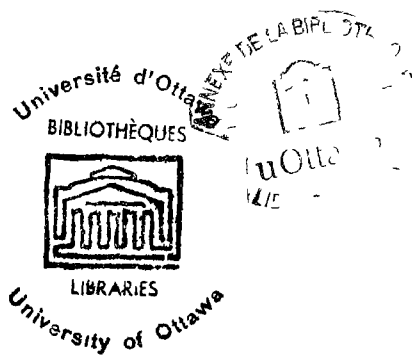


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MOTIVATIONAL DISTORTION AND ITS RELATION
TO THE SCALAR OF APTITUDE
PERSONALITY QUESTIONNAIRE

by Ted Schafer

Thesis presented to the School of
Psychology and Education of the
University of Ottawa as partial
fulfillment of the requirements
for the degree of Master of Arts



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CURRICULUM STUDIORUM

Edward William Patrick (Ted) Schaffer was born March 17, 1936, in Kitchener, Ontario. He received the Bachelor of Arts degree in Philosophy from the University of Toronto in 1958. He then completed two years of graduate study in the psychology department of the University of Toronto and subsequently spent three years with the management consulting firm of Stevenson & Kellogg, Ltd. as a personnel consultant.

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INTRODUCTION

Most people fake consciously or unconsciously when completing self-report personality inventories. Many suggestions have been offered for overcoming or measuring this tendency to fake good. Any new solution to the problem of motivational distortion of personality inventories is especially welcome in the industrial testing situation where the tendency to fake good is expected to be most severe.

Personality tests free from the influence of motivational distortion were sought for use in the executive search and selection practice of a management consulting firm. The authors of the Sixteen Personality Factor Questionnaire claim it to be free from the influence of the tendency to fake good. This study began as an attempt to verify their claim.

In the review of the literature section of this thesis experimental evidence of the tendency to fake good is offered and a variety of methods to overcome or compensate for the phenomenon are examined. Special emphasis is given to the methods put forward by the authors of the Sixteen Personality Factor Questionnaire.

The formulation of the basic hypothesis is followed by a description of the experimental design of the project with emphasis upon the characteristics of the industrial

candidate sample, the rationale underlying the Sixteen Personality Factor Questionnaire and the selection of a composite measure of the tendency to fake good.

The results obtained in the analysis of the relationship between this estimate of the tendency to fake good and the scales of the Sixteen Personality Factor Questionnaire are then presented and discussed. Two possible explanations for the results obtained are offered.

Finally, the implications for further research are indicated.

CHAPTER I

REVIEW OF THE LITERATURE

One of the most important failings of almost all structured personality tests is their susceptibility to conscious, deliberate faking as well as to unconscious self-deception and role playing on the part of individuals who may be consciously quite honest and sincere in their responses.

The problem of the fakability of personality inventories and the "transparency" of vocational interest measures was considered as early as 1928 in a work by Hartshorne and May entitled Studies in Deceit.¹ It has continued to be a problem for all constructors of pencil and paper inventories to the present day.

1. Experimental Demonstration of Motivational Distortion.

The existence of a distorting influence in test-taking attitude is so obvious that it has been thought hardly necessary to establish it experimentally although a number of studies have demonstrated the effect. Gough,²

1 H. Hartshorne and M.A. May, Studies in Deceit, New York, Macmillan, 1928, xxi-306 p.

2 H.G. Gough, "The F Minus K Dissimulation Index for the MMPI", Journal of Consulting Psychology, Vol. 14, 1950, p. 408-413.

Cofer, Chance and Judson,³ Hunt⁴ and others using a procedure introduced by Rush⁵ which requires role playing on the part of subjects did demonstrate that subjects can appreciably alter their MMPI⁶ profiles when instructed to produce either very socially desirable or abnormal records.

2. Methods Used to Correct or Measure Motivational Distortion.

Attempts to control falsification of personality and interest inventories have been of many kinds.

One general method is to minimize the ability of the subject to malingering by using questions whose diagnostic significance is not apparent. It is a variant of this method by which Cattell, Saunders and Stice⁷ claim to have

3 C.M. Cofer, J.E. Chance, and A.J. Judson, "A Study of Malingering on the MMPI", Journal of Psychology, Vol. 27, 1949, p. 491-499.

4 H.F. Hunt, "The Effect of Deliberate Deception on MMPI Performance", Journal of Consulting Psychology, Vol. 12, 1949, p. 396-402.

5 F.L. Rush, "A Technique for Detecting Attempts to Fake Performance on a Self-Inventory Type of Personality Test", in G. McNemar and M.A. Merrill, Studies in Personality, New York, McGraw-Hill, 1942, p. 229-234.

6 S.R. Hathaway, and J.C. McKinley, The Minnesota Multiphasic Personality Inventory, New York, The Psychological Corporation, 1943, hereinafter designated as MMPI.

7 R.B. Cattell, D.R. Saunders, and G. Stice, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, p. 7.

kept the Sixteen Personality Factor Questionnaire⁸ free from the influences of motivational distortion. The difficulty with the use of questions not easily susceptible to malingering is to find them. Most of the questions which differentiate the normal person from the abnormal have a rather obvious "correct" or socially desirable answer.

