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A FACTOR RELIABILITY STUDY OF A PICTURE-PREFERENCE TEST.

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A FACTOR RELIABILITY STUDY OF A PICTURE-PREFERENCE TEST

by

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ABSTRACT

In 1967 Cowan proposed a new method for the identification of the addictive personality, the Picture-Preference Test (PPT). Because of the promise shown in Cowan's original study, a number of investigations have ensued. As in Cowan's original study, in later studies theoretical, a priori considerations have played a significant role in the design and construction of test items and trait scales. It was felt that a further understanding and clarification of Cowan's original test and of a number of subsequent trait scales could be obtained through statistical technique, specifically, factor analytic techniques.

The present study was designed to determine the factor reliability of the Picture-Preference Test. A split-half method was utilized where the 196 items were divided according to a stratified randomization into two Sets, A and B. Using G-coefficients between the items of each set as input, each set was factor analyzed seeking a principal axes solution rotated to simple structure by oblimin (biquartimin) criteria. Ten significant factors (eigenvalues 1.00) were generated for Set A and 8 significant factors were generated for Set B. Of these significant factors, 3 were identified in each set as meaningful, i.e. having an interpretable content of the basis of item-inspection

and accounting for significant amounts of variance. It was hypothesized that these meaningful factors would be correlated across sets thus demonstrating factor reliability. Results of correlations based on factor scores confirmed this first hypothesis ($p < .05$). Canonical correlation analysis also support this first hypothesis. It was also hypothesized that Social Desirability responding, as measured by a Social Desirability scale, was not a major determinant in the composition of the meaningful factors. This hypothesis was also supported. Further correlations between the meaningful factors and additional information (personal-socio-economic data and PPT theoretical scale scores) elucidated and supported the meaning-labels given to Factor 1 of each set. High correlations with Subject's Age and Education and Factors 1 were understood as characteristic of the particular sample. Such elucidation was less clear for Factors 2 and 3 of each set. Scales based on the factor analytic procedures were offered and suggestions were made for further research.

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καὶ τάχα δὴ ἀκούουσι βοώντων τῶν στρατιωτῶν θάλαττα θάλαττα

Xenophon
Anabasis, IV, vii, 24

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INTRODUCTION

Identification of various personality types has occupied the interests of students of human behaviour throughout the ages. Methods of identification have taken innumerable forms, from measurements of physical characteristics to subject descriptions of "unstructured" ink-blots. In 1967 Cowan proposed a new method for the identification of a particular type of personality, a Picture-Preference Test (PPT). The PPT was designed to discriminate between addictive, neurotic and normal personalities. Because of the promise shown in Cowan's original study, a number of subsequent investigations have ensued. These investigations have developed along three lines: 1) statistical refinement and validation of the original scales (Bégin, 1972, 1975), 2) the development of new scales with a specific addictive group (Morrison, 1973; Bégin, 1975) and 3) the development of new scales with a non-addictive group (Amin, 1975). The present study follows the first line of development in that it seeks a clarification and further understanding of Cowan's original PPT items along with those PPT items developed by Morrison through statistical techniques, specifically, factor analytic techniques.

Background of the Present Study

In the hope of elucidating the personality of the addicted person, Cowan (1967, 1974) developed a Picture-Preference Test (PPT) to identify the "master trait" of addictiveness. Based on the theoretical considerations of a number of authors concerning the addictive personality, Cowan formulated ten sub-traits in the master trait of addictiveness. Cowan's ten sub-traits were:

1. Compulsiveness
2. Impulsiveness
3. Avoidance of Close Personal Contact
4. Oral Incorporative Trends
5. Infantile Need for Security with Resultant Regressiveness and Passivity
6. Poor Self-Concept with Resultant Guilt and Depression
7. Weak Defensive Structure, but Primary Reliance upon Objects and Events to Block Anxiety, which is constantly Reoccuring; Tendency to Avoid Introspection
8. Low Tolerance for Pain and Frustration
9. Narcissistic, Autoerotic (Possible Homosexual Orientation)
10. Anti-social Impulses

For each of these sub-traits, pen and ink pictures were designed and assigned to one of the sub-trait groups on an a priori or theoretical basis. This "addictive choice" picture was paired with a non-addictive choice picture. For example, one picture-pair shows at the left a car going over a bumpy road and at the right a car turning off the main road - which has been blocked by a "detour" sign - to take a smooth but roundabout route. The rationale for this item is that a person intolerant of delay and frustration will tend to choose the left-hand picture of the bumpy road, the addictive choice. The order of the picture-

pairs and left-right position of the addictive choice was then randomized so that the pairs belonging to any single scale would be scattered throughout the test and left-right response sets on the part of subjects might be counter-acted. Cowan's completed test then consisted of 106 pairs of pictures to which the subject was to state his preference. The picture format had been chosen to over-come the short-comings noted in many personality tests involving the use of verbal items, namely, 1) the need for an adequate reading or verbal comprehension level on the part of the subject, 2) the face validity of many items, and 3) the low interest-maintaining ability of verbal items. The item format also allows for a scoring procedure less subjective than those usually found in traditional "picture format" tests.

After constructing his test, Cowan then administered the 106 picture-pairs by means of slide presentation to three groups: a group of "addicts" comprised of 26 alcoholics, 35 drug addicts, 45 compulsive eaters, and 16 compulsive gamblers; a group of 41 neurotics with no known addiction problems; and a group of 65 normals with no known addiction or neurotic problems. Subjects consisted of both males and females. Cowan's hypothesis was that the total test score (the sum of addictive choices) would differentiate addictive persons from neurotic and normal persons. Results indicated that total test scores could distinguish between the total addictive group and the total non-addictive group (neurotics and normals). However, the total score could not distinguish between the addictive group and neurotics. It

seemed that neurotics scored similar to the addictive group, though lower, and both earned scores much higher than the group of normals. Sex differences did not seem to play any significant role. Cowan concluded that the total addictive score seemed to reflect a "level of general psychological disturbance rather than the isolated pathology, addiction".

Bégin has pursued Cowan's origanal research along two lines: first, the improvement and validation of Cowan's original scales (Bégin, 1972), and second, the development of a more refined scale to measure the trait of oral dependency (Bégin, 1975). In the first of his studies, Bégin compared the addictive groups of Cowan's original data with the neurotic and normal groups on the basis of their sub-trait scores rather than on the total addictive score. Bégin hypothesized that the addictive groups could be distinguished from neurotics and normals on the basis of sub-trait scores. Except for the addiction group of compulsive gamblers, sub-trait scores did not distinguish the addictive groups from neurotic though normals could be distinguished from both. Bégin felt that improved sub-trait scale reliability might improve the discriminating power of the sub-test scores. Bégin, therefore, devised new scales by selecting items primarily on the basis of their point-biserial correlation with the original scale to which they belonged. Bégin's revised scales consisted of 40 picture-pairs and were thought to reflect the following sub-traits:

1. Obsessive and Regressive Tendencies
2. Avoidance of Intimacy
3. Oral Incorporative Trends
4. Anti-social Impulses

Though these new revised scales did not exhibit higher reliabilities than the original scales, they were considerably shorter and hence more efficient. More importantly, applied to a new group of addictive persons (male alcoholics) and normals (males), the revised scales were able to distinguish between the two groups not only in terms of total scores, but also in terms of individual revised scale scores.

Bégin's (1975) second study was an attempt to design an improved oral dependency trait-scale for the Picture-Preference Test. Theoretical considerations, especially Blum's (1953) description of an oral dependent and oral sadistic phase in development and Wolowitz's (1964) food preference test led Bégin to hypothesize that real differences would be obtained between the scores of addicts (alcoholics), neurotics, and normals on his scale of picture-preference items measuring the trait of oral dependency when each item paired a picture representing oral passive preferences with one representing oral sadistic preferences. Oral passive preferences were thought to be represented by pictures of objects representing or involving sucking and licking, for example, an ice-cream sundae. Oral sadistic preferences were thought to be represented by pictures of objects representing or involving biting and chewing, for example, apple pie with cheese. Addicts were expected to choose the oral passive

picture and neurotics were expected to choose the oral sadistic picture. Normals were expected to score lower than the addicts but higher than neurotics since only the "addict choice" was scored. Bégin's final scale consisted of 19 items which were administered to the three groups comprised of both males and females. Results indicated that Bégin's attempt at developing an oral dependency trait scale was unsuccessful. None of the groups were differentiated on the basis of scale scores. In discussing his results, Bégin presented a number of reasons that may have accounted for his lack of success: the difficulty of devising pictorial items to compare with Wolowitz's verbal-items; that his scale measures a different dimension of orality than his criterion measure, Wolowitz's Food Preference Inventory; that oral conflict rather than food preferences may be the real difference in oral fixation between alcoholics and other personality types.

Morrison (1973) developed the Picture-Preference Test in the direction of refining its ability to identify the alcoholic personality. Following the theoretical, a priori method of Cowan (1967, 1974) and taking into account Bégin's (1972) revision of Cowan's original scales, Morrison revised Bégin's four revised scales and devised three new scales of his own. Morrison now had a 144 item picture-preference test to identify the alcoholic personality. Morrison's new scales included:

1. Impulsiveness
2. Oral Dependence

3. Magical Omnipotence
4. Anti-social Impulses
5. Avoidance of Intimacy
6. Infantile Need for Security
7. Masochistic Tendencies

Morrison formulated two hypotheses. First, that group mean scores on each of the seven personality trait-scales would be highest for the alcoholic group, intermediate for the neurotic group, and lowest for the normal group. All subjects were males. The second hypothesis was that two patterns of elevated trait-scores would be found; one characterized by the fact that OMI (Oral Dependence, Magic Omnipotence, Infantile Need for Security) traits would be elevated, and one characterized by the fact that AAM (Anti-social Impulses, Avoidance of Intimacy, Masochistic Tendencies) traits would be elevated. Results indicated that total mean differences between alcoholics and neurotics and between alcoholics and normals were significant in the expected direction. The differences between neurotics and normals were not statistically significant. Except for Impulsiveness and Magical Omnipotence, individual scale differences were significant between alcoholics and neurotics. Except for Avoidance of Intimacy and Magical Omnipotence, individual scale differences were significant between alcoholics and normals. There was no significant differences on the individual scales between neurotics and normals. Results regarding the second hypothesis indicated that though there was possible evidence for an OMI trait pattern, there was no evidence for an AAM trait pattern. Further analyses indicated no significant relationship between total mean scores

and socio-economic data that was collected on the subjects. In his discussion of these results Morrison raised the question of the role of "social desirability" in the responses of neurotics and normals.

Amin (1974) used the basic idea of the picture-preference technique to develop a scale to measure the trait of avoidance of sexual intimacy in females. Amin devised 35 items, in addition to using twelve items from Bégin and Morrison to construct his complete scale. An example of an Amin picture-pair item would be: A child asleep in a crib, and a man and woman sleeping together. The second picture was considered indicative of avoidance of sexual intimacy. Amin successfully validated his scale against related scales he developed from the Thematic Apperception Test. Results also indicated, as predicted, that social desirability was equal between picture pairs and that total picture scale scores were on a continuum, with an unimodal distribution for the sample of normal subjects.

The Present Study

The present study took as its purpose a re-examination of the basic elements of the Picture-Preference Test (PPT). The Picture-Preference Test used in this study would consist of the 106 picture-pairs devised by Cowan (1967) and the 91 picture-pairs devised by Morrison (1973). (Additional picture-pair items of Bégin's (1975) study on oral dependency and Amin's (1974) study on avoidance of sexual intimacy were not available when

this study was initiated.) Previous studies have all suggested the potential of the PPT, both in its method of presentation (pictures) and in its basic construct-content (Addiction). However, it was felt that there was a need for a clarification and explication of the basic elements involved. Development of the PPT has proceeded primarily along lines suggested by theoretical, a priori considerations. The present study hoped to examine and elucidate the basic elements of the PPT through factor analytic techniques. Also, Morrison had raised the issue of a possible social desirability component in the PPT and Jackson (1967) has noted that social desirability, that is, to be specific, the tendency to give responses which are seen as socially desirable, is often a common component of test items. Therefore, the present study had two objectives: first, after splitting the PPT into two sets of picture-pair items, to generate a factor structure for each set and determine the reliability of the meaningful factors across sets. This method of establishing factor reliability through a split-half method was successfully demonstrated by Jackson and Morf (1973). Second, the present study was to elucidate the "meaning" of the generated factors with special attention to the role of "social desirability responding" as a potential, identifiable factor.

Hypotheses

Two hypotheses were formulated in the present study.

1. Meaningful factors across the two sets of picture-pair items would be significantly

correlated, thus demonstrating factor reliability across the two sets.

2. Social Desirability responding would not be a major determinant of the meaningful factors of either set.

CHAPTER II

METHOD

Subjects

Subjects were students from both day and evening classes at the University of Windsor, who participated voluntarily. Though the subjects maintained personal anonymity, they were requested to give certain personal-socio-economic information regarding age, sex, education, occupation, father's education and father's occupation. Education and occupational information were summarized according to the catagories developed by Warner (1957). Test records were obtained from 343 subjects. However, because of grossly incomplete or spoiled records, only 309 could be used. Of the 309 subjects, 101 were males, 206 were females (no information as to sex on 2 subjects). The mean age of 305 subjects (no information about age of 4 subjects) to the mearest year was 22. The personal-socio-economic questions appear in Appendix A; the obtained data are presented in Appendix B.

Procedure

The Teaching Assistant (T.A.) of each participating class gave instructions (Appendix C) that subjects were to indicate their individual preference to a picture-pair which was presented over television monitors. A slide projection presentation had been video-taped to facilitate a television presenta-

tion. Each picture-pair was exposed for 10 seconds and the subject was asked to record his preference on the answer sheet. The answer sheet simply consisted of columns of numbers, each followed by the A or B choice which was to be indicated. A description of the picture-pairs used and their order of presentation can be found in Appendix D. Morrison's 144 items were presented in his randomized order followed by the remaining 52 Cowan items in his randomized order. After all 196 pairs had been presented, the subjects were asked to respond to a 20 item social desirability scale taken from the Personality Research Form (Jackson, 1967) and a series of questions concerning personal-socio-economic information. Both the social desirability scale and personal-socio-economic questions can be found in Appendix A. The entire procedure took the subjects from 45 to 50 minutes.

After data had been collected on all 196 picture-pair items, the total set of items was divided into two sets of 98 items by a stratified randomization. Though pairs of items were assigned to either set by a toss of the coin, it was necessary to ensure that the a priori catagories of Cowan and Morrison were fairly represented in each set. Since Begin's revised scales were based primarily on statistical rather than a priori considerations, they were not considered. Also, since many of the items were identical between Cowan's and Morrison's test but appeared in different conceptual scales, priority was given to Cowan's item classification in such cases. In addition to ensuring

the fair representation of the a priori categorizations in each set, it was also felt that endorsement percentages of a priori addictive choice by normals noted in the previous data of Cowan for his items and of Morrison for his unique items should also be reflected in the splitting of the 196 item set. To ensure the fair representation of endorsement percentages, items in each of the a priori scales were ranked, and with a toss of the coin the first item in a ranking was placed in one set (heads, the item was placed in Set A; tails, in Set B) and the next item in the rank was automatically placed in the opposite set. This procedure was continued with the remaining items. It was necessary to split the 196 items into two sets as a way of constructing shortened "alternate forms" of the Picture-Preference Test to explore factor reliability. Appendix E contains the set to which items were assigned, the scale to which they belonged according to Cowan, Morrison and Bégin, the endorsement proportions for addictive choices for normals for Cowan items and Morrison items and the a priori addictive picture choice.

