scores converging to the level of the girls' by the age of 15. As far as perception of time was concerned, there were no significant differences reported between the sexes. There were some age differences, however, with those students 12 to 13 years of age obtaining significantly more elevated raw scores than those students 14 to 18 years of age. There appeared to be no differences between the sexes in mental functioning—as measured by the Ideation scale. However, performances upon this scale were marked by a gradual but consistent increase in difficulties in concentration with age. The adolescent period seems to be a very difficult time for both sexes in terms of self-perception,
perception of others and dysphoric affect. A few notable additional observations were: girls aged 17 to 19 have a poorer body perception than boys do; boys' scores upon Impulse Regulation were considerably more elevated between the ages of 12 to 16, with the girls demonstrating less stable scores at ages 17 and 18; and a slow but gradual amelioration of impulsive, irrational, and uncontrollable difficulties as the adolescents grow older. It was found that teenagers constantly produce higher raw scores than do the adult patient groups. This was especially apparent on the scales of Sensory Perception, Perception of Others, and Impulse Regulation where difficulties of adaptation, lack of self-control and intolerance are apparent with teenagers.

The results of this particular investigation were difficult to interpret for a number of reasons. First of all, the author did not report the levels of significance of the differences between the various sexes and/or age groups compared. This made his broad generalizations concerning age trends in certain perceptual dimensions difficult or impossible to evaluate. In addition, his reporting of this vast amount of data was lacking in organization and coherence. From the cursory statements that he did provide, one can only haphazardly piece together the principle conclusions and speculate about the omitted observations. Furthermore, it still seems premature to conclude that the scales are factorially independent and measuring what they purport to
measure. Perhaps a more cautious acceptance of the findings regarding trends in adolescence is indicated at this time. However, Bonneau has definitely contributed a significant first step in the extension of the use of the EWI to normal adolescents by obtaining normative data for this group.

Bonneau (1974) attempted to extend the use of the EWI to a group of people that was not suffering from discernible psychiatric symptomatology, but who, nevertheless, had a long history of maladaptive behavior. The subjects he chose for his study were 34 men convicted of murder. Bonneau administered the EWI to these men, performed an analysis of the frequency of various scale elevations, and arrived at the following results and conclusions. The most elevated scale was Perception of Others, followed by Impulse Regulation, Sensory Perception and a supplementary scale labeled Hyperesthesia, i.e., heightened responsivity to stimuli. The Perception of Others scale was significantly more elevated in this group than the Self-Perception scale. An additional supplementary EWI scale designed to measure anxiety was nearly always the lowest. Bonneau interpreted the heightened Sensory Perception and Hyperesthesia scales as indicating poor perceptions of various situations and a tendency toward excessive reactions in these individuals. He speculated that the combination of the elevated Impulse Regulation scale and very low Anxiety scale was representative of impulsive individuals who experience minimal anxiety regarding acting out. In addition,
he conceptualized the significantly greater elevation of Perception of Others compared to Self-Perception and the above pattern as indicating that these individuals project responsibility onto others and are basically aggressive. Based upon these results and inferences Bonneau concluded that the EWI has shown its usefulness in understanding and working with prison inmates. While his inferences certainly coincide with behavioral characteristics commonly attributed to this group of individuals, Bonneau's enthusiastic endorsement and conclusions must be cautiously considered for a number of reasons. First of all, he provided no tables of information concerning the absolute level of the elevations—raw or scaled scores—that these prisoners obtained on each scale. Secondly, he furnished no data related to the level of statistical significance of the raw or scaled score differences between various scales. Thirdly, he provided no information concerning the percentage of time that the most elevated scales were the high point. Without information of this nature, it is impossible to evaluate his results and difficult to apply them meaningfully to efforts with similar prison populations. Given the post hoc nature of his results and the lack of any control groups, we have no information concerning the EWI's ability to discriminate the tested prisoners' profiles from other prisoners. In addition, given the nature of these subjects' offenses, it is doubtful that the author's tentative conclusions can be generalized beyond
the population examined. However, Bonneau's results were fairly congruent with traditional conceptions of these prisoners' behavioral tendencies and personality characteristics, and lend some measure of support to his contention that the EWI may prove helpful in understanding and successfully working with various groups such as prison inmates.

Bonneau (1974) also mentioned that the EWI has been shown to be helpful in detecting schizophrenia among prisoners, in differentiating between prisoners who are inclined toward violence and those who are inclined toward drug abuse, and in detecting prisoners who are suicide risks. However, no information has been published to date regarding the possible application of the EWI to these tasks.

Groesbeck, D'Asaro, and Nigro (1974) found the EWI to be useful in assessing the effects of a diet-vitamin program with 28 male county jail inmates. There were two groups participating in this eight-week study; an experimental group (N = 21) who received vitamin supplements, and a placebo group (N = 7). All participants were exposed to nutritional education and diet changes. Psychological test scores of participants were also compared to scores of non-participants. The objective of this study was to observe the relationship of optimization of nutritional intake to changes in the direction of rehabilitation of the prisoners. The results included the findings that the experimental group demonstrated significant improvement in previously impaired perception as measured by the EWI (p < .05), and a concurrent
improvement in morale, mood and self-motivated behavior as measured by self-reports and staff ratings. Significant deficiencies noted in the design of this study were: 1) participants in the study were volunteers, probably well motivated to begin with, and had atypically lower average scores on the EWI compared to the remainder of this prison inmate population before the diet-vitamin program began; 2) because of the diet education, participants were aware of the expected outcomes of the study, and may have been influenced to report the expected results; and 3) the placebo control group for vitamins was much too small. These methodological limitations qualify the amount of change that can be attributed to the presently reported diet-vitamin intervention program and render the results as simply suggestive. However, the EWI has apparently demonstrated its potential usefulness in experiments of this nature to the extent that further investigations including this instrument seem warranted.

Sinnett and Bates (1974) administered the EWI under two instructional sets to 40 subjects who had previously experimented with various drugs but were not addicts. The median age of the 23 males and 17 females was 20 years. The subjects were their own controls and were assigned at random to an active-normal or normal-active sequence of test sets. The active set involved taking the test while retrospectively recreating one's most memorable psychedelic drug experience.
The normal set involved taking the test under standard directions. The active set produced markedly more elevated scores than the normal set ($p < .001$). The median T-scores for all scales were 61 for the active condition and 54.5 for the normal condition. There was no significant order effect. The authors concluded that the EWI "seems to have potential for the study of altered states of consciousness generally and psychedelic experiences particularly (p. 206)." The results of this study definitely emphasize the potency of instructional sets with the EWI and the necessity for standard directions in normal use of the instrument. The present investigation's results must be interpreted cautiously since they were obtained as a consequence of retrospective recreations of the psychedelic experience rather than ratings made during the actual experience. However, these significant scale elevations support the employment of this instrument in studies attempting to understand and delineate the unique experiential aspects of "altered states of consciousness" reportedly experienced by normal individuals.

A small number of studies have been published supporting the capacity of the scales to measure changes in perception which may be caused by biochemical imbalance. The first of these was reported by El-Meligi and Osmond (1973) and involved measuring changes in EWI scores attributed to the menstrual cycle. The inventory was administered to 29 female college students one to three days before menstruation or during
menstruation. All subjects were normal volunteers. Their scores were compared to 184 normal college females. Examination of the data revealed that the menstrual group obtained higher scores on all scales than the control group, the differences being highly significant throughout. The authors concluded that the menstrual tension experienced by many women is not simply a mood change, but is also a function of perceptual alterations. While this study seemed to support the assertion that the EWI can measure changes assumed to be due to biochemical imbalance, it might have provided a more convincing demonstration had it also used the subjects as their own controls to insure comparability of the groups. Nevertheless, these results seem to provide some preliminary support for the assertion that the EWI can be of assistance in monitoring perceptual changes related to biochemical balance.

Pfeiffer, Iliev, Goldstein, Jenney, and Schultz (1970) performed a longitudinal study of 102 out-patient schizophrenics over a period of approximately 20 months. The main purpose of the study was to ascertain correlations of quantitative EEG changes and polyamine blood levels with changes in psychiatric state as measured by the EWI. Schizophrenic patients with a low histamine level were compared to those with a high histamine level, and male and female patients were dealt with separately. Throughout the period of the investigation the patients were tested on an average of 7.7
occasions, each time over all of the variables. The male groups provided a considerably greater number of significant correlations between EWI scales and the neurophysiological measures. Among the more interesting results which emerged from their analysis were the following: 1) the level of histamine in the blood determines the degree of correlations between EWI scales and neurophysiological measures. For example, various EWI scales correlate significantly with Mean Energy Content (MEC), spermidine, and histamine, only within the low histamine group. On the other hand, the correlations between EWI scales and spermine were significant within the high histamine group, but not within the low histamine group; 2) Histamine level had an inverse relationship with various EWI scales, while Mean Energy Content, spermine, and spermidine were positively related to EWI scales; 3) Among biochemical variables, spermidine was the most closely related to psychopathological phenomena measured by the EWI scales; and 4) The relatively fewer significant correlations in the female subjects compared to the males which may indicate that the menstrual cycle changes the blood level of these amines. The degree of involvement of histamine, histidine, their congeners and the polyamines in the actual schizophrenic process remains to be determined. However, the demonstrated relationship of the EWI to various neurophysiological measures emphasizes the possible potential of the EWI as an instrument for the evaluation of psychological change in
pharmacological studies.

The EWI manual has referred to a broad range of possible applications in addition to those previously cited. Among the numerous additional areas where the EWI has purportedly been of assistance are the following: in evaluating temporary disorders under the influence of hallucinogens, to detect schizophrenia and suicidal tendencies among prisoners, in the counseling of priests and nuns, and in exploring the experiential worlds of the elderly. Unfortunately, the details of these studies have not been published. It is felt that these must be regarded as tentative areas of application until future research efforts and subsequent publications determine whether the EWI can fulfill its stated potential in these diverse settings.

In light of the fairly promising but equivocal accumulated reliability and validity data, as well as the numerous areas where the EWI may possibly prove helpful, it appeared that further information regarding the validity of the instrument was needed. Can the EWI actually quantify the degree of pathology as reflected in the immediate experience of psychiatric patients, and contribute to more accurate diagnoses that lead to improved treatment? Can it prove helpful in understanding patients' seemingly bizarre and incomprehensible affect, behavior, and cognitions in the context of their experiential world? Thirdly, and most relevant to the present investigations, does the EWI contribute unique and
Purpose of the Study

The purpose of the present study was to assess the convergent and discriminant validity of the EWI. Through this undertaking the present study yielded information related to El-Meligi and Osmond's contention that the EWI does, in fact, provide novel information regarding the various traits and/or perceptual dimensions that their scales purportedly measure.

Campbell and Fiske (1959) stated that "for the justification of novel trait measures, for the validation of test interpretation, or for the establishment of construct validity, discriminant validation as well as convergent validation is required (p. 81)." To determine the degree of convergent and discriminant validity of a measuring instrument they have suggested a procedure which utilizes a matrix of intercorrelations among tests representing at least two different traits, each measured by at least two dissimilar methods. The matrix is then analyzed to separate the extent to which obtained correlations reflect convergence due to common method factors, as opposed to convergence of a trait across diverse evoking conditions.

Milholland (1964) has pointed out that "the multitrait multimethod matrix includes four kinds of correlations: 1) monotrait, monomethod (reliabilities); 2) monotrait, heteromethod (convergent validity); 3) heterotrait, monomethod
(method factors); and 4) heterotrait, heteromethod (general factors) (p. 323)." In order to establish convergent validity, measures of the same trait (monotrait-heteromethod values) should correlate higher with one another than they do with measures of different traits involving dissimilar methods (heterotrait-heteromethod values), and these correlations should be higher than the intercorrelations of different traits measured by the same method (heterotrait-monomethod values). Campbell and Fiske (1959) have pointed out that the primary reason for tests being determined invalid is low correlations in the validity diagonal. Milholland (1964) has noted that in order to establish discriminant validity the following criteria must be met: "1) monotrait, heteromethod correlations should be higher than either the heterotrait, monomethod correlations or the heterotrait, heteromethod correlations; and 2) that same pattern of trait interrelationships should appear in all the monomethod and heteromethod combinations (p. 323)." Campbell and Fiske (1959) have noted that "tests can be invalidated by too high correlations with other tests from which they were intended to differ (p. 81)." This establishment of discriminant validity is essential when one is attempting to demonstrate that a test is measuring a new or different trait and is not merely redundant with other existing indices. In attempting to understand the multitrait multimethod approach it may prove helpful to think of it as an attempt to examine the relationships
between different methods of measuring the same trait (if correlations are high this is evidence of convergent validity) and the relationships between supposedly different traits on the same methods. This second set of relationships provides evidence related to the presence or absence of discriminant validity.

The timing of this approach toward assessing the EWI is congruent with the opinion of Campbell and Fiske (1959). They stated:

this paper is primarily concerned with the adequacy of tests as measures of a construct rather than with the adequacy of a construct as determined by the confirmation of theoretically predicted associations with measures of other constructs. We believe that before one can test the relationships between a specific trait and other traits, one must have some confidence in one's measure of that trait. Such confidence can be supported by evidence of convergent and discriminant validation. Stated in different words, any conceptual formulation of trait will usually include implicitly the proposition that this trait is a response tendency which can be observed under more than one experimental condition and that this trait can be meaningfully differentiated from other traits. The testing of these two propositions must be prior to the testing of other propositions to prevent the acceptance of erroneous conclusions. (p. 100).

Campbell and Fiske (1959) have pointed out the necessity for examining simultaneously the measurement of several traits by several methods (multitrait-multimethod analysis) so that it is possible to differentiate the variance attributable to the constructs supposedly being measured and the variance determined by the testing instrument itself (method variance).
Mischel (1968) has described method variance as "the common variance resulting from the use of measuring techniques that employ similar or overlapping formats or apparatus (p. 187)."

Three methods were employed in the present study: objective tests, staff ratings and self-ratings. In addition to the eight traits and/or dimensions of perception purportedly represented by the scales of the EWI (Sensory Perception, Time Perception, Body Perception, Self-Perception, Perception of Others, Ideation, Dysphoria, and Impulse Regulation), the present study utilized three additional traits. These traits were social desirability, anxiety and schizophrenia as measured by the Edwards Social Desirability Scale (SD) (Edwards, 1957), Manifest Anxiety Scale (MAS) (Taylor, 1953), and Minnesota Multiphasic Personality Inventory (MMPI) Sc Scale (Sc) (Hathaway and McKinley, 1951), respectively.

SD was chosen as the ninth trait, 1) because of the large amount of reliability and validity studies supporting this measure (Edwards, 1957, 1970; Edwards and Walsh, 1964; Walsh, Tomlinson-Keasey, and Klieger, 1974; Weiner, Blumberg, Segman, and Cooper, 1959) and 2) because of speculation that the EWI, like nearly every existing personality inventory, might actually be measuring or reflecting a tendency to respond in a socially desirable manner in self-description. If scores on a personality inventory were highly correlated with the SD scale (i.e., share a large proportion of the variance in common with the SD variable) then the analyses
would be confounded. The scale might, indeed, have measured the trait it purported to measure, but it would be just as reasonable to assume that it measured the tendency to respond in a socially desirable manner. If the speculation regarding the high correlation \( r \geq .60 \) between the EWI and SD scale was confirmed, then it would be quite doubtful that discriminant validity had been established. However, if low \( (r \leq .25) \) to moderate \( (.26 \leq r \leq .59) \) correlations were found it would contribute considerable support to the establishment of the EWI's discriminant validity.

MAS was selected as the tenth trait, 1) because of the considerable amount of reliability and validity data supporting this measure (Byrne, 1966; Lazarus, 1966; McReynolds, 1968) and 2) because it was believed to be a trait relatively independent of what the EWI purported to measure. Relatively low to moderate correlations between these two measures would represent additional support for the discriminant validity of the EWI.

The Sc scale was utilized as the eleventh trait in the present study, 1) because of the pervasive usage and familiarity of this measure in clinical practice and 2) because of its presumed strong relationship with the EWI. For the EWI to be viewed as a distinct contribution to diagnostic classification and understanding of the patient's phenomenal world, the correlation between these two measures should be no more than moderate. While this degree of correlation
could reasonably have been expected due to the overlapping objectives of the two measures, a large correlation between the two instruments would seriously call into question the amount of unique information furnished by the EWI. Additionally, since the Sc scale was shown by Merrill and Heathers (1956) to be heavily loaded with the social desirability factor \( r = -0.77 \), any extremely large correlation between Sc and EWI could be construed as a further indictment that the EWI is not measuring a unique construct. Since the Sc scale is corrected by a percentage of its score, the MMPI K scale was also included.

The following pattern of correlations was expected between the various EWI scales and the SD, MAS and Sc scales. This estimated pattern was based upon previously reported correlational research concerning the instruments employed in the present study and the theoretical assumptions presented in the EWI manual (El-Meligi and Osmond, 1970). Table 1 presents the expected pattern of the correlations between the various objective instruments and among the EWI scales themselves. An examination of the table reveals a number of interesting points regarding the expected correlations. First of all, a very large correlation \( r = 0.83 \) was expected between the Sc and MAS scales (Brackbill and Little, 1954). Second, an extremely elevated correlation \( r = -0.84 \) was also expected between SD and MAS (Edwards, 1957). Third, an extremely elevated correlation \( r = -0.77 \) was expected between
TABLE 1

EXPECTED CORRELATIONS BETWEEN SD, Sc, MAS AND THE EWI SCALES AND THE EXPECTED INTERCORRELATIONS OF THE EWI SCALES WITH THEMSELVES

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>MAS</th>
<th>Sc</th>
<th>S</th>
<th>T</th>
<th>B</th>
<th>Sf</th>
<th>Po</th>
<th>I</th>
<th>D</th>
<th>Im</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD</td>
<td>1.00</td>
<td>.84(^b)</td>
<td>-.77(^c)</td>
<td>.30</td>
<td>.30</td>
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<td>.30</td>
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<td>.30</td>
<td>.30</td>
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<tr>
<td>MAS</td>
<td>1.00</td>
<td>.83(^a)</td>
<td>.30</td>
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<td>.30</td>
<td>.30</td>
<td>.30</td>
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<td>.30</td>
</tr>
<tr>
<td>Sc</td>
<td>1.00</td>
<td>.59(^d)</td>
<td>.62(^d)</td>
<td>.50(^d)</td>
<td>.67(^d)</td>
<td>.55(^d)</td>
<td>.59(^d)</td>
<td>.67(^d)</td>
<td>.59(^d)</td>
<td>.67(^d)</td>
<td>.59(^d)</td>
</tr>
<tr>
<td>S</td>
<td>1.00</td>
<td>.48</td>
<td>.88</td>
<td>.73</td>
<td>.67</td>
<td>.71</td>
<td>.56</td>
<td>.69</td>
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<tr>
<td>T</td>
<td>1.00</td>
<td>.48</td>
<td>.66</td>
<td>.56</td>
<td>.58</td>
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<td>.84</td>
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<tr>
<td>B</td>
<td>1.00</td>
<td>.71</td>
<td>.71</td>
<td>.67</td>
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<td>Sf</td>
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<tr>
<td>Po</td>
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<tr>
<td>D</td>
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\(a = \) Brackbill and Little (1954)
\(b = \) Edwards (1957)
\(c = \) Merrill and Heathers (1956)
\(d = \) El-Meligi and Osmond (1970)

Sc and SD (Merrill and Heathers, 1956). Fourth, a range of correlations from .50 to .67 was anticipated between the various EWI scales and Sc based upon an earlier study reported in the EWI manual (El-Meligi and Osmond, 1970). Fifth, a range of intercorrelations among the EWI scales themselves from .44 to
.88 was also anticipated as a result of the El-Meligi and Osmond (1970) study. Sixth, a moderate correlation \( r = .30 \) was expected between the eight EWI scales and MAS. Seventh, a moderate correlation \( r = .30 \) was also expected between the SD scale and the various EWI scales. These last two correlational patterns were tentative speculations based upon assumptions from the EWI manual. Correlations of a more moderate degree, but following the same general trends, were expected from both the staff ratings and patients' self-ratings regarding the specific traits in question (Buss, Wiener, Durkee, and Baer, 1955; Hoyt and Magoon, 1954; Scott, 1963; Wiggins, 1966). The rationale underlying these expected correlations and their implications for a critical evaluation of the EWI have been discussed earlier.

