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A multitrait-multimethod comparison of two social interest instruments in an alcoholic population

Thomas J. Peterson
Iowa State University

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A MULTITRAIT-MULTIMETHOD COMPARISON OF TWO SOCIAL INTEREST INSTRUMENTS IN AN ALCOHOLIC POPULATION

Iowa State University

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A multitrait-multimethod comparison of two social interest instruments in an alcoholic population

by

Thomas J. Peterson

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INTRODUCTION

The concept of social interest has been a significant but not static one in Adler's theoretical system. Adler's earliest published works did not contain any reference to social interest and, according to Ansbacher (1978), Adler introduced the concept in 1918. During the final ten years of his life, from 1927 to 1937, Adler relied increasingly on the concept of social interest. The development of Adler's thought concerning the role of social interest in life culminated with his belief: "The indestructible destiny of the human species is social interest" (Ansbacher, 1978, pp. 133-134).

Social interest has been called by Ansbacher (1978) Adler's most important concept; however, only belatedly has social interest drawn the attention of researchers in psychology. No published scale for the measurement of social interest existed until Greever, Tseng, and Friedland (1973) published the Social Interest Index, some 55 years after Adler introduced the idea. Unaware of any other work, Crandall (1975) followed with the introduction of the Social Interest Scale. The two scales have generated a moderate amount of research; however, the scales have not consistently received empirical support and have rarely been directly compared using the same population. In order to further explore the validity of each test and to compare the relative validity of the two measures, this study sought to examine the two instruments using a multitrait-multimethod paradigm with an alcoholic sample. The following sections contain a brief review of the historical development of the meaning of social interest, a review of the research using the Social
Interest Index and the Social Interest Scale, and, lastly, a statement of the dissertation hypotheses.

Social Interest: The Development of a Concept

Adler's mature theoretical system stresses holism, or the unity of personality. For a holistic theorist, the positing of two opposed forces creates problems. Adler originally viewed social interest as a counterforce to the striving for power (Ansbacher, 1978). As Adler's thinking regarding the root of human motivation evolved his view of social interest shifted from seeing it as a counterforce to seeing it as an innate cognitive function. This shift from counterforce to cognitive function has been carefully studied by Ansbacher (1978) and his work is summarized below.

Social interest as a counterforce

From 1918 to 1927, Adler conceptualized social interest to be an antithetical drive to the drive for power. Adler in the 1919 edition of The Neurotic Constitution wrote: "Individual Psychology is a psychology on three interlocking planes: from the child's feeling of inferiority there emerges an overstimulated striving for power which either finds its limits in the demands of society and in the admonitions of social interest, which is physiologically and socially founded, or goes astray" (cited in Ansbacher & Ansbacher, 1956).

Social interest appears in the above passage to function in a manner similar to Freud's notion of the superego, i.e., a compensatory force that is necessary to restrain a socially hostile force (for Freud, the id and for Adler, the will to power).
Social interest as cognitive function

Adler's final position on social interest maintained that social interest is not an instinct in the sense of an innate drive, but rather an innate capability. Construing social interest as a potentiality is more compatible with his holistic theory of personality which is restricted to a belief in one central dynamic (in Adler's case, the striving for perfection or superiority). Ansbacher (1978) states: "Social interest as cognitive function influences the direction of striving, whether it will be on the socially useful side or on the socially useless side. It will become part of the goal, but will be as little in conflict with the fact and intensity of goal striving as any other ability or interest" (p. 133).

Adler in a 1928 paper entitled "Reason, Intelligence, and Feeble mindedness" first described social interest as the ability to identify and empathize with others: "To see with the eyes of another, to hear with the ears of another, to feel with the heart of another" (Ansbacher & Ansbacher, 1973). In addition, Adler included as part of social interest a feeling of being part of a larger whole, of being in harmony with the world, and feeling at home on the earth (Heimlichkeit).

For Adler, social interest became the criterion of mental health; its absence invariably signified some failure to meet one of life's tasks. Adler stated: "All failures - problem children, criminals, suicides, neurotics, psychotics, alcoholics, sexual perverts, etc., are products of inadequate preparation in social interest. They are all non-cooperative, solitary beings who run more or less counter to the rest
of the world; beings who are more or less asocial if not antisocial" (Ansbacher & Ansbacher, 1973).

Adler believed that problems in living inevitably reduced themselves to interpersonal or social difficulties. Adler stated: "All problems of life merge into three social problems of neighborly love, work, and sexual love" (Ansbacher & Ansbacher, 1973). These tasks have alternately been called friendship, work, and love. One common denominator among the three tasks is the necessity of cooperative and coordinated action. The division of labor and the mutuality of affection point to the advantage of cooperative behavior. The three life tasks cannot be fulfilled in a social vacuum, i.e., apart from some social network. Adlerians disagree on whether it is possible to adequately fulfill one or two of the tasks in isolation from the other two or one; however, it is agreed that the optimal solution involves satisfactorily answering all three of the questions life poses. The key to satisfactorily meeting these inevitable tasks Adlerians believe to be social interest, which promotes the necessary cooperative attitude.

The survival of the human species, according to Adler, is based on cooperation and contribution to the common good. The objective component of social interest is cooperative action. Adlerians as therapists were among the first therapists to emphasize behavioral change as an indication of improvement, rather than just verbal modifications.

As can be seen from the above, social interest is a complex concept in Adler's mature system. In summarizing Adler's final position on social interest it is useful to follow Ansbacher's (1965) schema:
is an innate aptitude that, if consciously developed through favorable interaction with the mother primarily, then becomes an ability to empathize with others and a propensity to work for the common good.

Associated with the ability to identify with others and strive for the common good is Adler's belief that a feeling of being at home in the world is also included in Gemeinschaftsgefühl. Adler specified in 1933 that social interest refers to striving for an ideal future community and is not to be identified with any current religious or political group. Adler stated: "Social interest means feeling with the whole sub species aeternitatis, under the aspect of eternity" (Ansbacher & Ansbacher, 1973; p. 35).

**Toward a consensual definition of social interest**

Adler (1958) underlined the importance of social interest by claiming that it is the main characteristic of the personality and is involved in every action. Ansbacher (1968) classified social interest as the cardinal personality trait. There appears to be greater agreement among Adlerians (including Adler himself) that social interest is important than there is agreement on what exactly constitutes social interest. As described above, Adler's notion of social interest evolved; what follows is a distillation of the recurrent, core features of social interest.

The common elements in Adler's various definitions of social interest are: self-transcendence as evidenced by empathy and identification, socially useful action, and a feeling of belongingness to the human race and the earth/cosmos. Adlerians have specifically endorsed all or some of the elements above. Huber (1975) defined social interest as an empathic,
cooperative way of life. Lazarfeld (1961) included in her definition of social interest the following elements: "Gemeinschaftsgefühl is in essence an emotionally positive attitude towards the human race, a feeling of belonging and wanting to belong, the feeling of connectedness of man with man as a universal relationship, an all-embracing bond. It includes the ability to cooperate and the ability to accept any human being in his own right" (p. 181).

Dreikurs (1953) added that persons high in social interest are task-centered rather than self-centered and exhibit a willingness to contribute without thought of reward. Nikelly (1973) made explicit an implied element of social interest: responsibility. The person with social interest acts responsibly in that actions are performed or chosen that contribute to the common good. Hall and Lindzey (1978) in their widely used text on personality theories also stressed the socially useful aspect of social interest: "In its ultimate sense, social interest consists of the individual helping society attain the goal of a perfect society" (p. 164).

The result of such a comparative study indicates a clearly agreed upon core definition of social interest which is presented here as a summary statement: social interest is that personality trait that manifests itself in a feeling of belongingness to the human race and world (i.e., the opposite of alienation), a self-transcending attitude that is task-centered and empathic, and lastly by actions that are aimed at the betterment of the human condition.
A Review of the Social Interest Index Research

The Social Interest Index was developed by Greever, Tseng, and Friedland (1973) in order to measure the degree of social interest possessed by persons. Social interest was defined as the willingness to contribute and cooperate within the four life task areas of occupation, friendship, love, and self-significance. The suggestion of Dreikurs and Mosak (1966) concerning the addition to the "traditional" three life tasks a fourth one related to self-significance was followed. Dreikurs and Mosak contended that: "Everyone has to learn not merely how to get along with people, relate well with a person of the opposite sex, and how to keep a job; he also is required to learn how to get along with himself....This then seems to us to be the fourth life task" (p. 21-22).

Initially, Greever, Tseng and Friedland (1973) developed 194 statements that reflected varying degrees of social interest in the areas of the four life tasks. The 194 item pool was rated by three Adlerian experts (Sonstegard, Christensen, and Pew) on the degree of social interest represented. Sixty items were retained on the basis of the experts' ratings. The final thirty-two items were selected on the basis of two criteria: item correlation with total score and a lack of correlation with the Marlowe-Crowne Scale of Social Desirability.

In their original report, Greever, Tseng and Friedland (1973) reported a test-retest reliability of .79 (two week interval, N = 83). Internal consistency was calculated using Cronbach's coefficient alpha (Cronbach, 1951) and was found to be .81. In addition to the procedures engaged in during the item selection, the authors cited other evidence of the SII's construct validity. Individuals with SII scores greater than one standard
deviation above the mean (N = 10) and individuals with SII scores lower than one standard deviation below the mean (N = 10) were rated by two faculty members familiar with Adler's idea of social interest and who were blind to the individuals' SII scores. The combined accuracy of the faculty ratings was 85%.