Having constructed the two 98 item sets, Sets A and B, G-coefficients (Holley and Guilford, 1964, 1966) were computed between items in each set. A priori keying of items was not considered in the computations, but simply picture-preference choice. G-coefficients have been suggested by Guilford and Holley for use with dichotomous variables and as a replacement for the phi-coefficient. G-coefficients were "initially developed to the problem of differences in splits of the dichotomous

variables in a transpose factor analysis where the correlations are across variables rather than across individuals" (Gorsuch, 1974). G-coefficients tend to be independent of marginal frequencies as well as to reduce the genertion of a difficulty factor in factor analytic computation. One way of computing the G-coefficient is by constructing an extended score matrix. For each of the original subjects, a hypothetical or mirror subject is added whose scores are exactly opposite of the original individual's score. Calculation of a product-moment correlation among variables using the extended score matrix produces the G-coefficient. G-coefficients were calculated by means of the extended score procedure on each set of items.

Each set of G-coefficients was then factor analyzed using the computer program BMD-08M (Dixon, 1974). A principal axes solution rotated to simple structure by oblimin (biquartimin) criteria was sought. Given the original method of item construction where a "master trait" was divided in "sub-traits", it seemed that oblique rather than orthogonal rotations would be more approporiate. Initial communality estimates were the squared multiple correlations. The maximum number of iterations for communalities and for rotations was 1 and 50 respectively. =Theoretical considerations (Cowan had 10 scales, Morrison 4 completely new scales, and the question of a social desirability component) as well as preliminary analyses, suggested maximum of 15 relevant factors. Thus, the condition of rotating no more than a maximum of 15 factors was set on the analysis and/or rotating

the number of factors with eigenvalues equal to or greater than 1.00 as an indication of significance (Mulaik, 1972). Factor scores were then computed for each set of generated factors.

The pattern matrix of each set of generated factors was then inspected to see if the "meaning" of the generated factors could be formulated on the basis of item pattern loadings on the factor and preferred picture content. Loadings of absolute value .30 or greater were considered salient (Gorsuch, 1974). Where possible, "names" were given to factors in each set. It was hypothesized (first hypothesis) that factors with similar meaningful content could correlate significantly ($p < .05$) between sets. Using the SPSS CANCORR program, version 5.2 (Nie, 1975), correlations between each set of factors were made on the basis of the factor scores of each set. Using the SPSS program, cannonical correlations were also computed between the two sets of factors to further elucidate their relationship. Finally, to test the second hypothesis which concerned the role of Social Desirability responding, correlations (G-coefficients) were computed between the factor scores of each item set and the total score of the Social Desirability scale. In addition, factor scores were correlated with the personal-socio-economic information and the various a priori individual scale scores and the total a priori test scores as conceptualized by Cowan, Bégin and Morrison. This last set of correlations was to provide additional information as to the meaningfulness of the factors generated in light of the theoretical considerations which guided the original

construction of the picture-pair items.

CHAPTER III

RESULTS

The First Hypothesis

The first hypothesis stated that meaningful factors across Sets A and B of picture-pair items would be significantly ($p < .05$) correlated thus demonstrating factor reliability across the two sets. G-coefficent matrices were computed on each set and factor analyzed seeking a principal axes solution rotated to simple structure using oblimin (biquartimin) criteria. A maximum limit of 15 factors was set for rotation and/or factors having eigenvalues of 1.00 or greater. For Set A, 10 factors were generated with eigenvalues of 1.00 or greater, the chosen significance level. Table 1 gives the eigenvalues of and cumulative proportion of the total variance accounted for by the 10 significant factors of Set A. The complete listing of eigenvalues and cumulative proportion of the total variance for all factors of Set A can be found in Appendix F. Table 2 gives the correlation matrix of the 10 significant factors of Set A. The factor pattern matrix of Set A (Table 3) was then inspected for salient items (items with factor pattern loading equal to or greater than absolute value .30) in an attempt to give meaningful labels to the generated factors. By inspection, meaningful

TABLE 1

Eigenvalues and Cumulative Proportion of the Total Variance of the 10 Significant Factors of Set A

Factor	Eigenvalue	Cumulative Proportion of the Total Variance
1	26.97894	.27530
2	2.84936	.30437
3	1.76851	.32242
4	1.63472	.33910
5	1.52956	.35470
6	1.34343	.36841
7	1.16484	.38030
8	1.10474	.39157
9	1.06931	.40248
10	1.02367	.41293

TABLE 2

Correlation Matrix of 10 Factors of Set A

Factor	1	2	3	4	5
1	1.00000				
2	-0.03570	1.00000			
3	0.18318	0.27445	1.00000		
4	-0.02275	-0.36481	-0.11840	1.00000	
5	0.16742	0.28957	0.13975	-0.16540	1.00000
6	-0.13836	-0.03045	0.00286	0.15021	0.05784
7	0.15742	0.12228	0.29932	0.02930	0.36125
8	-0.01358	0.29891	0.29848	-0.27965	0.23102
9	-0.12222	0.15011	-0.09709	-0.29265	0.19352
10	-0.05122	0.12198	-0.09185	-0.17371	0.12382

Factor	6	7	8	9	10
6	1.00000				
7	0.34294	1.00000			
8	0.11068	0.33237	1.00000		
9	-0.08852	0.18778	0.19247	1.00000	
10	-0.31217	-0.25686	-0.00225	0.29631	1.00000

TABLE 3

Factor Pattern Matrix - Set A

VARIABLE	FACTOR 1	2	3	4	5	6	7	8	9	10
1	0.32914	-0.02616	0.21561	-0.20152	0.15799	-0.10453	-0.07846	0.02368	0.11736	-0.15729
2	-0.19352	-0.13687	-0.12667	-0.03175	-0.04768	0.07275	0.19837	0.03748	-0.13884	0.01961
3	-0.33810	0.25058	-0.29225	0.27939	-0.05695	-0.04264	-0.22698	0.04156	0.24277	-0.13122
4	-0.20116	0.08678	0.07657	0.05566	0.08517	0.05134	-0.47012	0.11159	3.11421	-0.07725
5	-0.05933	-0.02854	-0.09224	0.04873	0.00002	0.02569	-0.19858	0.52369	-0.06106	0.03215
6	0.35152	-0.17669	-0.13081	-0.01955	0.44939	-0.21493	-0.35896	-0.03051	-0.16213	-0.03844
7	-0.52078	0.12362	-0.19777	0.04393	-0.19769	0.03156	0.09361	-0.02456	0.01677	0.03330
8	0.38466	0.01817	-0.03223	0.24687	0.06896	-0.17198	-0.19797	0.21151	0.25578	-0.09726
9	-0.51353	0.15040	0.23121	-0.07292	-0.05483	0.09070	-0.13598	-0.03559	-0.01123	-0.21113
10	-0.77591	0.13566	-0.06478	0.00761	-0.05225	0.01917	-0.11767	0.05817	0.09987	-0.05779
11	-0.65594	0.10408	-0.15932	-0.07189	0.02762	-0.06919	-0.12235	0.12675	-0.20860	-0.12125
12	-0.11321	-0.10697	0.00021	-0.02396	0.07641	-0.02684	0.02697	-0.22869	-0.02100	-0.06255
13	0.01221	-0.44283	-0.03093	-0.06363	0.09613	-0.16674	-0.05496	-0.00870	0.22063	-0.35762
14	-0.02517	0.10173	-0.32631	-0.03550	-0.02128	0.07048	0.04873	0.05180	-0.04407	-0.04537
15	0.66147	-0.00130	0.11796	-0.14558	0.12859	-0.00750	0.07310	-0.07724	-0.04057	0.11576
16	0.81253	-0.06787	0.00603	0.04301	0.05654	0.01109	-0.01650	-0.10346	0.03286	0.02878
17	0.04650	0.12406	0.14473	-0.08101	0.13723	0.05404	-0.12970	-0.36277	-0.02043	0.06258
18	-0.75243	0.11246	0.08040	-0.05151	0.12054	0.05291	-0.08697	0.05339	0.01359	-0.03548
19	-0.08592	-0.14813	-0.00822	-0.15416	0.16090	-0.50843	0.12288	0.32678	0.07427	-0.12038
20	-0.09132	-0.37248	-0.15751	-0.07725	-0.28059	0.01902	0.17343	-0.04618	0.08377	0.02629
21	-0.48811	-0.03921	-0.13771	-0.14535	-0.08651	0.10171	-0.07526	-0.08291	0.08327	0.11658
22	-0.25742	-0.04379	-0.10737	-0.12757	0.31629	0.08016	-0.14098	0.02833	-0.10748	0.02571
23	0.77259	-0.01518	0.01386	-0.16786	-0.04903	-0.09356	0.16771	-0.08128	-0.03092	0.08073
24	0.87802	-0.14055	-0.01186	0.03368	0.03573	0.01963	0.03722	0.00777	0.05783	-0.02456
25	0.68795	-0.00908	0.15537	-0.13971	0.07239	-0.10316	0.12220	-0.09702	0.01937	0.00029
26	0.03184	-0.07582	-0.12665	-0.31260	-0.02551	0.05586	0.60338	-0.27584	0.07477	-0.28222
27	0.58250	-0.12618	0.21515	0.01167	0.06680	0.08002	0.05584	-0.09730	-0.05678	0.24526
28	0.46400	-0.15588	-0.25285	-0.09606	0.04532	-0.01987	0.06295	-0.02857	-0.21973	0.17415
29	-0.77284	-0.03671	0.03827	0.07428	-0.01008	0.01097	-0.13706	-0.04748	0.19750	-0.03315
30	0.49365	-0.22776	0.05151	-0.02408	0.14609	0.09814	-0.00497	0.22886	0.20834	-0.08458
31	0.69277	-0.07612	0.17867	-0.16250	0.11806	0.02889	0.14358	0.03545	-0.06253	0.24510
32	-0.64351	0.18525	-0.11655	-0.05711	0.00854	0.03002	-0.08613	-0.07842	0.06658	0.03816
33	0.30639	-0.32822	-0.08784	0.03221	0.08988	0.01365	-0.02443	0.24472	0.01091	0.25852
34	-0.70345	-0.06923	0.03584	-0.00582	0.09174	0.16193	-0.14032	-0.08823	0.02303	0.03742
35	-0.65078	-0.05813	0.02329	0.11434	0.00457	-0.04096	-0.23751	0.13052	0.13674	-0.10612
36	-0.46865	-0.13925	-0.12952	-0.04386	-0.04290	-0.12017	0.06851	0.26784	-0.12812	-0.10699
37	-0.33752	-0.20867	-0.03541	0.04760	0.05870	0.07693	-0.25235	-0.00835	0.01654	-0.07230
38	0.21866	-0.05147	-0.26243	-0.24336	0.13590	-0.07923	-0.00102	0.24478	-0.07239	-0.09555
39	0.00585	-0.21740	-0.04635	-0.08305	-0.48483	0.09102	0.15251	0.21629	0.00766	-0.02209
40	-0.20523	0.07854	0.03960	0.28149	-0.02012	-0.12607	-0.23087	-0.06100	0.33283	0.12269
41	0.48108	0.16374	-0.08206	0.02809	0.05284	0.04681	-0.07654	-0.08251	-0.03286	0.10836
42	-0.60407	-0.19102	0.00670	-0.04651	0.17822	0.00353	-0.08671	0.05180	0.12464	-0.09099
43	0.30121	-0.25538	0.28760	0.23640	-0.07094	0.10543	-0.13403	0.10586	0.03111	-0.01182
44	-0.48163	-0.32481	-0.14958	-0.11943	-0.13498	0.05990	0.18569	0.03347	0.05287	0.06902
45	0.26235	-0.00028	-0.02396	0.20207	-0.03116	-0.25816	0.02051	-0.20615	0.17691	-0.01264
46	-0.83688	-0.08797	-0.01591	-0.07581	0.03566	0.01899	0.07553	-0.07558	0.08887	0.04194
47	0.30953	-0.12974	-0.06415	-0.11352	0.00865	-0.02644	-0.12919	-0.01515	0.08845	-0.08322
48	0.78040	0.08039	-0.18251	-0.05736	-0.06097	-0.06165	0.00323	0.06558	-0.10754	-0.01214
49	-0.60463	-0.24439	0.03958	-0.22048	-0.06032	0.13968	0.11749	-0.13850	0.02760	0.15607
50	0.08886	0.29098	-0.06826	-0.04669	-0.37823	0.00881	-0.08403	0.12700	0.03585	0.03353
51	-0.81670	-0.05115	0.01218	0.05709	-0.02920	0.01398	-0.03912	-0.04259	0.07623	0.10162
52	0.16134	-0.35579	0.11793	-0.16207	-0.03285	-0.11090	-0.05645	-0.22455	-0.03558	-0.02378
53	0.43635	-0.15687	-0.07521	-0.09736	-0.06873	0.00650	-0.12102	-0.07886	-0.07592	0.08474
54	-0.21255	-0.30707	0.03951	0.23327	0.08448	0.04161	-0.04681	-0.05198	0.35467	-0.08572

TABLE 3

Factor Pattern Matrix - Set A (continued)