**Hypotheses of the Study**

The primary hypothesis upon which this study was based was: The Campbell and Fiske multitrait multimethod matrix would provide evidence of both convergent and discriminant validity on the eight traits represented by the EWI scales. Hypotheses of secondary importance included the following: a) The EWI scales would be highly correlated to an extent that would call into question their factorial independence. b) There would be no differences between groups formed on the basis of sex or race. c) The EWI would be able to significantly discriminate between various patient populations and/or relative degrees of maladaptive functioning.
CHAPTER II

METHOD

Subjects

The subjects were recruited from both the inpatient and outpatient populations of the Veterans Administration Hospital in Bedford, Massachusetts. The facility is an 800-bed neuropsychiatric hospital with a predominantly male population. Affiliated with the hospital were three outpatient residences designed as limited care facilities. These facilities provided a community placement for those patients requiring a minimum of supervision and treatment. Subject selection was restricted to those diagnosed within the broad category of psychotic, who, in the opinion of the attending staff members, would be able to complete the self-rating scales and questionnaires with a minimum of assistance. As a result of this restriction, those patients who were illiterate, had impaired eyesight, or were suffering from organic brain syndrome were eliminated. All of the subjects chosen had to have resided in the hospital or particular outpatient facility for at least one entire month immediately prior to the study. This arbitrary time limit was considered essential to help insure that the staff would possess sufficient knowledge of the patients to provide accurate ratings. Data were obtained from a total
of 101 subjects. Since this facility had such an overwhelming proportion of male patients, there were 98 male subjects and 3 female subjects within the present sample. All of the subjects in the present study were Caucasian adults. Because of the nature of the population sampled, it is not known whether the present study's findings can be generalized beyond the predominantly Caucasian male population sampled.

Data were also collected from 21 male Caucasian residents of the Bedford Veterans Administration Hospital's drug rehabilitation program. This information was not included in the analysis of the convergent and discriminant validity of the EWI. However, comparisons were made through a series of t-tests between EWI average scale scores obtained by the psychotic inpatients, psychotic outpatients, and the drug unit's residents. These comparisons provided some information related to the authors' contention that the EWI can be useful in discriminating between various patient populations and/or relative degrees of maladaptive functioning.

**Instruments**

Seven point scales (see appendices C and D), similar to the one shown below, were utilized for both the staff ratings of each patient and patient's self-ratings.

```
1  2  3  4  5  6  7
extremely very above about below very extremely
accurate accurate average average average inaccurate inaccurate
accuracy accuracy accuracy accuracy
```
The seven point scales referred to above were concerned with: sensory perception, time perception, body perception, self perception, perception of others, ideation, dysphoria, impulse regulation, social desirability, anxiety, mental status, and defensiveness, in that order. The staff raters were also asked the following questions. "How long have you known this person?" "How confident do you feel concerning your ratings of this person?" This final evaluation of the staff raters' level of confidence regarding their appraisal of the patient was to be made on a seven point scale similar to those utilized above (see appendix D).

An estimate of the reliability of the staff and patients' self ratings was computed. Ten staff members and ten patients were randomly selected for this procedure. All staff and patient rating scales were administered a second time one week after the initial ratings were obtained. These second ratings were intercorrelated with the initial ratings through the Pearson r formula.

Basic demographic data were obtained from the patients' files regarding each subject's age, sex, race, diagnosis, length of present hospital stay, and education. The form used to record this information can be found in appendix E.

In addition to the above-mentioned questions and scales, materials included the Experiential World Inventory (found in its entirety in appendix A) and the Biographical Inventory (found in its entirety in appendix B).
The Biographical Inventory consisted of 158 items. It was constructed by combining the 50 items from the Manifest Anxiety Scale (MAS) (Taylor, 1953, 1966), 39 items of the Edwards Social Desirability Scale (SD) (Edwards, 1957), and the 78-item Sc and 30-item K scales from the Minnesota Multiphasic Personality Inventory (MMPI) (Hawthorne and McKinley, 1940, 1951). Since the above scales were all derived from the MMPI, the items were presented in the Biographical Inventory in the order in which they originally appeared in the MMPI.

There has been some concern expressed regarding the possible effects upon particular scales of combining them together in various combinations. Will placing scale items in a context different from the one in which they were originally derived affect the relative scale elevations? Harris and Baxter (1965) have obtained direct ratings of the characteristics of item ambiguity for all MMPI items. In their work it became apparent that there was a significant serial position effect due to order of item presentation in the MMPI. Stone (1964) and Wiggins (1965) also reported significant order effects in ratings of Social Desirability Scale Value (SDSV) in the MMPI. Although order effects do appear to be involved in scaling item characteristics, they may have little influence on test response. Using diverse patterns of item ordering, Perkins and Goldberg (1964) were unable to detect significant contextual effects in four personality
scales. Employing an information-theoretic analysis of patterns of responding to MMPI items, Weiss and Moos (1965) also failed to discover evidence of sequential dependencies in responding. The above studies suggest that placing scale items in a context different from the one in which they were originally derived should not significantly affect their relative scale elevations.

The MAS measures anxiety through a self-report inventory approach. Anxiety is defined as an emotional state in which there is a vague, generalized feeling of fear. The MAS was originally developed by Janet Taylor in order to obtain an index of drive (D), in the Hull-Spence sense. The scale was constructed by presenting a panel of five clinical psychologists with approximately two hundred MMPI items. These judges were instructed to select those items which most closely conformed to Cameron's (1947) definition of chronic anxiety reaction. On sixty-five items agreement was 80 percent or higher among the judges that manifest anxiety was being tapped. Bechtoldt (1953) was then able to reduce the scale to fifty items by carrying out an internal consistency item analysis.

At various times this instrument has been interpreted as reflecting both anxiety proneness (Desiderato, 1964) and existent anxiety level (Hammes, 1959, 1961). When the heterogeneity of the items and the scale's multifactorial structure (O'Connor, Lorr, and Stafford, 1956; Fenz and Epstein, 1965) are considered, it seems probable that both
interpretations are in part warranted. The conceptualization of two different types of anxiety (Cattell and Scheier, 1961; Spielberger, 1966) as presented in Byrne (1974) may prove helpful in further clarifying this distinction. Byrne described trait anxiety as referring to "relatively stable individual differences in anxiety level." This is the primary construct that is measured by the MAS. In addition, he described state anxiety as "a temporary condition which fluctuates over time in response to situational changes." Spielberger (1966) described anxiety states as characterized by subjective feelings of apprehension and tension plus the activation of the autonomic nervous system. On the other hand, trait anxiety is conceived of as a motive system or acquired tendency which predisposes the individual to respond with an anxiety state reaction to numerous situations which are perceived as threatening.

The internal consistency and stability over time of the MAS have been found to be relatively high. Rankin (1963) obtained an internal consistency reliability (K-R 21) of .81, and Hilgard, Jones, and Kaplan (1951) reported a split-half reliability coefficient of .92. Stability of the test scores over time appears quite adequate for research. Taylor (1953) found the MAS to have a test-retest reliability of .89 over a three-week period, .82 over a five-month period, and .81 over a range of nine to seventeen months.

A considerable volume of correlational investigations of
the MAS have been of a semivalidational nature. A large num-
ber of studies have found the MAS to correlate substantially
with clinical estimates of anxiety (e.g., Buss, Wiener,
Durkee, and Baer, 1955; Gleser and Ulett, 1953; Hoyt and
Magoon, 1954; Zuckerman et al., 1967). Kelly (1966) reported
the scale was able to differentiate normals, mixed neurotics,
and anxiety patients, and Matarazzo, Guze, and Matarazzo
(1955) found that neuropsychiatric patients obtained signifi-
cantly higher MAS scores than medical patients matched for
age and intelligence. In addition, Siegman (1956) reported
that anxiety neurotics do score significantly higher on the
MAS than do other neurotics or schizophrenics, and that psycho-
paths score lower than any of the above-mentioned groups. How-
ever, Taylor and Spence (1954) and Rubin and Townsend (1958)
were unable to differentiate anxiety neurotics from other
neurotics on the basis of their MAS scores. Hoyt and Magoon
(1954) and Buss, Wiener, Durkee, and Baer (1955) found the
correlation between overall anxiety ratings and MAS scores to
be .47 and .60 respectively. In contrast, Miller, Fisher,
and Ladd (1967) found the correlation between the patients'
MAS scores and ratings by trained evaluators and therapists
to be .02 and .20 respectively.

Two important studies have attempted to evaluate the
extent to which the measurement of anxiety, through the use
of the MAS, may be contaminated as a result of various re-
sponse sets. Chapman and Campbell (1959) reversed the word-
ing of each MAS item in order to have a positive form \((T = \text{anxious response})\) and a negative form \((F = \text{anxious response})\) of the test. Since the two forms were found to correlate .84 it was concluded that the acquiescent response set does not appear to influence the MAS. However, Edwards (1957) found the MAS to correlate -.84 with the SD scale. This finding calls into question the nature of the dimension being measured by the MAS. Consistent with the above finding was a review by Addelson (1969) which pointed out that test scores from the MAS can hardly be construed to measure "anxiety", as separated from either general emotionality or defensiveness. Since such confounding implies a lack of discriminant validity, the interpretation of test scores may be quite difficult. Sarason (1960) and Byrne (1974) have both emphasized that tests which measure differences in anxiety evoked by specific stimulus situations give promise of being of greater predictive utility than more general anxiety instruments such as the MAS.

When one discusses personality inventories it is inevitable that the role of response styles will be considered. Wiggins (1968, p. 303) defined response styles as "organized dispositions within the individual to respond in a consistent manner across a variety of substantive domains. Whereas conventional personality traits have reference to the content of a behavior, stylistic consistencies refer to the manner in which the behavior is expressed." Examples of such styles
would be a tendency to be acquiescent, socially desirable, or extreme in the manner in which one presents himself. Since objective scales and inventories are attempting to validly measure a particular content domain, any response style bias will be contributing to construct-irrelevant variance.

Early factor analytic work with the standard clinical scales of the MMPI revealed two major factors: (1) social desirability, and (2) acquiescence. Jackson and Messick (1962) and Wiggins (1962) reported that more than half of the total reliable variance could be attributed to these two stylistic dimensions. It was at this time that Jackson and Messick performed the most extensive demonstrations of the influence of item-keying upon the factorial structure of a test. From their research results (Jackson and Messick, 1961, 1962) they concluded that the direction of item keying was a major determinant of the factorial structure of the MMPI.

However, numerous researchers vehemently disagreed with the conclusions of Jackson and Messick. Rorer (1965) found virtually no evidence for content-inconsistent responding, and argued (Rorer and Goldberg, 1965) that there was no evidence for the operation of a "set" component, even in scales designed to measure the style of "acquiescence". Therefore, he concluded that response styles alone contributed very little variance to inventories. Bock, Dicken, and Van Pelt (1969), using an analysis of variance model, concluded
that some variance attributable to acquiescent tendencies is undoubtedly present in MMPI scores, but that it is small relative to content variance. Whether the variance they attribute to content is actually content variance or social desirability variance is not considered. Wiggins (1968, p. 308) reported that "the style of acquiescence reflects a general disposition to agree which is assumed to operate independently of item content. The generality and content-independence of acquiescence style measures have proved extremely difficult to demonstrate in practice." This fact has occasioned several highly critical reviews of the logical status of the construct (Block, 1965; McGee, 1962; Rorer, 1965). Different measures of acquiescent style tend not only to be uncorrelated (McGee, 1962; Rorer, 1965) but also to be factorially distinct (Martin, 1964; Wiggins, 1965). Block (1965) also challenged the interpretation that response sets play a dominant role in personality inventories such as the MMPI. Although he recognized that the first two factors which emerged from factor analysis of the MMPI could be interpreted as social desirability and acquiescence, Block contended that (a) the social desirability hypothesis advocated by Edwards (1964) was a failure in other behavior domains; (b) the first two factors of the MMPI have correlates in independent ratings of personality; and (c) since "pure" acquiescence measures are difficult to construct, set and content are almost inevitably confounded. Fiske and Pearson
(1970, p. 973) reviewed a large body of research in the area and concluded that "the majority view concerning the role of social desirability and acquiescence tends to be that such sets do in fact exist, but do not appear to be as pervasive as once supposed."

While the previously cited studies do call into question the dominant role that response styles have been purported to play in regard to personality inventories, the MMPI SD scale has been found to be an excellent marker for the first principle component obtained when MMPI scales are intercorrelated and factor analyzed. First factor loadings of MMPI scales have also been found to be directly related to the proportion of items in the scales keyed for socially desirable responses.

Walsh et al. (1974), Fiske and Pearson (1970), and Holtzman (1965) documented that the SD scale has been construed in many different ways. As a result of these various viewpoints there has been considerable disagreement concerning the behavioral and theoretical significance of the social desirability response set. Kassebaum, Couch, and Slater (1959) have interpreted the SD-laden first factor of the MMPI as ego-strength versus ego-weakness. Block (1965) has proposed that SD be interpreted in terms of ego-resiliency. Heilbrun (1964) and Siller and Chipman (1963) challenged the interpretation of the first factor in personality inventories as social desirability, pointing out that degree of pathology or adjustment is a much more useful way of conceptualizing.
it. Heilbrun argued that, on the basis of social learning theory, one would expect a high and inverse relationship between socially desirable behaviors and such deviancy as psychopathology. Megargee (1966) considered the scores on the Edwards SD to be measuring both good adjustment and dissimilation. While researchers such as Rorer (1965) have vigorously proposed that social desirability is mainly an artifact of the structure of particular objective inventories, and has very little significance beyond this realm, this interpretation has been seriously challenged. Walsh (1974) and Edwards (1970) have described SD response acquisition in terms of social reinforcement for "learning cultural norms of what is desirable and undesirable in the way of personality traits and characteristics" (Edwards, 1970, p. 224). Their contention was that SD is a generalized response set that should manifest a well defined pattern of growth. In fact, there has been considerable research evidence supporting this developmental pattern. Walsh (1974) reported a trend in social desirability responding which increased linearly from chronological ages (CA) of 2.51 years to 6.50 years. Cruse (1966) found the correlation between probability of endorsing items in his scale and social desirability scale values (SDSV) of the items to be .61 at CA 3.7 years. By CA 6.2 years this correlation had risen to .88. In addition, Cruse (1963) had previously shown that SD responding in children ranging from grade 1 through grade 11 is
related to grade level and to the keying of the items on his scale.

It is concluded that the studies of Cruse (1963), Cruse (1966), and Walsh (1974) provide convincing support for the interpretation that the SD response set does exhibit a well defined pattern of growth, and hence may be reasonably construed as a more general response set. It is felt that this tendency to respond in a socially desirable manner has been acquired through social reinforcement for learning cultural norms of what is desirable and undesirable in the way of personality traits and characteristics.

Edwards (1957) developed a scale to measure the extent to which the social desirability variable has been included in test responses. When an individual gives a socially desirable response to an item, he is either attributing to himself a characteristic that is judged by the average person as desirable, or he is denying a characteristic that is judged by the average person as undesirable. Edwards (1957) has convincingly argued that if scores on a particular test are highly correlated with the Social Desirability Scale (i.e., share a large proportion of the variance in common with the SD variable) then an analysis will be confounded. This confounding will result in a reduction of the effectiveness of the test in discriminating individual differences in specific, content related traits, since the scale may be measuring the trait, but it is just as reasonable to infer that the scale is measuring the tendency to respond in a socially desirable
manner.

The SD scale consists of 39 MMPI items that yielded complete agreement among 10 judges with regard to the socially desirable response, and were also able to contribute to the greatest differentiation between a high and low group in terms of SD scores on the initial 79-item scale.

The stability of Social Desirability Scale Values (SDSV) across judges has been sufficiently reviewed (Edwards, 1957, 1970). SDSV have been found to be stable across sex and various age groups (Edwards, 1953, 1966; Klieger and Walsh, 1957), culture (Lovaas, 1958; Cowen and Frankel, 1964), and socioeconomic groups (Klett, 1956), although the context in which the items occur and the instructional set can exert some appreciable influence upon SDSV (Edwards, 1957, 1970; Stone, 1964; Wiggins, 1965). Scott (1963) reported that he found wide differences among individuals' conceptions of the desirable, and Wiggins (1966) supported Scott's position by finding at least six viewpoints in social desirability judgments of MMPI items. One additional conflicting finding was reported by Messick (1960). He reported that when he factored the intercorrelations among SDSV ratings he found nine distinct factors which might correspond to different "points of view" regarding the nature of the rating task. Edwards (1957) reported a corrected split-half reliability of .83, and Edwards and Walsh (1964) obtained an internal consistency reliability (K-R 21) of .83. Edwards (1957)
found the probability of endorsement to be linearly related to social desirability scale value (product moment correlation of .87), and Wright (1957) repeated the study with a minor variation and obtained a correlation of .88. Despite the consistency in the relative ordering of items across diverse groups, Cowen and Budin (1964) found differences in absolute SDSV between certain rating groups. It would appear that the averaged SDSVs and subsequent probability of endorsement depends upon the composition of the rating group. Weiner, Blumberg, Segman, and Cooper (1959) and Edwards (1965) found product moment correlations between composites of adjustment (as evaluated by clinical psychologists and college students through a Q-sort), and social desirability to be .88. Merrill and Heathers (1956) reported the SD scale to be correlated .81 with another measure of test-taking attitude, the MMPI K scale. Their findings furnished additional support for the SD scale through reported tetrachoric correlations of -.77 with the MMPI Sc scale, -.84 with the MAS, and -.75 with Cook's Hostility Scale.