The California Psychological Inventory (CPI) was given along with the SII to 344 junior college students and scores on the two instruments were correlated. For the total sample, the following CPI scales correlated most highly: communality (r = .40, p < .001), responsibility (r = .39, p < .001), and socialization (r = .39, p < .001).

For normative data, the SII was administered to the 344 junior college students mentioned above (189 males and 155 females). The mean for females (N = 121) was 121.0 and the mean for males (N = 107) was 111.0. The means were significantly different (F = 5.89, p < .0001). A significant correlation between age and social interest of .15 was reported for the total, with males (N = 107) at a nonsignificant .11 and females (N = 121) at .20 (p < .05). Greever, Tseng, and Friedland (1973) found no significant correlation between social interest and socioeconomic status. The authors did not discuss the finding of a significant sex difference.

The SII was factor analyzed using principal-component solution and varimax rotation. Five factors were extracted. Factor 1, which accounted for 17% of the variance, was labeled the global social interest factor; Factor 2 (accounting for 6% of the variance) was labeled the Love task factor; Factor 3 (6% of the variance) was designated the Friendship task factor; Factor 4 (4% of the variance) was labeled the Work task factor;
and Factor 5 (4% of the variance) was labeled the Self-significance task factor. The factor analysis was carried out using 83 subjects.

It was concluded by the authors that the SIX, based on the item selection procedures and the construct validity evidence was a sufficiently valid and reliable measure of social interest to warrant use for research purposes.

Additional research with the SIX

The SIX has generated a considerable amount of research. The following section summarizes the research to date.

Hjelle (1975) published a study examining the relationships among social interest, locus of control, and self-actualization. It was hypothesized that high social interest would be associated with an internal locus of control and greater self-actualization. These predictions follow from Adler's belief that persons high in social interest are less likely to see themselves as controlled by fate and more likely to evidence mental health than individuals with low social interest. The subjects for Hjelle's study were 72 female undergraduate students who completed the SII, the Nowicki-Strickland (1975) Internal-External Scale, and the Personal Orientation Inventory (Shostrom, 1966). The scores on the SII were divided into thirds: high, i.e., 136 to 151; middle, i.e., 123 to 135; and low, i.e., 66 to 122. The analysis of variance procedures confirmed the predicted relationships between social interest and self-actualization, and social interest and locus of control.

Based on the assumption that cooperative behavior is one of the objective manifestations of social interest, Kaplan (1978a) investigated
the relationship between social interest as measured by the SII and cooperative behavior as measured by the performance on the Prisoner's Dilemma Game (Rapoport & Chammah, 1965). Kaplan's subjects were 290 public high school students from Georgia (131 males and 159 females). The procedure involved forming two homogeneous groups of subjects. Group I subjects had SII scores .5 standard deviations above the mean and Group II subjects had SII scores .5 deviations below the mean. Subjects within both groups were randomly paired and instructed to play the Prisoner's Dilemma Game. Kaplan found that the high social interest dyads cooperated significantly more than the low social interest dyads.

In another study, Kaplan (1978b) explored the question of gender differences on the SII. Based on findings from government studies indicating 1) a higher admission rate to mental hospitals for males and 2) a greater number of male as compared to female juvenile offenders and 3) the assumed relationship between social interest and psychopathology, Kaplan hypothesized that females would score higher on the SII than males. Using the same sample described above, Kaplan found that females scored significantly higher on the SII than males. This finding of a significant sex difference replicates the original Greever, Tseng and Friedland (1973) finding.

The research of Stevick, Dixon, and Willingham (1980) replicated the Hjelle (1975) study. As Hjelle had found, Stevick et al. reported that internals had greater social interest than externals. An additional but unfulfilled purpose of their study was to determine whether internals would behaviorally demonstrate greater social interest than externals.
The behavioral demonstration of social interest was to consist of volunteering to aid an unknown to the subject bogus organization. Stevick, Dixon, and Willingham reported that the sample size was too small to permit statistical testing of the hypothesis.

The SII has been studied using a male alcoholic Veterans Administration population by Mozdzierz and Semyck (1980a; 1980b; 1981). The three studies were directed at further establishing the construct validity of the SII. The first study hypothesized that social interest as measured by the SII theoretically should: 1) correlate positively with selected MMPI research scales (i.e., social responsibility, social status, and social dominance) and negatively with other MMPI research scales (i.e., dependency and prejudice); 2) the high scores on the SII should be related to lower levels of pathology as measured by the MMPI clinical scales; 3) high social interest should relate to intelligence and education; and 4) social interest should correspond to internal rather than external locus of control. The study employed 140 hospitalized male alcoholics who were patients in a six-week treatment program at a midwestern Veterans Administration hospital. The test battery consisted of the SII, the Locus of Control Scale (Rotter, 1966), the Shipley-Hartford Institute of Living Scale, and the MMPI. The subjects were given the test battery approximately one week after the detoxification period. In order to test the hypotheses, the 25 subjects with the highest SII scores and the 25 subjects with the lowest SII scores were compared. The high SII group obtained higher scores on the responsibility, social dominance, and social desirability research scales than the low SII group. The research scales
Dependency and Prejudice correlated negatively (-.25, p < .01; and -.16, p < .05, respectively) with SII scores. Mozdzierz and Semyck (1980b) found that subjects with high scores on the SII demonstrated less pathology on the MMPI than did subjects with low SII scores. High SII scores obtained statistically significant differences on scales 2 (Depression), 7 (Psychasthenia), and 0 (Social Introversion), and were in the predicted direction on the other clinical scales except scale 5 (Masculinity - Femininity) and scale 9 (Mania). The relationship between SII and IQ as measured by the Shipley-Hartford Scale was .15 (p < .01) and between the SII and education was .20 (p < .01). Lastly, the relationship between the SII and Locus of Control was -.17 (p < .05).

In the second study, Mozdzierz and Semyck (1980a) continued their study of the SII and reported further results. Mozdzierz and Semyck examined the relationship between social interest and attitudes toward success and failure. The study involved two samples of male alcoholics (N = 121 and 90) from an inpatient alcohol treatment program. The subjects were administered the SII and the Success-Failure Inventory (SFI) developed by Guevera (1965) to measure subjects preference for failure avoidance as compared to success attainment. The mean SII score for sample I was 122.3 (SD = 17.4, N = 121) and the mean for sample II was 124.8 (SD = 13.4, N = 90). The SII and SFI were correlated .50 (p < .001) and .34 (p < .001) in the two subject samples. The correlations suggested that the alcoholics with higher social interest are motivated more by the achievement of success than by the avoidance of failure and vice versa for the alcoholic with low social interest.
Mozdzierz and Semyck (1981) reported their exploration of the SII and two other personality measures, the Edwards Personal Preference Schedule (EPPS) and the Personal Orientation Inventory (POI). The SII correlated significantly with the following EPPS scales: Achievement (.18, $p < .01$), Introception (.17, $p < .01$), Dominance (.19, $p < .01$), Succourance (-.15, $p < .05$), and Autonomy (-.20, $p < .01$). The SII failed to relate as predicted with the Affiliation, nurturance, and heterosexuality scales. The SII scores were not related to age or marital status. A significant positive correlation was reported for SII scores and level of education. The SII correlated significantly with the following POI subscales: inner directedness, present field time orientation, self-significance, and interpersonal contact. The SII correlated positively with Edwards Revised Scale of Social Desirability (So-R, $r = .26, p < .001$). With the variance attributable to the So-R controlled through partial correlation, the correlations between the SII and POI subscales maintained statistical significance.

Zarski, West, and Bubenzer (1982) examined the relationship between social interest as measured by the SII and adjustment with a sample that contained runners and nonrunners. The authors predicted that runners would report greater life adjustments as measured by the Bell Adjustment Inventory (Bell, 1963) than nonrunners, high social interest subjects would report greater life adjustments than low social interest persons, and an interaction of running and social interest on life adjustment. Subjects comprised 161 runners and 147 nonrunners (163 males and 145 females). Mean age for the entire sample was 31.0. Zarski, West, and
Bubenzer (1982) reported support for hypotheses one and two, but no support for the third hypothesis.

One of the few studies directly comparing the SII and the Social Interest Scale (SIS) was done by Bubenzer, Zarski, and Walter (1979). With a sample of 47 graduate students in Masters' level counseling courses, the SII, the SIS, the Early Recollection Questionnaire, the CPI, and Cattell's 16 Personality Factor Test (16 PF) were distributed. With a sample of 60 undergraduate students enrolled in Police Science and Corrections courses from a technical college, the SII, the SIS, Early Recollections Questionnaire, and the Helping Disposition Scale (Severy, 1975), a scale designed to measure altruism were distributed.

The main results of the study are summarized below.

The correlation between the SII and the SIS was (-.29; p < .01, N = 47). The negative correlation was a result of the reversal in the scoring system of the SII: low SII scores in the Bubenzer et al. study reflected high levels of social interest. When correlated with the CPI, the SII correlated significantly with five scales: Dominance, Sociability, Sense of Well-Being, Achievement via Conformance, and Intellectual Efficiency. No significant correlations were found between the SIS and the CPI. With the 16 PF, the SII correlated with Adventurous-Shy (-.66; p < .001, N = 47) and Insecure-Confident (.45; p < .001, N = 47). The SIS did not correlate significantly with any of the 16 PF scales. Using a step-wise regression analysis of the SII, CPI, and 16 PF scales, Bubenzer et al. found that Achievement via Conformance accounted for 35% of the SII variance. Regarding the Helping Dispositions Scale, a similar
procedure was followed and it was determined that Task Helping accounted for 14% of the SII variance. Bubenzer, Zarski, and Walter (1979) concluded that the construct validity of the SII was further substantiated whereas the results were not supportive of the SIS's validity.