55	0.74598	0.03567	-0.03237	0.00681	0.09823	-0.00127	0.09764	-0.01178	-0.02598	0.03874
56	-0.50861	-0.23590	0.04215	-0.01179	0.05028	0.08164	-0.01653	-0.06127	0.11799	0.15841
57	-0.76130	0.00836	-0.16100	0.04459	-0.01245	-0.00843	-0.12505	0.04233	-0.15026	0.06702
58	-0.12473	0.16802	-0.00138	-0.13511	0.10668	0.58487	-0.51011	0.09511	0.29585	-0.38475
59	-0.71154	-0.00317	-0.10785	-0.05217	0.02319	-0.04761	0.05383	-0.10298	0.04829	0.02204
60	0.41665	-0.21943	-0.22690	0.11726	-0.11163	0.03258	0.16108	-0.00357	0.03313	0.22395
61	-0.77043	-0.19341	0.06514	-0.20306	0.08802	-0.03859	0.03182	-0.02533	-0.01771	0.01318
62	-0.75207	0.06383	0.03784	-0.03470	0.04254	-0.00103	-0.16191	-0.02871	0.03457	-0.04035
63	0.70970	0.08960	-0.06513	-0.13681	-0.13185	0.07685	-0.22770	0.16161	-0.07483	-0.07634
64	0.77227	0.02476	-0.04722	0.05355	-0.01137	0.08512	-0.17056	-0.02818	0.17773	-0.23245
65	-0.56535	-0.03895	-0.23687	0.27206	-0.07524	-0.05563	-0.13833	0.13559	0.01783	0.01989
66	-0.69663	-0.15651	0.01804	-0.16639	0.07565	-0.02990	-0.05915	-0.04250	-0.11592	0.05202
67	0.51406	0.07784	-0.04679	-0.35900	-0.13635	0.15167	-0.06806	-0.03817	0.11059	0.08623
68	0.70229	-0.01500	-0.11105	-0.07257	0.00565	-0.01189	0.09217	0.06316	-0.13465	0.06771
69	0.66958	0.10156	-0.25041	0.12336	0.21563	-0.03813	0.07285	0.05871	-0.33210	-0.01918
70	0.83050	-0.03864	-0.00985	0.03012	0.06259	-0.02516	-0.00039	-0.00192	0.03333	0.03097
71	0.57875	0.11348	0.00653	-0.09167	0.09535	0.29579	-0.07311	-0.14458	0.23796	-0.22361
72	-0.64858	-0.18820	0.06086	-0.07871	-0.03887	-0.06897	0.15582	-0.22921	0.08082	-0.02016
73	-0.59522	-0.05012	-0.03125	0.09880	0.22363	-0.01506	-0.08629	-0.08027	-0.07811	-0.08368
74	-0.27053	0.13561	-0.18322	0.22769	0.14223	0.08291	-0.32483	-0.05559	0.15137	0.31652
75	0.57144	-0.00074	-0.15870	0.03354	0.01898	0.06246	-0.12160	-0.08831	0.10152	-0.02166
76	0.27039	-0.00248	-0.22116	-0.19281	0.12672	0.05606	0.20184	-0.09324	0.12038	0.21868
77	0.49884	-0.16665	-0.22286	-0.10135	0.11236	-0.13185	0.24950	-0.23794	-0.16779	-0.02650
78	-0.09270	-0.48622	0.08930	-0.01270	-0.12623	0.18400	0.05746	0.18765	0.02316	-0.02788
79	0.73519	0.09786	-0.06828	-0.02272	0.00481	0.06898	-0.03837	-0.06838	0.03403	-0.02379
80	0.73998	-0.12378	0.17073	-0.13440	-0.01700	0.16061	-0.09536	-0.01680	0.20753	-0.01617
81	0.86303	-0.04000	-0.01495	0.02990	-0.05010	0.08748	0.02455	-0.00350	0.00322	-0.04783
82	-0.76662	-0.02698	0.06108	-0.05660	0.11590	0.07647	0.01168	-0.00269	0.00466	0.13736
83	0.12707	-0.01239	0.03296	0.29902	0.21856	0.25239	-0.17577	-0.00633	-0.00832	-0.01936
84	0.38081	-0.20057	0.29460	-0.01324	0.01917	0.05135	-0.12193	0.09118	0.02098	-0.12896
85	-0.04127	-0.05959	-0.03523	0.17080	0.35633	0.06331	0.01213	0.01366	0.11669	0.04356
86	-0.01682	-0.17489	0.10676	-0.33104	0.12029	-0.11906	-0.01665	0.09230	0.08246	-0.07988
87	-0.56195	0.17006	-0.02817	-0.07704	0.13226	-0.01803	0.11800	-0.08360	0.01826	0.01075
88	0.10557	-0.19189	0.12226	-0.27056	-0.01662	0.09092	-0.07739	-0.00071	-0.28224	0.12089
89	-0.01739	-0.33380	0.22650	0.12516	0.05137	0.01625	-0.02445	0.00308	-0.08383	0.18276
90	-0.25591	0.01283	-0.01874	-0.38440	0.11072	0.87210	-0.20336	0.02560	0.09261	0.18673
91	-0.07710	-0.17225	0.00723	-0.15318	0.00482	-0.13737	-0.03304	-0.05568	-0.02581	0.05450
92	0.02365	0.01457	-0.10894	-0.29955	-0.03393	0.08053	-0.28315	-0.09512	-0.02952	-0.17196
93	0.46634	-0.08115	0.15502	-0.05361	-0.17072	-0.15806	0.17781	-0.17593	-0.00755	-0.24459
94	0.06655	0.48361	-0.10888	-0.22032	-0.32180	-0.02893	0.18346	-0.10387	0.02075	0.09301
95	-0.20895	-0.05778	-0.03392	-0.16370	-0.13138	-0.26490	0.00250	0.09082	-0.01701	0.00884
96	0.50515	-0.08616	-0.03381	0.01601	-0.05062	0.08548	-0.13936	0.06160	-0.06182	-0.10578
97	0.07892	-0.06029	-0.43145	-0.10350	-0.00633	-0.13511	-0.08810	0.18456	-0.00312	0.03385
98	0.03249	-0.26921	0.01917	-0.12561	-0.17722	0.09224	-0.12932	0.01810	0.06381	0.29997

labels were given to Factors 1, 2 and 3. It was not possible to give meaningful labels to Factors 4 through 10. Table 4 gives illustrations of salient items for Factors 1, 2 and 3 which were considered in determining the meaningful label of the factor under consideration.

Using the same procedures mentioned above, 8 factors were generated for Set B, with eigenvalues of 1.00 or greater, the chosen significance level. Table 5 gives the eigenvalues of and cumulative proportion of the total variance accounted for by the 8 generated factors of Set B. The complete listing of eigenvalues and cumulative proportion of the total variance of all factors of Set B can be found in Appendix G. Table 6 gives the correlation matrix of the 8 significant factors of Set B. The factor pattern matrix of Set B (Table 7) was then inspected for salient items (items with factor pattern loadings equal to or greater than the absolute value .30) in an attempt to give meaningful labels to the generated factors. By inspection, meaningful labels were given to Factors 1, 2 and 3. It was not possible to give meaningful labels to Factors 4 through 8. Table 8 gives illustrations of salient items for Factors 1, 2 and 3 which were considered in determining the meaningful label for the factor under consideration.

To determine the reliability of meaningful factors between Sets A and B, factor scores were computed for each set of meaningful factors and correlated. Table 9 gives the correlations between the three meaningful factors of Set A and the three

TABLE 4

Illustrations of Salient Items for Factors 1, 2 and 3 of Set A Which Were Used to Determine the Meaningful Label of the Factor

Factor 1	Item #	Factor Pattern Loading		Description of Item
	96	.91	A	A man-riding a bidycle down a road
			*B	Same man on an exercycle
	46	-.84	*A	Man hung over from drinking
			B	Man shoveling dirt, working hard
	61	-.77	*A	Mother tying young boy's shoe
			B	Same boy tying his own shoe
	Label: General Social Dysfunction preference			
Factor 2	Item #	Factor Pattern Loading		Description of Item
	78	-.49	*A	A large cactus, desert scene
			B	A large clock showing 4:15
	52	-.40	*A	Boy dreaming of himself as a king
			B	Boy reading a newspaper
	54	-.31	*A	A boy throwing a rock through a window
			B	Same boy being caught by a policeman
	Label: General Anti-Social Activity preference			

TABLE 4

Illustrations of Salient Items for Factors 1, 2 and 3 of Set A Which Were Used to Determine the Meaningful Label of the Factor

(continued)

Factor 3	Item #	Factor Pattern Loading		Description of Item
	97	-.43	*A	A hamster in cage running in wheel
			B	Same cage with hamster climbing slope to ledge
	89	.33	A	A person sleeping, dream cloud (nondescript scene)
			*B	Same with no dream cloud
	84	.30	A	A group of swans with one vulture
			*B	A group of vultures
Label: General Passive Orientation preference				

* To determine which pictures of picture-pair items were to be considered grouped together for the purpose of interpreting the possible meaning of a factor by inspection, negative (-) factor pattern loadings were arbitrarily considered to be the A picture and positive (+) pattern loadings the B picture. Meaningful labels were then sought for the asterisked (*) group or the not asterisked group. All labels for Set A factors were based on the asterisked group.

TABLE 5

Eigenvalues and Cumulative Proportion of the Total Variance of the 8 Significant Factors of Set B

Factor	Eigenvalue	Cumulative Proportion of the Total Variance
1	27.86514	0.28434
2	3.24944	0.31750
3	1.82680	0.33614
4	1.33697	0.34978
5	1.23106	0.36234
6	1.14972	0.37407
7	1.10676	0.38537
8	1.01795	0.39575

TABLE 6

Correlation Matrix of 8 Factors

of Set B

Factor	1	2	3	4	5
1	1.00000				
2	0.35464	1.00000			
3	-0.27416	-0.17037	1.00000		
4	0.05241	-0.05386	-0.24013	1.00000	
5	-0.30539	-0.20562	0.27160	0.20538	1.00000
6	0.12795	0.15859	-0.14932	-0.05716	-0.17549
7	-0.09865	-0.06224	0.22480	-0.13520	-0.06891
8	-0.00387	0.10693	-0.04504	-0.25737	-0.11123

	6	7	8
6	1.00000		
7	-0.15450	1.00000	
8	0.12282	-0.15359	1.00000

TABLE 7

Factor Pattern Matrix - Set B

Set B

VARIABLE	FACTOR 1	2	3	4	5	6	7	8
1	0.56028	0.20585	-0.07297	-0.12339	-0.10287	0.01797	0.03823	-0.06961
2	0.23166	0.05593	0.38356	0.02672	-0.08796	-0.08673	0.03090	0.08764
3	0.49956	0.06018	0.37712	0.11452	0.14468	0.11584	-0.09578	0.06169
4	0.62739	0.26730	-0.08350	-0.11804	0.03618	0.06263	-0.01017	-0.05100
5	-0.69332	-0.40485	-0.08938	0.01961	-0.12313	0.08985	0.02040	0.06327
6	0.59018	0.14514	-0.08118	-0.09704	-0.05201	-0.03227	-0.00464	-0.07290
7	-0.05925	0.31369	-0.08053	-0.02464	-0.08514	0.20205	0.17680	-0.19898
8	0.58130	0.19014	-0.12790	-0.25207	0.15366	0.15179	0.04662	-0.10744
9	-0.48371	-0.01850	0.03345	-0.02628	0.03119	-0.03086	-0.07494	0.08189
10	0.77783	0.13279	-0.10957	-0.10795	0.06766	-0.00395	-0.01020	-0.04997
11	-0.13813	0.12157	-0.07378	-0.02859	-0.07716	0.09195	-0.37762	0.01605
12	0.66528	-0.13504	0.05603	-0.10577	0.22870	0.13164	0.00769	0.03775
13	0.51366	0.29957	-0.02296	-0.02039	-0.02790	-0.00764	-0.07721	-0.25059
14	-0.34053	0.11720	0.05351	-0.10201	-0.29592	-0.01956	0.06585	0.03879
15	-0.63299	0.08672	-0.01079	0.06938	-0.08002	-0.11862	-0.01696	0.10706
16	0.48530	0.06505	0.07641	0.00332	-0.09835	0.06912	0.09976	0.01519
17	0.53994	0.14087	-0.19982	-0.12812	0.00608	0.15138	0.01666	-0.28825
18	0.00880	0.12358	-0.03528	-0.01009	0.06843	-0.08063	-0.27379	0.00913
19	0.82668	-0.03140	0.02486	-0.11218	0.05573	-0.02756	0.00433	-0.00280
20	-0.51993	-0.36508	0.11732	0.03250	0.12720	0.03897	0.06076	0.14964
21	-0.62171	-0.30695	-0.08355	-0.00903	0.11166	0.00290	0.11185	0.17086
22	-0.12972	-0.19778	0.20877	-0.17629	-0.10312	-0.03262	-0.21769	0.05708
23	0.66028	0.30261	-0.08169	-0.03355	0.12764	-0.10001	-0.08759	-0.07342
24	0.53320	-0.08032	-0.05563	-0.05627	-0.13660	0.21626	-0.08489	0.10786
25	0.86355	0.02522	-0.06662	-0.15843	0.06376	0.00082	0.00586	0.00192
26	0.05228	-0.24478	0.44542	0.00400	0.03289	-0.05917	0.09416	0.29333
27	-0.22274	0.27827	-0.01968	-0.17985	0.24858	-0.18101	-0.03615	-0.13657
28	0.22347	0.17125	0.37122	-0.02867	0.26139	0.02187	0.12183	0.15153
29	-0.10322	-0.31815	-0.07908	-0.19299	-0.07628	0.00001	0.01111	0.18660
30	0.64851	0.06537	-0.03673	-0.00499	-0.04472	0.09183	-0.01853	-0.03005
31	0.63943	-0.12803	0.00172	-0.00838	0.11618	-0.16477	0.05876	-0.02193
32	-0.10987	-0.19241	0.02763	-0.00852	0.15629	0.25873	0.01262	-0.16983
33	-0.66344	-0.29956	0.12946	0.09785	0.01842	0.13274	0.01908	0.08591
34	-0.32343	-0.35159	0.11827	-0.27130	-0.02120	0.00876	0.00056	-0.00817
35	-0.13932	-0.03379	0.31379	0.12296	-0.02353	-0.05226	0.05161	0.03820
36	-0.32633	0.00357	-0.09068	-0.05468	0.15866	0.12534	0.20698	0.08936
37	0.46106	0.01809	-0.26384	-0.19482	0.01424	0.05050	0.08193	-0.06435
38	0.10462	0.38104	-0.25031	-0.13952	0.21307	0.06352	-0.24753	0.13694
39	-0.78668	0.06570	0.05497	0.03938	-0.09783	-0.09851	-0.04097	-0.00671
40	-0.32784	0.29828	0.40658	0.01029	-0.23188	-0.06562	-0.01192	0.02715
41	0.43847	-0.32625	-0.02803	-0.02377	-0.11194	-0.16897	0.12232	-0.02866
42	0.81205	0.11706	0.33776	0.05613	0.01091	0.15672	-0.07598	-0.00351
43	0.71678	-0.01702	-0.03171	-0.03621	0.09535	0.06502	0.12166	-0.02032
44	-0.28908	-0.52807	0.07858	0.12189	-0.03270	0.23885	0.10913	0.00191
45	0.66930	-0.06813	0.10442	0.19645	-0.22719	-0.00975	-0.04933	0.13389
46	-0.20339	-0.50477	-0.29469	-0.21481	0.22712	0.03315	0.27757	0.12355
47	-0.00112	-0.38597	0.13326	-0.35953	0.03495	-0.01117	-0.17104	-0.13655
48	-0.56667	-0.07583	0.25764	0.06730	-0.05284	0.19557	-0.13228	-0.13221
49	-0.30020	-0.13876	0.27956	0.12644	-0.05583	0.04918	-0.06775	-0.01880
50	0.01641	-0.37189	-0.11329	0.06398	0.08278	0.01162	0.04811	0.05016
51	0.47814	0.07607	-0.03764	0.15285	-0.01395	0.02918	0.03157	0.25373
52	-0.30015	-0.22556	0.12515	-0.05915	0.10839	-0.02718	0.03423	0.21492
53	-0.57294	0.02129	-0.14619	-0.03163	-0.08570	0.14095	-0.09125	0.01262
54	-0.77028	0.02751	-0.01881	-0.17186	0.12048	0.08803	0.01604	0.00920

TABLE 7

Factor Pattern Matrix - Set B (continued)