Alternatively, the test constructor has attempted to minimize the desire to cheat by exhorting subjects to be honest and objective in the test instructions, by developing the impression of anonymity through such devices as codes to identify the subjects rather than signatures, having signatures placed at the end of the test rather than at the beginning and by using card sorting techniques which eliminate the need for signatures. The efficacy of these various methods is unmeasurable and probably negligible. Obviously, if an individual is consciously determined to fake he will do so despite any pleas for honesty or arbitrary juggling of the position of his signature.

In the light of the relative difficulty or ineffectiveness of the above methods for overcoming motivational distortion, the test builder can sidestep the problem of

⁸ R.B. Cattell, D.R. Saunders, and G.F. Stice, The Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1949, hereinafter designated as 16PF.

getting at the objective truth and attempt to measure the degree of the subject's falsehood. Several methods have been used to achieve this end.

One is to include within the general pool of items in the test a group of questions which appear twice phrased positively one time and negatively the other. The number of inconsistent responses may be used as an indication of dishonesty or of invalidity. This method has been used in the Tr scale of the MMPI developed by Buechley and Hall⁹ and the consistency scale of the Edwards Personal Preference Schedule.¹⁰ This technique, while useful for detection in some cases, is not necessarily a measure of lying since it is possible to lie consistently. This is in fact what happened in a pilot study to the present research using executive candidates as subjects. These men showed high consistency scores on the Tr scale but also high scores on other measures which indicated that they had a strong tendency to fake good. They were apparently able to fake consistently.

9 R. Buechley, and H. Hall, "A New Test of 'Validity' for the Group MMPI", Journal of Consulting Psychology, Vol. 16, 1952, p. 299-301.

10 A.L. Edwards, The Edwards Personal Preference Schedule, New York, The Psychological Corporation, 1953.

A second method originally introduced by Hartshorne and May¹² for use on the Bernreuter Personality Inventory¹³ is to include questions within the inventory which can be answered favourably or in the socially desirable direction by few or no subjects. This method has been used by Hathaway and McKinley¹⁴ in the L lie scale of the MMPI. "I sometimes put off until tomorrow what I ought to do today" is an item that can be answered false by very few honest people. If a subject gives such responses with some considerable frequency the inference is obvious. Research¹⁵ would indicate that a scale of such items can be a useful trap for naive subjects who wish to create a good impression, but a sophisticated and intelligent subject can avoid detection by answering such items honestly.

A third technique introduced by Ruch¹⁶ involves role-playing on the part of subjects. Rather than exclude items which are susceptible to malingering, Ruch utilized them in a fake scale, constructed by weighting each question

12 Hartshorne and May, Op. Cit.

13 R.G. Bernreuter, The Personality Inventory: Manual, Stanford University, California, Stanford University Press, 1935.

14 S.R. Hathaway, and J.C. McKinley, The Minnesota Multiphasic Personality Inventory Manual, Revised, New York, The Psychological Corporation, 1951.

15 Gefer, et al., Op. Cit.

16 Ruch, Op. Cit., p. 231.

in proportion to the degree to which it can be faked. This was accomplished by administering a test twice, once under normal conditions and secondly under instructions to fake good. The item weights were assigned according to the size of the critical ratios of the differences between the two sets of responses. Ruch devised his scale for the introversion-extraversion component of the Bernreuter Personality Inventory.

His method - the empirical derivation of a validity scale by making use of the item shifts or item response differences of two groups of subjects - has been used to develop a number of validity scales for the MMPI. McKinley, Hathaway and Meehl¹⁷ contrasted the item replies of a special group of defensive clinical cases who showed normal profiles with the general, non-hospitalized Minnesota normals. The resultant K scale was found to be effective in separating the deviant profiles of actual normals from those of actual abnormals and in detecting the influence of subtle test-taking attitudes whereby the subject tended to cover up personality deviations. A similar approach to the problem of detecting malingerers was advanced earlier by Meehl¹⁸ in

17 S.R. McKinley, J.C. Hathaway, and P.E. Meehl, "The K Scale", Journal of Consulting Psychology, Vol. 12, 1948, p. 20-31.

18 P.E. Meehl, "An Investigation of a General Normality or Control Factor in Personality Testing", Psychological Monographs, No. 4, 1945.

developing his N normality scale. Using college students instructed to fake good and fake bad MMPI protocols, Cofer, Chance and Judson¹⁹ devised an Mp positive malingering scale to detect the tendency to create a favourable impression when taking the MMPI. Hanley,²⁰ proceeding on the assumption that dissemblers will endorse items because of their perceived social desirability rather than their personal relevance, developed a Tt test-taking defensiveness scale also using the above method of item analysis.

Another suggestion for attacking the problem of test faking has been advanced by Wiener²¹ who introduced the concept of subtle and obvious keys for five of the MMPI clinical scales. He argued that extremely deviate individuals found in a clinical setting can be picked out by a test consisting of obvious items, but to help the psychologist working with a normal population as in an industrial setting, a much more subtle test is required which will both distinguish the extreme deviates and differentiate among the characteristics of a normal population. The items on five

19 Cofer, et al., Op. Cit.

20 C. Hanley, "Deriving a Measure of Test-Taking Defensiveness", Journal of Consulting Psychology, Vol. 21, 1957, p. 391-397.