**Factor analytic studies.** The first factor analysis reported with the SII was that of Greever, Tseng, and Friedland (1973) which was described above. Because of the small sample size (N = 83) used in the factor analysis the validity of their results is questionable. In the first subsequent study, Zarski, West, and Bubenzer (1981) obtained a sample of 318 Masters' level students (152 male and 166 female) with a mean age of 32 years. A factor analysis with principal axis solution and varimax rotation was performed. Five factors were extracted which accounted for the following percentages of SII variances: Factor 1, 20%; Factor 2, 7%; Factor 3, 5%; Factor 4, 5%; and Factor 5, 4%. The cumulative variance accounted for by the five factors was 43%. The first factor was labeled the general social interest factor because it "appears to reflect a global concept which embraces aspects of the other life tasks" (p. 65). The item that loaded highest on Factor 1 was item 21; "I feel good about getting married." The item loading highest on Factor 2 was item 9: "I am generally satisfied with my decisions." Factor 2 was labeled the Self-Significance factor. Factor 3 was labeled the Friendship factor and item 4 had the highest loading: "My friends are very important to me." Factor 4 was labeled Love and item 20 loaded highest on it: "I feel a man and a woman have equally important roles in marriage." Factor 5 was labeled Work and the highest loading item was
item 26: "I feel jobs are important because they make you take an active part in the community." The authors pointed out that 23 of the 32 items loaded on the same factors that they originally loaded on in the Greever, Tseng, and Friedland (1973) study.

Leak (1982a) explored the factor structure of the SII and critically examined its factorial validity. Leak pointed out that factorial validity deals with the congruence between the theoretical factor structure and the actual obtained factor structure. A test is said to have factorial validity to the extent the hypothesized structure matches the obtained structure. The SII was developed with four subscales representing the four life tasks of Adlerian theory (as modified by Dreikurs and Mosak, 1966): friendship, work, love, and self-significance. Leak hypothesized that a four factor solution would be a reasonable expected solution.

The study included 416 students from various psychology classes at a midwestern university over the course of one year. Leak performed principal axis factor analysis followed by varimax and oblique rotations. Using the scree test, four factors were retained which accounted for 37% of the total variance. Factor I included five items from the self-significance subscale: items 9, 10, 11, 14, and 15. Factor I accounted for 17% of the total variance. Factor II contained four items from the friendship scale: 1, 2, 4, and 5. Factor II accounted for 8% of the variance. Factor III was identified by five items (items 20 to 24) and Leak noted that it is uncertain whether the factor taps the love task or a modern vs. traditional sex role dimension. Leak commented that items 20 ("I feel a man and a woman have equally important roles in
marriage") and 23 ("I feel family decisions need to be made jointly") could indicate a traditional vs. nontraditional sex role dimension as well as it indicates what it was originally intended to tap, i.e., love. Factor III accounted for 5% of the variance. Factor IV was defined by two items (12 and 31) and suggested to Leak an intellectualism dimension.

Leak concluded that there existed no evidence for a global social interest factor as had been reported by Greever, Tseng, and Friedland (1973), and Zarski, West, and Bubenzer (1981). Furthermore, the factor analysis did not reveal any factor corresponding to the work task and Leak recommended the development of items to tap that dimension. Three of the four factors according to Leak corresponded to the expected factorial structure, but the three factors that did not correspond need further validation in order to make sure what it is they are measuring. Leak concluded that the SII's factorial validity was not conclusively determined and advised eliminating items that did not load highly on any of the factors and adding new items that would better tap the work life task.

A Review of the Social Interest Scale Research

The second published measure of Adler's concept of social interest is Crandall's Social Interest Scale (Crandall, 1975). Crandall and others have systematically evaluated the reliability and validity of the SIS. Approximately 15 studies have been published with the SIS and Crandall has summarized much of the research in his 1981 book, Theory and measurement of social interest.

The starting place for Crandall's scale is his interpretation of
Adler's term, Gemeinschaftsgefühl. Crandall distinguished two dimensions of social interest (following Ansbacher, 1968); the process and object dimensions. The process dimension involves the active transcendence of the self which is initiated through empathy and culminates in cooperative behavior. The "process" of social interest is the process of valuing others, empathically understanding them, and actively seeking the common good as viewed sub specie aeternitatis. As Crandall (1981) stated, valuing others is the link that connects the cognitive, behavioral, and affective segments together.

The object dimension refers to the object of the social interest. Adler (Ansbacher & Ansbacher, 1956) delineated the potential objects of social interest:

Social interest remains throughout life. It becomes differentiated, limited, or expanded and, in favorable cases, extends not only to family members but to the larger group, to the nation, to all mankind. It can even go further, extending itself to animals, plants, and inanimate objects and finally even to the cosmos (p. 139).

Based on Adler, Crandall (1981) posited three classes of objects: subsocial, social, and suprasocial. The subsocial objects can include any object about which or to which an intense interest develops. Interest in subsocial objects (e.g., hobbies such as stamp collecting, knitting, and coin collecting) can contribute to an individual's sense of esteem, accomplishment, and form the vehicle for social interest in the next sense.
Social objects include one's immediate circle of human contacts but also, and more importantly for Adler, it includes the notion of an ideal community. The third class of objects is suprasocial objects. By this Adler meant a feeling of identification and harmony with life as a whole, or the cosmos. This aspect of social interest was neglected by Adler, as was the subsocial object dimension, when compared to the elaboration the social object dimension received. Adlerians have followed Adler's lead and left the area of the sub- and suprasocial objects relatively underdeveloped.

**Scale construction**

Crandall (1981) decided to limit the definition of social interest to that of an "interest in or concern for others" (p. 23). Crandall justified omitting the other two object dimensions of social interest on procedural grounds, i.e., if the most general definition of social interest is used it would be difficult to sort out which aspect of social interest (i.e., subsocial, social, or suprasocial) is accounting for the obtained results. Crandall intended the scale to be used for group research rather than individual assessment and consequently sought to make the scale short and easy to administer. Finally, he anticipated possible contamination by the social desirability response set and endeavored to develop a scale that was relatively impervious to social desirability response set distortion.

The SIS requires the subject to choose between two traits presented in a pair (see Appendix B for a copy of the scale items). The instructions state that the subject should choose the trait the person values more
highly and it also states that the person select the trait s/he would rather possess. Crandall decided on eliciting the preferred trait rather than the "actual" trait in order to minimize the chance of responding in a socially desirable manner. The items reflecting social interest were screened by psychology faculty and graduate students who were provided with a definition of social interest and asked to rate (on a seven point scale) ninety traits that were widely different with respect to social interest relevance. The ratings were used to construct forty-eight pairs of traits. The trait pairs were matched on social desirability using Anderson's (1968) social desirability ratings of traits and were as widely divergent on social interest as possible. Item analysis of the original 48 trait pairs reduced the number to 15 trait pairs. Crandall added 9 buffer trait pairs so that the final version of the SIS has 15 scored items and 9 buffer items.

Crandall's (1975) initial validation sample consisted of four different groups: Group I contained 45 male and 40 female volunteers from introductory psychology classes; Group II contained 31 male and 15 female volunteers from introductory psychology classes; Group III consisted of 18 males and 27 females from two high school psychology classes; and Group IV consisted of 17 male and 20 female students from an upper division psychology course. The mean SIS score for the four groups combined was 8.43, SD = 3.57. For males, the mean score was 8.00 (SD = 3.83) and females 8.91 (SD = 3.21). The split-half reliability (Spearman-Brown formula) for Groups I, II, and III was .77. The test-retest reliability over a five week period was .82 with Group IV.
Crandall (1975) conducted a number of comparisons of the SIS and other instruments and indices. Peer ratings of social interest were obtained with Group III. The high school students were instructed to choose three people of the rater's sex present in class the day of the rating who exhibited the greatest and least interest, liking, and concern for others. A person's social interest peer rating was calculated by totalling the number of times that person was nominated as being high on social interest minus the number of times that person was nominated as being low in social interest. Two groups were formed: a high social interest (9 males and 14 females) and a low social interest group (9 males and 13 females). The difference in mean SIS scores was statistically significant at the .001 level ($t = 3.60$, $df = 43$, $p < .001$).

It was predicted that high social interest scores would correlate with certain values from Rokeach's (1973) Value Survey. Crandall hypothesized that peace, equality, true friendship, and family security would be related to high social interest. Crandall obtained significant SIS correlations with peace, equality, and family security but not with true friendship. Unexpectedly, the values pleasure and exciting life correlated negatively with high social interest. Crandall reasoned that these two values represented a self-centered, hedonistic life style antithetical to the task and other-oriented life style of the high social interest person. These results were replicated with Group III subjects who were asked to rank only the five values that were significantly correlated in Group I.

Crandall examined the relationship between social interest and
hostility, depression, and anxiety. Using the Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965), Crandall found that SIS scores were significantly correlated with hostility (−.50, p < .001) and depression (−.38, p < .02). The correlation with anxiety was in the predicted direction but did not reach statistical significance.

The relationship between social interest and attitudes toward other people was explored. Crandall (1981) hypothesized that persons high on the SIS would also express favorable attitudes about human nature. The Philosophy of Human Nature test developed by Wrightsman (1964) was designed to measure self-report beliefs about the basic elements of human nature. Crandall obtained significant correlations between the SIS and the Altruism and Trustworthiness subscales of the Philosophy of Human Nature scale.