55	0.20287	0.18705	-0.10237	0.37805	0.03701	0.03467	0.12020	0.16996
56	-0.66150	-0.19944	0.03081	0.00985	0.15534	0.12197	0.16332	0.06340
57	0.24261	-0.06251	0.15791	-0.05489	-0.00778	0.01234	-0.37133	-0.07321
58	0.00362	-0.83708	0.11321	0.00239	0.28951	0.02830	0.17680	0.01794
59	-0.38275	-0.21931	-0.08151	-0.15825	0.16245	-0.00385	-0.08556	-0.23686
60	0.17049	0.28184	-0.05960	-0.06207	-0.05569	0.11385	-0.11565	0.03594
61	-0.32707	0.00057	-0.05965	0.08486	0.00553	0.31042	0.05291	-0.01322
62	-0.78228	0.06102	0.03097	0.10841	0.12680	0.09954	0.06476	0.02012
63	-0.39360	-0.20192	0.12645	0.15754	-0.00045	0.13142	0.39790	0.16149
64	0.73725	-0.09133	0.00237	0.18171	-0.07186	0.13311	-0.00398	0.09768
65	-0.60219	-0.25790	0.04483	-0.13339	0.15769	0.05363	0.03555	-0.04208
66	-0.10337	0.15929	-0.10987	-0.22447	0.04363	0.01590	0.02524	0.08766
67	-0.23846	0.21510	-0.03425	-0.15986	0.10120	0.02889	-0.04058	0.10254
68	-0.78096	-0.11440	-0.02392	-0.07993	0.09449	0.00786	0.08998	-0.04259
69	-0.30161	-0.18798	-0.14073	-0.19978	-0.19752	-0.10635	-0.12181	0.19491
70	0.61209	-0.10569	-0.01719	0.08878	-0.25204	0.05493	0.00813	-0.13489
71	-0.31765	-0.28932	0.05328	-0.09551	0.14789	0.05565	0.08129	-0.06000
72	-0.04948	0.55080	-0.07594	0.02567	0.08876	0.01207	0.11401	0.13692
73	0.49681	-0.29497	-0.00712	0.19838	-0.04566	-0.01531	-0.19232	0.09393
74	0.11504	0.07777	-0.32618	0.20820	-0.00024	-0.20569	0.01785	0.25116
75	0.46700	-0.27700	-0.18168	0.01838	0.17586	0.12696	-0.11066	0.02679
76	0.50459	0.12189	0.07988	-0.06670	-0.05729	-0.14972	-0.03881	0.01411
77	0.20320	0.13120	0.00206	-0.10798	-0.00226	-0.09778	0.04891	0.25568
78	-0.61518	-0.10386	-0.06065	-0.20768	0.09981	-0.05407	-0.03833	-0.07815
79	0.31018	-0.11909	0.03338	-0.02932	0.01804	0.05139	0.12805	-0.01995
80	-0.01156	-0.34102	-0.04480	-0.11097	-0.32679	-0.02350	0.05174	0.01455
81	0.57664	-0.26585	-0.23121	-0.27455	0.07501	-0.22369	0.05533	0.04401
82	0.18691	-0.20682	-0.07721	0.03870	0.10816	0.38688	0.02239	0.15172
83	0.75573	0.12510	0.04927	0.06003	-0.03823	-0.00493	-0.02539	0.06309
84	0.57855	0.07293	-0.12746	0.05388	0.09834	0.02822	-0.06807	0.09362
85	0.61313	0.03217	-0.18933	-0.19787	-0.00072	0.20703	-0.13734	-0.01437
86	0.25689	-0.10714	0.02938	-0.17430	0.00623	0.19620	0.06122	-0.08482
87	-0.78818	0.04583	0.03743	0.00479	-0.10150	0.00872	-0.08671	-0.07932
88	0.68847	0.01207	-0.02743	0.14959	-0.09268	0.06103	0.15735	0.18237
89	0.64987	-0.03592	-0.06543	0.01436	-0.06844	0.13477	0.06917	0.17038
90	-0.62825	-0.18386	0.05135	-0.06309	-0.03658	0.00564	0.09181	0.00712
91	-0.52981	0.26126	0.13699	0.03643	-0.02989	0.10795	0.35038	-0.00719
92	-0.53485	-0.18980	0.14845	0.04110	-0.04661	0.10179	0.07138	0.12538
93	0.40328	0.08580	0.19508	-0.08038	-0.01459	-0.03206	-0.03919	-0.04803
94	0.82929	0.07386	0.10153	0.17863	-0.08298	-0.08025	0.05570	0.12877
95	-0.63677	0.00114	-0.01718	-0.10664	0.08436	-0.08881	-0.05650	-0.13364
96	-0.40518	-0.13878	0.08044	-0.04631	0.14809	0.09762	0.05356	0.04625
97	0.46050	-0.01560	0.08434	-0.18135	-0.07672	0.08691	-0.13650	-0.04697
98	-0.11934	0.11949	-0.11005	0.06931	0.16838	-0.23562	0.06932	-0.04726

TABLE 8

Illustrations of Salient Items for Factors 1, 2 and 3 of Set B Which Were Used to Determine the Meaningful Label of the Factor

Factor	Item #	Factor Pattern Loading		Description of Item
1	25	.86	A	A double bed
			*B	Twin beds
	95	-.84	*A	Man sitting throwing cards into a hat
			B	Man resting in a hammock
	64	.74	A	Boy dressing himself
			*B	Mother dressing boy
	Label: General Social Dysfunction preference			
2	Item #	Factor Pattern Loading		Description of Item
	72	.55	A	Boy buttoning shirt
			*B	Boy blowing bubble
	46	-.51	*A	Boy jumping off high rock - rubble below
			B	Boy sitting and reading
	44	-.53	*A	Boy pulling girls pigtails
			B	Girl reading
	Label: General Anti-Social Activity preference			
3	Item #	Factor Pattern Loading		Description of Item
	26	.45	A	A muscular stevedore
			*B	Superman
	40	.41	A	True-false answer sheet - all true items checked
			*B	Same, but even distribution

TABLE 8

Illustrations of Salient Items for Factors 1, 2 and 3 of Set B Which Were Used to Determine the Meaningful Label of the Factor

(continued)

Factor 3	Item #	Factor Pattern Loading		Description of Item of true-false items checked
	3	.38	A	Young man, arm-in-arm with girlfriend
			*B	Same man walking hand-in-hand with parents
	Label: General Passive Orientation preference			

* To determine which pictures of picture-pair items were to be considered grouped together for the purpose of interpreting the possible meaning of a factor, negative (-) factor pattern loading were arbitrarily considered to be the A picture and positive (+) pattern loadings the B picture. By inspection, meaningful labels were then sought for the asterisked (*) group or the not asterisked group. Labels for Factors 1 and 2 of Set B were based on the asterisked group. The label for Factor 3 of Set B was based on the non-asterisked group of pictures.

TABLE 9

Correlations Between the 3 Meaningful Factors of Set A and Set B Based on Factor Scores

Factor Set B	Set A 1	2	3
1	0.96413*	-0.18672	0.17146
2	0.53960	0.53782	0.35032
3	-0.35881	-0.08646	-0.49669

* All correlations equal to or greater than the absolute value .25 are significant at the .05 level. (Guilford, 1965, p. 581)

meaningful factors of Set B. Correlations between all 10 factors of Set A and all 8 factors of Set B can be found in Appendix H.

To further elucidate the relationship between the factors of Set A and those of Set B, canonical correlations were computed. Table 10 gives the results of these computations.

In general, the above results give support to the acceptance of the first hypothesis.

The Second Hypothesis

The second hypothesis stated that Social Desirability responding would not be a major determinant of the meaningful factors of either Set A or Set B. Total scores on the Social Desirability scale were correlated (G-coefficients) with the meaningful factors of Sets A and B by means of the factor scores. The results of these computations appear in Table 11. Correlations between the total Social Desirability score and the 10 factors of Set A and the 8 factors of Set B can be found in Appendix I.

The above results give support to the acceptance of the second hypothesis.

Meaningful Factors and Additional Inforamtion

Finally, additional correlations (G-coefficients) were computed between the meaningful factors of Sets A and B and personal-socio-economic information and *a priori* scale scores in an attempt to further elucidate the meaningfulness of the generated factors in the light of the theoretical considerations which

TABLE 10

Results of Canonical Correlation Analysis Between 10 Factors of Set A and 8 Factors of Set B

CANONICAL CORRELATIONS					
NUMBER OF CANONICAL VARIATE SETS	CORRESPONDING EIGENVALUES	CORRESPONDING CANONICAL CORRELATION	WILK'S LAMBDA	CHI-SQUARE *	DEGREES OF FREEDOM
1	0.97089	0.98531	0.00348	3449.29720	80
2	0.63500	0.79687	0.11938	1293.31969	63
3	0.35116	0.59259	0.32708	680.03215	48
4	0.25214	0.50213	0.50410	416.81643	35
5	0.18710	0.43255	0.67405	240.02605	24
6	0.11262	0.33559	0.82919	113.97711	15
7	0.03939	0.19847	0.93843	41.27028	8
8	0.02726	0.16510	0.97274	16.81644	3

* All Chi-square values are significant at the .001 level. (Guilford, 1965, p. 582)

TABLE 10

Results of Canonical Correlation Analysis Between 10 Factors of Set A and 8 Factors of Set B (continued)

Set A

CANONICAL COEFFICIENTS

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4	CANVAR 5	CANVAR 6	CANVAR 7	CANVAR 8
FACGA01	0.97353	-0.09285	0.14392	0.40416	-0.00035	0.05546	-0.08008	0.28587
FACGA02	-0.05113	0.68110	0.18611	0.73290	0.35061	0.13731	0.42679	-0.11575
FACGA03	0.05186	0.07171	-0.56941	-0.47693	0.44038	-0.57806	-0.01057	0.42912
FACGA04	-0.00600	-0.29792	-0.00087	0.29533	0.82302	0.33980	-0.12874	-0.22648
FACGA05	0.02052	0.12420	0.80137	-0.51506	0.15195	-0.28537	-0.59732	-0.50712
FACGA06	-0.01239	-0.03136	-0.20197	0.27351	0.26429	-0.12572	-0.12583	0.69101
FACGA07	0.00105	-0.23108	-0.21166	-0.86409	-0.29095	0.90721	0.73139	-0.20812
FACGA08	0.01210	0.03720	-0.35955	0.38815	-0.17857	0.05336	-0.69589	-0.33887
FACGA09	0.00596	-0.00224	0.07671	0.08937	0.07095	0.32830	-0.59366	0.66187
FACGA10	-0.04745	0.15762	0.25785	-0.28695	0.20589	0.04583	0.34967	0.47375

Set B

CANONICAL COEFFICIENTS

	CANVAR 1	CANVAR 2	CANVAR 3	CANVAR 4	CANVAR 5	CANVAR 6	CANVAR 7	CANVAR 8
FACGB01	0.87392	-0.63623	0.37823	-0.14506	0.05099	-0.10160	0.02558	-0.12587
FACGB02	0.17093	1.04256	0.24536	-0.10993	0.01618	0.10587	-0.06118	-0.13351
FACGB03	-0.04776	-0.03067	0.78572	0.30165	-0.81397	-0.01102	0.12953	0.02809
FACGB04	-0.00185	0.14597	0.20717	0.92971	0.11515	-0.07095	0.20739	-0.13952
FACGB05	-0.05429	-0.07605	0.35243	-0.71020	0.53327	-0.53223	-0.27173	-0.30711
FACGB06	-0.00413	0.02671	0.11183	-0.01583	-0.03017	-0.50262	-0.35381	0.88339
FACGB07	-0.05380	-0.05845	0.42957	0.18968	0.81703	0.37659	-0.13532	0.32211
FACGB08	-0.00566	-0.13977	0.09259	0.04811	0.05209	0.05777	-0.88611	-0.01136

TABLE 11

Correlations Between Social Desirability Scale Scores (SDSS) and the 3 Meaningful Factors of Sets A and B Based on Factor Scores of Sets A and B

Factor - Set A	SDSS	Factor - Set B	SDSS
1	-0.55443*	1	-0.54556*
2	0.04185	2	-0.27268
3	-0.18698	3	0.28060

* All correlations equal to or greater than the absolute value .25 are significant at the .05 level. (Guilford, 1965, p. 581)

guided the construction of the Picture-Preference Test. Table 12 presents the five highest correlations between the three meaningful factors of Set A with the additional data. Table 13 presents similar information for the meaningful factors of Set B. The complete set of correlations between the significant factors of Sets A and B and all the additional information can be found in Appendix I. In general, these findings tend to support the meaningful names given to the first factor of Sets A and B, and less so for Factors 2 and 3 of Sets A and B.

TABLE 12

The Five Highest Correlations Between The Additional Information Data and Three Meaningful Factors of Set A

Correlations with Factor 1	
.879	Subject's Age
.872	Morrison's Anti-social Impulse scale
.856	Morrison's Masochism scale
.796	Morrison's Total Test Score
.740	Subject's Education
Correlations with Factor 2	
.580	Morrison's Magical Omnipotence scale
.413	Morrison's Impulsivity scale
.375	Morrison's Oral Dependence scale
-.351	Begin's Avoidance of Intimacy scale
.340	Morrison's Total Test Score
Correlations with Factor 3	
-.391	Subject's Sex
.376	Morrison's Masochism scale
.372	Morrison's Total Test Score
.369	Morrison's Anti-social Impulse scale
.357	Cowan's Anti-social Impulse scale

TABLE 13

The Five Highest Correlations Between The Additional Information Data and Three Meaningful Factors of Set B

Correlations with Factor 1	
.894	Subject's Age
.799	Morrison's Masochism scale
.797	Morrison's Anti-social Impulse scale
.744	Subject's Education
.718	Morrison's Total Test score
Correlations with Factor 2	
.717	Morrison's Anti-social Impulse scale
.716	Morrison's Total Test Score
.675	Morrison's Masochism scale
.591	Cowan's Anti-social Impulse scale
.509	Morrison's Impulsivity
Correlations with Factor 3	
-.394	Morrison's Total Test Score
-.393	Begin's Oral Incorporative Trends scale
-.360	Morrison's Anti-social Impulse scale
-.350	Morrison's Magical Omnipotence scale
-.348	Cowan's Anti-social Impulse scale

CHAPTER IV

DISCUSSION

The First Hypothesis

The first hypothesis stated that meaningful factors across the two sets of picture-pair items would be significantly correlated, thus demonstrating factor reliability across the two sets. After splitting the 196 picture-pair items into two sets, A and B, 10 significant factors (eigenvalues ≥ 1.00) were generated for Set A and 8 significant factors were generated for Set B.