21 D.N. Wiener, "Subtle and Obvious Keys for the MMPI", Journal of Consulting Psychology, Vol. 12, 1948, p. 164-170.

MMPI scales (Hy, D, Pd, Pa, Ma) were grouped judgmentally by Wiener and Harmon²² into subtle and obvious subscales and T-scores were developed for each of these subscales. Wiener found uniformly high positive correlations between subtle minus obvious T-scores and the K scale suggesting the strong appearance of a test-taking attitude in each of the five scales and a close relation between subtle responses and the K scale designed to measure personal defensiveness in completing a personality inventory. He also found that psychologically sophisticated individuals almost completely avoid significant obvious responses and have much higher subtle scores.

The above mentioned methods and techniques comprise the major attempts that have been made to overcome or compensate for the phenomenon of motivational distortion which operates when certain individuals with a strong desire to appear in a favourable light complete self-report personality inventories. It is doubtful if any of these methods are entirely satisfactory.

²² D.N. Wiener and L.R. Harmon, "Subtle and Obvious Keys for the MMPI: Their Development", Advisement Bulletin No. 16, Regional Veterans Administration Office, Minneapolis, 1946.

3. Cattell's Approach to the Motivational Distortion Problem.

Cattell²³ claims that he has a method for getting around the problem of motivational distortion that obviates the necessity of measuring the degree of faking although even he hedges at one point and develops a MD motivation distortion scale for the short C form²⁴ of his 16PF.

Cattell²⁵ acknowledges that numerous studies have shown that the subject's perception of the relation of his answers to the job for which he is being tested significantly distort his response. He agrees that it is in the mass testing of employees in industry where the most gross attempts at faking under strong motivation to obtain jobs are most likely to occur. Further, he states that the argument that the subject hurts himself by getting a job for which he is not really fitted when he cheats on tests has never been found to be a real deterrent to faking.

He feels that the blame for the faults and systematic failures in questionnaire type tests must be placed

23 R.B. Cattell, Personality and Motivation Structure and Measurement, New York, World Book Co., 1957, p. 161.

24 -----, "A Shortened 'Basic English' Version (Form C) of the 16 PF Questionnaire", Journal of Social Psychology, Vol. 44, 1956, p. 257-278.

25 -----, Personality and Motivation Structure and Measurement, Op. Cit., p. 161.

on their dependence on self-revelation. When the subject can see how his answer is going to be scored his responses will be very sensitive to the motivational situation.²⁶

He states that distortion in self-report questionnaire responses comes from several sources.²⁷ First there is the conscious, deliberate intention to present a favourable self picture in seeking a strongly desired job. This will differ from job to job but Cattell thinks there may be a core of commonly distorted items or dimensions. Secondly, there is the necessary degree of dishonesty which permits conscious faking to operate. Thirdly, there is lack of self-insight and, finally, sheer lack of cooperation - a careless indifference to the test and the responses made.

How then to guard against or avoid these causes or sources of distortion; in particular, how do you get around a conscious, deliberate attempt to cheat?

Cattell believes that the best protection against such motivational distortion is the selection of items highly loaded for a given personality factor but not appearing to involve it.²⁸ It is this principle or approach

²⁶ Cattell, Personality and Motivation Structure and Measurement, Op. Cit., p. 165.

²⁷ -----, "A Shortened 'Basic English' Version (Form C) of the 16PF Questionnaire", Op. Cit., p. 257-278.

²⁸ Cattell, et al., Op. Cit., p. 6.

that he and his co-authors have used in the development of the 16PF, Forms A and B. They claim that the majority of questions in the 16PF are indirect asking about interests which the subject would not necessarily perceive to be related to the trait in question. The factors on the 16PF are not interpreted from the nature of the subject's statements about himself, but from the known correlations between these "mental interiors" as found in questionnaire factors and the factors established in behaviour. The question responses are treated as behaviour with factor loading, not as valid self ratings. The questions are not questions the answers to which are accepted at face value as descriptions of behaviour.

Cattell, Saunders and Stice²⁹ claim that the 16PF has been purged of the influence of motivational distortion, as far as experimental evidence goes, by the method of finding items which stress equally in one factor both desirable and undesirable aspects and though involved in a factor commonly having value, notably factors H plus and Q2 minus, do not overtly refer to the behaviour but prove still to have loading. In a majority of factors (A, E, F, I, M, N, Q₁) Cattell and his co-authors feel that one pole does not seem to be regarded by most people as any more morally

²⁹ Cattell, et al., Op. Cit., p. 6-7.

or aesthetically desirable than the other, while in factors C, G, L, O, Q₃ and Q₄ in which an attempt to represent a "desirable character" might be expected to operate, no systematic motivational distortion has yet been experimentally found.

And there Cattell rests his case for the fake free nature of the 16PF, Forms A and B.