The Purpose in Life test (Crumbaugh & Maholick, 1964) was developed to measure the degree to which persons find life meaningful. Adler's view of social interest suggests that life is most meaningful when social interest is developed (Ansbacher & Ansbacher, 1956). With Group I subjects Crandall found a correlation of .32 (p < .005) between Purpose in Life and SIS scores, which supports Adler's view of the importance of social interest. Group I subjects also completed the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964) in order to determine the effect of the social desirability response set on SIS scores. The SIS and Marlowe-Crowne Social Desirability Scale correlated .23 (p < .05). The effect of social desirability was partialled out and the relationship between the SIS and Purpose in Life test described above was reduced from .32 to .27 (which was still statistically significant). Crandall
concluded that the influence of the social desirability response set was small enough not to jeopardize the utility of the SIS.

The final study reported in Crandall's original validation study involved the relationship between birth order and social interest. Groups I, II, and III provided information regarding their birth order. Crandall found that for females, middle borns had higher social interest than first, only, or last born. The results were not significant for males.

Crandall (1981) presented a number of other studies he and his associates conducted in their efforts to validate the SIS. A summary of those subsequent studies follows. Crandall (1981) compared social interest scores of male criminals with those of male university freshmen and male university employees and found that the inmates scored significantly lower than either the freshmen or employees.

In a similar study, Peterson, Epperson, and Hutzell (in press) compared the SIS and SII scores of female criminals at a midwestern correctional institute with those of female university employees. The authors found that neither the SIS nor the SII discriminated the two groups, although the data trend was in the predicted direction with the SIS and opposite the predicted direction with the SII (i.e., the inmates had higher SII scores on the average than the university employees). It was concluded that both tests were vulnerable to the social desirability response set, with the SII considerably more vulnerable than the SIS.

Crandall and Harris (1976) used the Prisoner's Dilemma game in order to examine the relationship between social interest scores and
cooperation. They found a positive correlation of .32 (p < .01) between SIS scores and the number of cooperative responses. Crandall (1981) also reported that SIS scores were significantly higher for persons willing to volunteer their time to a community agency than for persons who did not volunteer (mean SIS score for the 9 volunteers was 10.78 and the mean SIS score for the 15 nonvolunteers was 7.73; t (22) = 2.21, p < .05).

From Adler's theory, it was predicted that empathy would be positively correlated with social interest. Crandall and Harris (1976) gave the SIS and an empathy scale developed by Mehrabian and Epstein (1972) to 30 males and 30 females. A correlation of .40 (p < .005) was obtained.

Crandall and Kytonen (1980) gave the SIS and Exner's (1973) Self Focus Sentence Completion Test to two groups of students, high school and college, in an attempt to further determine the validity of the SIS. As predicted, they found significant negative correlations between degree of social interest and degree of self-centeredness.

Crandall (1981) reported a correlation between the SIS and the Marlowe-Crowne Social Desirability Scale (M-C SDS) of .20 (p < .01), in a sample of 271 undergraduate students. Crandall performed an item analysis of the M-C SDS in order to find which SDS items discriminated between high and low social interest groups. It was found that six items discriminated the two groups and all of the six items reflected issues that are relevant to social interest (i.e., altruism, selfishness, ethics, hostility, and courtesy). Crandall (1981) described a further attempt to determine the SIS's vulnerability to the social desirability response set. He requested subjects to take the SIS under normal and
then under "fake good" instructions, and found that SIS scores decreased (9.11 under normal instructions versus 8.85 under fake good instructions). Crandall concluded that the validity of the SIS did not appear greatly compromised by the effect of a social desirability response set.

Leak (1982b) studied the effect of the social responsibility response set on both the SII and the SIS. Leak (1982b) distributed the SII and SIS items to 30 undergraduate psychology majors and instructed them to rate the items on their desirability following Edwards' (1970) procedure. Leak (1982b) reported that the social desirability level of the SII items was 7.2, which according to Edwards (1970), is slightly above the moderately desirable designation. Because all of the SII items are keyed in the direction of social interest, the two traits (i.e., social interest and social desirability) are confounded. For the SIS, the social interest adjectives had a mean social desirability rating of 7.7, as compared to the nonsocial interest adjective rating of 7.4. The difference was significant at the .05 level. Leak (1982b) performed a second study in which he administered the two social interest inventories and two social desirability instruments: the Marlowe-Crowne Social Desirability Scale and the Edwards Social Desirability Scale. The subjects for the study were 65 introductory psychology students. The SII correlated with the M-C SDS at .35 and with Edwards Social Desirability at .30. The SIS correlated with the M-C SDS at -0.01 and with the Edwards Social Desirability Scale at .16. The SIS, Leak (1982b) concluded, appeared less susceptible to social desirability response set distortion than the SII.

Crandall (1977, 1980, 1981a, b; Crandall & Kytonen, 1980; Crandall & Putnam, 1980) has extensively studied the relationship between social
interest and adjustment. According to Adler, the main tasks or problems of life (i.e., work, friendship, and love) require cooperation for their optimal solution. Persons who demonstrate social interest, according to Adler, are more likely to satisfactorily fulfill these tasks and hence attain a more adjusted or mentally healthy state. The absence of social interest, i.e., an absence of a willingness to cooperate and work for the common good, leads to a less well-adjusted outcome. As Adler has stated: all neurotics are deficient in social interest (cf., Ansbacher & Ansbacher, 1956).

Crandall and Putnam (1980) studied the relationship between social interest and self-report measures of well-being. Crandall and Putnam mailed to 225 non-teaching employees of a western university four self-report measures of adjustment. The first measure was the "Life 3" scale by Andrews and Withey (1976) and it consists of a single question: "How do you feel about your life as a whole?" The question is answered on a 7-point scale with the following points: terrible, unhappy, mostly dissatisfied, mixed, mostly satisfied, pleased, and delighted. The second measure was Bradburn's (1969) measure of positive affect. The score is the number of times the subject answers yes to five questions related to positive affect, e.g., "During the past few weeks did you ever feel particularly excited or interested in something?" The third measure was Bradburn's measure of negative affect which consists of the number of times the subject answers yes to five questions related to negative affect, e.g., "During the past few weeks did you ever feel very lonely or remote from other people?" The above global measures were supplemented by a 32
question scale that addressed specific areas of concern such as work, interpersonal relationships, and friendship. The questions were of the form: "How do you feel about...?", and were answered on the same 7-point rating scale used for Life 3.

The results from the university employees indicated that the Social interest scale was significantly related to cognitive evaluation, affect balance, and two clusters of questions related to the two life tasks of work and friendship. In order to explore further the relationship between social interest and affective experiences, the affect responses of the top 27 SIS score subjects were compared with the bottom 27 SIS scores. The difference in frequency of reporting positive and negative experiences was in the expected direction for each of the 10 positive plus negative affect questions. The one item that significantly differentiated the two groups involved the question of feeling bored. Nine of the high SIS group reported feeling bored versus 21 of the low SIS group.

Crandall and Putnam (1980) conducted a second study on the relationship between adjustment and social interest and included a safeguard against the possibly confounding effect of the social desirability response set. The test packet administered to 61 introductory psychology students (37 female, 24 male) included 13 positive trait 5-point rating scales, 14 negative trait rating scales, one 5-point rating scale on the trait "happy", and the SIS. The social desirability response set was measured by summing the positive trait ratings and by reversing the scoring on the negative traits and then summing them. Crandall and Putnam (1980) found social interest to be significantly related to well-being (as measured by
the 5-point rating on the trait "happy"), the correlation was .30
\(p < .02\). Social interest scores were not significantly related to the
tendency to attribute positive traits (-.11) and the tendency to deny
negative traits (.17). The correlation between social interest and
well-being was increased from .30 to .34 after controlling for the effect
of the social desirability response set by means of a second-order partial
correlation.

Crandall (1982) studied the relationship between social interest and
Extreme Response Style (ERS), i.e., the tendency to use the extreme points
of rating scales. Crandall, based on Adler's belief that neurotics tended
to use dichotomous categories instead of more immediate ones, proposed
that ERS should be negatively related to social interest. In three separate
samples using four different self-report measures (Wrightsman's Philosophy
of Human Nature Scale; Misanthropy Scale developed by Sullivan and Adelson,
1954; a self-rating scale on 10 traits; and ratings of 50 attitude
statements), Crandall found the predicted inverse relationship between
social interest and ERS.

Crandall (1981) reported a study involving use of early recollections
as measures of an active attitude and internal locus of control. Crandall
made use of the Manaster-Perryman Early Recollection Scoring Manual that
gives directions for scoring early recollections (ERs). Crandall scored
the 68 students' ERs on four dimensions: active, i.e., subject
initiates action; passive, i.e., subject initiates little or no action;
internal control, i.e., subject accepts responsibility for what happens;
and external control, i.e., subjects disassociates him/herself from any
consequences or outcomes. Crandall pointed out that many theorists have posited that an active attitude is a precondition of adjustment. Similarly, a belief in internal control has been related to increased adjustment. The correlation obtained between active attitude as derived from ERs and social interest (as measured by the SIS) was .38 (p < .001) and the correlation between social interest and internal locus of control was .37 (p < .005).

The relationship between food aversions and social interest has been studied by Crandall (1981). Crandall hypothesized that, based on earlier studies linking number of food aversions with adjustment, social interest would be negatively correlated with number of food aversions. Crandall found that men with high social interest had fewer food aversions than men with low social interest. Female subjects did not show a significant difference.