It is concluded that the preponderance of the above-mentioned research supports the contention that the Edwards SD scale does indeed effectively measure the tendency of people to give socially desirable responses in self description. Therefore, it will be employed in the present study as a marker variable in an attempt to determine the extent to which responses to the EWI are influenced by the tendency
to describe oneself in socially desirable terms.

The Minnesota Multiphasic Personality Inventory (MMPI) has had extensive use as a diagnostic and personality instrument in clinical, counseling, and personnel settings. Concurrent with its clinical and assessment uses, it has enjoyed more attention in research than any other psychological test (McReynolds, 1968). At the time of this writing, the MMPI is almost certainly the psychological instrument of choice for the routine assessment of nature and degree of emotional upset in adult patients. It has also proven useful in assessing other adult clients seeking help from the psychological, medical, or related professions for problems that do have, or may have, an emotional origin (Rodgers, 1972). The MMPI is probably also the instrument of choice for screening or assessing emotional upset in a research population. If the MMPI did not work as well in a practical sense, it would certainly be considered a psychometric monstrosity. An informative review of some of the principal psychometric considerations in employing the MMPI can be found in Rodgers' (1972) incisive discussion of the instrument.

The criterion of internal consistency has been applied to scores derived from the MMPI. Comrey (1957a, 1957b, 1957c) and O'Connor, Stefic and Gresock (1957) factored items from several of these scales and arrived at the conclusion that the scales are not "pure" and, furthermore,
the operationally defined scales identified in the analyses often bear only tenuous relations to the given labels. An example of this deficiency would be the correlation of .83 between the psychasthenia and schizophrenia scales reported by Kassebaum et al. (1959). Although these scales have been regarded as distinct entities, they turn out to be highly correlated. Inspection of this reliability figure suggests that the specific variance in these two scales might well be negligible. However, despite its obvious psychometric limitations, the MMPI has survived numerous serious attacks by its detractors (e.g., Edwards, 1962, 1964; Messick and Jackson, 1961, 1962) and demonstrated its usefulness on countless occasions in research and applied settings. It is important to keep in mind the method of construction of the MMPI scales when evaluating the contribution they can make. Since each scale was originally developed from questions which differentiated patients within a specific psychiatric diagnostic category from a group of normals, they were not intended to be used individually in differential diagnosis. However, elevations on various scales can be meaningfully interpreted when an analysis is performed concerning their relative elevation in regard to an overall MMPI profile.

In describing the development of the MMPI scales, McReynolds (1968) provided an extremely clear description of the criterion approach through which these scales were constructed. Essentially this method consisted of selecting
various samples for study that were differentiated by a certain defined criterion. In the case of the MMPI, the samples were patients at a Minnesota hospital with a particular psychiatric diagnosis and a matched group of normals. Both groups were then administered a large number of questionnaire-type items to which they were to respond in a specified way, such as true or false. Those items that were responded to in a significantly different manner by the two samples are selected to form a criterion scale—for example, the Schizophrenia Scale.

It is concluded that despite its obvious psychometric limitations (Rodgers, 1972; Messick and Jackson, 1961, 1962; O'Connor et al., 1957) the MMPI has proven its practical usefulness in both the clinical and research realms. Therefore, the MMPI Sc and K scales will be employed as marker variables in the present study in an attempt to assess both the convergent and discriminant validity of the EWI.

The MMPI Sc scale consists of 78 items selected to measure the similarity of responses of subjects to those of clinical patients classified psychiatrically as schizophrenic. A more detailed description of this scale can be found in Hathaway and McKinley (1951). Carson (1969) noted that the Sc scale is composed of 78 items that deal with social alienation, isolation, complaints of family alienation, bizarre feelings, influence of external agents, peculiar body dysfunctions and general dissatisfaction.
Dahlstrom and Welsh (1960) reported internal consistency reliabilities in the .80's. They also reported a split-half reliability of .91 for the Sc scale. Hanley (1956) noted that the majority of the Sc scale items are keyed in the socially undesirable direction, and found a product moment correlation of +.89 between social desirability scale value and probability of endorsement in college subjects. Merrill and Heathers (1956) obtained tetrachoric correlations of -.77 between the Sc scale and the SD scale, and -.70 between the Sc scale and the MMPI K scale. If we consider the K scale to be a measure of test taking attitude, defensiveness, and/or a tendency to endorse socially desirable statements, then it is quite apparent that subjects with elevated scores on the Sc scale are indeed ascribing socially undesirable characteristics to themselves. Edwards (1970) noted that for most personality inventory items it is to be expected that the normal, adjusted, and healthy responses would be the same as the SD response. In light of the above findings and Wheeler, Little, and Lehner's (1951) obtained correlation of .92 between the Sc scale and the factor they described as the psychotic factor, it may be reasonable to assume that the Sc scale is tapping what it was intended to measure. Even if one were to assume that the Sc scale is saturated not with what Wheeler et al. termed the psychotic factor, but instead with what Fordyce (1956) labeled as social desirability, it would still seem meaningful to consider pathologic behavior, in a generalized
sense of the term, as characterized by behavior that is socially disapproved.

Carson (1969) noted that the MMPI K scale consists of items selected on the basis of their ability to identify "false negative" cases. Meehl and Hathaway (1946) described the K scale's development as an attempt to control for test taking attitude. Rosen (1956) interpreted high scores on K as indicating defensiveness upon the part of the subjects. Fricks (1957) proposed that the set to respond "false" to obviously socially undesirable items should be recognized as a sign of good adjustment. Benton (1953) noted that the clinical application of the K score consists in its use as a correction to some of the MMPI scale scores (Hs, Pd, Pt, Sc, Ma) with the aim of augmenting the discriminative value of these scales and the inventory in general. Some of the early attempts to verify this purported usefulness of the K score yielded generally negative results (e.g., Hunt, 1948a, 1948b, 1948c). However, evidence was obtained which suggested that an index involving both the F and K scores possesses some merit in detecting simulation of mental abnormality (Hunt, 1948a; Gough, 1950). In a later study designed to assess the MMPI's internal measures of testee validity Exner, et al. (1963) showed that a group of subjects who were asked to deliberately fake abnormal responses, but not sufficiently abnormal for institutionalization, raised all their scores significantly except the lie score. Attempts
to fake good were less successful, the major statistically significant differences being in the L, F, K, and Pd scales, in that order. However, Adcock (1965) pointed out that the range of these scores for those categories showed too much overlap between honest and fake efforts for any useful discrimination.

There are 30 items within this scale, of which 24 have been found to be highly correlated with Edwards SD factor. Merrill and Heathers (1956) reported a tetrachoric correlation between K and SD of .81. They additionally reported a tetrachoric correlation of -.70 between the K and Sc scales. Kerrick (1955) found a correlation of .73 between K and MAS. Welsh and Dahlstrom (1960) reported the K scale's internal consistency reliability to be in the .80s. Wheeler, Little, and Lehner (1951) obtained a correlation of -.70 between K and what they described as the psychotic factor.

While a large number of the previously cited studies have supported the interpretation of K as a suppressor variable, the results are certainly not unequivocal. However, since K has long been employed as a correction factor in some of the clinical scales of the MMPI, it was retained for the present study.

**Procedures**

When the subjects were initially solicited, they were given the following information:
Hello, my name is Joseph Zohn and I am working as a psychologist here at the hospital. This summer I am working on a new method for understanding and talking with patients about their present situation. Results from my work will be compared with other available methods to see if this new method is better. However, to find out if this new method is useful, I need your help. Your part is simple. You will be given two lists of questions and one rating scale. You merely answer "True" or "False" to each question on the two lists. On the rating scale you can circle the number of the answer that you like. There are no risks involved and you will not be asked to do anything beyond what has been stated. These lists will take about two hours and can be filled out when it is a convenient time for you. This is not a treatment. Your answers may provide important information about how to help people who have problems in living similar to problems you have experienced. Your help is important. You may refuse to participate. However, your cooperation will be sincerely appreciated and may give valuable information. No one but you and me will know how you answer the questions. At any time you may withdraw or refuse to continue. Your doctor and nurse are aware of my work and have agreed to participate.
In addition, the Bedford Veterans Administration Hospital's Human Research Committee required all patients participating in research experiments to sign a standard consent form prior to their participation in any experiment. This form can be found in appendix F.

Subjects were seen at the Veterans Administration Hospital in Bedford, Massachusetts during the months of July, August and September, 1975. Since all measures were self-administered, subjects were tested in groups of two to six participants. The experimenter presided over all testing sessions. When the subjects made inquiries concerning how they should answer a particular test item or found an item confusing they were asked to "just give your first impression and do as well as you can." In addition to the above reply by the experimenter, a record was kept concerning which specific test items were not clear, and the nature of the inquiries made by the subjects. A listing of these troublesome questions can be found in appendix I.

Staff Raters. The staff raters were those persons who knew the particular subjects the most thoroughly. Decisions regarding which specific raters were solicited to rate particular subjects was made at the staff meetings. At these meetings an informal vote among all present staff members determined, by consensus, which member knew specific patients the most thoroughly. The range of raters encompassed psychiatric aides, nurses, social workers, psychologists, and
psychiatrists from all three work shifts. At all times an attempt was made to utilize that staff member who was considered to be most aware of the specific information sought. When the staff raters were initially solicited, they were given the following information:

Hello, my name is Joseph Zohn and I am working as a psychology trainee here at the hospital this summer. As part of my Master's degree in clinical psychology I am conducting a research study concerned with perception. The study will attempt to determine the various ways in which people perceive themselves and their world. I am interested in learning more about this area so that I may better understand the patients with whom I work. I would like very much to have you participate in my study. This would involve your meeting with me for approximately ten minutes, to be scheduled at your convenience. During those ten minutes I will ask you to rate (patient's name) behavior in twelve areas. These areas are: sensory perception, time perception, body perception, self perception, perception of others, ideation, dysphoria (depression), impulse regulation, social desirability, anxiety, mental status, and defensiveness. In addition, I will also inquire how long you have known this patient, and the degree of confidence that you feel in your rat-
ings concerning the patient. All of your answers will be completely confidential and neither your name nor the patient's will be used in any reports. Your (supervisor, chief of staff, etc.) is aware of my study and has agreed to participate.

Instruction sets for each measure accompany the instrument in the appropriate appendices (EWI, appendix A; Biographical Inventory, appendix B; Self Ratings, appendix C; and Staff Ratings, appendix D).

These measures were presented to all subjects in an identical order. The sequence of administration was the EWI, Biographical Inventory, and finally the subject's self ratings forms.
CHAPTER III

RESULTS

The correlation matrix shown in table 2 was generated by the manipulation of the eleven traits and three methods as discussed. Data from four subjects were eliminated because of inadequately completed questionnaires, leaving an N of 101. Examination of the matrix revealed that the primary hypothesis of this study received minimal support. In regard to convergent validity, there was fairly good agreement between the objective scores and self ratings across all the traits measured. However, the objective scores and staff ratings, as well as self ratings and staff ratings displayed little convergence, with most correlations tending toward zero. Perhaps the most positive observation justified by these correlational patterns is that the objective scores, self ratings, and staff ratings were internally consistent.

There was little evidence for discriminant validity because of the excessively elevated correlations obtained between the EWI scales and the marker scales employed. An example of these extremely high correlations was the obtained correlations ranging from -.658 to -.853 between the EWI scales and SD. In addition, the range of the EWI scales
### Table 2: Multitrait Multimethod Matrix

#### Self Ratings

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<td>1.00</td>
<td>.83</td>
<td>.83</td>
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<tr>
<td>.85</td>
<td>.85</td>
<td>.74</td>
<td>.78</td>
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<td>1.00</td>
<td>.84</td>
<td>.84</td>
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<tr>
<td>.83</td>
<td>.80</td>
<td>.76</td>
<td>.77</td>
<td>.77</td>
<td>.83</td>
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<tr>
<td>.83</td>
<td>.83</td>
<td>.77</td>
<td>.77</td>
<td>.77</td>
<td>.84</td>
<td>.84</td>
<td>.84</td>
<td>1.00</td>
<td>.84</td>
<td>.84</td>
</tr>
<tr>
<td>.80</td>
<td>.77</td>
<td>.76</td>
<td>.77</td>
<td>.77</td>
<td>.83</td>
<td>.84</td>
<td>.84</td>
<td>.84</td>
<td>1.00</td>
<td>.84</td>
</tr>
<tr>
<td>.76</td>
<td>.74</td>
<td>.76</td>
<td>.77</td>
<td>.77</td>
<td>.84</td>
<td>.84</td>
<td>.84</td>
<td>.84</td>
<td>.84</td>
<td>1.00</td>
</tr>
</tbody>
</table>
correlations with MAS was .512 to .778. In view of MAS's correlation of -.918 with SD, the conclusion seems evident that the EWI appears to be tapping one principal trait or personality characteristic—the tendency of people to give positive self references.

The EWI's high correlation with MMPI Sc (range of .650 to .797) makes it appear quite doubtful that a significant amount of unique information can be secured regarding a patient from the addition of the EWI to a test battery which includes Sc. However, it is conceivable that future investigations may provide evidence that particular EWI profile configurations yield a substantial amount of additional useful information.

Further examination of the matrix revealed that the EWI scales were very highly intercorrelated (range of .669 to .931). These intercorrelations provide a powerful argument against the contention of the authors that the EWI scales are independent of each other and are measuring independent traits or dimensions of pathological behavior.

A series of two-tailed t-tests (see table 3) revealed significant differences (p < .05) between the inpatient psychotic subjects (N = 52) and outpatient psychotic subjects (N = 49) on the majority of the EWI scales and marker scales. However, despite the relatively higher scores obtained by the inpatient psychotic subjects, both groups' scores were elevated to a level which justified their combination and inclusion in the present analysis.
TABLE 3

COMPARISONS OF THE AVERAGE RAW SCORES OBTAINED BY THE PSYCHOTIC INPATIENTS AND PSYCHOTIC OUTPATIENTS ON THE OBJECTIVE SCALES

<table>
<thead>
<tr>
<th>Scale</th>
<th>Psychotic Inpatients</th>
<th>Psychotic Outpatients</th>
<th>t value</th>
<th>Probability of a Larger Value, Sign Ignored</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{x}$</td>
<td>$\sigma$</td>
<td>$\bar{x}$</td>
<td>$\sigma$</td>
</tr>
<tr>
<td>EWI/Sensory</td>
<td>34.15</td>
<td>28.28</td>
<td>23.02</td>
<td>21.76</td>
</tr>
<tr>
<td>EWI/Time</td>
<td>18.50</td>
<td>9.64</td>
<td>16.08</td>
<td>8.10</td>
</tr>
<tr>
<td>EWI/Body</td>
<td>17.48</td>
<td>17.38</td>
<td>11.88</td>
<td>13.56</td>
</tr>
<tr>
<td>EWI/Self</td>
<td>24.08</td>
<td>17.86</td>
<td>16.18</td>
<td>16.04</td>
</tr>
<tr>
<td>EWI/Others</td>
<td>17.39</td>
<td>12.21</td>
<td>13.96</td>
<td>12.86</td>
</tr>
<tr>
<td>EWI/Ideation</td>
<td>16.08</td>
<td>9.46</td>
<td>11.55</td>
<td>8.09</td>
</tr>
<tr>
<td>EWI/Dysphoria</td>
<td>18.00</td>
<td>13.17</td>
<td>12.51</td>
<td>12.59</td>
</tr>
<tr>
<td>EWI/Impulse</td>
<td>12.39</td>
<td>9.48</td>
<td>9.61</td>
<td>7.98</td>
</tr>
<tr>
<td>SD</td>
<td>21.60</td>
<td>7.54</td>
<td>25.39</td>
<td>9.29</td>
</tr>
<tr>
<td>MAS</td>
<td>26.50</td>
<td>11.25</td>
<td>19.98</td>
<td>11.95</td>
</tr>
<tr>
<td>MMPI Sc</td>
<td>44.15</td>
<td>11.66</td>
<td>38.35</td>
<td>13.14</td>
</tr>
<tr>
<td>MMPI K</td>
<td>12.14</td>
<td>5.64</td>
<td>14.71</td>
<td>6.44</td>
</tr>
</tbody>
</table>

a two-tailed t-tests, degrees of freedom = 99
A failure to solicit a significantly large number of female and/or non-Caucasian subjects prevented an analysis of groups formed on the basis of such demographic variables.

Background information obtained from the patients' files (see appendix E) revealed that all of the subjects in the present study were Caucasian, with 98 men and 3 women involved.

Table 4 presents cumulative information concerning the ages of the subjects included in the present study. The subjects were fairly evenly distributed over the entire range from 19 years to 71 years ($\bar{X} = 42.0$ years).

### Table 4

<table>
<thead>
<tr>
<th>Age Range</th>
<th>N (Total = 101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-29</td>
<td>24</td>
</tr>
<tr>
<td>30-39</td>
<td>13</td>
</tr>
<tr>
<td>40-49</td>
<td>30</td>
</tr>
<tr>
<td>50-59</td>
<td>27</td>
</tr>
<tr>
<td>60-71</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 5 presents the distribution of these subjects across various diagnostic categories. Approximately 40 persons were ascribed the primary diagnosis of schizophrenia-
### TABLE 5

**PRIMARY DIAGNOSIS OF SUBJECTS**

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>N (Total = 101)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia-Chronic Undifferentiated Type</td>
<td>41</td>
<td>40.59</td>
</tr>
<tr>
<td>Schizophrenia-Paranoid Type</td>
<td>23</td>
<td>22.77</td>
</tr>
<tr>
<td>Psychotic Depression</td>
<td>11</td>
<td>10.89</td>
</tr>
<tr>
<td>Schizophrenia-Schizo/Affective Type</td>
<td>10</td>
<td>9.90</td>
</tr>
<tr>
<td>Psychotic-Manic/Depressive Type</td>
<td>6</td>
<td>5.94</td>
</tr>
<tr>
<td>Schizophrenia-Simple Type</td>
<td>4</td>
<td>3.96</td>
</tr>
<tr>
<td>Schizophrenic Reaction</td>
<td>3</td>
<td>2.97</td>
</tr>
<tr>
<td>Acute Schizophrenia</td>
<td>2</td>
<td>1.98</td>
</tr>
<tr>
<td>Schizophrenia-Catatonic Type</td>
<td>1</td>
<td>.99</td>
</tr>
</tbody>
</table>
chronic undifferentiated type, while an additional 23 percent were diagnosed as schizophrenia-paranoid type. The next two diagnostic categories in terms of relative frequency were psychotic depression, with 11 percent, and schizophrenia-schizo/affective type, with 10 percent.