4. Popular Emphasis on Faking Personality Inventories.

Confronted with this supposedly unbeatable personality examination are various groups of people who have very good reason and strong motivation to cheat. Executive applicants, competing and candidating for a desired job not only have a natural desire to put their best foot forward in their job application, but also are admonished to cheat on personality tests by many popular business writers, in particular William H. Whyte in his best seller The Organization Man.³⁰

Whyte states³¹ that the weight now being given psychological test reports makes it clear that for those who aspire to be an executive, the most critical day they may

³⁰ W.H. Whyte, Jr., The Organization Man, New York, Simon & Schuster, 1956, vi-471 p.

³¹ Ibid., p. 193.

spend in their lives will be the one they spend taking psychological tests. He goes on to urge executives to cheat on these tests and even provides an appendix to his book entitled "How to Cheat on Personality Tests".³² He feels that when an individual is commanded by a company to reveal his innermost feelings, he has a duty to himself to give answers that serve his own self-interest rather than that of the company. In a word, says Whyte, he should cheat.

More recently, Martin Gross in a scathing attack on the whole field of personality testing in guidance and industry entitled The Brain Watchers³³ cautions that many a job applicant who has allowed even a shred of self-flagellation or introspection when completing personality inventories has been trapped into losing a job. For Gross, survival depends upon grasping the simple key that these questionnaires contain questions which are to be "handled" not answered.

5. Summary and Basic Hypothesis.

In this chapter the susceptibility of self-report personality inventories to motivational distortion has been

³² Whyte, Op. Cit., p. 449.

³³ M.L. Gross, The Brain Watchers, New York, Random House, 1962, p. 23.

considered, experimental evidence of this phenomenon has been offered and a variety of methods to overcome or compensate for the phenomenon have been examined.

Of particular interest is the approach to the phenomenon of motivational distortion taken by Cattell, Saunders and Stice.³⁴ They claim to eradicate the influence of motivational distortion upon self-report personality inventories by using questionnaire items highly loaded for a given personality factor but not appearing to involve it.

The problem in this study is to determine whether or not their claims are justified and it may be stated in the form of the null hypothesis: there is no significant relation between motivation to distort positively and individual factor scale scores on the Sixteen Personality Factor Questionnaire, Forms A and B.

34 Cattell, et al., Op. Cit., p. 6-7.

CHAPTER II

EXPERIMENTAL DESIGN

1. Sample Population.

Common sense, popular business literature^{1,2} and psychological writers³ would indicate that the operation of motivational distortion in completing self-report personality inventories is very likely to be shown by individuals candidating for a desired job.

Consequently, in order to test the hypothesis that the 16PF, Forms A and B are not subject to the systematic influence of motivational distortion, it was decided to use a sample of industrial candidates all of whom were applying for advertised positions in companies other than their present employer. These men were tested with the 16PF, the MMPI and other tools as part of the executive search and selection program of a Canadian management consulting firm.

The resultant sample of one hundred industrial candidates showed broad diversity with regard to educational

1 W.H. Whyte, Jr., The Organization Man, New York, Simon & Schuster, 1956, vi-471 p.

2 M.L. Gross, The Brain Watchers, New York, Random House, 1962, 256 p.

3 R.B. Cattell, "A Shortened 'Basic English' Version (Form C) of the 16PF Questionnaire", Journal of Social Psychology, Vol. 44, 1956, p. 257-278.

background, size of present company, geographic place of residence, type of industry and area of business experience (production, personnel, sales, finance, general management). The mean age of the sample was forty years with a range from twenty-five to fifty-eight. These industrial candidates reported a mean annual salary of \$12,800 with a range from \$7,000 to \$30,000. They showed a mean of sixteen years of formal education with a range from eleven years to nineteen years. Their mean WAIS⁴ full scale I.Q. was 128 with a range from 106 to 147. They reported a mean of three dependents (wife and two children) with a range from zero (single) dependents to seven. The mean industrial applicant in the sample was a forty year old university graduate of superior intelligence supporting a wife and two children on an annual salary of \$12,800.

2. Tools.

The one hundred industrial candidates who comprise the experimental sample in this study completed the 16PF,⁵

4 D. Wechsler, The Wechsler Adult Intelligence Scale, New York, Psychological Corporation, 1955.

5 R.B. Cattell, D.R. Saunders, and G.F. Stice, The Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1949.

Forms A and B, the MMPI⁶ and a number of other tests of ability, vocational interests and personality as part of their application for an advertised position. 16PF and MMPI scale scores furnished the raw data for this study.

a) Sixteen Personality Factor Questionnaire.-⁷

Because of the focal importance of the 16PF in this study, an examination of its rationale, development and nature is of importance.

According to its authors,⁸ the 16PF is a test which gives the fullest information in the shortest time about most personality traits. It covers planfully and precisely all the main dimensions along which people can differ according to basic factor analytic research.

The sixteen dimensions of personality or traits measured by the test are substantiated by considerable research as real, functionally unitary and psychologically significant dimensions having a wide area of influence on behaviour. A formidable body of factor analytic research has been devoted to isolating these dimensions and

⁶ S.R. Hathaway and J.C. McKinley, The Minnesota Multiphasic Personality Inventory, New York, The Psychological Corporation, 1943.

⁷ Cattell, et al., The 16PF Questionnaire, Op. Cit.,

⁸ -----, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, p. 1.

constructing a questionnaire to measure them. This research encompassed a very broad sampling of the area of personality responses; the achievement of a true simple structure solution revealing functionally unitary traits checked three times by independent experiment; a repeated intensification of item loadings; a standardization on a proper variety of groups; and a systematic accumulation of relations to important criteria.