**Summary of research review**

Both the SII and the SIS have generated a significant amount of research related to establishing their respective validities. In reviewing the literature, it is clear that the SIS has been more thoroughly evaluated, i.e., subjected to a wider variety of validation procedures than the SII (cf., Crandall, 1981). In summarizing the general findings of the research, it appears that the problem of social desirability is greater with the SII than with the SIS. In addition, the lack of consistent factor analytic support (Leak, 1982a) for the SII should be of concern to the potential user of the SII. Evidence in favor of the SIS likewise has not been uniform as demonstrated by the Bubenzer, Zarski, and Walter
(1979) study. Further study of the two social interest measures, particularly with a method that has not been previously employed, is warranted.

Statement of Hypotheses

The following hypotheses are proposed:

1) The two measures of social interest will show convergent validity, i.e., there will be a significant correlation between same trait scores measured by two different methods. Campbell and Fiske (1959) have pointed out the potentially confounding influence of method variance when employing measures of different traits with the same method: it is uncertain how much of the relationship between different traits (or different measures of the same trait) is due to the traits themselves and how much is due to the shared method of measuring them (e.g., paper-and-pencil self-report inventories). The multitrait-multimethod (MTMM) construct validity procedure is intended to separate trait from method variance. The two methods used in this proposed study will be staff ratings and self-report instruments.

2) The two measures of social interest in the MTMM matrix will show discriminant validity, i.e., they will not correlate significantly with two other, theoretically independent and unrelated, variables: extraversion and sensation (Myers, 1962).

It might be assumed that because social interest involves cooperation, understanding of, and empathy with others that extraversion would be predicted to correlate significantly with social interest. However, as Crandall (1981), Massey (1981), and Huber (1975) among others have noted,
extraversion does not necessarily mean social interest. Similarly, introversion does not necessarily imply a deficit in social interest. As Huber (1975) stated, psychopaths and manics may exhibit extraverted, gregarious behavior but do not manifest social interest. Regarding introversion, Huber (1975) argued that some introversion in the form of social isolation may be a prerequisite for some scientific or artistic accomplishments, which decidedly are in the interests of the whole.

The sensation preference refers to the theory of types developed by C. G. Jung (1971) and operationalized by Myers (1962). The sensation preference denotes a mode of perception that emphasizes, according to McCaulley (1980), a perception of the observable by means of the senses. Persons with a strongly developed sensing function are described as practical, realistic, and observant. In Jung's system, sensation is considered the opposite of intuition, the other mode of perception. Intuition focuses more on patterns and relationships, i.e., perception based on insight. Persons with a strongly developed preference for intuition are described as being capable of insight into the complex and symbolic (more so than the sensing person), more apt to live in the future than the present, and good at coming up with alternatives and possibilities. There is no a priori reason to expect sensation or intuition to be differentially related to social interest; both are modes of perception equally indifferent to social interest.

3) The proportion of variance accounted for by the measures of social interest will be greater than the proportion of variance accounted for by the method of measurement. A major reason to conduct a
multitrait-multimethod study is to separate the effects of trait from method variance. By separating the effects of trait from method variance, it is then possible to estimate the relative contributions of each to the total test variance. However, with the MTMM procedure it is possible only to inspect the correlation matrix and arrive at a qualitative judgment regarding the relative amounts of variance.

Since the contribution of Campbell and Fiske (1959), various statistical treatments of MTMM data have been proposed. One available method is the use of confirmatory factor analysis (CFA). The application of CFA to the MTMM matrix has been discussed by Boruch and Wolins (1970). By specifying the factor loading matrix, it is possible to obtain estimates of the variance attributable to trait, method, or error factors given the proposed model is viable. The fit of the model is assessed by the chi-square statistic. It was predicted that trait variance of the social interest measures would exceed the method variance of the measures.

The proposed factor loading matrix is presented in Table 1. As can be seen, the proposed model contains a general factor, a factor for each trait, and a factor for each method. Certain loadings are constrained to be equal in order to meet the conditions necessary for identification of the model. It is assumed that a given method factor affects only those variables measured by that method and that a given trait factor affects only those variables that are measures of that trait. For example, the Social Interest Index loads, it is assumed, on three factors: the general factor, the social interest trait factor, and the self-report method factor.
Table 1. Hypothesized factor loading matrix

<table>
<thead>
<tr>
<th>Observed Variables</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>SII</td>
<td>$\lambda_{11}$</td>
</tr>
<tr>
<td>SIS</td>
<td>$\lambda_{21}$</td>
</tr>
<tr>
<td>MBTI E-I</td>
<td>$\lambda_{31}$</td>
</tr>
<tr>
<td>MBTI S-N</td>
<td>$\lambda_{41}$</td>
</tr>
<tr>
<td>Social Interest Ratings</td>
<td>$\lambda_{51}$</td>
</tr>
<tr>
<td>Extraversion Ratings</td>
<td>$\lambda_{61}$</td>
</tr>
<tr>
<td>Sensation Ratings</td>
<td>$\lambda_{71}$</td>
</tr>
</tbody>
</table>

Factors

1. General factor.  
2. Social interest factor.  
3. Extraversion factor.  
4. Sensation factor.  
6. Staff ratings method factor.

4) The two measures of social interest will not correlate significantly with social desirability as measured by the Social Desirability Scale (Edwards, 1957). Social desirability influences on each of the social interest measures have been studied and summarized above.
METHOD

Subjects

The subjects for the study included ninety-seven male inpatients from a large midwestern Veterans Administration Medical Center. All subjects were patients in either the six week comprehensive alcohol treatment program or the Extended Assessment and Rehabilitation Program. The six week program involved a variety of treatment options, including group therapy, Alcoholics Anonymous meetings and step work, educational presentations on the effects of alcoholism and on the addiction process, and vocational counseling. The Extended Assessment and Rehabilitation Program (or EARP) is primarily a vocational rehabilitation program for selected graduates of the six week treatment program. The emphasis in EARP is on vocational assessment, job training, and job placement. The average length of hospitalization for EARP patients is eight weeks (in addition to the six weeks spent in the alcohol treatment program).

The average age of the subjects was 43.73 with a range of 23 to 67. The majority of the subjects were caucasian, divorced, and had completed high school or received the Graduation Equivalency Diploma. More detailed demographic information is presented in Table 2.
Table 2. Subject demographic information

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorced</td>
<td>58</td>
<td>61</td>
</tr>
<tr>
<td>Married</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Single (never married)</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Separated or widowed</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational Status</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 12 years</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12 years or GED</td>
<td>53</td>
<td>62</td>
</tr>
<tr>
<td>More than 12 years</td>
<td>27</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
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<td>92</td>
<td>95</td>
</tr>
<tr>
<td>Hispanic</td>
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<td>3</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Measures

The Social Interest Index (Greever, Tseng, and Friedland, 1973), the Social Interest Scale (Crandall, 1975), the Myers-Briggs Type Indicator Form G (Myers, 1962), the Edwards Social Desirability Scale (Edwards, 1957), and the Personality Trait Rating Scale were given to all subjects. The SII and SIS were described in detail in the literature.
review, and copies are presented in Appendices A and B. The remaining measures are discussed below.

The Edwards Social Desirability Scale (Edwards, 1957) is a 39 item scale derived from Minnesota Multiphasic Personality Inventory items. The items that comprise the SDS were selected on the basis of unanimous agreement among 10 judges on their social desirability. The content validity of the SDS, then, appears satisfactory. Edwards (1957) reported a split-half reliability of .83, based on a sample of 192 college students (84 male, 108 female). The mean for the male sample was 28.6, with a standard deviation of 6.5. The female sample had a mean of 27.1 and a standard deviation of 6.5. The SDS correlated highly in the predicted directions with a variety of socially desirable and undesirable traits. For example, the SDS correlated .61 with Gough's Status Scale and -.75 with Navran's Dependency Scale.

The Myers-Briggs Type Indicator (MBTI; Myers, 1962) was designed to measure dimensions of personality described by Jung (1971). Specifically, the MBTI measures four pairs of variables: Extraversion-Introversion (E-I), Sensation-Intuition (S-N), Thinking-Feeling (T-F), and Judgment-Perception (J-P). According to Jungian type theory, each pair contains opposing or mutually exclusive preferences that relate to how individuals take in information, (sensation or intuition), how they prefer to make decisions (thinking or feeling), where their primary interest is (in the external world in the case of the extravert or in the internal world of ideas in the case of the introvert), and their general lifestyle (judging versus perceiving lifestyles).
The MBTI question format is forced-choice. Each test question (166 items in Form F and 126 in Form G) is scored on one of the eight preferences. The MBTI yields two types of scores: type or preference scores and continuous scores. The preference scores classify an individual into one of the eight preferences, whereas the continuous scores place an individual on a continuum with the opposing preferences as endpoints. Continuous scores are calculated according to a procedure outlined by Myers (1962) that involves subtracting from 100 (the midpoint) the weighted sum of the endorsed items for the extraversion, sensation, thinking, and judging preferences, or adding the sum to 100 for the introversion, intuition, feeling, and perceiving preferences.

The MBTI's reliability and validity were reviewed and evaluated recently by Carlyn (1977) and McCaulley (1981). Carlyn (1977) has summarized internal consistency and stability information for both types of scores. The internal consistency estimates for category scores as calculated by tetrachoric coefficients were from .55 to .65 (E-I), .64 to .73 (S-N), .43 to .75 (T-F), and .58 to .84 (J-P). Category scores appear relatively stable over time. For instance, Wright (1966) reported that 61% of the sample (N = 94) showed no category change after six years. Continuous scores possess internal consistency estimates ranging from .76 to .82 (E-I), .75 to .87 (S-N), .69 to .86 (T-F), and .80 to .84 (J-P). Test-retest correlations for continuous MBTI scores range from .73 to .83 (E-I), .69 to .78 (S-N), .48 to .82 (T-F), and .69 to .82 (J-P).