The meaningfulness of a factor was determined by 1) the possibility of giving a meaningful "name" to the factor by inspecting/interpreting the picture content of those items with salient factor pattern loadings (loading $\geq .30$) and 2) by examining the percentage of variance accounted for by the significant factors. On the basis of these two criteria it was possible to attribute meaningfulness to Factor 1 of both Sets A and B with considerable confidence since the picture content seemed fairly clear and approximately 26% (Set A) and 28% (Set B) of the variance was accounted for by Factor 1 in each set. There was considerably less confidence in determining the meaningfulness of Factor 2 of both sets given that approximately 3% of the variance was accounted for by Factors 2 in Set A and Set B. However, there

seemed to be some clarity as to picture content. Finally, there was the least confidence in determining the meaningfulness of Factor 3 of each set. Approximately only 1% of the variance was being accounted for by this factor in Sets A and B and picture content was questionable. For the remaining Factors, 4 through 10 of Set A and 4 through 8 of Set B, no more than 1% of the variance was accounted for by each factor in its respective set and the picture contents could not be meaningfully interpreted. Results presented in Table 9 indicated that factors are reliable significantly ($p < .05$) across sets as hypothesized. Factor 1 is clearly reliable across sets and then progressively less so with Factors 2 and 3. Given oblique rotations, correlations between factors can be expected. It seems that the ubiquitous quality of Factors 1 and 2 of Set B have more in common than Factors 1 and 2 of Set A. And, in general, Factor 2 of Set B seems to overlap to a greater degree with other factors of Set B thus "clouding" their singular meaningfulness.

Given the relatively small amounts of variance being accounted for by Factors 2 and 3 of each set, as well as the moderately high correlations that exist between Factors 2 and 3 of Set B with Factor 1 of Set A (though this is not the case with Factors 2 and 3 of Set A in their relation to Factor 1 of Set B), it might be argued that there is probably only one meaningful factor in each set and not three. On initial inspection this may seem to be an obvious conclusion. However, this would seem to be a hasty conclusion. First, as has been mentioned above,

inspection of the content of the pictures related to the factors suggests a meaning different than that suggested by Factors 1. This difference in meaning is also suggested by the correlations of a priori scales with these factors which are different from the a priori scales correlated with Factors 1. (These correlations with different a priori scales are discussed later in this chapter.) Thus, in order to tap this something-different-from-Factors 1, it is necessary to retain more than just one factor in each set. Also, the fact that Factors 2 and 3 of each set correlate differently with Factor 1 of the alternate set, further suggests that Factors 2 and 3 are something different from Factors 1 and different from each other across sets. At this point, it seems more reasonable to retain Factors 2 and 3 of each set and explore their significance in further research than to perhaps too hastely dismiss them as of insignificant consequence.

The negative sign of the correlations between Factor 3 in each set can be explained by the fact that whereas in determining the meaningful name for Factor 3 in Set A, the A picture of the picture-pair was assigned the negative factor pattern loadings and the B picture the positive loadings and it was on the basis of this assigned grouping of A and B pictures that the meaningful names were determined, this was not so in interpreting Factor 3 in Set B. In this latter case, it was on the basis of the unassigned pictures that the meaningful names were determined. Or, in other words, in the case of Factor 3 in Set B, the A picture

of the picture-pair was assigned the positive factor pattern loading and the B picture the negative pattern loading. Thus, though each Factor 3 had the same name, if they were related, a negative correlation would be expected, as was the result. Since the names of Factors 1 and 2 of each set were determined by the same procedure, where A pictures were assigned the negative factor pattern loadings and B pictures the positive factor pattern loadings, positive correlations would be expected, as was the result.

Canonical correlations were also computed to further elucidate the relationship between the meaningful factors of Sets A and B. Results presented in Table 10 indicated that the first canonical variable accounted for 97% of the variance ($p < .001$) between the two sets and that the first factor of both Sets A and B correlated the highest with this first canonical variable. The second canonical variable accounted for 63% of the remaining (residual) variance ($p < .001$) between sets and Factor 2 of each set correlated the highest with it. Factor 3 of Sets A and B correlated the highest with the third canonical variable which only accounted for 35% of the yet remaining variance ($p < .001$) between the sets. These findings, the canonical variables and the correlations of the factors with them render support to the one, or possibly three factor dimension for Sets A and B. Thus, the results support the first hypothesis by providing evidence for the reliability of meaningful factors across the two sets of picture-pair items. This evidence is most strong for Factor 1 of each set.

The Second Hypothesis

The second hypothesis stated that Social Desirability responding would not be a major determinant of the meaningful factors of either Set A or Set B. As noted in Table 11, Social Desirability responding is found to be negatively correlated to a moderate degree (e.g., absolute value .5) to Factors 1 of Sets A and B and to a low degree (e.g., absolute value .2) to Factors 2 and 3 of Set B. This pattern of correlations is similar to the pattern noted above regarding the presence of the general social dysfunction theme. Thus, it appears that though Social Desirability responding may influence the formation of the meaningful factors, especially in the case of Factors 1 of both sets and Factors 2 and 3 of Set B, this influence is not decisive given the low-to-moderate correlations. It would appear that along with the Social Desirability element influencing the factors that are correlated with the social desirability scale, these factors also measure something not accounted for by the Social Desirability responding element. Further, given the different degrees to which the Social Desirability responding element is correlated with the meaningful factors, it appears the Social Desirability responding does not saturate each factor equally. This would support the proposition that the factor structures of Sets A and B are more than one dimensional.

In summary, the findings appear to indicate that Social Desirability responding does not play an important role in the composition of 4 of the 6 meaningful factors identified. There-

fore, it was concluded that the second hypothesis was confirmed.

Meaningful Factors and Additional Information

The meaningful factors of Sets A and B were also correlated (G-coefficients) by means of the factor scores with the personal-socio-economic information obtained on the subjects as well as with the individual scale and total test scores as constituted by the theoretical considerations of Cowan, Begin and Morrison. This was done to further develop the meaningfulness of the 3 factors of Sets A and B. Tables 12 and 13, as well as Appendix I presented these findings.

From these results it appeared that Factor 1 of Sets A and B are strikingly similar in their content as defined by the additional information. Morrison's Masochism scale, his Anti-social Impulse scale, his Total Test score, the Subject's Age and Education were the largest correlations with Factor 1 for both Sets A and B. For Set A, 21 of the Additional Information items had correlations equal to or greater than the absolute value .30 with Factor 1; in Set B, there were 20 such Additional Information items. It would seem that Factor 1 of Sets A and B permeates the majority of the Additional Information Items. The *a priori* scale items with large correlations suggest a content for Factors 1 of social and personal dysfunction where destructive energies are directed both outward and inward. Such a non-specific description of dysfunction may well fit the addictive personality which the Picture-Preference test was originally designed to identify or perhaps, as Cowan concluded regarding

the substance of the test, is another way of speaking about a "general psychological disturbance rather than the isolated pathology, addiction". The meaning-label of "General Social Dysfunction" suggested by inspection appears to be appropriate for Factors L.

The high correlations with the Subject's Age and Education may be understood as a reflection of the general dysocial preferences and social-personal dissatisfaction frequently found in university subjects rather than as an indication of an absolute, a priori "general psychological disturbance". Increased age and education frequently bring social-personal dissatisfaction; hopefully, they do not bring greater psychological disturbance. Mello and Guthrie (1958) reasoned in a like manner regarding students at a university counseling center who showed peaks on scale 4 (Pd - psychopathic divate) of the Minnesota Muliphasic Personality Inventory. The role of scale 4 (Pd - psychopathic deviate) appeared to be an index of rebelliousness rather than an indication of the classical acting out of asocial, amoral impulses. Other items of socio-economic information, received moderate and low loadings on Factors 1. They were not considered to be major determinants of the Factors.

With Factors 2 and 3 of Sets A and B, the clarity of the meaningfulness of the factors becomes clouded as reflected in the correlations with the additional information. For Set A, only 6 items of Additional Information had correlations equal to or greater than the absolute value of .30 with Factor 2, and

only 7 items with Factor 3. For Set B, only 11 items had correlations of such magnitude with Factor 2, and only 8 items with Factor 3. Thus, it appears that Factor 2 and 3 permeate fewer Additional Information items than Factor 1 and at lower correlation values.

Whereas in Set B, Factors 2 and 3 appear to carry on the general dysfunction theme of Factors 1, in Set A only Factor 3 resonates in this fashion, as is reflected by correlations with Additional Information data. Though both Factors 2 evidence a relationship to Morrison's Impulsivity scale, Factor 2 of Set A also shows relationships with Morrison's Magical Omnipotence and Oral Dependence scales and Factor 2 of Set B is also correlated with Morrison's and Cowan's Anti-social scales and Morrison's Masochism Scale. Thus Factor 2 of Set A seems to have the ring of magical and regressive thinking along with impulsivity, and Factor 2 of Set B has the ring of rebellious and masochistic activity along with impulsivity. The meaning-label of "General Anit-social Activity preference" suggested by inspection, may not reflect the nuances of each Factor 2 as suggested by the correlations with the a priori scales. However, until Factors 2 can be further clarified, this label seems to have an appropriateness.

Factor 3 of each set show greater correspondence across sets as reflected in their correlation with Morrison's and Cowan's Anti-social Impulse scales. However, each Factor 3 also demonstrates its difference from the other. The subject's sex and Morrison's Masochism scale are correlated with Factor 3 of Set

A, whereas Morrison's Magical Omnipotence scale and Begin's Oral Incorporation Trends scale are correlated with Factor 3 of Set B. Though each Factor 3 carries the anti-social theme noted in Factor 1, they each have noted differences. The noted differences seems to be adequately reflected in the meaning-label of "General Passive Orientation preference" which was given by inspection to Factors 3. However, the nuance of conventionality-conformity for each Factor 3 is not fully reflected by the label, nor is the relationship of gender to Factor 3 of Set A. In light of this information, it may be that Factor 2 of Sets A and B involved an impulsive-wishful (masculine?) preference and Factor 3 of Sets A and B a passive-conforming (femine?) preference. This interpretation would have to be clarified by further research.

It would seem inopportune at this time not to take note of these differences as manifested in Factors 2 and 3 and evidenced by their correlations with additional information data. Such differences suggest information carried by Factors 2 and 3 which does not manifest itself in Factors 1. It is felt that these differences give support to the possibility of a three-dimensional factor structure for both Set A and Set B, though confirmation and clarification as to the meaningfulness of these factors will have to be provided by further research.

Conclusions and Suggestions for Further Research

On the basis of the above findings a number of conclusions were drawn:

1. There is a reliable and meaningful factor structure in the Picture-Preference Test which can be demonstrated through a split-half procedure.
2. The resultant factor structure (Sets A and B) consists of one major factor, as well as two minor factors.
3. Social Desirability responding is not a decisive determinant of the factor structure (Sets A and B).
4. The content of the first Factor is meaningfully expressed by the label "General Social Dysfunction".
5. The original a priori scales of Cowan and Morrison are highly saturated by the first Factor.

Based on the conclusions above, the value of the Picture-Preference Test becomes clearly obvious both in terms of its potential clinical usefulness as well as its potential heuristic value. Such clinical potential is suggested by factor-based scales presented in Appendix J which evidence the non-verbal nature, the high interest value and the content subtlety of the picture-pair items.

Regarding its heuristic value, the present study suggests a number of avenues of further research. Research scales based on the meaningful factors of this study are presented in Appendix J to facilitate such heuristic endeavors. First, a replication of the present study would be in order to establish the reliability of the present findings. This replication would be ap-

propriate with a similar subject sample as well as difference subject samples to assess the generalizability of the findings. Second, the discriminating powers of the Factor-Based scales between various dysfunctional groups should be validated. Finally, correlational studies with other well-established personality instruments may further elucidate the meaningfulness of Factor-Based scales.

A number of other possible research interests might arise with regard to the Picture-Preference Test. However, they would seem to be premature until these basic issues of reliability, validity and "meaningfulness" are resolved.

APPENDIX A

PERSONALITY RESEARCH QUESTIONNAIRE

On this page and the following pages, you will find a series of statements which a person might use to describe himself. Read each statement and decide whether or not it describes you. Then indicate your answer by circling either TRUE or FALSE.

If you agree with a statement or decide that it does describe you, answer, TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE.

Answer every statement either true or false, even if you are not completely sure of your answer.

1. I am not willing to give up my own privacy or pleasure in order to help other people.
   TRUE FALSE
2. I almost always feel sleepy and lazy. TRUE FALSE
3. We ought to let the rest of the world solve their own problems and just look out after ourselves.
   TRUE FALSE
4. Most of my teachers were helpful. TRUE FALSE
5. My memory is as good as other people's. TRUE FALSE
6. I am able to make correct decisions on difficult questions.
   TRUE FALSE
7. I have a number of health problems. TRUE FALSE
8. I am always prepared to do what is expected of me.
   TRUE FALSE
9. I find it very difficult to concentrate. TRUE FALSE
10. I always try to be considerate of the feelings of my friends.
    TRUE FALSE
11. I often have the feeling that I am doing something evil.
    TRUE FALSE

12. In the long run humanity will owe a lot more to the teacher than to the salesman.
TRUE FALSE

13. Rarely, if ever, has the sight of food made me ill.
TRUE FALSE

14. Nothing that happens to me makes much difference one way or the other.
TRUE FALSE

15. I am seldom ill. TRUE FALSE

16. Many things make me feel uneasy TRUE FALSE

17. I often question whether life is worthwhile.
TRUE FALSE

18. I believe people tell lies any time it is to their advantage.
TRUE FALSE

19. My life is full of interesting activities. TRUE FALSE

20. I often take some responsibility for looking out for newcomers in a group.
TRUE FALSE

Your answers to this questionnaire are anonymous--identified only by a code number which is in no way linked to you personally. However, we do need some information about such matters as your age, education, occupation, and family background, in order to classify our subjects into various groups to see whether these background factors are related to personality. Would you therefore please answer the following questions:

1. What is your age? _____ years.

2. What is your sex? male:_____ female:_____

3. What is your own occupation? (Please describe it fully; for example, "telephone installer" rather than "Bell Canada")

_____

4. What is your father's occupation:_____

5. What level of education have you completed?

_____

6. What level of education did your father complete?

_____

Thank your for your assistance in this research.

APPENDIX B

SUMMARY OF PERSONAL-SOCIO-ECONIMIC INFORMATION ON 309 SUBJECTS

AGE	Frequency	Percentages
15-24 yr.	241	77.99
25-34 yr.	50	16.99
35-44 yr.	12	3.88
45-54 yr.	2	.64
No Information	4	1.29
Total	309	99.98
M	21.90	
S.D.	5.79	

SEX	Frequency	Percentages
Male	101	32.68
Female	206	66.66
No Information	2	.64
Total	309	99.98

OCCUPATION LEVEL (Warner*)

	Subjects		Subjects' Fathers	
	Freq.	%age	Freq.	%age
1. Executives and proprietors of large concerns and major professionals	1	.32	20	6.47
2. Managers and proprietors of medium concerns and minor professionals	18	5.82	45	14.56
3. Administrative personnel of large concerns, owners of small independent businesses and semiprofessionals	39	12.62	47	15.21
4. Owners of little businesses, clerical and sales workers				

		Subjects		Subjects' Fathers	
		Freq.	%age	Freq.	%age
	and technicians	13	4.20	37	11.97
5.	Skilled workers	9	2.91	50	16.18
6.	Semiskilled workers	5	1.61	38	12.29
7.	Unskilled workers	0	0.00	29	9.38
8.	Students	219	70.80	0	0.00
9.	Unemployed or retired	3	.90	3	.97
0.	Missing information	2	.64	40	12.94
	Total	309	99.82	309	99.97

(* Warner's (195X) levels are from 1 through 7. Levels 8 and 9 are additional levels. They are not below 1 through 7 - their occupational status really can't be compared with the other occupations. The M and S.D. for the father's group where levels 8 and 9 are not as weighty was 3.58 and 2.22 respectively.)