The test is unique in having every item possessed of a demonstrated saturation with respect to each of the factors which it sets out to measure and having proof that each of the questionnaire factors corresponds to a primary personality factor found elsewhere, i.e., beyond the questionnaire realm in ratings of real-life behaviour situations, in the Objective-Analytic Factor Battery,⁹ in social response patterns and in abnormal or pathological behaviour.

Through a wide array of research and applied publications the symbols A, B, C, E, F, G, H, I, L, M, N, O, Q₁, Q₂, Q₃, and Q₄ have become applied to the sixteen factors measured by the test. The four Q factors are so labelled because they have been established only in the questionnaire realm of tests though they predict many criteria. Adjectival

⁹ R.B. Cattell, The Objective-Analytic Factor Battery, Champaign, Illinois, Institute for Personality and Ability Testing, 1955.

descriptions and behaviour characteristic of people scoring high and low on these sixteen factors are outlined in Table I.

Cattell and his co-authors have not aimed at what they call "the artificially high reliabilities to which some handbooks accustom their readers"¹⁰ in constructing the 16PF. Rather they have placed more emphasis upon its range, its capacity to discriminate among clinical cases as well as in industrial and college settings. They report consistency coefficients of reliability (split-half corrected to full length) for forms A and B combined on a sample of 450 young adult males which range from a low of .71 for the Q₁ scale to a high of .91 for the E scale. Equivalence coefficients comparing form A to form B are considerably lower showing a range from a low of .37 for the M scale to a high of .73 for the N scale (Table III). Karson and Pool¹¹ using a sample of seventy-one USAF officers report similarly low equivalence coefficients ranging from a low of .18 for the N scale to a high of .66 for the O scale.

Despite the relatively low reliability of several of the scales on the 16PF, the authors feel that the test

¹⁰ Cattell, et al., Handbook for the 16PF Questionnaire, Op. Cit., p. 3.

¹¹ S. Karson and K.B. Pool, "The Construct Validity of the Sixteen Personality Factors Test", Journal of Clinical Psychology, Vol. 13, 1957, p. 245-252.

Table I.-

Characteristics Associated with High and Low Scores on the Scales of the 16PF.^a

| Scale | Low Score Description | High Score Description |
|-------|--|---|
| A | aloof, stiff, grasping, critical, obstructive, hard | warm, sociable, good natured, ready to cooperate, kindly |
| B | dull, boorish, quitting | bright, conscientious, cultured |
| C | emotional, immature, unstable, lacking in frustration tolerance | mature, calm, stable, realistic about life |
| E | mild, "milk toast", submissive, dependent, soft-hearted | aggressive, competitive, assertive, self-assured, independent minded |
| F | glum, sober, serious, silent, introspective, depressed | enthusiastic, happy-go-lucky, talkative, cheerful, serene |
| G | casual, undependable, quitting, frivolous, demanding, impatient | conscientious, persistent, determined, responsible |
| H | shy, timid, withdrawn, self-contained, embittered, careful | adventurous, thick-skinned, likes meeting people, active, genial |
| I | tough, realistic, expects little, self-reliant, takes responsibility | sensitive, effeminate, demanding, impatient, subjective, dependent |
| L | accepting, adaptable, outgoing, trustful, open | suspecting, jealous, self-sufficient, withdrawn, suspicious, brooding |
| M | practical, concerned with facts, conventional, no creativity | bohemian, introverted, absent-minded, unconventional, self-absorbed |

Table I.--(Cont'd.)

Characteristics Associated with High and Low Scores on the Scales of the 16PF.

| Scale | Low Score Description | High Score Description |
|----------------|---|--|
| N | simple, unpretentious, socially clumsy, gregarious, simple tastes | sophisticated, polished, socially alert, insightful |
| O | confident, self-secure, cheerful, no fears, self-confident | timid, insecure, worrying, anxious, depressed, sensitive, easily upset |
| Q ₁ | conservative, accepting, moderate | experimenting, critical, radical |
| Q ₂ | dependent, imitative | self-sufficient, resourceful |
| Q ₃ | uncontrolled, lax, unsure | controlled, exacting will power |
| Q ₄ | phlegmatic, composed | tense, excitable |

a R.B. Cattell, D.R. Saunders, and G. Stice, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, p. 11-19.

has good validity. The items found in the published forms of the test are the survivors from several thousands of items originally tried and these items constitute only those which continued to have significant validity against the factors being measured after three successive factor analyses. The manual¹² reports concept validities (the extent to which the test measures the trait it is supposed to measure) for forms A and B combined which range from a low of .73 for the N scale to a high of .96 for the H scale.

The authors state that the final validity of the total test is more important than the particular reliability coefficients of its parts.¹³ They feel that if a limited time exists for testing, it is in general more efficient to measure a whole profile of several dimensions of personality though each be measured with a brevity reducing reliability to .30 or .40 than to measure a single dimension with an imposing scale reliability of .90. Granted equal validity on the criterion, a mere dozen orthogonal factor measures, each of reliability .29 give better prediction than one scale with a reliability of .95. It is with this rationale or perhaps excuse that Cattell justifies the relatively low reliability of certain scales of the 16PF.