With regard to validity, Carlyn (1977) reported that factor analytic studies of the MBTI have supported the hypothesized structure of four
independent personality dimensions. Adequate content validity of the MBTI has been demonstrated by Bradway (1964) and Stricker and Ross (1964). Bradway (1964) compared MBTI results with Jungian analysts' self-ratings of extraversion-introversion, sensation-intuition, and thinking-feeling. With 28 subjects, Bradway found 100% agreement on E-I classifications, 68% agreement on S-N, and 61% agreement on T-F. There was 45% agreement on all three classifications. Using another measure of Jungian typology, Stricker and Ross (1964) compared scores from the MBTI with Gray-Wheelwright results. The correlation between E-I scores was .79, between S-N scales was .58, and between T-F scales was .60. Additional evidence of the validity of the MBTI will be limited to the two scales included in the study: the E-I scale and the S-N scale.

The E-I scale was designed to measure the general orientation or direction of a person's interest. In Jungian terms, extraversion refers to the characteristic outward flow of libidinal energy and introversion to the characteristic inward turning of libidinal energy. Extraverted types are described as being more outgoing, impulsive, and able to communicate easier than introverts. Introverts are described in an opposite fashion: reticent, reflective, and difficult to understand.

Studies relevant to E-I validity summarized by Carlyn (1977) indicate that extraverts rate themselves as gregarious, talkative, and impulsive. Extraverts express interest in occupations that involve active contact with others such as salesperson, personnel director, and public administrator. Introverts express interest in the sciences and arts, and prefer jobs which allow them to work alone. Introverts are rated as more
solitary than extraverts. In McCaulley's (1981) summary of the MBTI she reported correlations between .50 and .70 with other measures of extraversion such as the MMPI Scale O, the 16 Personality Factor Test, and the Strong Vocational Interest Blank Occupational Introversion Scale. Based on ten samples, the E-I scale has a median test-retest correlation of .80 (test-retest intervals ranging from five weeks to twenty-one months). The median split-half reliability for the E-I scale was .81.

The sensation-intuition scale of the MBTI was designed to measure a person's preference for one of two equally valuable modes of perception, either sensation or intuition. Sensation is defined as perception via the sense organs. Persons with a marked sensation preference tend to be practical and realistic. They tend to be attracted to careers such as office managers, business administration, and banking. Sensing persons score high on the Economic scale of the Allport-Vernon-Lindzey Study of Values (Myers, 1962). Intuition is defined as perception via the unconscious, leading a person to focus on possibilities, relationships, and patterns. Intuitives score high on the Aesthetic and Theoretical Allport-Vernon-Lindzey Study of Values scale (Myers, 1962). They are more likely to be rated as imaginative by faculty. MacKinnon (1966) found a relationship between intuition as measured by the MBTI and creativity.

The S-N scale has shown adequate internal consistency. For type category scores, the split-half reliability has been estimated by calculating tetrachoric coefficients which have ranged from .82 to .92. For continuous scores the estimates have ranged from .75 to .87. Test-retest reliability estimates for continuous scores have ranged from .69 to .78.
The Personality Trait Rating Scale (PTRS) was developed for this study in order to facilitate collection of staff ratings of the subjects' level of social interest, degree of extraversion and preference for sensation versus intuition. The PTRS consists of three paragraphs describing the relevant dimensions, and each paragraph is accompanied by a 7-point rating scale. The anchors on the 7-point scale are "not at all descriptive" (1) and "Perfectly descriptive" (7). A copy of the PTRS is provided in Appendix C.

Procedure

The staff of the two alcohol programs donated their group or lecture meetings for the solicitation and testing of subjects. A total of six recruitment and testing sessions were required to obtain the subjects included in the study. The author conducted four of the six recruitment and testing sessions with the other two being conducted by a Veterans Administration Research Technician.

Prospective subjects were told that the study provided the basis of a doctoral dissertation and involved a comparison of two personality tests. Subjects were also informed of the potential risks involved in participation and the confidentiality of their responses. The patients were clearly informed of the voluntary nature of their possible participation. Typically, three-fourths of the assembled patients would consent to participate. Subjects were recruited from June 22, 1984 to October 20, 1984. All of the subjects were detoxified and were patients at the Veterans Administration Medical Center for at least three weeks.

Each subject was given a test packet that included two Veterans
Administration research consent forms, the SII, the SIS, MBTI, and the Edwards SDS. The SII and SIS were counterbalanced to insure against an order effect. Testing lasted an average of sixty minutes. Few questions were asked by the subjects regarding any of the tests or procedures. No complaints were voiced about the study to this author or the research technician by the subjects. Those who so desired were scheduled an interpretation session to go over the results of their tests. Twenty patients requested and were given feedback.

The staff ratings were made after a minimum of one week of group therapy contact with the subject. Typically, the rater had more contact with the subject than one week of group therapy because the staff often had other scheduled activities with the patients. Each subject was rated by two staff members and the subject's scores on the traits of social interest, extraversion, and sensation were the averages of the two staff member's ratings. Ratings were made using the PTRS described above. Scores could range from "1" to "7." Altogether, ten staff members participated in the rating of the subjects. The staff members consisted of five registered nurses, three clinical psychologists, one social worker, and one vocational rehabilitation technician. There was an equal number of male and female raters.
RESULTS

Preliminary Analyses

The basic descriptive statistics, the means and standard deviations, are presented in Table 3 for the Social Interest Index, the Social Interest Scale, the Social Desirability Scale, Myers-Briggs Type Indicator Extraversion Scale, Myers-Briggs Type Indicator Sensation Scale, and staff ratings of social interest, extraversion, and sensation.

Table 3. Descriptive statistics: Means and standard deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SII</td>
<td>97</td>
<td>119.55</td>
<td>17.46</td>
</tr>
<tr>
<td>SIS</td>
<td>97</td>
<td>8.36</td>
<td>3.26</td>
</tr>
<tr>
<td>SDS</td>
<td>97</td>
<td>27.37</td>
<td>6.47</td>
</tr>
<tr>
<td>MBTI E-I</td>
<td>97</td>
<td>113.21</td>
<td>25.46</td>
</tr>
<tr>
<td>MBTI S-N</td>
<td>97</td>
<td>81.80</td>
<td>25.64</td>
</tr>
<tr>
<td>Ratings of Social Interest</td>
<td>97</td>
<td>3.70</td>
<td>1.30</td>
</tr>
<tr>
<td>Ratings of Extraversion</td>
<td>97</td>
<td>4.46</td>
<td>1.46</td>
</tr>
<tr>
<td>Ratings of Sensation</td>
<td>97</td>
<td>3.93</td>
<td>1.16</td>
</tr>
</tbody>
</table>

The scoring of the Myers-Briggs Type Indicator is such that for the extraversion-introversion scale scores greater than 100 are indicative of introversion, and for the sensation-intuition scale scores less than 100 represent a sensation preference. The sample, therefore is on average more introverted than extraverted and more sensing than intuitive. Because
of the MBTI scoring system, a negative correlation between the E-I scale and another variable indicates a tendency for extraverted scores to be associated with the other variable. Similarly, a negative correlation with the S-N scale indicates an association with sensation scores.

The reliability of the staff ratings was calculated using the Spearman-Brown formula. The social interest ratings' reliability was .50, extraversion was .48, and sensation was .27.

Primary Analyses

The two proposed principal means of data analysis were the multitrait-multimethod matrix and the confirmatory factor analysis procedure. As stated in the introduction, confirmatory factor analysis can be applied to MTMM data in order to arrive at estimates of the relative contributions of trait, method, and error variances to the total variance. Confirmatory factor analysis was attempted with the obtained data using the LISREL IV computer program (Joreskog & Sorbom, 1978). The resulting parameter estimates included negative variances and correlations greater than one. Because of the unreasonable estimates, the appropriateness of the confirmatory factor analysis procedure was reviewed.

According to Long (1983), the two most common causes of unreasonable LISREL estimates are misspecification of the factor model and insufficient sample size. The proposed model, presented in Table 1, follows the procedure Boruch and Wolins (1970) outlined. They argued for the inclusion of a general factor and a factor for each trait and method. The model does not appear to be misspecified.

Boomsma (1982) has reported negative variances occurring with small
sample sizes. For a model with two factors and six or eight observed variables, Boomsma concluded that it was dangerous to use sample sizes smaller than 100. Long (1983) pointed out that maximum likelihood estimation requires sample sizes large enough to justify its asymptotic properties. It was concluded, based on the above considerations, that the use of confirmatory factor analysis with this sample size (N = 97) is not warranted due to the small sample size relative to the requirements of maximum likelihood estimation. Consequently, inspection of the multitrait-multimethod correlation matrices provided the only means for evaluating the Social Interest Index and the Social Interest Scale.

Given the adequate but generally modest reliability coefficients of the eight variables and the size of the obtained standard deviations, the resulting standard errors of measurement make interpretation of the following correlation coefficients difficult. It is difficult to assert with confidence whether or not the obtained correlations reflect the true relationships among the variables. Because of the uncertainty introduced by the measurement unreliability, the following correlations should be regarded as tentative estimates.