EDUCATION LEVEL (Warner)

		Subjects		Subjects' Fathers	
		Freq.	%age	Freq.	%age
1.	Graduate professional training	3	.97	20	6.47
2.	Standard college or university graduation (includes Honors B.A.)	6	1.94	24	7.76
3.	Partial college training (included Canadian grade 13, community college)	272	88.02	44	14.23
4.	High school graduate	22	7.11	61	19.74
5.	Partial high school (completed tenth or eleventh grade)	3	.97	40	12.94

	Subjects		Subjects' Fathers	
	Freq.	%age	Freq.	%age
6. Junior high school (completed seventh, eighth or ninth grades)	1	.32	70	22.65
7. Less than seven years of school	1	0.00	25	8.09
0. No information	2	0.00	25	8.09
Total	309	99.97	309	99.97
M	3.04		4.00	
S.D.	.50		2.02	

APPENDIX C

INSTRUCTIONS FOR PICTURE-PREFERENCE TEST RESEARCH

After indicating that today is a testing day, during which students may voluntarily particpate in research, receiving special credit for doing so, the T.A. should read the following explanations and instructions:

> We are studying a new approach to personality measurement, a picture-preference test, and are comparing it with the more conventional questionnaire approach. You will be asked to make choices between pictures, and then later you will be asked to answer questions as "true" or "false," that is, as being accurate or inaccurate descriptions of your own behaviour. All of your choices and answers are confidential. Please do not put your name on the answer sheet.
>
> If you would like a report on the findings of this research after the data have been analyzed, please write your name and address on a separate piece of paper, and you will be sent a copy of the report on the research.
>
> Now for the instructions about the tests. The answer sheet for the picture-preference test is headed simply "Answer Sheet." In taking this test, your task is simply to choose which of the two pictures you like better, circling "A" on the answer sheet if you like the left-hand picture better, and "B" if you like the right-hand picture better. A sample item is now on the TV monitor. You should circle "A" on the answer sheet opposite the "X" if you prefer the left-hand picture of the lamp, and "B" if you prefer the right-hand picture of the tree. In a minute the monitor will show another sample item. (At this point wait until item Y is presented.) (Sample item Y is shown on the TV monitor.) Circle the "A" on the answer sheet if you prefer the left-hand picture, the "B" if you prefer the right-hand picture. Each set of pictures will be shown for ten seconds. You should mark your choice within this time period. Sometimes you will find it hard to choose one or the other picture. Please make a choice for every pair of pictures, even if it is difficult to do so. If you don't like either

picture, mark the one you dislike less.

In a minute the pictures will begin, starting with picture No. 1.

APPENDIX B

DESCRIPTION OF ITEMS IN PICTURE-PREFERENCE TEST

Item No.	Picture A	Picture B
X.	Lamp on table	Tree
Y.	Triangle	Square
1.	Two men arguing	One man hitting the other
2.	Marquee displaying LOVE STORY	Marquee displaying GODFATHER
3.	Sleeping Beauty being kissed awake by prince	Girl coming to family breakfast table
4.	Frustrated boy sitting in front of math problem with figures Xed out	Same boy being reprimanded by mother
5.	Man being shot from a cannon	A clown
6.	Young man, arm-in-arm with girlfriend	Same man walking hand-in-hand with parents
7.	A conservative appearing man	A masked man
8.	A male sword-swallower	A male fire-eater
9.	WRONG	RIGHT
10.	Rear view of a tenement and alley	A fun-house mirror with distorted reflection
11.	Boy climbing a tree	Boy with custard pie on face
12.	A man and woman kissing	Scene inside theatre
13.	Father reprimanding son in a loving way	Son kicking family cat
14.	YES	NO
15.	A wheelchair	A pair of crutches

Item No.	Picture A	Picture B
16.	A skinny man	A fat man
17.	Man sweeping the floor	Man walking a tight-rope
18.	Refrigerator with door open - amply stocked	Refrigerator with door closed
19.	A wolf	Flock of wild geese
20.	Christmas tree with presents	Santa Claus with bag of presents
21.	A boy being treated by a doctor	Boy escaping through window from scene of crime
22.	An upright baby bottle	Same bottle tilted down and out
23.	Medicine cabinet filled with toothbrushes, band-aids, etc.	Same, filled with pill bottles
24.	A stack of cans on table in a heap	Man's hand adding a can to a tall tower of shakey cans
25.	Mother feeding son	Father feeding son
26.	A girl thinking about a grave	Same girl thinking about husband and child
27.	Figure going down in a Whirlpool, man diving in to save him	Same, but man throwing life preserver
28.	Man cooking his own meal	Man lying in hospital bed with food tray in front of him
29.	Modern art representation of a figure close up	Same - at a distance
30.	Figure giving shot to a man's arm	Same man receiving shot from an arm
31.	Bedroom, two figures in bed	Bedroom, one figure in bed
32.	Man finding a filled treasure chest	Same man as "chairman of the board"

Item No.	Picture A	Picture B
33.	A group of people standing and talking	Same, with one person away from the group
34.	Young boy playing with toy cars	Young boy playing with lighted match
35.	A drunk being laughed at	Same man with family
36.	A man hanging from cliff, holding branch with one hand	Same, man, crumpled on ground at foot of cliff
37.	A man with mask and gun	A policeman
38.	Cinderella being tapped by fairy godmother	Girl fitting on a beautiful dress in a store
39.	A rose with thorns	A dead tree
40.	An escalator	An express elevator with door closed
41.	A road going into distance with town in background	Same scene, with no town in sight
42.	A double bed	Twin beds
43.	A muscular stevedore	Superman
44.	A car parked by side of road with hood up	Same car driving on mountain road with cliff on side of road
45.	A woman holding a baby	Same woman playing with baby
46.	Boy putting a candy into his mouth	Boy looking through a small telescope
47.	Man with super-human qualities	Same man, with normal qualities
48.	Sleeping Beauty and Prince Charming	Snow White and the seven dwarfs
49.	Male graduate in cap and gown	Man driving a big expensive car

Item No.	Picture A	Picture B
50.	A car going over a bumpy road	Road showing a detour sign pointing to another
51.	Boy holding hands with mother	Same boy holding hands with father
52.	Tug-of-war contest, both sides even	Tug-of-war, one boy letting go of rope and other side falling backwards
53.	A woman in a bathing suit	Same woman, cooking at stove
54.	Child, arm-in-arm with family	Same child, alone
55.	A very thin woman	A fat woman
56.	Stethoscope	Package of dynamite
57.	Father pulling son in wagon	Father and son walking
58.	Car being pushed by tow truck	Car being pulled by tow truck
59.	Young child being spanked	Same child washing dishes
60.	A boy skating	Same boy on skates, with rope pulling him - rope extending off edge of card
61.	Wizard giving a person a magical potion - person drinking it changes into a king	Same person studying, and then scene of him graduating
62.	Picture of a mouth	Picture of two eyes
63.	A buxom woman	A normal size woman
64.	Boy throwing a rock through a window - policeman watching	Boy sitting at desk in classroom
65.	Man walking across a tattered rope bridge	Man moving a heavy rock

Item No.	Picture A	Picture B
66.	A baby being bottle-fed, mother's face showing happiness	Same, mother's face not showing happiness
67.	Empty garage, with door open	A handgun
68.	Long line of people waiting to go into a restaurant	An automat
69.	Young child, sucking his thumb	Same child, playing with pots and pans
70.	A hospital (outside view)	Line of traffic waiting for train to pass
71.	Person stealing a car	Same person paying money to car salesman
72.	Union picketers outside office building	Men at negotiating table
73.	A medical journal	A detective magazine
74.	Window with shade pulled	Same, with shade up showing field scene
75.	True-false answer sheet - all true items checked	Same but even distribution of true, false items checked
76.	Mother, father, and son riding bicycles together	Same family, walking hand-in-hand
77.	A secluded tree	A family house
78.	Man walking down a street with group approaching on other side	Same, with group approaching on same side of street
79.	Two men agruing	Same, but with men with their back to each other
80.	Boy pulling girls pig-tails	Girl reading
81.	A man drinking out of a bottle	Same, drinking out of a glass

Item No.	Picture A	Picture B
82.	A woman viewed at eye-level	Same, viewed from below, as if by a child
83.	Row of ducks following their mother	Same, ducks scattered, all involved in something
84.	Boy jumping off high rock - rubble below	Boy sitting and reading
85.	Man being carried away by angels-heavenly scene	Man at work in office
86.	Young boy sick in bed with mother attending him	Mother and older boy standing talking
87.	Baby with pacifier in his mouth	Same, with baby looking at mobile
88.	Young bird pulling worm from ground, mother watching	Mother bird feeding young in nest
89.	An owl	Man and woman
90.	A roller coaster ride seen from first car	Baby kangaroo in mother's pouch
91.	A teddy-bear	A duck pull-toy
92.	Man with wizard-like qualities showing he can read people's minds	Same man, talking casually to some people
93.	Man piloting an airplane	Same man, flying himself
94.	A beggar sitting on sidewalk holding tin cup	A man struggling to lift a heavy weight
95.	Line of 3 white ducks and one black duck swimming	Four white ducks swimming in a line
96.	Princess kissing a frog - he changes into a handsome prince	Man proposing to a woman
97.	A woman on a bed being examined by a male doctor	Same scene, with female doctor

Item No.	Picture A	Picture B
98.	Man hung-over from drinking	Man shovelling dirt, working hard
99.	A man passing a woman on street, not turning to look	Same scene, with man glancing back at woman's legs
100.	View over back of mouse looking out of hole at cat watching	Mouse climbing to piece of cheese in baited trap
101.	A room with everything in place	Same scene, with disorder and signs of being lived in
102.	A man wearing a smiling mask	Same man, no mask, no expression
103.	Accident victim being fed intraveneously	Accident victim eating by own hand
104.	Man in jail cell, reading	Same man, sawing on bars of cell-windows
105.	Woman making cake appear by snapping her fingers	Same woman buying a cake
106.	Seaman being whipped	Seaman scrubbing the deck
107.	Two dogs walking	One dog walking
108.	Masked man stealing money out of telephone box	Man reading at a desk
109.	Boy dreaming of himself as a king	Boy reading a newspaper
110.	Person in a group of people	Same person alone
111.	A boy throwing a rock through a window	Same boy being caught by a policeman
112.	Man straining under a heavy weight	Same man dropping the weight
113.	Man going into a bar	Man going into office building with briefcase

Item No.	Picture A	Picture B
114.	Two thugs	Two businessmen
115.	Courtroom	Pool hall
116.	Frightened boy escaping down a dark street	Same boy walking along a bright street
117.	A clock showing 10 a.m.	A clock showing 12 noon
118.	Boy standing in front of father saying, "I promise" with fingers crossed behind his back	Landscape scene
119.	Criminal being apprehended	Same man raking leaves
120.	A rifle	A hat
121.	Young boy feeding himself	Infant suckling at mother's breast
122.	Boy dressing himself	Mother dressing boy
123.	A man smoking	A man whittling
124.	Boy falling with parachute	Boy falling into arms of mother
125.	Woman drinking from soft-drink bottle	Same woman drinking from a glass
126.	Mother tying young boy's shoe	Same boy tying his own shoe
127.	Man being fired by boss	Man working at a factory machine
128.	Classroom scene, student and teacher talking	Two boys arguing
129.	A middle-aged can	A sick man in bed
130.	Man walking through a field	Man running through a field
131.	A tennis player	A volley ball team
132.	Crime figure	A horse

Item No.	Picture A	Picture B
133.	An empty beach	Same beach with some people on it
134.	A dagger	A pair of scissors
135.	A fat boy	A very thin boy
136.	Car with hood up on deserted highway - man looking under hood	Car accident - two cars with crumpled fenders
137.	Boy working on jigsaw puzzle	Same boy with broken baseball bat
138.	A deer	An elephant
139.	Man playing a trumpet	Man playing drums
140.	Bottle of poison	Bottle of cod liver oil
141.	A palm tree	A cactus plant
142.	Young child eating in a high chair	Fetus in womb
143.	Boy buttoning shirt	Boy blowing bubble
144.	Snow White asleep	Girl reading
145.	A hand cutting a difficult knot	Same, with hand untying knot
146.	A roast turkey on platter	A baby chick standing by egg it has just emerged from (one foot in shell)
147.	Four letter "M's" increasing in size - small to large	Four medium size letter "M's"
148.	A news magazine	A movie magazine
149.	Large plus sign and large circle	Two large plus signs
150.	A plain, well-developed man	A handsome boy of about 10

Item No.	Picture A	Picture B
151.	A man sitting, watching TV	Same man sitting in chair thinking
152.	An older man feeding himself	Same man being fed by a hand
153.	Shower room with several men, nude, with partition covering genitals	Soldier in fatigues peeling potatoes
154.	A person looking into a mirror, indistinct reflection	A wagon with one wheel missing
155.	A large cactus, desert scene	A large clock showing 4:15
156.	A view over the shoulder of a man giving a speech to a large audience	A man with his arm in a cast
157.	Man being whipped	Woman being whipped
158.	A painting	A mirror
159.	A piece of paper with a small figure drawn near bottom center of page	Same paper, same figure, but filling most of page
160.	Boys about ten, playing football	Same boys playing baseball
161.	A beaver	A butterfly
162.	A dog standing with no leash	Same dog with leash on
163.	A human heart	A human brain
164.	A woman buying cake at bakery	Same woman baking cake
165.	A strung bow (no arrow)	Same bow, unstrung
166.	A group of people throwing a vegetables at a man carrying a PEACE sign	A group of soldiers in combat

Item No.	Picture A	Picture B
167.	A dog running through the woods	A cat curled up by fire
168.	A scarecrow	A robot
169.	A group of swans with one vulture	A group of vultures
170.	A mother duck being followed by line of young ducks, walking	A mother hen with chicks under her wings
171.	A crib	A playpen
172.	Circle with square on side, corner of square tangent to circumference of circle	Same with square overlapping circumference of circle
173.	A row of telephone poles receding into horizon, numbered	Same poles without numbers
174.	A pretty girl, about 10	A plain, well-developed woman
175.	Two men wrestling	Two men boxing
176.	A football player catching a pass	A football player bent over ready to hike ball (rear view)
177.	A person sleeping, dream-cloud showing nondescript scene	Same with no dream cloud
178.	A baby being bottle fed, mother's face showing happiness	Baby being breast fed, mother's face not showing
179.	Numbers: 13 14 15 16	Numbers: 2 4 8 16
180.	Window with shade pulled	Same with shade up showing field scene
181.	A toy top (spinning)	A large ball
182.	A roaring fireplace	A hot bath
183.	A person lying in bed sick (pills on table)	A doctor with stethoscope

Item No.	Picture A	Picture B
184.	An organ grinder and monkey	A freak show at circus
185.	A car wash showing dirty car going in and clean car coming out	A caterpillar crawling into cocoon, butterfly emerging
186.	Soldiers in combat	A line of men getting shots
187.	Man climbing rope with top swivel visible	Same with rope disappearing out of top of card
188.	Woman trying on shoes with male salesman	Woman getting fitted for dress, seamstress working under her arm
189.	Small child playing in sandbox	Same child climbing tree
190.	Man sitting throwing cards into a hat	A man resting in a hammock
191.	Man holding his forearm	Same with both hands on table
192.	A cocktail lounge and bar	An amusement park
193.	A man ricing a bicycle down a road	Same man on an exercycle
194.	A hamster in cage running in wheel	Same cage with hamster climbing slope to ledge
195.	A woman sitting on rock by pond looking at reflection in water	Same person sitting on log in woods looking down
196.	Christmas tree with presents	Birthday party table with presents
197.	One ten dollar bill	Two five dollar bills

* Though 197 items are listed here, excluding items X and Y which are sample items, it will be noticed that items 74 and 180 are identical. Item 180 was not used in the various computations. This leaves 196 items which consituted the present form of the Picture-Preference Test.