12 Cattell, et al., Handbook for the 16PF Questionnaire, Op. Cit., p. 4.

13 Ibid., p. 4.

Claims regarding the freedom of the 16PF from the influence of motivational distortion which form the theoretical rationale for this study have been considered in the review of the literature.

b) MMPI F Minus K Index as an Indicator of Faking Good.- Common sense would indicate that the industrial applicants tested in this study should show a strong tendency to fake good when completing the MMPI and 16PF. The actual existence of this tendency in the research sample will be operationally identified by the F minus K index.

Gough¹⁴ proposed using the differences in raw scores between the F scale and the K scale of the MMPI as an index of dissimulation either positive or negative. He reported a mean F-K index score of -8.96 for 691 adult normals tested under standard conditions and a mean score of -13.84 for 269 college students tested under similar conditions.

Hunt¹⁵ using Navy prisoners and Cofer, Chance and Judson¹⁶ using college students reported mean F-K index scores of -11 when their respective groups were instructed

14 H.G. Gough, "The F minus K Dissimulation Index for the MMPI", Journal of Consulting Psychology, Vol. 14, 1950, p. 408-413.

15 H.F. Hunt, "The Effect of Deliberate Deception on MMPI Performance", Journal of Consulting Psychology, Vol. 12, 1948, p. 396-402.

16 C.M. Cofer, J.L. Chance, and A.J. Judson, "A Study of Malingered on the MMPI", Journal of Psychology, Vol. 27, 1949, p. 491-499.

to fake favourable MMPI records. Both studies concluded that the F-K index is not useful for identifying faking in subjects instructed to do so.

MacLean, Tait and Catterall,¹⁷ using a group of student nurse applicants presume to have strong motivation to fake good in order to gain admission to nursing school, suggested that an F-K index score of -17 or lower (more negative) be used to identify fake good records. They concluded that F-K scores of -20 or lower are definitely indicative of an invalid fake good record.

Dragow and Barnette,¹⁸ using a sample of men applying for a more senior job similar to the sample in the present study, reported a mean F-K index score of -16.

The existence of a tendency to distort positively (fake good) in the sample of industrial applicants used in this study will be operationally identified if this sample shows a mean F-K index score of -17 or lower.

c) Measurement of the Tendency to Fake Good in the Industrial Applicant Sample.- Because of the crucial importance in this study of an effective measure of motivational

¹⁷ A.G. MacLean, A.T. Tait, and C.E. Catterall, "The F Minus K Index on the MMPI", Journal of Applied Psychology, Vol. 37, 1953, p. 315-316.

¹⁸ J. Dragow and W.L. Barnette, "F-K in a Motivated Group", Journal of Consulting Psychology, Vol. 21, 1957, p. 399-401.

distortion or the tendency to fake good when completing self-report personality inventories a thorough review of all published attempts to measure this phenomenon on the MMPI was conducted along with a pilot study using these many and varied measures on a smaller sample of industrial applicants than the one in the present study. It was the intention of the writer to secure the most comprehensive estimate of motivational distortion possible.

A review of the literature on the subject revealed the following seventeen different scales or techniques for measuring the tendency to fake good or bad when completing the MMPI: Cannot Say score;²⁰ the L lie scale;²¹ the F scale;²² the K scale;²³ the Tr consistency scale;²⁴ the So social desirability scale;²⁵ the B response bias scale;²⁶

20 S.R. Hathaway and J.C. McKinley, The Minnesota Multiphasic Personality Inventory Manual, Revised, New York, Psychological Corporation, 1951, p. 5.

21 Ibid., p. 5.

22 Ibid., p. 5.

23 S.R. McKinley, J.C. Hathaway and T.F. Meehl, "The K Scale", Journal of Consulting Psychology, Vol. 13, 1948, p. 20-31.

24 R. Buechley and H. Ball, "A New Test of 'Validity' for the Group MMPI", Journal of Consulting Psychology, Vol. 16, 1952, p. 299-301.

25 W.D. Wordyce, "Social Desirability in the MMPI", Journal of Consulting Psychology, Vol. 20, 1956, p. 171-175.

26 B.G. Fricke, "A Response Bias (B) Scale for the MMPI", Journal of Counselling Psychology, Vol. 4, 1957, p. 149-153.

the Ps dissimulation scale;²⁷ the N normality scale;²⁸ the Mp positive malingering scale;²⁹ the Tt test-taking defensiveness scale;³⁰ the deviant response score;³¹ and the subtle minus obvious T-scores for the D, Hy, Pd, Pa and Ma scales.³²

Since it was the writer's intention to develop by a process of elimination a master index to measure only the tendency to fake good, the following scales which were designed primarily to measure the tendency to fake bad were eliminated from further study: F scale; Ds dissimulation scale; and the deviant response score.

The protocols of fifty industrial applicants similar to those used in the present study were then scored for the remaining fourteen measures of the tendency to fake good.

27 H.G. Gough, "Some Common Misconceptions about Neuroticism", Journal of Consulting Psychology, Vol. 18, 1954, p. 287-292.