The first hypothesis of the study stated that the two social interest measures would show convergent validity as demonstrated by significant monotrait-heteromethod correlations. Inspection of Tables 5 and 6 reveals that the SII correlated .06 (p = .57) with staff ratings of social interest. The SIS correlated .21 (p = .04) with staff ratings of social interest. Campbell and Fiske (1959) remarked that the validity values should be significantly different from zero and large enough to merit
further study. The SII correlation is neither significantly different from zero nor, it follows, is it large enough to warrant additional examination. The SIS correlation is statistically significant but at .21 it does not encourage further study.

Table 5. Multitrait-Multimethod Matrix for Social Interest Index

<table>
<thead>
<tr>
<th></th>
<th>Social Interest Index</th>
<th>MBTI E-I Scale</th>
<th>MBTI S-N Scale</th>
<th>Social Interest Ratings</th>
<th>Extraversion Ratings</th>
<th>Sensation Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Interest Index</strong></td>
<td>(1.0)</td>
<td>-.34**</td>
<td>.12</td>
<td>.06</td>
<td>.06</td>
<td>.05</td>
</tr>
<tr>
<td><strong>MBTI E-I Scale</strong></td>
<td></td>
<td></td>
<td>.23*</td>
<td>.01</td>
<td>.01</td>
<td>.18</td>
</tr>
<tr>
<td><strong>MBTI S-N Scale</strong></td>
<td></td>
<td>.12</td>
<td>.23*</td>
<td>.02</td>
<td>.02</td>
<td>.26**</td>
</tr>
<tr>
<td><strong>Social Interest Ratings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.37**</td>
</tr>
<tr>
<td><strong>Extraversion Ratings</strong></td>
<td>.36**</td>
<td>.56**</td>
<td>.29**</td>
<td>.09</td>
<td>.09</td>
<td>.35**</td>
</tr>
<tr>
<td><strong>Sensation Ratings</strong></td>
<td>.06</td>
<td>.18</td>
<td>.26**</td>
<td>.37**</td>
<td>.37**</td>
<td>(1.0)</td>
</tr>
</tbody>
</table>

* = p < .05.
** = p < .01.
Table 6. Multitrait-Multimethod Matrix for Social Interest Scale

<table>
<thead>
<tr>
<th></th>
<th>Social Interest Scale</th>
<th>MBTI E-I Scale</th>
<th>MBTI S-N Scale</th>
<th>Social Interest Ratings</th>
<th>Extraversion Ratings</th>
<th>Sensation Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Interest</td>
<td>(1.0)</td>
<td>-.20</td>
<td>-.20</td>
<td>.21*</td>
<td>.07</td>
<td>.01</td>
</tr>
<tr>
<td>Scale</td>
<td></td>
<td>(1.0)</td>
<td>.23*</td>
<td>(1.0)</td>
<td>.56**</td>
<td>.29**</td>
</tr>
<tr>
<td>MBTI E-I Scale</td>
<td></td>
<td>.21*</td>
<td>.01</td>
<td>.02</td>
<td>.09</td>
<td>.05</td>
</tr>
<tr>
<td>MBTI S-N Scale</td>
<td></td>
<td>-.20</td>
<td>.23*</td>
<td>(1.0)</td>
<td>.18</td>
<td>.26**</td>
</tr>
<tr>
<td>Social Interest</td>
<td></td>
<td>.21*</td>
<td>.01</td>
<td>.02</td>
<td>.09</td>
<td>.05</td>
</tr>
<tr>
<td>Ratings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td>.07</td>
<td>.56**</td>
<td>.29**</td>
<td>.37**</td>
<td>.35**</td>
</tr>
<tr>
<td>Ratings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensation</td>
<td></td>
<td>.01</td>
<td>.18</td>
<td>.26**</td>
<td>.37**</td>
<td>.35**</td>
</tr>
<tr>
<td>Ratings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = p < .05.
** = p < .01.

It was also predicted that the two social interest tests would evidence discriminant validity. More specifically, it was predicted that the SII and SIS would not correlate significantly with the self or staff ratings of extraversion or sensation. As indicated in Table 5, the SII correlated -.34 (p = .0007) with the MBTI E-I Scale, .37 (p = .0002) with staff ratings of extraversion, .12 (p = .24) with the MBTI S-N scale, and .05 (p = .60) with staff ratings of sensation. As indicated in Table 6, the SIS correlated -.20 (p = .06) with the MBTI E-I scale, .07 (p = .47) with staff ratings of extraversion, -.20 (p = .05) with the MBTI S-N scale, and .01 (p = .89) with staff ratings.
of sensation. The SII consistently displayed higher correlations with
the other variables than did the SIS, indicative of less discriminant
validity than the SIS.

Additional Campbell-Fiske criteria

In addition to the above comparisons, two additional ways to inspect
the MTMM matrix are possible. According to Campbell and Fiske (1959),
the montrait-heteromethod correlations should be greater than all
corresponding heterotrait-heteromethod correlations. Upon inspection
of Tables 5 and 6, it is evident that the SII fails to meet this condition,
whereas the SIS did meet it. The other additional way to inspect MTMM
matrices is by examination of the intertrait submatrices. The submatrices
should have similar patterns. Neither the SII nor the SIS meet this
condition.

Hypothesis four predicted that neither the SII nor the SIS would
correlate significantly with social desirability as measured by the
Edwards Social Desirability Scale (Edwards, 1957). The SII correlated
.51 (p = .0001) with the SDS. The SIS correlated .11 (p = .28) with
the SDS. These data suggest that the SII is more contaminated by the
social desirability response set than is the SIS.

Additional Analyses

The two social interest measures correlated .02 (p = .84). The
correlation is not significantly different from zero, suggesting that
the two scales are not measuring the same trait.

In an effort to gain greater understanding of the study's results,
a post hoc factor analysis was performed. The data for the eight
variables of the study including SIS, SII, SDS, MBTI E-I scale, MBTI S-N scale, staff ratings of social interest, staff ratings of extraversion, and staff ratings of sensation were factor analyzed. Iterative principal axis factor analysis with varimax rotation was performed. Table 7 contains the rotated factor pattern and communality estimates for the three factor solution. On the basis of the scree test and inspection of the rotated factor patterns, the three factor solution was selected. The eigenvalues for each factor were as follows: Factor I, 1.819; Factor II, 1.272; and Factor III, 1.058. Three of the variables, SIS, MBTI E-I scale, and staff ratings of sensation have more than 50% of their variance accounted for by the common factors. The factors are interpreted in the following section.

Table 7. Rotated factor pattern and communality estimates.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Communality Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIS</td>
<td>.08</td>
<td>.12</td>
<td>.98</td>
<td>.99</td>
</tr>
<tr>
<td>SII</td>
<td>.62</td>
<td>.13</td>
<td>-.06</td>
<td>.41</td>
</tr>
<tr>
<td>SDS</td>
<td>.64</td>
<td>.20</td>
<td>.04</td>
<td>.45</td>
</tr>
<tr>
<td>MBTI E-I</td>
<td>-.72</td>
<td>.15</td>
<td>-.15</td>
<td>.57</td>
</tr>
<tr>
<td>MBTI S-N</td>
<td>.27</td>
<td>-.26</td>
<td>-.17</td>
<td>.17</td>
</tr>
<tr>
<td>Staff Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Interest</td>
<td>.10</td>
<td>.34</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Staff Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.62</td>
<td>.30</td>
<td>.07</td>
<td>.49</td>
</tr>
<tr>
<td>Staff Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensation</td>
<td>.09</td>
<td>.95</td>
<td>-.08</td>
<td>.91</td>
</tr>
<tr>
<td>Percent of Variance Accounted for</td>
<td>23</td>
<td>16</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
DISCUSSION AND CONCLUSIONS

There were three main factors that limit the interpretability of the preceding results and affect the following discussion. The first limiting factor in the study was the low reliability of the staff ratings. These low reliabilities limited the validity of the measures in that with the measurement error equal to or greater than true score variance, it becomes difficult to discern the true relationships among the variables involved. As Brown (1976) recommended, one step to minimize rating errors is to thoroughly train the raters. This important step was not included in the procedure and may account for the low reliabilities. In addition, the use of unambiguous items may improve reliability. All three of the trait descriptions used for staff ratings of social interest, extraversion, and sensation contain some ambiguous phrases or words that may also have contributed to the low reliability estimates.

The second limiting factor in the study was the presence of the sizable standard errors of measurement associated with the measures used. The combination of large standard deviations and adequate but modest reliability coefficients produced large standard errors of measurement. As with the low staff rating reliabilities, this factor obscures the true relationships among the variables involved.

The third limiting factor, one endemic to multitrait-multimethod analyses, was the increased probability of Type I error. With eight variables, there were twenty-eight unique correlations. The large number of correlations increases the likelihood of obtaining spurious
results through random error. Replication of the study would lessen the chance of committing a Type I error.

The three factors described above introduce uncertainty into the interpretations based on the obtained correlation coefficients. Their combined effect is such that the following interpretations should be taken as tentative or provisional, and in need of corroboration.

For the SII, the results uniformly did not support the first two hypotheses. The SII failed to show convergent validity as demonstrated by the low correlation between it and social interest staff ratings. With regard to discriminant validity, the SII did not meet the relevant Campbell-Fiske criteria. Lastly, the correlation between the SII and SDS raises the question of its vulnerability to the social desirability response set. The present results regarding the SII and social desirability agree with the findings of Leak (1982b) and Peterson, Epperson, Hutzell (in press).