The length of the inpatient subjects' present stay in the hospital ranged from 30 to 6,248 days ($\bar{X} = 289.8$). However, this mean was not truly representative since the majority of these subjects had been hospitalized between 30 and 120 days prior to the present research project.

As far as educational background was concerned, the subjects' training ranged from 7 to 16 years of formal education ($\bar{X} = 10.86$ years). Table 6 summarized the distribution of educational levels.

**TABLE 6**

**FORMAL EDUCATION OBTAINED BY SUBJECTS**

<table>
<thead>
<tr>
<th>Years of Education</th>
<th>N (Total = 101)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - 9</td>
<td>32</td>
</tr>
<tr>
<td>10 - 12</td>
<td>55</td>
</tr>
<tr>
<td>13 - 16</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 7 presents the cumulative information regarding the positions held by the various staff raters. Approximately
TABLE 7
DISTRIBUTION OF STAFF RATERS BY POSITION

<table>
<thead>
<tr>
<th>Staff Position</th>
<th>N (Total = 101)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Assistant</td>
<td>32</td>
<td>31.68</td>
</tr>
<tr>
<td>Social Worker</td>
<td>27</td>
<td>26.73</td>
</tr>
<tr>
<td>Psychologist</td>
<td>16</td>
<td>15.84</td>
</tr>
<tr>
<td>Nurse</td>
<td>11</td>
<td>10.89</td>
</tr>
<tr>
<td>Supervisor of Hospital Job</td>
<td>11</td>
<td>10.89</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>4</td>
<td>3.96</td>
</tr>
</tbody>
</table>

32 percent of the raters held the position of nursing assistant, 27 percent were social workers, and 16 percent were psychologists. The staff raters had been in contact with the subjects over a range of 1 to 72 months (\( \bar{X} = 13.55 \) months). In addition, the staff raters were asked to evaluate how confident they felt regarding the accuracy of their ratings of the subjects. Seven point Likert scales were provided for this purpose ranging from extremely unsure (1) to extremely confident (7). The range of the staff raters' confidence in their ratings was from 3 to 7 (\( \bar{X} = 5.04 \)).

An estimate of the stability of the staff ratings and patients' self ratings was computed. Ten staff members and ten patients were randomly selected for this procedure. All staff and patient self rating scales were administered a
second time one week after the initial ratings were obtained. These second ratings were correlated with the initial ratings.

Stability coefficients for the staff ratings (see table 8) ranged from .327 on MAS to .885 on Sensory Perception ($\bar{X} = .672$). The stability coefficients for the patients' self ratings (see table 8) were also marked by a broad range. The correlations extended from .422 on Perception of Others to .948 on Sc ($\bar{X} = .710$). The overall level of these stability coefficients was equivalent to those obtained on the staff ratings. However, the stability of these scores may have been minimized due to the heterogeneity of the sample in regard to diagnosis, length of hospitalization, treatment modality received, and responsiveness to treatment. Considering the brief time lapse between the two administrations of the rating scales, these results reveal an undesirable lack of stability in some scales. While important individual treatment decisions should not be made through the use of these rating scales, their overall level of stability is considered adequate for research purposes.

A series of two-tailed t-tests comparing the inpatient psychotic subjects ($N = 52$) and residents of the drug rehabilitation program ($N = 21$) across all objective measures revealed significant differences ($p < .05$) between these two groups on all of the EWI scales and one of the marker scales. Table 9 presents the average score and standard deviation obtained by both of these groups on each scale as well as
TABLE 8

STABILITY COEFFICIENTS OF THE STAFF RATING SCALES AND SELF RATING SCALES

<table>
<thead>
<tr>
<th>Scale</th>
<th>Staff Ratings (N=10)</th>
<th>Self Ratings (N=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Perception</td>
<td>.885</td>
<td>.826</td>
</tr>
<tr>
<td>Time Perception</td>
<td>.736</td>
<td>.946</td>
</tr>
<tr>
<td>Body Perception</td>
<td>.492</td>
<td>.600</td>
</tr>
<tr>
<td>Self Perception</td>
<td>.565</td>
<td>.782</td>
</tr>
<tr>
<td>Perception of Others</td>
<td>.813</td>
<td>.422</td>
</tr>
<tr>
<td>Ideation</td>
<td>.659</td>
<td>.622</td>
</tr>
<tr>
<td>Dysphoria</td>
<td>.618</td>
<td>.882</td>
</tr>
<tr>
<td>Impulse Regulation</td>
<td>.804</td>
<td>.625</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>.802</td>
</tr>
<tr>
<td></td>
<td>MAS</td>
<td>.327</td>
</tr>
<tr>
<td></td>
<td>MMPI Sc</td>
<td>.580</td>
</tr>
<tr>
<td></td>
<td>MMPI K</td>
<td>.782</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.565</td>
</tr>
</tbody>
</table>
TABLE 9

COMPARISON OF THE AVERAGE RAW SCORES OBTAINED BY THE
PSYCHOTIC INPATIENTS AND THE DRUG REHABILITATION
UNIT RESIDENTS ON THE OBJECTIVE SCALES

table|
<table>
<thead>
<tr>
<th>Scale</th>
<th>Psychotic Inpatients</th>
<th>Drug Unit Residents</th>
<th>t value</th>
<th>Probability of a Larger Value, Sign Ignored&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>( \sigma )</td>
<td>( \bar{X} )</td>
<td>( \sigma )</td>
</tr>
<tr>
<td>EWI/Sensory</td>
<td>34.15</td>
<td>28.28</td>
<td>16.29</td>
<td>16.19</td>
</tr>
<tr>
<td>EWI/Time</td>
<td>18.50</td>
<td>9.64</td>
<td>11.29</td>
<td>6.51</td>
</tr>
<tr>
<td>EWI/Body</td>
<td>17.48</td>
<td>17.38</td>
<td>8.67</td>
<td>9.89</td>
</tr>
<tr>
<td>EWI/Self</td>
<td>24.08</td>
<td>17.86</td>
<td>10.38</td>
<td>9.04</td>
</tr>
<tr>
<td>EWI/Others</td>
<td>17.39</td>
<td>12.21</td>
<td>11.67</td>
<td>6.30</td>
</tr>
<tr>
<td>EWI/Ideation</td>
<td>16.08</td>
<td>9.46</td>
<td>7.10</td>
<td>6.26</td>
</tr>
<tr>
<td>EWI/Dysphoria</td>
<td>18.00</td>
<td>13.17</td>
<td>8.38</td>
<td>8.44</td>
</tr>
<tr>
<td>EWI/Impulse</td>
<td>12.39</td>
<td>9.48</td>
<td>7.81</td>
<td>6.74</td>
</tr>
<tr>
<td>SD</td>
<td>21.60</td>
<td>7.54</td>
<td>23.29</td>
<td>5.00</td>
</tr>
<tr>
<td>MAS</td>
<td>26.50</td>
<td>11.25</td>
<td>25.38</td>
<td>8.05</td>
</tr>
<tr>
<td>MMPI Sc</td>
<td>44.15</td>
<td>11.66</td>
<td>36.71</td>
<td>9.10</td>
</tr>
<tr>
<td>MMPI K</td>
<td>12.14</td>
<td>5.64</td>
<td>10.19</td>
<td>4.77</td>
</tr>
</tbody>
</table>

<sup>a</sup>two-tailed t-tests, degrees of freedom = 71
the results of the analyses. As expected, the inpatient psychotic subjects obtained the more elevated scores since all scales except SD and K were designed to measure pathological behavior.

A comparison was also made between the scores obtained by the outpatient psychotic group (N = 49) and the above-mentioned residents of the drug unit. Once again a series of two-tailed t-tests was computed. The outpatients with the psychotic diagnosis obtained significantly more elevated scores than those patients on the drug rehabilitation unit (p < .05) on only two of the EWI scales and one marker scale (see table 10). However, the psychotic outpatients' raw scores did exceed the drug rehabilitation unit's patients' raw scores on 11 of the 12 objective scales. In addition, the absolute differences between the scores of the outpatient psychotic group and the drug unit residents was smaller than that obtained between the inpatients with a psychotic diagnosis and these same drug unit residents.

These findings were consistent with those reported in the EWI Manual (El-Meligi and Osmond, 1970), and provided some support for the authors' contention that the EWI can be useful in discriminating between certain patient groups.
<table>
<thead>
<tr>
<th>Scale</th>
<th>Psychotic Outpatients</th>
<th>Drug Unit Residents</th>
<th>t value</th>
<th>Probability of a Larger Value, Sign Ignoreda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>( \sigma )</td>
<td>( \bar{X} )</td>
<td>( \sigma )</td>
</tr>
<tr>
<td>EWI/Sensory</td>
<td>23.02</td>
<td>21.76</td>
<td>16.29</td>
<td>16.19</td>
</tr>
<tr>
<td>EWI/Time</td>
<td>16.08</td>
<td>8.10</td>
<td>11.29</td>
<td>6.51</td>
</tr>
<tr>
<td>EWI/Body</td>
<td>11.88</td>
<td>13.56</td>
<td>8.67</td>
<td>9.89</td>
</tr>
<tr>
<td>EWI/Self</td>
<td>16.18</td>
<td>16.04</td>
<td>10.38</td>
<td>9.04</td>
</tr>
<tr>
<td>EWI/Others</td>
<td>13.96</td>
<td>12.86</td>
<td>11.67</td>
<td>6.30</td>
</tr>
<tr>
<td>EWI/Ideation</td>
<td>11.55</td>
<td>8.09</td>
<td>7.10</td>
<td>6.26</td>
</tr>
<tr>
<td>EWI/Dysphoria</td>
<td>12.51</td>
<td>12.59</td>
<td>8.38</td>
<td>8.44</td>
</tr>
<tr>
<td>EWI/Impulse</td>
<td>9.61</td>
<td>7.98</td>
<td>7.81</td>
<td>6.74</td>
</tr>
<tr>
<td>SD</td>
<td>25.39</td>
<td>9.29</td>
<td>23.29</td>
<td>5.00</td>
</tr>
<tr>
<td>MAS</td>
<td>19.98</td>
<td>11.95</td>
<td>25.38</td>
<td>8.05</td>
</tr>
<tr>
<td>MMPI Sc</td>
<td>38.35</td>
<td>13.14</td>
<td>36.71</td>
<td>9.10</td>
</tr>
<tr>
<td>MMPI K</td>
<td>14.71</td>
<td>6.44</td>
<td>10.19</td>
<td>4.77</td>
</tr>
</tbody>
</table>

a two-tailed t-tests, degrees of freedom = 68
The present investigation was designed to examine the convergent and discriminant validity of the EWI through the use of the Campbell and Fiske multitrait multimethod matrix approach. Campbell and Fiske (1959) contended that "for the justification of novel trait measures, for the validation of test interpretation, or for the establishment of construct validity, discriminant validation as well as convergent validation is required (p. 81)." An examination of the correlations composing the matrix (see table 2) revealed very minimal support for the convergent and discriminant validity of the EWI.

In that same manuscript Campbell and Fiske stated that the primary requirement of convergent validity is that the entries in the validity diagonal (monotrait-heteromethod values) should be significantly different from zero and sufficiently large to encourage further examination of validity. They noted that the agreement of these independent measures of the same trait would provide evidence supporting convergent validity. Table 11 presents all of the monotrait-heteromethod values obtained for each trait considered in
TABLE 11

VALIDITY DIAGONAL ENTRIES (MONOTRAIT-HETEROMETHOD VALUES) OBTAINED FOR THE ELEVEN TRAITS ACROSS THE THREE DIFFERENT COMPARISONS

<table>
<thead>
<tr>
<th>Trait or Dimension</th>
<th>Objective and Self-ratings</th>
<th>Objective and Staff ratings</th>
<th>Self-ratings and Staff ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>EWI/Sensory</td>
<td>.244*</td>
<td>.088</td>
<td>-.028</td>
</tr>
<tr>
<td>EWI/Time</td>
<td>.287*</td>
<td>-.025</td>
<td>.046</td>
</tr>
<tr>
<td>EWI/Body</td>
<td>.242*</td>
<td>.029</td>
<td>.135</td>
</tr>
<tr>
<td>EWI/Self</td>
<td>.317*</td>
<td>.116</td>
<td>-.011</td>
</tr>
<tr>
<td>EWI/Others</td>
<td>.131</td>
<td>.005</td>
<td>-.070</td>
</tr>
<tr>
<td>EWI/Ideation</td>
<td>.370*</td>
<td>-.020</td>
<td>.104</td>
</tr>
<tr>
<td>EWI/Dysphoria</td>
<td>.558*</td>
<td>.265*</td>
<td>.274*</td>
</tr>
<tr>
<td>EWI/Impulse</td>
<td>.427*</td>
<td>.097</td>
<td>.100</td>
</tr>
<tr>
<td>SD</td>
<td>.204</td>
<td>.024</td>
<td>-.110</td>
</tr>
<tr>
<td>MAS</td>
<td>.596*</td>
<td>.116</td>
<td>.155</td>
</tr>
<tr>
<td>MMPI Sc</td>
<td>.510*</td>
<td>.146</td>
<td>.129</td>
</tr>
</tbody>
</table>

*p < .01.

degrees of freedom = 99
the present study. Examination of this table revealed some agreement between the objective scores and the patients' self ratings across all of the traits and/or dimensions measured. However, the objective scores and staff ratings, as well as the self ratings and staff ratings displayed very little convergence, with most correlations tending toward zero. Therefore, convergent validity was not established for the EWI as a result of this investigation. Perhaps the most positive observation warranted by these correlational patterns is that the objective scores, self ratings and staff ratings were internally consistent.

Given the discrepancy between the predictions of this study and the data, how is one to interpret the results? Cronbach and Meehl (1955) proposed that an experimenter in this situation can interpret his results in three ways. "1) The test does not measure the construct variable. 2) The theoretical network which generated the hypothesis is incorrect. 3) The experimental design failed to test the hypothesis properly (p. 70)." By a construct they meant some postulated attribute of people, assumed to be reflected in test performance. When performing a test validation, the attribute about which we make statements in interpreting a test is a construct. When deciding which of the previous three interpretations is most appropriate to the present investigation's findings, it is important to keep in mind that Campbell and Fiske felt that their approach was "primarily
concerned with the adequacy of tests as measures of a construct rather than with the adequacy of a construct as determined by the confirmation of theoretically predicted associations with measures of other constructs. We believe that before one can test the relationships between a specific trait and other traits, one must have some confidence in one's measure of that trait. Such confidence can be supported by evidence of convergent and discriminant validation (p. 100)." However, they have warned against the possible inclination to discard a test upon failure to discover convergent validation. In this event, which is the situation with the present study, they feel the investigator should examine the evidence in favor of several alternative propositions: a) None of the methods employed can adequately measure the trait; b) One or more of the methods does not really measure the trait; c) The trait is not a functional unity, the response tendencies involved being specific to the non-trait attributes of each test. If the data are approached in this fashion it may be possible to evolve our conceptual structure rather than abandoning the test. This is consistent with the orientation proposed by Loevinger (1957) "that the process of test validation is virtually coterminous with the use of tests for substantive contributions to psychology. What has been presented as a method of test validation is also a method of testing some kinds of psychological hypotheses (p. 119)."
Given the numerous possible interpretations suggested by the previously mentioned considerations, what conclusions can be drawn regarding the EWI based upon the present investigation's results? The evidence related to discriminant validation of the EWI proved most helpful in the decision process. There was little evidence for discriminant validity because of the excessively elevated correlations obtained between the EWI scales and the marker scales employed. Prime examples of this were the extremely high correlations obtained between the EWI scales and SD (ranging from -.658 to -.853) and the range of EWI scales correlations with MAS of .512 to .778. In addition, the EWI scales correlations with MMPI Sc ranged from .650 to .797. From this pattern of correlations it is apparent that the EWI does not measure the construct variables and/or traits it was designed to measure. Further examination of the matrix revealed that the EWI scales were very highly correlated (range of .669 to .931). These intercorrelations provide a powerful argument against the contention of the authors that the EWI scales are independent of each other and are measuring independent traits or dimensions of pathological behavior. In view of MAS's correlation with SD of -.918 and Sc's correlation with SD of -.795, the conclusion seems evident that the EWI appears to be measuring one principle trait or personality characteristic—global pathology or the inability of people to give positive self references. However, even this conclusion, which appears
to be supported by numerous lines of evidence, requires further clarification.

Walsh, et al. (1974) noted that social desirability has been interpreted in various ways in the past. Perhaps the two main ways in which it has been construed previously are: 1) as an artifact related to the structure of particular objective inventories (assessment/instrument artifact) and 2) as a generalized response set exhibiting a well defined pattern of growth and/or a basic construct.

When social desirability is interpreted as an assessment/instrument artifact, the concept of trait-method unit is important. Campbell and Fiske (1959) noted that "each test or task employed for measurement purposes is a trait-method unit, a union of a particular trait content with measurement procedures not specific to that content. The systematic variance among test scores can be due to responses to the measurement features as well as responses to the trait content (p. 81)." It is this systematic variance due to the measurement features that is considered method variance. To the extent that this irrelevant method variance contributes to the scores obtained, these scores are invalid. Cronbach (1946) noted that "response sets always lower the logical validity of a test . . . and interfere with inferences from test data (p. 484)."

Campbell and Fiske (1959) stated that "the clear-cut demonstration of the presence of method variance requires both several traits and several methods. Otherwise, high
correlations between tests might be explained as due either to basic trait similarity or to shared method variance. In the multitrait-multimethod matrix, the presence of method variance is indicated by the difference in level of correlation between the parallel values of the monomethod block and the heteromethod blocks, assuming comparable reliabilities among all tests (p. 88)." An examination of these parallel values strikingly emphasizes the apparent strength of method variance in the present investigation. However, it must be kept in mind that the distinction between trait and method is relative to what the developer of the test had in mind. It has been noted that what is an unwanted response set for a particular experimenter may be a trait for another. Indeed, it is this relative nature of trait and method variance which allows the second viewpoint of social desirability to be proposed.

The present investigator interprets social desirability as a general response set and/or a basic construct. This interpretation of social desirability is consistent with the research findings of Cruse (1963), Cruse (1966) and Walsh, et al. (1974). Their research demonstrated that the SD response set does exhibit a well defined pattern of growth, and hence may be reasonably construed as a more general response set and/or construct than mere test artifact. It is their contention that this tendency to respond in a socially desirable manner has been acquired through social
reinforcement for learning cultural norms of what is desirable and undesirable in the way of personality traits and characteristics.

To summarize the research findings discussed thus far, the present investigation found very minimal support for the convergent and discriminant validity of the EWI as assessed through the Campbell and Fiske multitrait multimethod matrix approach. It was felt that the EWI is not measuring the numerous dimensions of pathological behavior or experiential dimensions that it was intended to measure. What it does appear to be assessing is global pathology or degree of adjustment as evidenced by a person's ability to describe himself in a socially desirable manner. It was concluded that social desirability can be more usefully viewed as a general response set or construct in its own right than as merely an instrument response set or apparatus factor.