28 P.F. Meehl, "An Investigation of a General Normality or Control Factor in Personality Testing", Psychological Monographs, Vol. 4, 1945.

29 Cofer, et al., Op. Cit.

30 C. Hanley, "Deriving a Measure of Test-Taking Defensiveness", Journal of Consulting Psychology, Vol. 21, 1957, p. 391-397.

31 E.H. Barnes, "Response Bias and the MMPI", Journal of Consulting Psychology, Vol. 20, 1956, p. 371-374.

32 D.N. Wiener, "Subtle and Obvious Keys for the MMPI", Journal of Consulting Psychology, Vol. 12, 1948, p. 164-170.

Correlations among the remaining eleven measures of the tendency to fake good were then computed. All were found to be significantly and positively intercorrelated at the .01 level and beyond with the exception of the B response bias scale. This scale showed significant negative correlations with the other measures of faking good but B scale scores of the industrial applicant sample presumed to have strong motivation to fake good were not significantly lower than the B scores given by a college sample tested under conditions where motivational distortion was not expected to operate.³³ The B response bias scale was consequently considered to be a relatively ineffective measure of the tendency to fake good among industrial applicants and was removed from further consideration.

The item content of the remaining five scales (K, L, Mp, N and Tt) excluding the subtle minus obvious measures was then examined. These scales were found to be drawn from a common pool of 148 items.

The individual answer sheets of the fifty industrial applicants were then examined for consistency of response on these 148 items. Thirty items were found to be answered in the same direction (true or false) by ninety per cent or more of the industrial applicant sample. These items were consequently eliminated from further consideration.

³³ Fricke, Op. Cit.

The remaining 118 items were then divided into two scales: a validity overlap (VO) scale containing twenty-eight items found on two or more of the K, L, Mp, and Tt scales; and a residual validity (RV) scale composed of the remaining ninety items.

The protocols of the fifty industrial applicants were then rescored for these two new scales and correlations were computed among them and the subtle minus obvious T-scores for the D, Hy, Pd, Pa and Ma scales. With one exception (Ma S-0; D S-0) the coefficients in the resultant correlation matrix were found to be positive and significant at the .01 level or beyond. This finding is borne out by the present study using a sample of one hundred industrial applicants (Table II).

It was decided to use a combination of the following seven independent (no item overlap) estimates of the tendency to fake good as the master index in this present study: VO validity overlap scale; RV residual validity scale; and subtle minus obvious T-scores for the D, Hy, Pd, Pa and Ma scales.

The one hundred MMPI records of the industrial applicants in the present study were scored for these seven measures; each subject was assigned a rank on each of the measures; the ranks were summed and the sums were ranked to provide a final comprehensive motivational distortion rank

(MDR) as the best estimate of the tendency to fake good when completing the MMPI. It is this MDR which serves as the independent variable in the present study.

The top thirty subjects on the MDR were arbitrarily designated "dishonest" and the bottom thirty "honest". The middle forty were deemed neutral in respect to their tendency to fake good when completing the MMPI and parenthetically the 16PF.

3. Statistical Procedures.

The statistical procedures used in this study are quite straightforward and require little elaboration.

Initially, the motivation distortion rank (MDR) was intercorrelated with the seven independent estimates of the tendency to fake good discussed above using the Spearman rank correlation coefficient r_{ho} .³⁴ Because of the absence of tied ranks in the MDR and the relatively small number of ties occurring in the measures of faking it was not felt necessary to apply the formula³⁵ which corrects the Spearman r_{ho} coefficient for tied ranks. This position was supported by the observation of very small differences between a sampling of these correlation coefficients corrected and

³⁴ S. Siegel, Nonparametric Statistics for the Behavioral Sciences, New York, McGraw-Hill, 1956, p. 204.

³⁵ Ibid., p. 207.

uncorrected for tied ranks. The correlation matrix resulting from intercorrelating MDR with the seven estimates of the tendency to fake good was intended to demonstrate that the MDR was the best estimate of the common fake good component tapped by them all.

The reliability of the scales of the 16PF for the industrial applicant sample was then determined. Equivalent form reliability coefficients were found by computing Pearson r correlation coefficients³⁶ between raw scores on form A and form B for the sixteen scales of the test. These split-half or alternate form coefficients were not corrected to full length. Internal consistency reliability for forms A and B combined was estimated by the Flanagan formula.³⁷

Spearman rank correlation coefficients were then computed for the relation between the motivation distortion rank (MDR) and the combined form A plus form B raw scores of the sixteen scales of the 16PF. The Spearman rank correlation between MDR and the second order anxiety factor $F(4)II$ ³⁸ on the 16PF was also computed. Again the absence

³⁶ J.F. Guilford, Fundamental Statistics in Psychology and Education, New York, McGraw-Hill, 1956, p. 140.

³⁷ -----, Psychometric Methods, New York, McGraw-Hill, 1954, p. 379.

³⁸ Cattell, et al., Handbook for the 16PF Questionnaire, Op. Cit., p. 46.

of tied ranks in the MDR and the relatively small number of ties occurring in the combined scale scores of the 16PF made it unnecessary to use the formula which corrects the Spearman rho for tied ranks.