In comparison, the SIS displayed modest convergent validity as demonstrated by its slight but statistically significant correlation with staff ratings of social interest. Although the SIS did not correlate significantly with measures of theoretically unrelated variables, the correlations were comparable to the convergent validity correlations. In addition, the SIS did not conform to the ideal validity model put forth by Campbell and Fiske (1959) in that it had heterotrait-monomethod correlations greater than monotrait-heteromethod correlations and the submatrices of intertrait correlations did not all have similar patterns. It is concluded that the discriminant validity of the SIS was not supported.
With regard to social desirability, the SIS does not appear to be as susceptible to this response set distortion as does the SII.

The factor analysis of the results produced an interesting three factor solution. The most salient loadings on Factor I were the SII, SDS, MBTI extraversion, and staff ratings of extraversion. Factor I appears to measure social desirability and extraversion. It is interesting to note that Edwards (1957) obtained a strong negative correlation between the SDS and a measure of introversion, Drake's Social Introversion Scale. Jung's (1971) contention that our contemporary society is biased against introversion is pertinent here. The loading of a social desirability measure and an extraversion measure on the same factor suggests the value that is placed on extraversion. It is also interesting to note that the SII and SDS load on the same factor, again indicating the overlap between the two measures.

The largest loading on Factor II is staff rating of sensation, followed by the other two staff rating measures. The nature of this factor is difficult to determine, perhaps it is measuring the staff rating method factor.

The third factor is defined by one loading, the SIS. Consistent with the results above, the SIS's validity is augmented in that it does not load on any other factor, suggesting some degree of discriminant validity.

The results of the factor analysis, as expected, are consistent with the MTMM analyses. The SII by loading with measures of extraversion and social desirability appears to be measuring the characteristics
common to those measures, rather than social interest. On the other hand, the validity of the SIS is augmented in that it does not load with any other measure suggesting its discriminant validity.

An unexpected result of the study was the number of introverts in the sample. Normative data from the Myers-Briggs indicates that extraverts outnumber introverts by about a three to one margin (McCaulley, 1980). In the current study, 68% of the sample was introverted (N = 66). Whether this is typical of alcohol dependent samples in general is unknown but is worth further investigation. Given the differing preferences of introverts and extraverts and possibly differing effectiveness of treatment approaches, the determination of a tendency for alcohol dependent individuals to be introverted could influence treatment planning. For example, assertiveness training and social skills training might be appropriate additions to treatment programs.

The purpose of the study was to compare the validity of two social interest measures. The results, due to the three factors discussed above, do not permit an unambiguous interpretation. However, because of their consistency they suggest that the SIS, though deficient, better measures the concept of social interest than the SII. Moreover, they point toward the conclusion that the SII is not measuring social interest, but more likely is tapping a socially desirable extraversion personality dimension.
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Finally, I want to express my gratitude to my wife, Randi Montag Peterson, for her understanding and support over the last few years.
APPENDIX A

SOCIAL INTEREST INDEX
Here are a number of statements people might make about themselves. Read the statements and rate them on the "1" to "5" scale, depending on how much the statement applies to you. For example, if a statement does not apply at all, circle a "1"; if the statement is not very much like you, circle a "2"; if a statement is very much like you, circle a "5". Read each statement carefully enough to understand it, then rate it on the "1" to "5" scale and go on to the next statement. Don't spend a long time thinking about the rating; give your first impression as soon as you are sure you understand the statement. If you are in doubt, pick the number that seems most accurate. Be sure to circle your rating.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all like me</th>
<th>Very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have many friends</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I am usually nominated for things at school</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. I usually like people I have just met</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. My friends are very important to me</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I enjoy being in clubs</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I don't mind helping out friends</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I am often turned to for advice</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. I feel rules are necessary</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. I am generally satisfied with my decisions</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. Once I decide something I find a way to do it</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11. My plans generally turn out the way I want them to</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12. I am sometimes concerned with philosophical questions</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>13. I seldom feel the need to make excuses for my behavior</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14. I feel I have a place in the world</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15. I do my best most of the time</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16. I seldom feel limited in my abilities</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>17. I can overlook faults in the people I date</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18. My parents did the best they could in raising me</td>
<td>&quot;</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not at all like me</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>19.</td>
<td>I believe a man and a woman can be both lovers and friends</td>
<td>&quot;</td>
</tr>
<tr>
<td>20.</td>
<td>I feel a man and a woman have equally important roles in a marriage</td>
<td>&quot;</td>
</tr>
<tr>
<td>21.</td>
<td>I am looking forward to getting married</td>
<td>&quot;</td>
</tr>
<tr>
<td>22.</td>
<td>I have warm relationships with some people</td>
<td>&quot;</td>
</tr>
<tr>
<td>23.</td>
<td>I feel family decisions need to be made jointly</td>
<td>&quot;</td>
</tr>
<tr>
<td>24.</td>
<td>As far as I am concerned, marriage is for life</td>
<td>&quot;</td>
</tr>
<tr>
<td>25.</td>
<td>I believe liking your work is more important than the salary</td>
<td>&quot;</td>
</tr>
<tr>
<td>26.</td>
<td>I feel jobs are important because they make you take an active part in the community</td>
<td>&quot;</td>
</tr>
<tr>
<td>27.</td>
<td>School to me is more than just facts from books</td>
<td>&quot;</td>
</tr>
<tr>
<td>28.</td>
<td>I prefer doing things with other people</td>
<td>&quot;</td>
</tr>
<tr>
<td>29.</td>
<td>Finishing a job is a real challenge to me</td>
<td>&quot;</td>
</tr>
<tr>
<td>30.</td>
<td>I am considered a hard worker</td>
<td>&quot;</td>
</tr>
<tr>
<td>31.</td>
<td>I enjoy music and literature</td>
<td>&quot;</td>
</tr>
<tr>
<td>32.</td>
<td>I wonder if I will be able to do all I want in my lifetime</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
APPENDIX B

SOCIAL INTEREST SCALE
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Below are a number of personal characteristics or traits. For each pair, choose the trait which you value more highly. In making each choice, ask yourself which of the traits in that pair you would rather possess as one of your own characteristics. For example, the first pair is "imaginative/rational." If you had to make a choice, which would you rather be? Write 1 or 2 on the line in front of the pair to indicate your choice.

Some of the traits will appear twice, but always in combination with a different other trait. No pairs will be repeated.

Be sure to choose one trait in each pair.

I would rather be....

<table>
<thead>
<tr>
<th></th>
<th>1. imaginative</th>
<th></th>
<th>1. neat</th>
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<tbody>
<tr>
<td></td>
<td>2. rational</td>
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<td>2. logical</td>
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<td></td>
<td>1. helpful</td>
<td></td>
<td>1. forgiving</td>
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<td></td>
<td>2. quick-witted</td>
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<td>2. gentle</td>
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<tr>
<td>2</td>
<td>1. neat</td>
<td></td>
<td>2. efficient</td>
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<td></td>
<td>2. sympathetic</td>
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<td></td>
<td>1. level-headed</td>
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<td>1. practical</td>
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<td></td>
<td>2. efficient</td>
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<td>2. self-confident</td>
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<td>2</td>
<td>1. intelligent</td>
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<td>2. alert</td>
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<td></td>
<td>2. considerate</td>
<td></td>
<td>2. cooperative</td>
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<td></td>
<td>1. self-reliant</td>
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<td>2. imaginative</td>
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<td>2. ambitious</td>
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<td>2. helpful</td>
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<tr>
<td>1</td>
<td>1. respectful</td>
<td></td>
<td>2. realistic</td>
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<td></td>
<td>2. original</td>
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<td>2. moral</td>
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<td>1. creative</td>
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<td>1. popular</td>
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<td>2. sensible</td>
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<td>2. conscientious</td>
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<tr>
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<td>1. generous</td>
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<td>1. considerate</td>
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<tr>
<td></td>
<td>2. individualistic</td>
<td></td>
<td>2. wise</td>
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<td></td>
<td>1. responsible</td>
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<td>1. reasonable</td>
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<td></td>
<td>2. likable</td>
<td></td>
<td>2. quick-witted</td>
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<tr>
<td>2</td>
<td>1. capable</td>
<td></td>
<td>1. sympathetic</td>
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<tr>
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<td>1. trustworthy</td>
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<td>2. ambitious</td>
</tr>
<tr>
<td></td>
<td>2. wise</td>
<td></td>
<td>2. patient</td>
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</tbody>
</table>

Note: Keyed responses are indicated
APPENDIX C

THE PERSONALITY TRAIT RATING SCALE
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Rater ____________________________

Subject to be rated __________________

Instructions: Below are three paragraphs each one containing a group of traits used to describe people. Please read each paragraph completely and then rate the subject on how descriptive that paragraph is of the subject. Rate each subject on each paragraph independently of how they were rated on the other two paragraphs. Thank you.

Trait A

Characteristics typical of persons with trait A are sociability, outspokenness, ease of communication, awareness of and reliance on the environment for stimulation and guidance. These individuals are action-oriented and often impulsive. They are expansive and are energized by interaction. They like variety and action.

Not at all descriptive 1 2 3 4 5 6 7 Perfectly descriptive

Trait B

Persons with trait B tend to rely on experience rather than theory, i.e., they are practical and realistic. They are accurate observers of detail. They are often described as down-to-earth and sensible. They do not tend to be imaginative or original, preferring instead to stay with the customary and conventional.

Not at all descriptive 1 2 3 4 5 6 7 Perfectly descriptive

Trait C

Persons with this trait are cooperative, i.e., they work harmoniously with others toward common goals. They tend to be empathic, i.e., they see things from the other person's perspective. They are concerned, i.e., they take an active interest in the well-being of others.

Not at all descriptive 1 2 3 4 5 6 7 Perfectly descriptive