In addition to the information obtained relevant to the primary hypothesis, the present investigation also yielded information related to the secondary hypotheses. Based upon the results of a previous study with alcohol patients reported by El-Meligi and Osmond (1970), it was hypothesized that the psychotic subjects' EWI scale scores would be highly correlated to an extent that would call into question the basic scales' factorial independence. The level of these correlations among the EWI scales themselves was important to know when attempting to assess the authors' contention
that the scales are independent of each other and assess distinct dimensions of pathological behavior or experience. An examination of the matrix revealed that the EWI scales were very highly intercorrelated (range of .669 to .931). This finding did, indeed, raise serious doubts regarding the factorial independence of the scales and was consistent with the previous conclusion that the basic scales were actually measuring one basic construct—global pathology or degree of adjustment.

It was hypothesized that there would be no difference in the level of EWI basic scale scores between groups formed on the basis of sex or race. If this proved to be the case it would have provided support for the appropriateness of the established EWI norms with these diverse groups. Unfortunately, a failure to solicit a significantly large number of female and/or non-Caucasian subjects prevented an analysis of groups formed on the basis of such demographic variables.

Based upon the results of studies reported by El-Meligi and Osmond (1970) and Bonneau (1974), it was hypothesized that the EWI scale scores would be able to significantly discriminate between various patient populations and/or relative degrees of maladaptive functioning. It was assumed that the scores of various psychiatric samples would be proportionate to the presumed severity of their disorders. The three groups compared in the present investigation were inpatient psychotics, outpatient psychotics and residents of
the drug rehabilitation program. A series of two-tailed t-tests (see table 3) revealed significant differences between the inpatient psychotic subjects (N = 52) and the outpatient psychotic subjects (N = 49) on four of the EWI basic scales (Sensory, Self, Ideation and Dysphoria) and upon all three marker scales, df = 99 (p < .05). The scores obtained on the remaining four EWI scales were in the expected direction, since the inpatient psychotic subjects obtained relatively more elevated scale scores.

A second series of two-tailed t-tests (see table 9) compared the inpatient psychotic subjects and the residents of the drug rehabilitation program (N = 21) across all objective measures. As expected, the inpatient psychotic subjects obtained significantly more elevated scores on all of the EWI scales and one of the marker scales, df = 71 (p < .05).

A comparison was also made between the scores obtained by the outpatient psychotic group and the residents of the drug rehabilitation program. Once again a series of two-tailed t-tests were computed (see table 10). The outpatient psychotics obtained significantly more elevated scores on only two of the EWI scales (Time and Ideation) and one marker scale, df = 68, (p < .05). While not statistically significant, the outpatient psychotics' raw scores were relatively more elevated on the remaining six EWI scales and one of the marker scales. In addition, the absolute differences between the scores of the inpatient psychotics and the drug unit's
residents were larger than those differences obtained between
the outpatient psychotics and those same drug unit residents.

In summary, the results obtained from the comparisons
between the inpatient psychotics, outpatient psychotics and
the residents of the drug rehabilitation unit were consistent
with those reported by El-Meligi and Osmond (1970). It was
concluded that these findings provided some measure of support
for the authors' contention that the EWI can be useful in dis­
liminating between various patient groups and/or relative
degrees of maladaptive functioning. However, until a future
research investigation demonstrates that the use of the EWI
helps provide finer differentiations among patients within
these broad diagnostic categories, this conclusion must be
considered a tentative one.

In addition to the information gathered relevant to the
principal hypotheses, the present investigation provided
insights into some of the more specific limitations of the
EWI's present structure. A consideration of these limita­
tions and the results of the current investigation suggested
several research projects that need to be performed with the
EWI by those researchers who remain optimistic regarding its
potential usefulness.

One of the most obvious limitations of the EWI apparent
from this research was the extremely elevated correlations
among its basic scales. Given this finding, it no longer
seems reasonable to accept the authors' contention that the
EWI scales are measuring eight distinct traits, experiential dimensions, and/or dimensions of pathological behavior. It was proposed that the EWI may actually be assessing global pathology or degree of adjustment as evidenced by a person's ability to describe himself in a socially desirable manner. It appears that one of the top priority studies of the EWI in the near future should be a factor analysis of the instrument to determine precisely what factors are being measured. This factor analysis may possibly be able to indicate the direction the authors should proceed as far as eliminating certain unnecessary items and reorganizing the remaining items into new scales more closely related to those factors actually assessed. One of the primary goals would be to arrange the items so that each scale is statistically homogenous as well as homogenous in manifest content, thereby permitting more specific content-coherent messages to be attributed to a particular score.

Those researchers, who are inclined to interpret the EWI's scales high correlations with the Edwards SD Scale as indicative of instrument related response set, may feel that an attempt to reword those items found to have the most extreme social desirability scale values (SDSV) is indicated. Since Edwards (1957) found the probability of item endorsement to be linearly related to SDSV, it would appear necessary to control for this aspect of method variance. According to this viewpoint, rephrasing of the items toward a more
neutral SDSV would result in an increase in the effectiveness of the test in discriminating individual differences in specific content related traits.

Another apparent limitation of the EWI was the ambiguous nature of some of the questions, e.g., question number 28--"It is too late." A list of those items which elicited clarifying inquiries by some of the subjects in this study can be found in appendix I. Mischel (1968) pointed out that "although the stimulus questions are standardized--that is, printed and therefore always the same on each occasion--their referents are unclear. . . . Such ambiguous items require the respondent to interpret behavior and to provide inferences about psychological attributes. . . . Accurate behavior description is increased when differences between subjects in their interpretation of the test stimuli are minimized; ambiguity in a test item produces interpretative subjectivity (p. 60)." Mosher (1966) found that item ambiguity appeared to be the defining characteristic of spontaneously omitted MMPI items. A somewhat related finding was that certain EWI questions were particularly confusing to some of the subjects due to the level of difficulty of the vocabulary, e.g., symmetrical, mutilation. A list of those items which contained vocabulary words poorly understood by some of the subjects in this investigation can be found in appendix I. It was felt that any characteristics of the items which caused a subject to omit an item or answer it inaccurately would contribute to unwanted method
variance and limit the validity of the inferences that could be drawn from a respondent's test score. Therefore, it would seem that the more troublesome EWI items listed need to be reworded to eliminate this unwanted potential source of variance.

El-Meligi and Osmond (1970) stated that 332 of the items were keyed for the answer "true," 38 of the items were keyed for the answer "false" and 30 of the items were unkeyed. While it was stated earlier that the acquiescent response set was not considered to be an important contributor to method variance, the direction of the keying needs to be balanced for a different reason. Since many of the EWI items are attempting to assess extremely pathological or bizarre experiences, which are overwhelmingly keyed in the affirmative direction, it is possible that some subjects will have a tendency to perseverate and respond to all of the remaining questions with the answer "false." If this is the case--it happened a few times during the present investigation--then this imbalance in direction of item keying may be invalidating the inferences drawn from certain individual's test profiles. It is felt that logically reversing some of the items and then keying them in the opposite direction would eliminate this possible source of variance.

It must be emphasized that if an investigator decides to implement any of the revisions of the EWI suggested thus far, new norms will have to be established across all target popula-
tions for the revised version of the test.

A small number of research projects were described by El-Meligi and Osmond (1970) that suggested the EWI could be useful as a screening device to provide initial distinctions between broad diagnostic categories such as psychotic, neurotic and alcohol addiction. Their conclusions were supported by the results of the present investigation. However, thus far no attempt has been made to precisely differentiate between patients within these broad categories. The contention of the authors that the EWI can prove helpful in diagnostic applications would be more strongly supported if these finer discriminations could be demonstrated. Perhaps research projects employing various combinations of scores and/or profile configurations will enable the investigators to arrive at more accurate differential diagnoses.

A final area for potential research projects would be to empirically determine and document new areas where the EWI can be of assistance. In addition to its initially intended use in detecting pathological dimensions of perception and behavior in more disturbed patients, the EWI has demonstrated varying degrees of promise in preliminary projects encompassing diverse areas. Many of these research efforts were reviewed in the earlier portion of this manuscript. Bonneau (1975a) stated that the EWI could be employed to screen and detect psychological difficulties in high school and college students before these problems became incapac-
tating. He later (Bonneau, 1975b) attempted to obtain information regarding trends and/or stages of personality development in normal adolescents through the use of the same instrument. In a third study Bonneau (1974) attempted to extend the application of the EWI to a group of people that was not suffering from discernible psychiatric symptomatology, but who, nevertheless, had a long history of maladaptive behavior--prison inmates. He reported that the EWI had been shown to be helpful in detecting schizophrenia among prisoners, in differentiating between prisoners who are inclined toward violence and those who are inclined toward drug abuse, and in detecting prisoners who are suicide risks. However, methodological difficulties and inadequate reporting of the results render these conclusions as merely tentative applications until further research has documented the actual usefulness of the EWI in these aforementioned areas.

Groesbeck, et al. (1974) utilized the EWI as part of an assessment package in evaluating the amount of change attributable to a diet-vitamin intervention program in a county jail. Sinnett and Bates (1974) performed a pilot project which suggested that the EWI may prove useful in understanding and delineating the unique experiential aspects of various "altered states of consciousness." A small number of studies were reported by El-Meligi and Osmond (1973) which suggested that the EWI may prove helpful in measuring changes in perception assumed caused by biochemical imbalance. Pfeiffer,
et al. (1970) performed a longitudinal study with out-patient schizophrenics which attempted to ascertain correlations of quantitative EEG changes and polyamine blood levels with changes in psychiatric state as measured by the EWI. The relation of the EWI to various neurophysiological measures raised the possibility that this instrument may be of some use in the evaluation of psychological change in pharmacological studies. However, it must be stressed that these studies were primarily preliminary in nature and were more suggestive of areas of potential application of the EWI than a convincing documentation of such applications.

If future research efforts are undertaken with the EWI it would seem important to compare its usefulness with previously existing measures and/or more specific measures. It seems apparent that those investigators performing research with the EWI are attempting to extend its use to more normal populations. However, as both Goldberg (1974) and El-Meligi and Osmond (1970) have pointed out, the applicability of this inventory may be primarily limited to the more disturbed individuals since the test attempts to measure pathological experiences rarely found among normal subjects.

Although suggestions for future research with the EWI have been proposed, it might prove helpful to evaluate the potential return from such efforts before deciding to proceed further. As early as 1928 (Hartshorne and May) evidence
began to accumulate which questioned the assumptions of the traditional trait approaches to personality. This viewpoint assumes that personality dispositions or traits are relatively stable, highly consistent attributes that exert widely generalized causal effects upon behavior. If one ascribes to this assumption, then it is natural to assume that there will be pervasive cross-situational consistencies in behavior relatively independent of situational variations. Adherents to this traditional approach to personality assessment develop global personality inventories, such as the EWI, to discover information relevant to an individual's underlying personality characteristics or traits as a means of predicting behavior. However, as Bryne (1974) has pointed out, there has been a series of investigations indicating the lack of generality of such diverse personality characteristics as attitudes toward authority figures (Burwen and Campbell, 1957), rigidity (Pervin, 1960; Wrightsman and Baumeister, 1961), dependency (Sears, 1963), aggressive behavior (Bandura, 1960), anxiousness (Endler and Hunt, 1966, 1969) and intolerance of ambiguity (Kenny and Ginsberg, 1958). When investigators have sought consistency or stability over time they have found similar disappointing results.

It was primarily this trend of negative findings related to the consistency issue which caused many researchers (Mischel, 1968; Peterson, 1968; Rotter, 1954; Vernon, 1964) to conclude that the predictive utility of a trait based approach to
personality still remains undemonstrated and that situational specificity of behavior appears to be the rule rather than the exception. To researchers of this situational orientation it had become all too apparent that those behaviors which were often interpreted as stable personality indicators were highly specific and depended upon the aspects of the different eliciting situations and the response mode used to measure them. Therefore, they concluded that behavior is primarily determined by external stimulus conditions and by the individual's past experience with those or related stimuli. As a result, their research emphasis was focused upon delineating the stimulus determinants of behavior while minimizing the importance of dispositional determinants.

Fortunately, over the past few years there has been an increasing realization by those researchers, who had been primarily trait or type theorists, that behavior is much more situation specific than their theories had acknowledged. At the same time the situation oriented researchers began to become increasingly aware that situations are more person specific than they were formerly willing to concede. These insights have been accompanied by theoretical modifications and alterations in the nature of research proposed in the area. The result of this growing convergence of opinion is an interactionist position stressing both the importance of the person and the situation. Somewhat differing perspectives regarding what the interactionist position emphasizes
have been proposed by Bowers (1973), Mischel (1973) and Bem (1974).

In a most fascinating article Mischel (1973) proposed an approach to personality psychology which emphasized the interdependence of behavior and conditions, but also recognized the impact that individual differences in cognitive activities can have upon what particular behavior is elicited by a specific context. While he stressed the crucial role of situations or conditions, he attempted to delineate a number of theoretical person variables that mediate the effects of conditions upon behavior. Mischel proposed the following cognitive social learning variables as basic units for the study of individuals: cognitive and behavioral construction competencies, encoding strategies and personal constructs, behavior-outcome and stimulus-outcome expectancies, subjective stimulus values, and self-regulatory systems and plans. It was his contention that these specific interactions between the person variables and the psychological situations are best analyzed within the framework of a cognitive social learning approach.

Bem (1974) conceded that the traditional research literature in personality had apparently documented the lack of cross-situational consistencies in behavior. However, he contended that "the nomothetic assumptions of the traditional research paradigm are incorrect and that by adopting some of the idiographic assumptions employed by our intuitions, higher cross-situational correlations can be obtained (p. 506)."
Specifically, the nomothetic assumption about the nature of individual differences is that "a particular trait dimension or set of trait dimensions is universally applicable to all persons and that individual differences are to be identified with different locations on those dimensions (p. 508)." Bem proposed that an idiographic view of individuals similar to Allport's (1937) would be more appropriate for research efforts attempting to assess the cross-situational consistency of behavior in individuals. This approach explicitly recognizes individual differences in the ways in which traits relate to each other as well as individual differences as far as what traits are even relevant. This shift from nomothetic to idiographic assumptions about the nature of individual differences should allow the establishment of idiographic criteria for consistency and inconsistency. "In summary, then, the traditional trait-based research study will yield evidence of cross-situational consistency only if the individuals in the research sample agree with the investigator's a priori claim that the sampled behaviors and situations belong in a common equivalence class and only if the individuals agree among themselves on how to scale those behaviors and situations (p. 510)."

It has become apparent that trait-based assessment approaches such as the EWI, which are founded upon nomothetic assumptions, cannot pass the test of predictive validity. Given the long history of disappointing results with these
inventories which attempt to assess broad general personality traits, it appears reasonable to heed the advice of Wallach and Leggett (1972) and design future tests less ambitious in the generality of their content and more situationally specific in their inquiry. The time has come to learn from our previous research successes and failures. Attention must be focused upon those means of assessment which have demonstrated some potential for a return on our considerable investments.
CHAPTER 5

SUMMARY

The present investigation was designed to examine the convergent and discriminant validity of the Experiential World Inventory (El-Meligi and Osmond, 1970). The multitrait multimethod matrix approach of Campbell and Fiske (1959) was employed. Data was obtained from 101 subjects diagnosed as psychotic and 21 residents of a drug rehabilitation program on four objective tests, twelve self-ratings and twelve staff ratings. MAS, SD and MMPI Sc were selected as the ninth, tenth and eleventh traits measured for the purpose of evaluating discriminant validity.

An examination of the correlations composing the matrix revealed very minimal support for the convergent and discriminant validity of the EWI. In regard to convergent validity, the results indicated a moderate level of agreement between the objective scores and self-ratings across all the traits measured. However, the objective scores and staff ratings, as well as self-ratings and staff ratings displayed little convergence, with most correlations tending toward zero. The failure to establish convergent validity with the EWI was attributed to a combination of trait and method
variance. In addition, there was little evidence for discriminant validity because of the excessively elevated correlations obtained between the EWI scales and the marker scales employed. Further examination of the matrix revealed that the EWI scales were very highly intercorrelated. From this pattern of correlations it was apparent that the EWI does not measure the construct variables and/or traits it was intended to measure. What it does appear to be assessing is global pathology or degree of adjustment as evidenced by a person's ability to describe himself in a socially desirable manner. It was concluded that social desirability can be more usefully viewed as a general response set or construct in its own right than as merely an instrument response set or apparatus factor.

Specific limitations of the instrument were noted and suggestions were made for further research with the EWI by those investigators who remain optimistic regarding its potential usefulness. However, in light of the numerous studies documenting the lack of consistency in behavior across diverse situations and the lack of predictive validity of these global assessment inventories, it was questioned whether it is useful to conceptualize behavior as solely determined by personality variables. An alternative perspective to the traditional trait approach to personality, which underlies the EWI, was endorsed. This approach analyzes the specific interactions between the person variables and situational variables. It
was stated that future tests need to constrict their assessment to more specific person-situational contexts. This more idiographic assessment should permit one to predict certain behaviors across certain situations for certain people.
APPENDIX A

QUESTION AND ANSWER BOOK FOR THE
EXPERIENTIAL WORLD INVENTORY
INSTRUCTIONS FOR ANSWERING THE EWI QUESTIONS

This inventory consists of a number of statements representing a wide range of experiences, usual and unusual, that people may go through at one time or another in their lives. It is hoped that these statements will enable you to state your thoughts and feelings about yourself, about other people and about life in general.

Read each statement carefully and decide whether TRUE or FALSE best represents the way you feel at this time. Then in the column directly to the left of the question circle either the capital letter T or F.
Example: Item No. 201 reads as follows:
T F 201. Work is fun.
If you agree with this statement, you would mark the question and answer sheet as follows: T F 201. Work is fun.
If you find the statement does not represent the way you feel, mark as follows: T F 201. Work is fun.
Sometimes it will be hard to make up your mind, in which case just decide which answer is closer to your experience at present. There are no right or wrong answers. Each person is different and has only to say what is true for him. Erase completely any answer you wish to change.