APPENDIX E

SET ASSIGNATION, ENDORSEMENT PROPORTIONS A PRIORI SCALE MEMBERSHIP, AND A PRIORI ADDICTIVE PICTURE CHOICE OF THE 196 PICTURE-PREFERENCE TEST ITEMS

The following endorsement proportion is based on the original data of Cowan (1967) and Morrison (1973) for normals. In those cases where an item belongs to both a Cowan and Morrison scale, the proportion from the Cowan data is given.

The various sub-trait scales of each researcher is listed below and the scale-numbers correspond to the scale numbers that follow:

Cowan (C) scales:

1. Compulsiveness
2. Impulsiveness
3. Avoidance of Close Personal Contact
4. Oral Incorporative Trends
5. Infantile Need for Security with Resultant Regressiveness and Passivity
6. Poor Self-Concept with Resultant Guilt and Depression
7. Weak Defensive Structure, but Primary Reliance upon Objects and Events to Block Anxiety, which is constantly Reoccuring; Tendency to Avoid Introspection
8. Low Tolerance for Pain and Frustration
9. Narcissistic, Autoerotic (Possible Homosexual Orientation)
10. Anti-social Impulses

Morrison (M) scales:

1. Impulsiveness
2. Oral Dependence
3. Magical Omnipotence
4. Anti-social Impulses
5. Avoidance of Intimacy
6. Infantile Need for Security

7. Masochistic Tendencies

Begin (B) scales:

1. Obsessive and Regressive Tendencies
2. Avoidance of Intimacy
3. Oral Incorporative Trends
4. Anti-social Impulses

Item #	Set and set # A	Set and set # B	Endorsement Proportion	Theoretical Scale			Addictive Choice
1		1	.840	M1			B
2	1		.760	M4			B
3		2	.300	M3			A
4	2		.500	M1			B
5	3		.240	M7			A
6		3	.440	M6			B
7		4	1.000	M4			B
8	4		.271	C4	M2		A
9		5	.020		M7		A
10	5		.307	C6	M1	B1	A
11		6	.880		M1		B
12	6		.740	C3	M5	B2	B
13		7	.900		M4		B
14		8	.780		M7		B
15		9	.253	C5	M6		A
16		10	.913	C4	M2	B3	B
17		11	.700		M7		B
18		12	.639	C4	M2		A
19	7		.080		M5		A
20	8		.675	C5	M6		B
21		13	.980		M4		B
22		14	.556	C4	M2		B
23	9		.542	C4	M2		B
24		15	.278	C2	M1		A
25		16	.800		M6		A
26	10		.043	C6	M1	B1	A
27	11		.300	C2	M1		A
28		17	.860		M2		B
29	12		.585	C3	M5	B2	B
30		18	.480	C5	M3	B3	B
31		19	.747	C3	M5	B2	B
32	13		.240		M3		A
33	14		.903	C3	M5		B
34	15		.920		M7		B
35		20	.040		M7		A
36	16		.906	C2	M1	B1	B
37		21	.072	C10	M4	B4	A
38		22	.380		M3		A

Item #	Set and set # A	Set and set # B	Endorsement Proportion	Theoretical Scale			Addictive Choice
39		23	.917	C6	M1	B1	B
40		24	.657	C2	M1	B1	A
41	14		.765	C3	M5		B
42		25	.697	C3	M5	B2	B
43		26	.227	C5	M3	B4	B
44	18		.134	C8	M1		B
45	19		.412	C5	M6		A
46		27	.100		M2		A
47	20		.240		M3		A
48		28	.383	C3	M5		B
49	21		.213	C5	M3	B4	B
50		29	.188	C2	M1	B1	A
51	22		.360		M2		B
52		30	.920		M1		B
53		31	.762	C4	M5	B2	B
54	23		.940		M5		B
55	24		.888	C4	M2	B3	B
56	25		.920		M4		B
57	26		.380		M6		A
58		32	.379	C5	M6		B
59		33	.140		M7		A
60	27		.900		M3		B
61		34	.060		M3		A
62		35	.256	C4	M2		A
63	28		.664	C4	M2		A
64	29		.020		M7		A
65	30		.700		M7		A
66		36	.720		M5		B
67	31		.866	C10	M4	B4	B
68		37	.755	C2	M1	B1	B
69	32		.130	C4	M2		A
70	33		.329	C2	M1		A
71	34		.060		M4		A
72	35		.020		M4		A
73		38	.744	C10	M4	B4	B
74		39	.069	C6	M1	B2	A
75		40	.400		M3		A
76		41	.460		M6		B
77	36		.140		M5		A
78		42	.700	C3	M5		A
79		43	.809	C3	M5	B2	B
80		44	.060		M4		A
81	37		.162	C4	M1	B1	A
82		45	.736	C5	M6		B
83	38		.620		M6		A
84		46	.100		M7		A
85		47	.180		M3		A
86		48	.120		M6		A

Item #	Set and set # A	Set and set # B	Endorsement Proportion	Theoretical Scale			Addictive Choice
87		49	.126	C4	M2	B3	A
88		50	.433	C4	M2		A
89	39		.480		M5		A
90	40		.433	C5	M6		B
91		51	.661	C5	M6		A
92		52	.140		M3		A
93	41		.820		M3		B
94	42		.065	C5	M6		A
95	43		.460		M1		A
96	44		.140		M3		A
97	45		.852	C9	M5	B2	B
98	46		.020		M7		A
99		53	.292	C3	M5	B2	A
100	47		.632	C4	M2		B
101	48		.913	C1	M1	B1	B
102	49		.101	C3	M1	B1	A
103		54	.060		M2		A
104	50		.740	C10	M4	B4	B
105		55	.840		M3		A
106		56	.106		M7		A
107		57	.480		M5		B
108	51		.020		M4		A
109	52		.380		M3		A
110	53		.600		M5		B
111	54		.220		M4		A
112	55		.900		M1		B
113		58	.080		M1		A
114		59	.040		M4		A
115		60	.720		M4		B
116	56		.160		M4		A
117		61	.520		M2		B
118		62	.180		M4		A
119	57		.080		M7		A
120		63	.120		M4		A
121	58		.380		M2		B
122		64	.980		M6		B
123	59		.100		M2		A
124	60		.740		M6		B
125		65	.040		M2		A
126	61		.020		M6		A
127	62		.020		M7		A
128	63		.960		M4		B
129	64		.940		M1		B
130		66	.620		M1		B
131		67	.400		M5		A
132		68	.000		M4		A
133		69	.100		M5		A

Item #	Set and set # A	B	Endorsement Proportion.	Theoretical Scale		Addictive Choice
134	65		.100	M4		A
135	66		.060	M2		A
136		70	.980	M1		B
137	67		.780	M1		B
138	68		.960	M2		B
139	69		.680	M2		A
140		71	.080	M4		A
141	70		.940	M1		B
142	71		.980	M2		B
143		72	.860	M2		B
144	72		.100	M3		A
145	73		.195	C2		A
146	74		.498	C5		B
147		73	.440	C1		A
148		74	.653	C9		B
149		75	.372	C1	B1	B
150	75		.603	C5		B
151	76		.625	C7	B4	A
152		76	.924	C5		B
153	77		.733	C9	B2	B
154		77	.682	C6		B
155	78		.458	C1		B
156	79		.935	C7		B
157	80		.726	C6	B4	A-males B-females
158	81		.913	C9		B
159		78	.108	C6		A
160		79	.410	C8		B
161		80	.336	C9		B
162		81	.404	C7		B
163		82	.621	C7		A
164	82		.191	C5		A
165		83	.939	C7		B
166		84	.588	C8		A
167	83		.617	C5		B
168		85	.617	C5		A
169	84		.679	C6	B3	B
170	85		.653	C5		B
171	86		.379	C5		B
172	87		.538	C4	B3	B
173		86	.531	C1		A
174		87	.202	C5		A
175	88		.303	C9		A
176		88	.913	C9	B3	B
177	89		.264	C7	B1	B
178	90		.505	C3	B2	A
179	91		.433	C1		A

Item #	Set and set # A	B	Endorsement Proportion	Theoretical Score		Addictive Choice
180*			.069	C6	B2	A
181	92		.484	C1		A
182		89	.661	C9		B
183		90	.076	C5		A
184	93		.805	C6		B
185		91	.599	C6		B
186		92	.170	C8		A
187		93	.664	C1	B1	B
188		94	.758	C9		B
189	94		.505	C8		A
190		95	.094	C7		A
191	95		.408	C9		A
192		96	.314	C4	B4	A
193	96		.949	C7		B
194	97		.267	C7		A
195	98		.455	C9		A
196		97	.451	C5		B
197		98	.534	C5		A

* Though 197 items are listed here it will be noticed that items 74 and 180 are identical. Item 180 was not used in the various computations. This leaves 196 items which consituted the present form of the Picture-Preference Test.

APPENDIX F

EIGENVALUES AND CUMULATIVE PROPORTION OF TOTAL VARIANCE OF ALL FACTORS OF SET A

Set A

EIGENVALUES *

26.97634	2.64936	1.76851	1.63672	1.52956	1.36363	1.31984	1.10614	1.06931	1.02367
0.92830	0.90610	0.87884	0.82072	0.79174	0.74453	0.70271	0.69058	0.66885	0.60315
0.57950	0.57407	0.55212	0.53666	0.50968	0.50183	0.47754	0.43395	0.43209	0.42269
0.39064	0.37530	0.36849	0.34593	0.33180	0.32080	0.30936	0.28217	0.27576	0.26345
0.24668	0.22567	0.22035	0.20652	0.19591	0.17631	0.16709	0.16155	0.15228	0.13183
0.12605	0.11066	0.09883	0.07978	0.06259	0.05769	0.03968	0.03409	0.01979	0.01377
0.00832	-0.00149	-0.00520	-0.01155	-0.02071	-0.03123	-0.03739	-0.05663	-0.06339	-0.07378
-0.07600	-0.08352	-0.09603	-0.10478	-0.11979	-0.12119	-0.12628	-0.14106	-0.15305	-0.16247
-0.16746	-0.17504	-0.17725	-0.19845	-0.20160	-0.20682	-0.21513	-0.22825	-0.23301	-0.24879
-0.25209	-0.25698	-0.26286	-0.27831	-0.28959	-0.30286	-0.30607	-0.33305		

CUMULATIVE PROPORTION OF TOTAL VARIANCE *

0.27530	0.30637	0.32262	0.33910	0.35470	0.36861	0.38010	0.39157	0.40249	0.41293
0.42241	0.43165	0.44062	0.44888	0.45707	0.46467	0.47188	0.47889	0.48567	0.49228
0.49815	0.50401	0.50965	0.51513	0.52033	0.52545	0.53032	0.53475	0.53916	0.54347
0.54745	0.55128	0.55504	0.55857	0.56196	0.56523	0.56832	0.57120	0.57402	0.57671
0.57922	0.58156	0.58381	0.58592	0.58792	0.58972	0.59142	0.59307	0.59462	0.59597
0.59725	0.59839	0.59939	0.60020	0.60088	0.60143	0.60183	0.60218	0.60238	0.60253
0.60261									

* Values are read across from left to right. First value is for Factor 1, etc.

APPENDIX G

EIGENVALUES AND CUMULATIVE PROPORTION OF TOTAL VARIANCE OF ALL FACTORS OF SET B

Set B

EIGENVALUES *

27.86516	3.24348	1.62680	1.33697	1.23156	1.14972	1.10676	1.01795	0.88218	0.89697
0.86488	0.83088	0.82170	0.79389	0.74346	0.72484	0.69604	0.67241	0.66858	0.62536
0.61131	0.58998	0.55970	0.54852	0.52168	0.51513	0.48733	0.45598	0.43038	0.41773
0.40532	0.38321	0.36857	0.34324	0.33807	0.32523	0.31138	0.28627	0.27039	0.26377
0.25107	0.23379	0.21423	0.20729	0.19403	0.19042	0.16065	0.14122	0.13081	0.11878
0.10317	0.09869	0.08886	0.09212	0.07585	0.06183	0.04865	0.03813	0.01807	0.01591
0.00385	0.00105	-0.00474	-0.02377	-0.03857	-0.03961	-0.05595	-0.06121	-0.07202	-0.07816
-0.08734	-0.08736	-0.09306	-0.10681	-0.11369	-0.11615	-0.12851	-0.13071	-0.14284	-0.14627
-0.15913	-0.17202	-0.17817	-0.18927	-0.19702	-0.20121	-0.20685	-0.21211	-0.23358	-0.23785
-0.24023	-0.25867	-0.26606	-0.27859	-0.28961	-0.29869	-0.30290	-0.31673		

CUMULATIVE PROPORTION OF TOTAL VARIANCE *

0.26838	0.31750	0.33616	0.34978	0.36238	0.37407	0.38537	0.39575	0.40588	0.41501
0.42408	0.43256	0.44098	0.44906	0.45663	0.46402	0.47112	0.47799	0.48461	0.49099
0.49723	0.50325	0.50896	0.51455	0.51988	0.52513	0.53011	0.53476	0.53915	0.54341
0.54755	0.55146	0.55522	0.55892	0.56217	0.56529	0.56847	0.57159	0.57435	0.57708
0.57961	0.58193	0.58418	0.58630	0.58828	0.59022	0.59186	0.59330	0.59463	0.59585
0.59650	0.59792	0.59892	0.59966	0.60043	0.60108	0.60154	0.60193	0.60209	0.60225
0.60235	0.60236								

* Values are read across from left to right. First value is for Factor 1, etc.