Do not spend a long time making up your mind. Work quickly and please remember ALL STATEMENTS MUST BE MARKED TRUE OR FALSE ON THE QUESTION AND ANSWER SHEET.
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<tr>
<td>T</td>
<td>F</td>
<td>1. Bad times will pass.</td>
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<td>T</td>
<td>F</td>
<td>2. Color pleases me.</td>
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<td>T</td>
<td>F</td>
<td>3. I have difficulty in getting to sleep.</td>
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<td>T</td>
<td>F</td>
<td>4. I have new ideas about religion, and the world entirely different from anything I have ever thought before.</td>
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<td>T</td>
<td>F</td>
<td>5. People usually understand my intentions.</td>
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<td>T</td>
<td>F</td>
<td>6. Time goes faster during the day.</td>
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<td>T</td>
<td>F</td>
<td>7. Talking is my greatest relief.</td>
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<td>T</td>
<td>F</td>
<td>8. After working under tension for a long time, I get severe headaches.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>9. My eyes have become markedly over-sensitive to light.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>10. When I am extremely happy, I find it difficult to sleep or concentrate.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>11. I turned out to be a different kind of person from what I wanted to be.</td>
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<td>T</td>
<td>F</td>
<td>12. I cannot make sense of what I read now.</td>
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<td>T</td>
<td>F</td>
<td>13. I am afraid of the future.</td>
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<td>T</td>
<td>F</td>
<td>14. I am constantly in a hurry for no particular reason.</td>
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<td>T</td>
<td>F</td>
<td>15. I expect very little from life.</td>
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<td>T</td>
<td>F</td>
<td>16. Stairs look very steep.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>17. I wish I had lived in ancient times.</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>18. Music I used to like does not sound harmonious any more.</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>19. I go through periods during which nothing can divert my attention away from a task I like.</td>
</tr>
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</table>
T F 20. Whatever I am doing, I feel I ought to be doing something else.
T F 21. Buildings often look as if they are crumbling.
T F 22. I sometimes keep talking to convince myself that I exist.
T F 23. Quick movements frighten me now.
T F 24. I am made up of two opposite characters.
T F 25. Sometimes, I am not myself.
T F 26. Time has stopped for me.
T F 27. Animals often try to fool me.
T F 28. It is too late.
T F 29. I feel like killing untidy people.
T F 30. Sunlight often seems dazzling.
T F 31. I often dream about losing my teeth.
T F 32. I am disturbed about a bad odor in my mouth.
T F 33. I can easily overcome boredom.
T F 34. Straight edges such as those of walls and floors look curved at times.
T F 35. I have a strong urge to disfigure men.
T F 36. I have a sense of extraordinary looseness in my muscles.
T F 37. It is too late to try to be somebody.
T F 38. I wonder why people are so grim.
T F 39. Strange ideas come into my head from nowhere.
T F 40. Everything seems to have slowed down.
T F 41. I cannot focus my eyes on anything now.
T F 42. I can read people's minds.
T F 43. The streets seem to be getting wider.
44. I seem to have discovered the secrets of the universe.

45. Letters run into each other.

46. Sometimes when I read, the lines of print zig-zag up and down.

47. I do not belong to this century.

48. I cannot fully open my mouth.

49. Objects seem closer to each other.

50. I must always be on guard.

51. My family would be better off dead.

52. People and things look as flat as moving pictures projected on a screen.

53. My limbs feel as if they do not belong to me.

54. I sometimes leave my body.

55. The lights of life seem to be going out one by one.

56. People's talk is becoming unclear to me.

57. I would like to escape from my body.

58. I feel so old.

59. I can't be sure whether people are talking to me or to somebody else.

60. People deceive me all the time.

61. Days and nights are all alike to me.

62. If it were not for cold or snow, I would not realize that it is winter time.

63. I am nothing.

64. People are always muttering to themselves.

65. People act as if I were not there.

66. Thoughts crowd into my mind too rapidly for discussion.
T  F 67. My body is too tight.
T  F 68. I keep smelling all sorts of odors.
T  F 69. Food often tastes bitter.
T  F 70. I love to see my name in print.
T  F 71. Voices of people sound as if they come from far away.
T  F 72. I hardly pay attention to the sequence of day and night.
T  F 73. I have little respect for myself.
T  F 74. Voices of people sound sharp and harsh.
T  F 75. My memory has gotten much worse.
T  F 76. People look through me.
T  F 77. I feel like I am losing my masculinity (or femininity).
T  F 78. Foods do not smell anymore.
T  F 79. My legs do not seem to move easily.
T  F 80. I sometimes taste sound.
T  F 81. I am bothered by the color of my skin.
T  F 82. The world would be better off without weak people.
T  F 83. My name brings me bad luck.
T  F 84. My voice seems to be coming from a remote distance.
T  F 85. Someone is making copies of me.
T  F 86. People generally have good reasons for most of their deeds.
T  F 87. The terrors of hell approach.
T  F 88. I sometimes wonder how human flesh tastes.
T  F 89. I often have love affairs with persons I do not care for.
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T  F  90. Everyone seems to have changed lately.
T  F  91. Everything has special meaning for me now.
T  F  92. I cannot think in a concentrated fashion.
T  F  93. My skin is very sensitive.
T  F  94. Old women turn my stomach.
T  F  95. Cats tease me.
T  F  96. I enjoy imagining people transformed into insects.
T  F  97. Life is a stupid drama.
T  F  98. I am a failure.
T  F  99. The idea of killing animals appeals to me.
T  F  100. My body is not exactly symmetrical.
T  F  101. I am bothered by murderous ideas.
T  F  102. I sometimes feel an urge to bite somebody.
T  F  103. Now and then I feel that my body is being pierced with needles.
T  F  104. I enjoy dissecting frogs.
T  F  105. I prefer pets to human beings.
T  F  106. I grew up too fast.
T  F  107. My body feels numb.
T  F  108. I have a feeling of pressure and fullness in my skull.
T  F  109. People trust me.
T  F  110. I have a mental illness.
T  F  111. I have been sexually attracted to men (or women) for whom I have little respect.
T  F  112. I am fascinated by bloody scenes.
T  F  113. I am not the kind of person my mother wanted me to be.
T  F  114. I have a desire to burn things.
T  F  115. I lose my way more easily now.
T  F  116. I don't know whether I am a man or a woman.
T  F  117. People smile strangely at me.
T  F  118. Time may heal my wounds.
T  F  119. The blood seems to be carried to my brain in enormous quantities.
T  F  120. I loathe people who touch me.
T  F  121. I would have been better off if I were somebody else.
T  F  122. I enjoy buying new things even though I don't particularly need them.
T  F  123. My hips are unusually large.
T  F  124. Order is a basic quality of nature.
T  F  125. I seldom worry very much.
T  F  126. I am rotten inside.
T  F  127. I have become an awful burden to my family.
T  F  128. I hate myself.
T  F  129. I can feel the pulse of someone when I shake his hand.
T  F  130. I feel turned to stone.
T  F  131. My body feels comfortable.
T  F  132. Other people treat me like an animal.
T  F  133. Sometimes, when I look at people, their forms dilate and contract.
T  F  134. I am so weary of myself that life seems a burden.
T  F  135. I ought to kill myself.
T  F  136. People want to see my genitals.
137. I cannot visualize myself older than I am now.
138. Without my work, I would be nothing.
139. I like meeting people.
140. I have no will of my own.
141. Intelligence is the only thing that counts in the world.
142. Sometimes I do not know if I am talking or not.
143. People are parasites.
144. My joints are loosening up.
145. I feel lonesome most of the time.
146. I often imagine scenes of torture.
147. I often do not know whether I am awake or asleep.
148. I feel lost in unfamiliar places.
149. I am afraid of my family.
150. I am beginning to think that I am losing out everywhere.
151. My skin feels strange.
152. Sometimes my body becomes so light that I feel I will rise off the ground.
153. I feel I have always been old.
154. I do not like my family's name.
155. I don't brood over the past.
156. Most people move and act as puppets do.
157. When I touch people's bodies, they seem unusually warm.
158. I am as happy alone as in company.
159. Somebody may cut off my genitals.
160. I have a double.
T  F  161. The past has many pleasant memories.
T  F  162. I have full control of myself.
T  F  163. I am shrinking.
T  F  164. I get puzzled as to who I am.
T  F  165. Strangers are usually friendly.
T  F  166. I dread to pass a graveyard.
T  F  167. The moon affected my mind.
T  F  168. My conscience gives me no rest.
T  F  169. I have no difficulty with time.
T  F  170. My arms are unusually short.
T  F  171. I don't mind waiting.
T  F  172. I like people to look at me when I look well.
T  F  173. I do not know where I am.
T  F  174. My hands seem different sizes.
T  F  175. Bright colors excite me.
T  F  176. I usually feel lost in a crowd.
T  F  177. I know many things others do not know.
T  F  178. I feel pretty lost when I am away from my family.
T  F  179. I sometimes think other people's thoughts.
T  F  180. I rarely think of myself as separate from my parents.
T  F  181. Pain seems to squeeze my eyes out of the sockets.
T  F  182. I am not a person anymore.
T  F  183. There is a lot of good in all of us.
T  F  184. I have a hard time remembering names but I hardly forget faces.
T  F  185. I usually know what will happen next.
T  F  186. My dreams are often in colors.
T  F  187. People often look much younger than they really are.
T  F  188. I face the future with confidence.
T  F  189. My fingers are clumsy now.
T  F  190. I cannot help thinking of reasons for everything that is said or done.
T  F  191. I can foretell the future pretty well.
T  F  192. I feel as if I have been transported from this world into an infinite distance.
T  F  193. My blood is polluted.
T  F  194. My reflection in the mirror looks strange.
T  F  195. My skin is very sticky.
T  F  196. I feel at home in the world.
T  F  197. I often feel like a child.
T  F  198. I welcome change in routine.
T  F  199. Evil comes only when you think of it.
T  F  200. Things usually turn out well for me.

PART TWO

T  F  201. Work is fun.
T  F  202. I look forward to each new day.
T  F  203. I can judge distances easily.
T  F  204. I hate free time.
T  F  205. I wake early in the morning.
T  F  206. I feel as if I am waiting for something to happen.
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<th>T F 207. My sexual frustration can be relieved by physical or intellectual activity.</th>
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<td>T F 208. Cars always seem to be coming straight at me.</td>
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<td>T F 209. I have no plans for the future.</td>
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<td>T F 210. I often think of prehistoric creatures.</td>
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<td>T F 211. My dreams are very vivid.</td>
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<td>T F 212. My feelings about my family have changed.</td>
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<td>T F 213. The trees and fields are not really green.</td>
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<td>T F 214. Time seems to slow down at night.</td>
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<td>T F 215. The world has become colorless.</td>
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<td>T F 216. Everything looks too sharp and bright.</td>
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<td>T F 217. Boredom almost suffocates me.</td>
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<td>T F 218. I don't mind wasting time every once in a while.</td>
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<td>T F 219. Distances between objects appear much shorter than they used to.</td>
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<td>T F 220. I do not like to touch my own body.</td>
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<td>T F 221. Children are dirty.</td>
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<td>T F 222. I can hear bright colors.</td>
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<td>T F 223. I fear I may harm my family.</td>
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<td>T F 224. I feel younger than my real age.</td>
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<td>T F 225. I wish my parents had given me another name.</td>
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<td>T F 226. I do not know my own age.</td>
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<td>T F 227. Whenever I feel depressed, I reach out for friends.</td>
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<td>T F 228. My age does not seem to change.</td>
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<td>T F 229. I am afraid somebody may cut off my nose.</td>
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<td>T F 230. Events seem to repeat themselves.</td>
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<td>T F 231. People are dirtier than pigs.</td>
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</tbody>
</table>
T F 232. I am becoming rusty.
T F 233. I am afraid somebody may disfigure me.
T F 234. People do not look alive anymore.
T F 235. Pictures seem to come alive when I look at them.
T F 236. I wish I had no sex organs.
T F 237. People treat me as if I were a thing.
T F 238. I cannot make my hands work properly.
T F 239. I seem to have lived another life before.
T F 240. My genitals bother me.
T F 241. I often feel that I could go out and "lick the world."
T F 242. Life is too hard; I cannot cope with it.
T F 243. There is always a simple explanation for everything.
T F 244. People look fierce and dangerous.
T F 245. I find it hard to differentiate between different odors.
T F 246. My blood is being sucked out of my veins.
T F 247. I hardly realize that I have a name.
T F 248. People who break the law repeatedly should be helped rather than punished.
T F 249. I am trying to solve the riddle of life and death.
T F 250. Food often smells like medicine.
T F 251. There is absolute silence in my head.
T F 252. I often see people who look exactly like me.
T F 253. I am often bothered by bad odors.
T F 254. Most people hate each other.
T F 255. My skin looks strange.
T F 256. I am not the kind of person my father wanted me to be.

T F 257. Most foods taste sour.

T F 258. Women are inferior creatures.

T F 259. My brain is bothering me.

T F 260. I have a kicking-like feeling in my abdomen.

T F 261. Voices of people have changed.

T F 262. When people look at me, I feel petrified.

T F 263. My thoughts are slow and dull.

T F 264. I never know what people will do next.

T F 265. Printed words exchange places as I read them.

T F 266. In my family, I have always felt I was a member of a crowd.

T F 267. I feel as though I were flying through space with fantastic speed.

T F 268. People have lost their vitality.

T F 269. I cannot tell myself what I will do next.

T F 270. I sometimes feel I am becoming an animal.

T F 271. People's skin looks too red.

T F 272. I feel that something serious must have happened to me that I am not aware of.

T F 273. Vertical objects like chimneys and telephone posts seem tilted.

T F 274. I cannot be sure what has really happened and what I have imagined.

T F 275. I have strange thoughts much of the time.

T F 276. I feel like killing dirty people.

T F 277. I am like a ghost.

T F 278. People eventually will turn into animals.
T F 279. I am losing my vitality.
T F 280. The change of seasons hardly catches my attention.
T F 281. Sometimes the whole field of vision becomes completely black.
T F 282. Sometimes I feel I am falling apart.
T F 283. People never say what they mean, now.
T F 284. The walls come in on me.
T F 285. Old men are indecent.
T F 286. I feel like a person riding a wild horse with a weak rein.
T F 287. Germs have invaded my gums.
T F 288. I seek relief from my thoughts by reading my Bible.
T F 289. It is dangerous to touch people.
T F 290. My mouth is often sore.
T F 291. My teeth are decaying.
T F 292. Sometimes the surroundings swirl around causing dizziness.
T F 293. I have been in two places at the same time.
T F 294. Sometimes people appear to change in size as they move towards or away from me.
T F 295. My voice seems unlike my own voice.
T F 296. Time seems to stop altogether, everything is suspended and dead quiet.
T F 297. People have blank and bewildered expressions on their faces.
T F 298. It is hopeless.
T F 299. I am someone else.
T F 300. I know how I will die.
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<th>301. My enemies are everywhere.</th>
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<td></td>
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<td>302. Dogs make fun of me.</td>
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<td>303. I am simply a character in something unreal like a dream.</td>
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<td>304. People's talk often sounds incoherent.</td>
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<td>305. I sometimes feel I am becoming younger.</td>
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<td>307. I feel as if I am turned to ice.</td>
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<td>308. My family would be better off without me.</td>
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<td>309. I do not know what my hands will do next.</td>
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<td>310. The world would be a better place without me.</td>
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<td>311. I can easily recognize animal features in people's faces.</td>
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<td>312. I would like to drink blood.</td>
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<td>313. My life seems too involved with other people.</td>
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<td>314. My jaws are often stiff.</td>
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<td>315. There is too much noise in my head.</td>
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<td>316. I feel that my ideas may turn into insects.</td>
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<td>317. People often laugh at me.</td>
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<td>318. I have a strong urge to disfigure women.</td>
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<td>319. Most people think I am stupid.</td>
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<td>320. My joints feel as if they had sand in them.</td>
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<td>321. People often look much older than they really are.</td>
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<td>322. There is silence all around.</td>
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<td>323. I often think about my enemies.</td>
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<td>324. All of the problems of the universe crowd into my mind demanding instant discussion.</td>
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<td>325. Very few people love me.</td>
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T  F  326. My joints do not seem to work properly.
T  F  327. I now find it difficult to distinguish between different voices.
T  F  328. I know what people are thinking.
T  F  329. I have nothing to be proud of.
T  F  330. I do not like my voice.
T  F  331. There are insects under my skin.
T  F  332. I do not like to see my own reflection in the mirror.
T  F  333. Printed words seem blank.
T  F  334. I am afraid I may forget my own name.
T  F  335. It seems a long time since I felt happy.
T  F  336. I sometimes become so elated that my muscles all want to jerk at once.
T  F  337. Contemplation about life is my only concern.
T  F  338. Life would not be worth living if things were always as they are now.
T  F  339. I like torturing people.
T  F  340. I have plenty of time for everything.
T  F  341. I am not what other people think I am.
T  F  342. My hands are unusually small.
T  F  343. Sun rays penetrate my body with tremendous heat.
T  F  344. I have become invisible.
T  F  345. I am very interested in ancient history.
T  F  346. My nose is swelling larger.
T  F  347. I have an exaggerated feeling of self-importance.
T  F  348. Fire excites me.
T  F  349. I often imagine scenes of mutilation.
T  F  350. I sometimes wish to live other people's lives.
T  F  351. I feel charged with electricity.
T  F  352. Whenever I go through an important experience, I feel like talking with somebody about it.
T  F  353. We need a war to teach everybody a lesson.
T  F  354. My limbs feel like jelly.
T  F  355. Lots of funny things that I do not understand are going on these days.
T  F  356. My body often feels unusually cold.
T  F  357. I enjoy watching car accidents.
T  F  358. It is easy to forgive people.
T  F  359. I am condemned to suffer a pain, each minute of which seems an eternity.
T  F  360. When depressed, my body feels so heavy that moving becomes particularly tiresome.
T  F  361. It is fun to kill cats.
T  F  362. I am not very often surprised.
T  F  363. I don't fear the unexpected.
T  F  364. My health is good.
T  F  365. I often feel my jaws are sore.
T  F  366. I feel the best is still to come.
T  F  367. My chest is unusually small.
T  F  368. I am obsessed by bloody scenes.
T  F  369. I do not feel needed any more.
T  F  370. I have the feeling that I am a new person.
T  F  371. As I think, ideas fuse into each other.
T  F  372. I enjoy killing insects.
T  F  373. My dreams are often very depressing.
T  F  374. I think about heaven and hell.
T  F  375. I am as happy in company as alone.
T  F  376. I am exhausted.
T  F  377. I have many friends.
T  F  378. Places I used to know have changed recently.
T  F  379. I can remember my earliest childhood easily.
T  F  380. I stand up for my rights.
T  F  381. I would faint if I saw a coffin.
T  F  382. I can read people's thoughts in their eyes.
T  F  383. I am in the far, far distance.
T  F  384. Children should be allowed occasionally "to get away with things."
T  F  385. I am useless.
T  F  386. I am responsible for almost everything I do.
T  F  387. Honesty is practical in the long run.
T  F  388. I am a stranger everywhere.
T  F  389. I always have lots of energy.
T  F  390. My thoughts are usually pleasant.
T  F  391. I find it easy to get along with most people.
T  F  392. I often do not recall my dreams.
T  F  393. When working, I do not get easily discouraged by obstacles or difficulties.
T  F  394. I cannot forget the mess I have made of my life.
T  F  395. Time may solve my problems.
T  F  396. I live in a dream world.
T  F  397. The last few years seem to have passed very rapidly.
T  F  398. I always live in a fog.
T  F  399. I enjoy my food.

T  F  400. I can trust myself.
APPENDIX B

QUESTION AND ANSWER BOOK FOR THE
BIOGRAPHICAL INVENTORY
INSTRUCTIONS FOR THE BIOGRAPHICAL INVENTORY

This inventory consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you.

You are to mark your answers on the question and answer sheet you have. If a statement is TRUE or MOSTLY TRUE, as applied to you, circle the capital letter T. If a statement is FALSE or NOT USUALLY TRUE, as applied to you, circle the capital letter F.

Example: Item number 4 reads as follows:
T  F  4. My father was a good man.
If you agree with this statement, you would mark the question and answer sheet as follows:
T  F  4. My father was a good man.
If you find the statement does not represent the way you feel, mark as follows:
T  F  4. My father was a good man.

Remember to give YOUR OWN opinion of yourself. In marking your answers, be sure that you circle the capital letter (T or F) that corresponds to the particular question that you are answering. Erase completely any answer you wish to change, so that only one capital letter will be circled for each question.

Work quickly and please remember ALL STATEMENTS MUST BE MARKED TRUE OR FALSE ON THE QUESTION AND ANSWER SHEET.
NOW TURN THE PAGE AND GO AHEAD.
BIOGRAPHICAL INVENTORY

T  F  1. My hands and feet are usually warm enough.
T  F  2. I work under a great deal of tension.
T  F  3. I have diarrhea once a month or more.
T  F  4. My father was a good man.
T  F  5. I am very seldom troubled by constipation.
T  F  6. I am troubled by attacks of nausea and vomiting.
T  F  7. At times I feel like swearing.
T  F  8. I have nightmares every few nights.
T  F  9. I find it hard to keep my mind on a task or job.
T  F  10. At times I feel like smashing things.
T  F  11. Most any time I would rather sit and daydream than
to do anything else.
T  F  12. I have had periods of days, weeks, or months when
I couldn't take care of things because I couldn't
"get going."
T  F  13. My family does not like the work I have chosen (or
the work I intend to choose for my life work).
T  F  14. My sleep is fitful and disturbed.
T  F  15. Once a week or oftener I feel suddenly hot all
over, without apparent cause.
T  F  16. I prefer to pass by school friends, or people I
know but have not seen for a long time, unless
they speak to me first.
T  F  17. I am liked by most people who know me.
T  F  18. I loved my father.
T  F  19. I wish I could be as happy as others seem to be.
T  F  20. I think a great many people exaggerate their mis-
fortunes in order to gain the sympathy and help
of others.
T  F  21. Most of the time I feel blue.
T  F  22. I am certainly lacking in self-confidence.
T  F  23. It takes a lot of argument to convince most people of the truth.
T  F  24. I have very few quarrels with members of my family.
T  F  25. At times I have a strong urge to do something harmful or shocking.
T  F  26. I have little or no trouble with my muscles twitching or jumping.
T  F  27. I don't seem to care what happens to me.
T  F  28. I am happy most of the time.
T  F  29. My speech is the same as always (not faster or slower, or slurring; no hoarseness).
T  F  30. I believe I am being plotted against.
T  F  31. Most people will use unfair means to gain profit or an advantage rather than to lose it.
T  F  32. I have a great deal of stomach trouble.
T  F  33. Often I can't understand why I have been so cross and grouchy.
T  F  34. At times my thoughts have raced ahead faster than I could speak them.
T  F  35. Criticism or scolding hurts me terribly.
T  F  36. I certainly feel useless at times.
T  F  37. It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.
T  F  38. I have had periods in which I carried on activities without knowing later what I had been doing.
T  F  39. I feel that I have often been punished without cause.
T  F  40. I cry easily.
T  F  41. I cannot understand what I read as well as I used to.

T  F  42. I have never felt better in my life than I do now.

T  F  43. I do not tire quickly.

T  F  44. There is something wrong with my mind.

T  F  45. I am not afraid to handle money.

T  F  46. What others think of me does not bother me.

T  F  47. It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of thing.

T  F  48. My mother was a good woman.

T  F  49. My memory seems to be all right.

T  F  50. I am worried about sex matters.

T  F  51. I find it hard to make talk when I meet new people.

T  F  52. I am afraid of losing my mind.

T  F  53. I am against giving money to beggars.

T  F  54. I frequently notice my hand shakes when I try to do something.

T  F  55. My hands have not become clumsy or awkward.

T  F  56. I have very few headaches.

T  F  57. Sometimes, when embarrassed, I break out in a sweat that annoys me greatly.

T  F  58. I have had no difficulty in keeping my balance in walking.

T  F  59. I have had attacks in which I could not control my movements or speech but in which I knew what was going on around me.

T  F  60. I like to visit places where I have never been before.

T  F  61. I believe I am a condemned person.
T F 62. Everything tastes the same.

T F 63. My people treat me more like a child than a grown-up.

T F 64. I frequently find myself worrying about something.

T F 65. It does not bother me particularly to see animals suffer.

T F 66. I loved my mother.

T F 67. I hardly ever notice my heart pounding and I am seldom short of breath.

T F 68. I get mad easily and then get over it soon.

T F 69. I have periods of such great restlessness that I cannot sit long in a chair.

T F 70. I dream frequently about things that are best kept to myself.

T F 71. I believe that I am no more nervous than most others.

T F 72. My parents and family find more fault with me than they should.

T F 73. I have reason for feeling jealous of one or more members of my family.

T F 74. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.

T F 75. No one cares much what happens to you.

T F 76. I usually expect to succeed in things I do.

T F 77. I have difficulty in starting to do things.

T F 78. I sweat very easily even on cool days.

T F 79. I am entirely self-confident.

T F 80. Once a week or oftener I become very excited.

T F 81. When in a group of people I have trouble thinking of the right things to talk about.
T F 82. I can easily make other people afraid of me, and sometimes do for the fun of it.

T F 83. At times I am all full of energy.

T F 84. I have numbness in one or more regions of my skin.

T F 85. I enjoy children.

T F 86. I do not often notice my ears ringing or buzzing.

T F 87. Once in a while I feel hate towards members of my family whom I usually love.

T F 88. I am never happier than when alone.

T F 89. I have very few fears compared to my friends.

T F 90. At one or more times in my life I felt that someone was making me do things by hypnotizing me.

T F 91. I have periods in which I feel unusually cheerful without any special reason.

T F 92. I wish I were not bothered by thoughts about sex.

T F 93. Life is a strain for me much of the time.

T F 94. I have never been in trouble because of my sex behavior.

T F 95. I am so touchy on some subjects that I can't talk about them.

T F 96. I get all the sympathy I should.

T F 97. I refuse to play some games because I am not good at them.

T F 98. At times I have very much wanted to leave home.

T F 99. I seem to make friends about as quickly as others do.

T F 100. My sex life is satisfactory.

T F 101. During one period when I was a youngster I engaged in petty thievery.

T F 102. I dislike having people about me.
T F 103. Once in a while I think of things too bad to talk about.

T F 104. I am sure I get a raw deal from life.

T F 105. I think nearly everyone would tell a lie to keep out of trouble.

T F 106. I am more sensitive than most other people.

T F 107. My daily life is full of things that keep me interested.

T F 108. Many of my dreams are about sex matters.

T F 109. I am easily embarrassed.

T F 110. I worry over money and business.

T F 111. I have had very peculiar and strange experiences.

T F 112. I have never been in love with anyone.

T F 113. The things that some of my family have done have frightened me.

T F 114. At times I have fits of laughing and crying that I cannot control.

T F 115. I find it hard to keep my mind on a task or job.

T F 116. I have never been paralyzed or had any unusual weakness of any of my muscles.

T F 117. If people had not had it in for me I would have been much more successful.

T F 118. Sometimes my voice leaves me or changes even though I have no cold.

T F 119. No one seems to understand me.

T F 120. Peculiar odors come to me at times.

T F 121. I cannot keep my mind on one thing.

T F 122. I feel anxiety about something or someone almost all the time.

T F 123. Most of the time I wish I were dead.
T  F  124. Sometimes I become so excited that I find it hard to get to sleep.

T  F  125. At times I hear so well that it bothers me.

T  F  126. I often feel as if things were not real.

T  F  127. I have strange and peculiar thoughts.

T  F  128. I hear strange things when I am alone.

T  F  129. I have been afraid of things or people that I knew could not hurt me.

T  F  130. I am afraid of using a knife or anything very sharp or pointed.

T  F  131. Sometimes I enjoy hurting persons I love.

T  F  132. I have more trouble concentrating than others seem to have.

T  F  133. Almost every day something happens to frighten me.

T  F  134. I am inclined to take things hard.

T  F  135. At times I have enjoyed being hurt by someone I loved.

T  F  136. People say insulting and vulgar things about me.

T  F  137. Even when I am with people I feel lonely much of the time.

T  F  138. I am not unusually self-conscious.

T  F  139. At periods my mind seems to work more slowly than usual.

T  F  140. People often disappoint me.

T  F  141. I have sometimes felt that difficulties were piling up so high that I could not overcome them.

T  F  142. I often think, "I wish I were a child again."

T  F  143. I have often met people who were supposed to be experts who were no better than I.
T F 144. I am usually calm and not easily upset.
T F 145. At times I think I am no good at all.
T F 146. I feel hungry almost all the time.
T F 147. I worry quite a bit over possible misfortunes.
T F 148. It makes me nervous to have to wait.
T F 149. I have had periods in which I lost sleep over worry.
T F 150. I find it hard to set aside a task that I have undertaken, even for a short time.
T F 151. I must admit that I have at times been worried beyond reason over something that really did not matter.
T F 152. I like to let people know where I stand on things.
T F 153. I am a high-strung person.
T F 154. I practically never blush.
T F 155. I blush no more often than others.
T F 156. I am often afraid that I am going to blush.
T F 157. I shrink from facing a crisis or difficulty.
T F 158. I sometimes feel that I am about to go to pieces.
APPENDIX C

SELF RATINGS
1) The scale below is concerned with sensory perception. It covers a wide range of changes in the external world of objects and people that you may experience. Some examples would be that your eyes and ears cannot handle all that comes in, or you may have noticed an increase or decrease in how accurate your senses seem to be. If objects seem to be changing in their appearance you might feel a bit confused or unsure of your position in the world. On the scale below circle the number which represents what you believe to be the best description of the accuracy of your sensory perception in comparison with other people you know.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

extremely accurate | very accurate | above average accuracy | about average accuracy | below average accuracy | very inaccurate | extremely inaccurate |

2) The scale below is concerned with time perception. It deals with experiences like time slowing down or speeding up, and time being disconnected instead of a flow. It is also interested in your ability to relate to other people your age. At times you may feel there is a difference between your sense of time and the time that the world seems to go by. On the scale below circle the number which represents what you believe to be the best description of your time perception in comparison with other people you know.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

extremely accurate | very accurate | above average accuracy | about average accuracy | below average accuracy | very inaccurate | extremely inaccurate |

3) The scale below is concerned with body perception. At times you may not like the shape of your body or may be ashamed of it. Perhaps your body may not seem to be working
right and you feel as if you often want to complain to someone about it. Sometimes it may not seem to be united, or there may be strange sensations in or around your body. On the scale below circle the number which represents what you believe to be the best description of your accuracy in body perception in comparison with other people you know.

1  2  3  4  5  6  7

extremely accurate very accurate above average average below average inaccurate inaccurate

4) The scale below is concerned with self perception and with identity. At times you may feel like you are somebody else or that you are standing outside watching yourself. Sometimes you may experience a reduction in the clear idea of who you are. Perhaps you can't tell where you end and the world begins. At these moments you may experience self doubts, hate yourself, or even feel like you are going to pieces. On the scale below circle the number which represents what you believe to be the best description of your accuracy in self perception in comparison with other people you know.

1  2  3  4  5  6  7

extremely accurate very accurate above average average below average inaccurate inaccurate

5) The scale below is concerned with your perception of others. At times people may look differently to you. For example, they may not seem to be fully human or they may appear to have unusual powers which make you suspicious of them. Perhaps animals seem to tease you, or people may look weird or jerky when they move. Sometimes it may be very difficult to realize your feelings changing toward others or their feelings changing toward you. On the scale below circle the number which represents what you believe to be
the best description of the accuracy of your perception of others in comparison with other people you know.

1 2 3 4 5 6 7

extremely accurate very accurate average accuracy about average accuracy below average accuracy very inaccurate extremely inaccurate

6) The scale below is concerned with your thinking. At times strange ideas may seem to be pushing their way into your mind. There may seem to be change in the rate of your thinking, or your thoughts may seem to be hard to organize. On the scale below circle the number which represents what you believe to be the best description of how often you have difficulty with what you have thought about, or the way you think. Remember to describe yourself in comparison with other people you know.

1 2 3 4 5 6 7

almost never very infrequently infrequently about sometimes very frequently nearly always

7) The scale below is concerned with sadness or depression. At times you may feel exhausted and agitated. You may lose hope, feel lonely and despair. Perhaps you may sometimes feel poorly about yourself, become cynical, and have a tendency to be self critical. On the scale below circle the number which represents what you believe to be the best description of how depressed you are in comparison with other people you know.

1 2 3 4 5 6 7

extremely happy very happy somewhat happier average somewhat more depressed very depressed extremely depressed
8) The scale below is concerned with your experience of control over your thoughts and actions. At times you may have trouble organizing events that occur inside and outside your body. Perhaps you may feel insecure or lack confidence about being in command of your capacities. On the scale below circle the number which represents what you believe to be the best description of the degree to which you feel you have control over your thoughts and actions. Remember to rate yourself in comparison with other people you know.

1  2  3  4  5  6  7

nearly complete control  good control  above average control  average control  below average control  poor control  hardly any control

9) The scale below is concerned with social desirability. On the scale below circle the number which represents what you believe to be the most accurate description of your behavior in comparison with other people you know.

I have a tendency to give responses to self description that would be considered by the average person to be socially desirable.

1  2  3  4  5  6  7

almost infrequently below average average average average average frequently nearly always

10) The scale below is concerned with anxiety. At times you may feel that something terrible is going to happen, but you don't know what it might be. On the scale below circle the number which represents what you believe to be the best description of yourself in comparison with other people you know.
11) On the scale below circle the number which represents what you believe to be the most accurate description of your behavior in comparison with other people you know.

I realize that at times I have perceived things that did not exist, or that other people were not aware of. In these moments I may also have strange thoughts, felt misunderstood, and had a very strong tendency to keep to myself.

12) People are often classified in one of two categories. One category would contain those who are open and trusting when describing themselves. The other category would contain those who are more cautious and guarded when describing themselves. On the scale below circle the number of the statement which represents what you believe to be the best description of your behavior when describing yourself.
APPENDIX D

STAFF RATINGS
At the top of these rating scales is the name of a patient you know, who is also participating in this study. The various rating scales range from one to seven. Each number corresponds to a relative amount of that ability. On each scale below please rate the patient, in comparison with other people you know, by circling the number that accurately describes them on that scale.

1) The scale below is concerned with sensory perception. It covers a wide range of changes in the external world of objects and people that patients may experience. Some examples would be that the patient's eyes and ears cannot handle all that comes in, or he may have noticed an increase or decrease in how accurate his senses seem to be. If objects seem to be changing in their appearance, the patient might feel a bit confused or unsure of his position in the world. On the scale below circle the number which represents what you believe to be the best description of the accuracy of this patient's sensory perception, in comparison with other people you know.

2) The scale below is concerned with time perception. It deals with experiences like time slowing down or speeding up, and time being disconnected instead of a flow. It is also interested in the patient's ability to relate to other people. His age. At times he may feel there is a difference between his sense of time and the time that the world seems to go by. On the scale below circle the number which represents what you believe to be the best description of this patient's time perception in comparison with other people you know.
3) The scale below is concerned with body perception. At times patients may not like the shape of their body or may be ashamed of it. Perhaps their body may not seem to be working right and they may often complain to somebody about it. Sometimes their body may not seem to be united, or they may experience strange sensations in or around their body. On the scale below circle the number which represents what you believe to be the best description of this patient's accuracy in body perception in comparison with other people you know.

1  2  3  4  5  6  7

extremely accurate very accurate above average accuracy about average accuracy below average accuracy very inaccurate extremely inaccurate

4) The scale below is concerned with self perception and identity. At times patients may feel like they are somebody else or that they are standing outside watching themselves. Sometimes they may experience a reduction in the clear idea of who they are. Perhaps they can't tell where they end and the world begins. At these moments they may experience self doubts, hate themselves, or even feel like they are going to pieces. On the scale below circle the number which represents what you believe to be the best description of this patient's accuracy in self perception in comparison with other people you know.

1  2  3  4  5  6  7

extremely accurate very accurate above average accuracy about average accuracy below average accuracy very inaccurate extremely inaccurate
5) The scale below is concerned with this patient's perception of others. At times people may look differently to the patient. For example, they may not seem to be fully human or they may appear to have unusual powers which make the patient suspicious of them. Perhaps animals seem to tease them, or people may look weird or jerky to the patient when they move. Sometimes it may be very difficult for the patient to realize his feelings changing toward others, or their feelings changing toward him. On the scale below circle the number which represents what you believe to be the best description of the accuracy of this patient's perception of others in comparison with other people you know.

1  2  3  4  5  6  7

extremely very average above about below very extremely
accurate accurate accuracy average accuracy inaccurate inaccurate

6) The scale below is concerned with this patient's thinking. At times strange ideas may seem to be pushing their way into his mind. There may seem to be changes in the rate of his thinking, or he may find it hard to organize his thoughts. On the scale below circle the number which represents what you believe to be the best description of how often this patient seems to have difficulty with what he is thinking about, or the way in which he thinks. Remember to describe him in relation to other people you know.

1  2  3  4  5  6  7

almost very infrequently about some- very nearly
never infrequently average times frequently always

7) The scale below is concerned with sadness or depression. At times the patient may feel exhausted and agitated. He may lose hope, feel lonely and despair. Perhaps he may sometimes feel poorly about himself, become cynical, and
have a tendency to be self critical. On the scale below circle the number which represents what you believe to be the best description of how depressed this patient is in comparison with other people you know.

\[ \begin{array}{cccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7
\end{array} \]

extremely very somewhat about somewhat very extremely
happy happy happier average more depressed depressed depressed

8) The scale below is concerned with this patient's experience of control over his thoughts and actions. At times he may have trouble organizing events that occur inside and outside of his body. Perhaps he may feel insecure and seem to lack confidence about being in command of his capacities. On the scale below circle the number which represents what you believe to be the best description of the degree to which the patient seems to experience a sense of control over his thoughts and actions. Remember to rate him in comparison with other people you know.

\[ \begin{array}{cccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7
\end{array} \]

nearly complete good above average about average below average poor hardly any control

9) The scale below is concerned with social desirability. On that scale circle the number which represents what you believe to be the most accurate description of this patient's behavior in comparison with other people you know.