APPENDIX H

CORRELATIONS BETWEEN THE 10 FACTORS OF SET A AND THE 8 FACTORS OF SET B BASED ON SCORES OF FACTORS IN EACH SET

Factors Set B	Set A 1	2	3	4	5
1	0.96413	-0.18672	0.17146	0.06699	0.13443
2	0.53960	0.53792	0.35032	-0.39992	0.49359
3	-0.35881	-0.08646	-0.49669	-0.08350	-0.06096
4	0.06343	0.21556	-0.04808	0.01323	-0.07731
5	-0.41333	-0.85500	-0.13272	0.03428	0.08158
6	0.18369	0.04894	0.14685	-0.16132	0.05146
7	-0.16168	0.00653	-0.27361	0.25391	0.02071
8	0.02775	-0.03292	-0.07090	0.01913	-0.01282

	6	7	8	9	10
1	-0.15464	0.14874	-0.08523	-0.18789	-0.12609
2	-0.12264	0.35269	0.29567	0.14501	0.14348
3	-0.17833	-0.29879	-0.24166	0.15582	0.25191
4	0.01988	-0.19349	0.00727	-0.17585	-0.03215
5	-0.09651	-0.24388	-0.19609	0.00481	0.20721
6	-0.00210	-0.02225	0.08431	0.02530	0.02852
7	0.00568	-0.10635	-0.20261	0.15060	0.18529
8	0.03861	-0.02104	0.12851	0.04225	-0.09677

APPENDIX I

CORRELATIONS BETWEEN SIGNIFICANT FACTORS OF SETS A AND B AND ALL ADDITIONAL INFORMATION

Additional Information Code:

New 1 - Cowan's Compulsiveness
New 2 - Cowan's Impulsiveness
New 3 - Cowan's Avoidance of Close Personal Contact
New 4 - Cowan's Oral Incorporative Trends
New 5 - Cowan's Infantile Need for Security with Resultant Regressiveness and Passivity
New 6 - Cowan's Poor Self-Concept with Resultant Guilt and Depression
New 7 - Cowan's Weak Defensive Structure, but Primary Reliance upon Objects and Events to Block Anxiety, which is constantly Reoccuring; Tendency to Avoid Introspection
New 8 - Cowan's Low Tolerance for Pain and Frustration
New 9 - Cowan's Narcissistic, Autoerotic (Possible Homosexual Orientation)
New 10 - Cowan's Anti-social Impulses
New 11 - Begin's Obsessive and Regressive Tendencies
New 12 - Begin's Avoidance of Intimacy
New 13 - Begin's Oral Incorporative Trends
New 14 - Begin's Anti-social Impulses
New 15 - Morrison's Impulsiveness
New 16 - Morrison's Oral Dependence
New 17 - Morrison's Magical Omnipotence
New 18 - Morrison's Anti-social Impulses
New 19 - Morrison's Avoidance of Intimacy
New 20 - Morrison's Infantile Need for Security
New 21 - Morrison's Masochistic Tendencies
New 22 - Cowan's Total Test Score
New 23 - Begin's Total Test Score
New 24 - Morrison's Total Test Score
New 25 - Subjects' Age
New 26 - Subjects' Sex
New 27 - Subjects' Occupation
New 28 - Subjects' Fathers Occupation
New 29 - Subjects' Education
New 30 - Subjects' Fathers Education
New 31 - Social Desirability Total Score

Set A

	FACA01	FACA02	FACA03	FACA04	FACA05	FACA06	FACA07	FACA08	FACA09	FACA
VAR01	-0.12296	+0.00329	-0.04786	0.10559	0.08156	0.19523	0.08939	0.18781	-0.03580	-0.1305
VAR02	0.24801	0.19560	0.18167	-0.15209	-0.00511	-0.08755	0.11810	-0.13024	0.15460	0.02826
VAR03	-0.01978	0.03039	-0.10822	0.21976	0.17148	-0.22169	-0.12501	-0.33172	-0.08724	-0.1256
VAR04	-0.30331	0.23558	0.28285	-0.08365	-0.03390	0.27891	0.22328	0.19651	0.07299	-0.27686
VAR05	-0.59425	0.12325	-0.33059	0.07123	-0.06358	0.10622	-0.32973	-0.05970	0.26302	0.21927
VAR06	0.68342	-0.12085	0.19304	0.09115	0.10639	-0.12684	0.18085	-0.25845	-0.17814	-0.12028
VAR07	0.14011	-0.11788	0.19200	0.24585	-0.20724	0.26773	-0.16950	-0.13083	-0.36314	-0.18798
VAR08	-0.23906	-0.19250	-0.02602	0.11569	0.09907	0.12298	0.05212	0.02127	-0.03750	-0.09171
VAR09	0.51472	-0.09636	0.01394	0.30726	0.12265	0.09358	0.27039	-0.16871	-0.05088	-0.31299
VAR10	0.71846	0.15886	0.35755	-0.18991	0.20828	-0.15381	0.23611	0.18027	-0.09579	-0.01422
VAR11	0.57922	-0.00172	0.11135	-0.03398	0.08070	-0.21558	-0.07469	-0.22500	-0.17978	0.07935
VAR12	0.66402	-0.35153	-0.08317	0.32560	0.10022	-0.33382	0.02150	-0.43617	-0.20301	-0.11061
VAR13	0.62891	-0.02959	0.30988	0.08097	0.23201	0.08532	0.27289	0.04723	-0.02330	-0.18036
VAR14	-0.56734	0.21138	+0.03880	-0.35885	-0.20305	0.03059	-0.21985	0.11816	0.19835	-0.00941
VAR15	0.30479	0.41378	0.17069	-0.27275	0.38833	0.01385	0.18206	-0.04856	0.09958	-0.10518
VAR16	-0.25606	0.37578	0.23290	-0.16946	0.03828	0.40888	0.18528	0.22925	0.18729	-0.25866
VAR17	0.09330	0.58009	0.28704	-0.12696	0.36028	0.12193	0.39910	0.15798	-0.04888	0.15013
VAR18	0.87279	0.19653	0.36926	-0.23720	0.28130	-0.12975	0.31674	0.12431	-0.09958	-0.07774
VAR19	0.16277	0.02771	-0.18670	0.04335	0.20192	-0.28363	-0.24593	-0.83515	-0.07118	0.08826
VAR20	-0.09695	0.02383	-0.11268	0.38020	-0.22988	0.08157	-0.22056	-0.09907	0.14924	0.18083
VAR21	0.85798	0.10388	0.37632	-0.16563	0.28268	-0.20388	0.28406	0.02838	-0.12816	-0.00700
VAR22	0.30004	0.66708	0.13918	0.27408	0.12086	0.08666	0.11127	-0.17920	-0.03322	-0.25816
VAR23	0.36701	-0.02855	0.09755	0.16508	0.07127	-0.23828	-0.35896	-0.29585	-0.22391	-0.07662
VAR24	0.79689	0.38081	0.37263	-0.17316	0.32342	-0.05780	0.25070	0.01530	-0.08558	-0.05398
VAR25	0.87992	-0.30798	0.10792	0.14332	0.05603	-0.13891	0.10692	-0.09328	-0.16407	-0.08519
VAR26	-0.32938	-0.05386	-0.39177	0.86382	-0.11938	-0.00611	-0.23984	-0.12306	-0.02080	0.15186
VAR27	-0.57571	0.26391	-0.03490	-0.23880	-0.02474	-0.04871	-0.34231	0.03776	0.16388	0.07754
VAR28	0.81220	-0.13811	0.00188	0.11508	0.06870	0.01278	0.18856	-0.06726	-0.02420	-0.10599
VAR29	0.78076	-0.22168	0.04184	0.10287	0.00406	-0.12175	0.08157	-0.09729	-0.13038	-0.00270
VAR30	-0.17599	-0.09548	+0.03905	0.09001	-0.03703	0.16329	0.09298	0.03630	0.08120	-0.07158
VAR31	-0.55863	0.04185	-0.18890	-0.03258	-0.11869	-0.04890	-0.19037	0.05027	0.10916	0.05089

Set B

	FACB01	FACB02	FACB03	FACB04	FACB05	FACB06	FACB07	FACB08
VAR01	-0.12594	-0.00135	-0.06250	-0.00702	-0.00283	-0.13615	-0.01097	0.10348
VAR02	0.20868	0.30711	-0.45818	0.07867	-0.18079	-0.06460	0.04738	-0.17623
VAR03	0.00315	-0.03498	0.18118	-0.02032	0.23717	-0.18408	0.16318	0.06451
VAR04	-0.31673	+0.03183	-0.20253	0.03788	0.05227	-0.12385	-0.03339	-0.05292
VAR05	-0.57375	-0.25006	0.33705	0.08382	0.26552	-0.13369	0.17787	-0.00284
VAR06	0.70319	0.35340	-0.19679	-0.01073	-0.24873	0.02236	0.03887	0.08018
VAR07	0.17385	-0.12562	-0.17522	0.05167	-0.06789	-0.23902	0.07865	0.00811
VAR08	-0.17524	-0.28429	0.04066	-0.10185	0.02488	-0.10258	0.23157	-0.06983
VAR09	0.49881	0.19584	-0.33875	0.08044	-0.39501	0.02827	0.07176	0.22138
VAR10	0.54353	0.59127	-0.34852	0.05585	-0.38635	0.18999	-0.26768	0.03732
VAR11	0.57441	0.34474	-0.13723	0.17013	-0.02949	-0.06392	-0.04038	-0.05845
VAR12	0.71721	0.13184	-0.06616	-0.00353	-0.10185	-0.08103	0.08889	-0.05968
VAR13	0.61767	0.36988	-0.39305	0.05388	-0.24801	0.00954	-0.09522	0.05089
VAR14	-0.60089	-0.17183	0.22010	0.03166	0.25220	-0.10158	-0.07926	0.11962
VAR15	0.28322	0.50872	-0.14908	0.07647	-0.15212	0.08202	0.03531	-0.01388
VAR16	-0.30681	0.10607	-0.26177	0.13857	-0.02589	0.10996	-0.06803	0.05788
VAR17	0.02201	0.37872	-0.35010	0.44502	0.05469	0.08459	0.00069	-0.09661
VAR18	0.79792	0.71713	-0.36067	0.06182	-0.46023	0.11951	-0.20188	-0.08492
VAR19	0.16697	0.05162	0.21166	0.08965	0.27941	-0.17200	0.13861	-0.18803
VAR20	-0.08832	-0.21151	0.01305	0.18253	0.06209	-0.13727	0.26038	-0.14261
VAR21	0.79957	0.67514	-0.32906	0.08871	-0.83160	0.12291	-0.21582	-0.03698
VAR22	0.30391	0.19382	-0.23065	0.06587	-0.17596	-0.19570	0.17869	0.08700
VAR23	0.38528	0.19576	-0.08251	0.14157	0.11221	-0.15631	-0.01966	0.00350
VAR24	0.71802	0.71660	-0.39439	0.22058	-0.35072	0.09948	-0.09006	-0.09883
VAR25	0.89449	0.27630	-0.25235	-0.02076	-0.41851	0.10974	-0.05643	-0.02532
VAR26	-0.29708	-0.33296	0.23825	0.06796	0.17958	-0.15770	0.36916	0.03514
VAR27	-0.59956	-0.09835	0.18387	0.02994	0.32009	-0.12848	-0.02861	0.08315
VAR28	0.83697	0.18422	-0.12166	0.00511	-0.28987	0.06836	-0.03454	0.05471
VAR29	0.78828	0.24803	-0.18502	0.06274	-0.36741	0.12746	-0.01566	0.05502
VAR30	-0.18863	-0.16724	0.00264	-0.12856	-0.05295	0.01586	0.07824	0.05351
VAR31	-0.55556	-0.27299	0.29050	0.00032	0.33630	-0.09719	0.07026	0.02759

APPENDIX J

EXPERIMENTAL SCALES BASED ON FACTOR ANALYTIC PROCEDURES

The following scales are based on the factor analytic procedures followed in the present study. Picture-pair items were selected for scales on the basis of having factor pattern loadings equal to or greater than the absolute value .30 with the relevant scale. Since 54 items of Factor 1, Set A and 69 items of Factor 1, Set B, had such loadings, only 20 items with the largest loadings were included in the scales representative of these factors. There were only 20 such items in Factor 2, Set B. The picture of the picture-pair choice, A or B, representative of the meaning-label of factor is called the Factor Scale choice. It is suggested that each picture-pair item has a unit value of 1 as its contribution to the total factor-based scale score. Also, where it would be desirable to change the position of a number of the Factor Scale Choice picture a number of the picture-pair items for the Factor-Based scales, so that the Factor Scale Choice position appears equally in the A (left) or B (right) positon of a picture-pair item.

Factor-Based Scales - Set A

Factor 1 (A) -- "General Social Dysfunction Preference"

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	193	96	.905	B

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
2	55	24	.878	B
3	158	81	.863	B
4	108	51	-.837	A
5	98	46	-.837	A
6	141	70	.831	B
7	36	16	.813	B
8	101	48	.790	B
9	26	10	-.779	A
10	129	64	.777	B
11	126	61	-.770	A
12	164	82	-.766	A
13	64	29	-.773	A
14	54	23	.773	B
15	126	61	-.770	A
16	44	18	-.752	A
17	127	62	-.752	A
18	112	55	.746	B
19	119	57	-.741	A
20	157	80	.740	B

Factor 2 (A) -- "A General Anit-Social Activity Preference"

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	155	78	-.486	A
2	191	74	.446	B
3	32	13	-.443	A
4	109	52	-.396	A
5	47	20	-.373	A
6	177	89	-.340	A
7	70	33	-.328	A
8	96	44	-.325	A
9	111	54	-.307	A

Factor 3 (A) -- "General Passive Orientation Preference"

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	194	97	-.432	A
2	33	14	-.328	A
3	177	89	.325	B

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
4	169	84	.295	B

Factor-Based Scales - Set B

Factor 1 (B) — "General Social Dysfunction"

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	42	25	.864	B
2	190	95	-.836	A
3	31	19	.827	B
4	174	87	-.788	A
5	74	39	-.787	A
6	118	62	-.782	A
7	16	10	.777	B
8	103	54	-.770	A
9	165	83	.756	B
10	122	64	.737	B
11	79	43	.717	B
12	176	88	.687	B
13	18	12	.665	B
14	59	33	-.663	A
15	39	23	-.660	B
16	82	89	.650	B
17	52	30	.649	B
18	53	31	.639	B
19	24	15	.633	B
20	183	90	-.628	A

Factor 2 (B): General Anti-Social Activity Preference

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	143	72	.551	B
2	80	44	-.538	A
3	84	46	-.505	A
4	113	58	-.437	A
5	9	5	-.405	A
6	85	47	-.386	A
7	88	50	-.372	A
8	35	20	-.365	A

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
9	61	34	-.352	A
10	73	38	.341	B
11	161	80	-.341	A
12	76	41	-.326	A
13	50	29	-.318	A
14	13	7	.314	B
15	37	21	-.307	A
16	39	23	.303	B
17	21	13	.300	B
18	59	33	-.300	A
19	75	40	.298	B
20	147	73	-.295	A

Factor 3 (B): General Passive Orientation Preference

Factor Scale #	Test Item #	Set Item #	Factor Pattern Loading	Factor Scale Choice
1	43	26	.445	A
2	75	40	.409	A
3	6	3	.377	A
4	48	28	.371	A
5	3	2	.344	A
6	78	42	.338	A
7	148	74	-.326	B
8	62	35	.314	A
9	84	46	-.295	B

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