This patient has a tendency to give responses in self description that would be considered by the average person to be socially desirable.
10) The scale below is concerned with anxiety. At times patients may feel that something terrible is going to happen, but they don't know what it might be. On the scale below circle the number which represents what you believe to be the best description of this patient in comparison with other people you know.

1 2 3 4 5 6 7

almost infrequently below about above frequently nearly
never quently average average average quently always

11) On the scale below circle the number which represents what you believe to be the most accurate description of this patient's behavior in comparison with other people you know.

People may perceive things that do not exist or that other people are not aware of. In these moments they may also have strange thoughts, feel misunderstood, and have a very strong tendency to keep to themselves.

1 2 3 4 5 6 7

hardly ever very infrequently infrequently about average often very frequently nearly always
12) People are often classified in one of two categories. One category would contain those who are open and trusting when describing themselves. The other category would contain those who are more cautious and guarded when describing themselves. On the scale below circle the number of the statement which represents what you believe to be the best description of this patient's behavior when describing himself.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>7</th>
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<td>usually</td>
<td>often</td>
<td>sometimes</td>
<td>about</td>
<td>sometimes</td>
<td>often</td>
<td>usually</td>
</tr>
<tr>
<td>open</td>
<td>open</td>
<td>open</td>
<td>average</td>
<td>guarded</td>
<td>guarded</td>
<td>guarded</td>
</tr>
</tbody>
</table>

13) How long have you know this patient? ______________

14) On the scale below please circle the number which represents what you believe to be the best description of your degree of confidence in your ratings of the patient.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>extremely</td>
<td>very</td>
<td>below</td>
<td>about</td>
<td>above</td>
<td>very</td>
<td>extremely</td>
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<tr>
<td>unsure</td>
<td>unsure</td>
<td>average</td>
<td>average</td>
<td>confidence</td>
<td>confident</td>
<td>confident</td>
</tr>
</tbody>
</table>
APPENDIX E

BASIC BACKGROUND INFORMATION
1) NAME (NUMBER) ____________________
2) AGE ________________________________
3) SEX ________________________________
4) RACE ________________________________
5) DIAGNOSIS ___________________________
6) LENGTH OF PRESENT HOSPITAL STAY ______
7) EDUCATION (highest grade attained) ______
APPENDIX F

PATIENT CONSENT FORM
PART I-AUTHORIZATION (BY PATIENT) FOR USE OF DRUGS AND/OR PROCEDURES FOR INVESTIGATIONAL PURPOSES BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION

(Date) (VA station)

1. I, ____________________________, hereby voluntarily consent to

(Type or print name of patient or subject)

participate in the following investigation ______________________________

>Title of study and name of investigational drugs and/or procedures used)

2. The nature and purpose of the drug and/or procedure and the pertinent potential complications have been explained to me by Dr. ____________________________

(Type or print name of physician)

I understand that the investigation has been approved, compares alternative methods of diagnosis and/or treatment, and that I may receive a standard, an investigational, or a supportive drug and/or procedure.

I acknowledge that while no guarantee or assurance has been made as to the results that may be obtained, since investigational results cannot be fully foreseen, nonetheless the VA will take every precaution consistent with the best medical practice, and that my participation in this study may prove of benefit to me and in advancing medical knowledge.

(Physician's signature as responsible investigator) (Patient's (or subjects) signature)

PATIENT'S IDENTIFICATION (For typed or written entries give: Name-last, first, middle; Date; Hospital)

IDENTIFICATION NO. WARD NO.

AUTHORIZATION FOR USE OF DRUGS AND/OR PROCEDURES FOR INVESTIGATIONAL PURPOSES

VA Form May 1967 10-1086

Supersedes VA Form 10-1066, Jun 1964, which will not be used.
APPENDIX G

RELIABILITY OF THE MEASURES
### TABLE G-1
CORRECTED SPLIT-HALF RELIABILITY COEFFICIENTS OF EWI SCALES FOR
PSYCHIATRIC, PRISON, AND NORMAL SAMPLES

<table>
<thead>
<tr>
<th>Sample</th>
<th>N</th>
<th>Sex</th>
<th>1 Sens.</th>
<th>2 Time</th>
<th>3 Body</th>
<th>4 Self</th>
<th>5 Others</th>
<th>6 Idea.</th>
<th>7 Dysph</th>
<th>8 Impulse</th>
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</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>45</td>
<td>M</td>
<td>0.96</td>
<td>0.82</td>
<td>0.92</td>
<td>0.94</td>
<td>0.88</td>
<td>0.86</td>
<td>0.92</td>
<td>0.91</td>
</tr>
<tr>
<td>Schizophrenics</td>
<td>86</td>
<td>M</td>
<td>0.95</td>
<td>0.77</td>
<td>0.91</td>
<td>0.92</td>
<td>0.90</td>
<td>0.89</td>
<td>0.95</td>
<td>0.88</td>
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<tr>
<td>Schizophrenics</td>
<td>96</td>
<td>F</td>
<td>0.96</td>
<td>0.77</td>
<td>0.89</td>
<td>0.93</td>
<td>0.88</td>
<td>0.88</td>
<td>0.94</td>
<td>0.84</td>
</tr>
<tr>
<td>Psychotics</td>
<td>83</td>
<td>M &amp; F</td>
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<td>0.75</td>
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<td>0.78</td>
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<td>Neurotics</td>
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<td>F</td>
<td>0.96</td>
<td>0.66</td>
<td>0.88</td>
<td>0.94</td>
<td>0.94</td>
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<td>Alcoholics</td>
<td>115</td>
<td>M</td>
<td>0.90</td>
<td>0.80</td>
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<td>0.86</td>
<td>0.91</td>
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<tr>
<td>Prison inmates</td>
<td>260</td>
<td>M</td>
<td>0.84</td>
<td>0.50</td>
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<td>0.75</td>
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<tr>
<td>College students</td>
<td>263</td>
<td>M</td>
<td>0.87</td>
<td>0.57</td>
<td>0.73</td>
<td>0.77</td>
<td>0.76</td>
<td>0.81</td>
<td>0.87</td>
<td>0.80</td>
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<tr>
<td>College students</td>
<td>184</td>
<td>F</td>
<td>0.90</td>
<td>0.76</td>
<td>0.79</td>
<td>0.91</td>
<td>0.90</td>
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<tr>
<td>Attendants</td>
<td>285</td>
<td>F</td>
<td>0.87</td>
<td>0.62</td>
<td>0.65</td>
<td>0.82</td>
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<tr>
<td>Adult normals</td>
<td>181</td>
<td>M</td>
<td>0.85</td>
<td>0.60</td>
<td>0.66</td>
<td>0.63</td>
<td>0.80</td>
<td>0.76</td>
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<tr>
<td>Adult normals</td>
<td>228</td>
<td>F</td>
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<td>0.57</td>
<td>0.86</td>
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<td>0.79</td>
<td>0.78</td>
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</tbody>
</table>

TABLE G-2

MEANS AND RANGES OF SPLIT-HALF RELIABILITY COEFFICIENTS
OF EWI SCALES IN PSYCHIATRIC AND NORMAL SAMPLES
COMPAORED TO RELIABILITY COEFFICIENTS IN A
SAMPLE OF PRISON INMATES

<table>
<thead>
<tr>
<th>Scale</th>
<th>Psychiatric</th>
<th>Normal</th>
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<tr>
<td></td>
<td>M</td>
<td>Range</td>
<td>M</td>
</tr>
<tr>
<td>1 Sensory</td>
<td>0.95</td>
<td>0.90-0.96</td>
<td>0.86</td>
</tr>
<tr>
<td>2 Time</td>
<td>0.76</td>
<td>0.66-0.82</td>
<td>0.62</td>
</tr>
<tr>
<td>3 Body</td>
<td>0.89</td>
<td>0.85-0.92</td>
<td>0.74</td>
</tr>
<tr>
<td>4 Self</td>
<td>0.93</td>
<td>0.90-0.94</td>
<td>0.81</td>
</tr>
<tr>
<td>5 Others</td>
<td>0.88</td>
<td>0.81-0.94</td>
<td>0.80</td>
</tr>
<tr>
<td>6 Ideation</td>
<td>0.88</td>
<td>0.84-0.91</td>
<td>0.79</td>
</tr>
<tr>
<td>7 Dysphoria</td>
<td>0.92</td>
<td>0.78-0.96</td>
<td>0.87</td>
</tr>
<tr>
<td>8 Impulse</td>
<td>0.88</td>
<td>0.73-0.95</td>
<td>0.74</td>
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</tbody>
</table>

TABLE G-3

TEST-RETEST STABILITY COEFFICIENTS OF EWI

SCALES FOR DIFFERENT GROUPS

<table>
<thead>
<tr>
<th>Scale</th>
<th>Psychiatric Patients</th>
<th>Alcoholics</th>
<th>College Students</th>
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<tbody>
<tr>
<td>Number</td>
<td>47</td>
<td>51</td>
<td>76</td>
</tr>
<tr>
<td>Sex</td>
<td>M &amp; F</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>1 Sensory</td>
<td>0.64</td>
<td>0.87</td>
<td>0.64</td>
</tr>
<tr>
<td>2 Time</td>
<td>0.73</td>
<td>0.74</td>
<td>0.68</td>
</tr>
<tr>
<td>3 Body</td>
<td>0.61</td>
<td>0.84</td>
<td>0.61</td>
</tr>
<tr>
<td>4 Self</td>
<td>0.59</td>
<td>0.78</td>
<td>0.54</td>
</tr>
<tr>
<td>5 Others</td>
<td>0.67</td>
<td>0.79</td>
<td>0.66</td>
</tr>
<tr>
<td>6 Ideation</td>
<td>0.61</td>
<td>0.88</td>
<td>0.66</td>
</tr>
<tr>
<td>7 Dysphoria</td>
<td>0.70</td>
<td>0.92</td>
<td>0.23</td>
</tr>
<tr>
<td>8 Impulse</td>
<td>0.71</td>
<td>0.85</td>
<td>0.74</td>
</tr>
</tbody>
</table>

APPENDIX H

VALIDITY OF THE MEASURES
TABLE H-1

"t" VALUES FOR THE RAW SCORE DIFFERENCES ON EWI SCALES BETWEEN MALE SCHIZOPHRENICS (N=161), MALE ALCOHOLICS (N=200), MALE NEUROTICS (N=33) AND MALE NORMALS (N=181)

<table>
<thead>
<tr>
<th>Groups Compared</th>
<th>Scales</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<th>8</th>
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</thead>
<tbody>
<tr>
<td>Schiz. : Alcoholics</td>
<td>Sens.</td>
<td>3.79***</td>
<td>2.57**</td>
<td>4.00***</td>
<td>2.86***</td>
<td>4.30***</td>
<td>3.54***</td>
<td>1.91</td>
<td>3.48***</td>
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<tr>
<td>Schiz. : Neur.</td>
<td>Time</td>
<td>2.42**</td>
<td>1.98*</td>
<td>2.03*</td>
<td>2.04*</td>
<td>2.68***</td>
<td>1.93</td>
<td>1.04</td>
<td>1.38</td>
</tr>
<tr>
<td>Alcoholics : Neur.</td>
<td>Body</td>
<td>1.17</td>
<td>0.63</td>
<td>0.32</td>
<td>1.04</td>
<td>1.15</td>
<td>0.38</td>
<td>0.13</td>
<td>0.34</td>
</tr>
<tr>
<td>Neur. : Normals</td>
<td>Self</td>
<td>1.36</td>
<td>1.51</td>
<td>1.92</td>
<td>3.77***</td>
<td>0.09</td>
<td>3.56***</td>
<td>4.85***</td>
<td>1.89</td>
</tr>
<tr>
<td>Schiz. : Normals</td>
<td>Others</td>
<td>6.49</td>
<td>5.46</td>
<td>6.15</td>
<td>6.93</td>
<td>5.84</td>
<td>6.94</td>
<td>7.09</td>
<td>5.04</td>
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</table>

<table>
<thead>
<tr>
<th>Significance Level</th>
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### TABLE H-2

MEANS AND STANDARD DEVIATIONS OF EWI RAW SCORES AND "t" VALUES FOR TWO MATCHED SAMPLES OF NORMAL AND ALCOHOLIC MALES (N=88)

<table>
<thead>
<tr>
<th>Scales</th>
<th>Normal M</th>
<th>Normal S.D.</th>
<th>Alcoholic M</th>
<th>Alcoholic S.D.</th>
<th>t*</th>
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<tbody>
<tr>
<td>1. Sensory</td>
<td>5.19</td>
<td>5.07</td>
<td>11.30</td>
<td>11.87</td>
<td>4.389</td>
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<tr>
<td>2. Time</td>
<td>6.95</td>
<td>2.87</td>
<td>10.97</td>
<td>4.72</td>
<td>6.786</td>
</tr>
<tr>
<td>4. Self</td>
<td>3.72</td>
<td>2.69</td>
<td>10.57</td>
<td>7.79</td>
<td>7.765</td>
</tr>
<tr>
<td>5. Others</td>
<td>4.39</td>
<td>3.70</td>
<td>7.08</td>
<td>6.35</td>
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<td>6. Ideation</td>
<td>2.76</td>
<td>2.66</td>
<td>6.36</td>
<td>5.65</td>
<td>5.384</td>
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<tr>
<td>7. Dysphoria</td>
<td>1.78</td>
<td>2.57</td>
<td>8.73</td>
<td>8.23</td>
<td>7.517</td>
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<tr>
<td>8. Impulse</td>
<td>3.23</td>
<td>2.12</td>
<td>5.23</td>
<td>4.57</td>
<td>3.710</td>
</tr>
</tbody>
</table>

*All differences are significant beyond .005.
TABLE H-3.

MEANS AND STANDARD DEVIATIONS OF EWI RAW SCORES AND "t" VALUES FOR A
SAMPLE OF MALE SCHIZOPHRENICS (N=57) AND NEUROTICS (N=27)

<table>
<thead>
<tr>
<th>Scales</th>
<th>Schizophrenics</th>
<th>Neurotics</th>
<th>Probability of a larger value</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>S.D.</td>
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</tr>
<tr>
<td>1. Sensory</td>
<td>23.02</td>
<td>24.52</td>
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<td>2. Time</td>
<td>14.46</td>
<td>7.36</td>
<td>8.74</td>
</tr>
<tr>
<td>3. Body</td>
<td>10.19</td>
<td>10.71</td>
<td>4.85</td>
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<tr>
<td>4. Self</td>
<td>15.90</td>
<td>14.37</td>
<td>6.44</td>
</tr>
<tr>
<td>5. Others</td>
<td>12.11</td>
<td>9.09</td>
<td>4.41</td>
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<tr>
<td>6. Ideation</td>
<td>10.21</td>
<td>8.55</td>
<td>5.22</td>
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<td>8. Impulse</td>
<td>9.83</td>
<td>9.11</td>
<td>4.82</td>
</tr>
</tbody>
</table>
TABLE H-4

MEANS AND STANDARD DEVIATIONS OF EWI RAW SCORES FOR PSYCHOTIC AND NON-PSYCHOTIC FEMALE PATIENTS, "t" VALUES FOR SIGNIFICANCE BETWEEN MEANS AND LEVELS OF SIGNIFICANCE

<table>
<thead>
<tr>
<th>Scales</th>
<th>Psychotic (N=115)</th>
<th>Non-Psychotic (N=115)</th>
<th>Probability of a larger value</th>
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<tbody>
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<td>M</td>
<td>S.D.</td>
<td>M</td>
</tr>
<tr>
<td>1. Sensory</td>
<td>21.74</td>
<td>20.03</td>
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<td>2. Time</td>
<td>15.24</td>
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<td>12.26</td>
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<td>8.83</td>
<td>7.93</td>
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<td>7.41</td>
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<td>8. Impulse</td>
<td>8.92</td>
<td>7.37</td>
<td>6.34</td>
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</table>

*Means corrected for heterogeneity of variance.
TABLE H-5

INTERCORRELATIONS AMONG EWI AND MMPI SCALES IN A GROUP

OF MALE ALCOHOLIC PATIENTS (N=86)

<table>
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<td>Idea.</td>
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</table>

MMPI

1. Hs .54 .81 .25 -.03 .36 .42 .45 .19 .46 .11 .41 .31 .12 .26 .32 .29
2. D .49 .40 .25 .47 .71 .58 -.02 .40 .41 .42 .61 .28 .42 .62 .39
3. Hy .35 .13 .42 .47 .41 .25 .22 .07 .16 .19 -.08 .08 .26 .14
4. Pd .20 .47 .51 .54 .35 .15 .34 .13 .29 .24 .14 .34 .15
6. Pa .66 .77 .36 .44 .48 .32 .53 .36 .46 .52 .45
7. Pt .81 .32 .40 .52 .35 .56 .37 .43 .61 .47
8. Sc .48 .59 .62 .50 .67 .55 .59 .67 .59
9. Ma .22 .42 .18 .21 .25 .31 .25 .26

EWI

1. Sens. .48 .88 .73 .67 .71 .56 .69
2. Time .48 .66 .56 .58 .68 .44
3. Body .71 .71 .67 .54 .63
4. Self .65 .77 .84 .73
5. Others .61 .54 .55
6. Idea. .69 .84
7. Dys. .64

r .21 Significant at the .05 level.
r .28 Significant at the .01 level.
r .35 Significant at the .001 level.
APPENDIX I

EWI ITEMS WHICH WERE PARTICULARLY DIFFICULT FOR THE SUBJECTS TO ANSWER BECAUSE OF THEIR AMBIGUOUS NATURE OR LEVEL OF VOCABULARY DIFFICULTY
EWI Items That Were Considered Ambiguous by
Some of the Subjects Tested

28. It is too late.
37. It is too late to try to be somebody.
43. The streets seem to be getting wider.
137. I cannot visualize myself older than I am now.
269. I cannot tell myself what I will do next.
286. I feel like a person riding a wild horse with a weak rein.
298. It is hopeless.
322. There is silence all around.

EWI Items in Which the Vocabulary Was Too Difficult For Some of the Subjects Tested

18. Music I used to like does not sound harmonious any more.
30. Sunlight often seems dazzling.
35. I have a strong urge to disfigure men.
38. I wonder why people are so grim.
96. I enjoy imagining people transformed into insects.
100. My body is not exactly symmetrical.
104. I enjoy dissecting frogs.
120. I loathe people who touch me.
133. Sometimes, when I look at people, their forms dilate and contract.
143. People are parasites.

155. I don't brood over the past.

233. I am afraid somebody may disfigure me.

262. When people look at me, I feel petrified.

268. People have lost their vitality.

279. I am losing my vitality.

304. People's talk often sounds incoherent.

318. I have a strong urge to disfigure women.

337. Contemplation about life is my only concern.

349. I often imagine scenes of mutilation.

368. I am obsessed by bloody scenes.
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REFERENCES


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