Finally, critical ratios were computed for the differences between 16PF scale means of the "dishonest" and "honest" industrial candidate subsamples. The F test³⁹ for homogeneity of variance between the two subsamples was first applied. If the assumption of homogeneity of variance could be made the t test⁴⁰ for differences between subsample means using the pooled mean-square estimate of variance was applied. In cases where homogeneity of variance could not be assumed, z tests⁴¹ were used on the assumption that subsamples of size thirty would satisfy the necessary conditions for this test. The Mann-Whitney U test,⁴² the nonparametric alternative for the t test was also applied to test for significance of difference between subsample means on the sixteen scales and the second order anxiety factor. With subsamples of size thirty, the sampling distribution of U approximates the normal distribution and consequently

39 W.J. Dixon and F.J. Massey, Jr., Introduction to Statistical Analysis, New York, McGraw-Hill, 1957, p. 107.

40 Ibid., p. 121.

41 Ibid., p. 113.

42 Siegel, Op. Cit., p. 116.

may be converted to a z for testing significance of difference between means.

4. Summary and Specific Experimental Hypotheses.

In this chapter the characteristics of the industrial candidate sample and the conditions under which they completed the MMPI and the 16PF have been elaborated, the rationale, development and nature of the 16PF has been discussed, the $F-K$ index has been selected as an indicator of the tendency to fake good, the steps leading to the use of the motivation distortion rank (MDR) as the best estimate of the tendency to fake good have been outlined and the statistical procedures employed in the present study have been specified.

It remains only to formulate the specific experimental hypotheses of this study which are:

- a) the MDR is the best estimate of the tendency to fake good when completing the MMPI;
- b) the industrial candidate sample will show a mean $F-K$ index score of -17 or lower indicating the group presence of motivation to distort positively;
- c) there is no significant relation between the MDR and the sixteen scales and second order anxiety factor of the 16PF (null form);
- d) there are no significant differences between the "honest" and "dishonest" subsample means of the sixteen scales and anxiety factor of the 16PF (null form).

CHAPTER III

PRESENTATION OF RESULTS

The results of the statistical analysis of the raw data in this study are presented in Tables II, III, IV and V. A discussion and interpretation of these results will be given in the following chapter. This chapter will concern itself only with the presentation of these results.

The intercorrelation matrix among the motivation distortion rank (MDR) and the seven independent estimates of the tendency to fake good (validity overlap VO scale, residual validity RV scale, subtle minus obvious T-scores for the D, Hy, Pd, Pa and Ma scales) is presented in Table II. Only one of these coefficients, that between the subtle minus obvious T-scores for the Ma scale and the subtle minus obvious T-scores for the D scale, is not significant at the .05 level. Three other coefficients are significant at the .05 level but not at the .01 level. The remaining twenty-four coefficients in the matrix are significant at or beyond the .01 level.

Reliability coefficients for the scales of the 16PF for both the industrial candidate sample and the normative general population sample of Cattell, Saunders and

Table II.-

Spearman Rho Correlation Coefficients Among MMPI
Fake Good Measures.

| | V O | R V | D S-0 | Hy S-0 | Pd S-0 | Pa S-0 | Ma S-0 |
|---------|------|------|-------------------------|-----------|-------------------------|-------------|-----------|
| V O | -- | | | | | | |
| R V | .599 | | | | | | |
| D(S-0) | .608 | .497 | | | | | |
| Hy(S-0) | .682 | .492 | .446 | | | | |
| Pd(S-0) | .397 | .410 | .509 | .373 | | | |
| Pa(S-0) | .530 | .295 | .392 | .463 | <u>.198^b</u> | | |
| Ma(S-0) | .313 | .358 | <u>.126^a</u> | .372 | <u>.232</u> | <u>.225</u> | |
| M D R | .638 | .743 | .718 | .783 | .620 | .640 | .514 |

a With N of 100, Spearman Rho coefficients not significant at the .05 level or better are single underlined.

b Coefficients significant at the .05 level but not at the .01 level are double underlined.

Stice¹ are presented in Table III. Coefficients in column "a" are industrial candidate sample internal consistency coefficients for forms A and B combined computed by means of the Flanagan formula. Coefficients in column "b" are alternate or equivalent form coefficients comparing form A to form B by means of the Pearson r coefficient of correlation. The resultant coefficients have not been corrected to full length by means of the Spearman-Brown formula. Coefficients in column "c" are equivalent form corrected to full length comparing form A to form B. They were reported by the authors of the 16PF for a normative general population sample of 590 students and non-students.

Table IV presents the Spearman Rho correlation coefficients between the motivation distortion rank (MDR) and the sixteen scales and second-order anxiety factor of the 16PF forms A and B combined for the industrial candidate sample. Six of the scales (C, H, L, O, 23, 24) and the second-order anxiety factor are found to be significantly correlated with MDR at the .01 level or beyond.

These results are corroborated by the data presented in Table V. T or z statistics significant at the .01 level or beyond are found for the difference between the means of

¹ R.B. Cattell, D.R. Saunders and G. Stice, Tabular Supplement to the Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, p. 20.

Table III.-
Reliability Coefficients for the 16PF, Forms A and B.

| Scale | Low score Description | High score Description | Coefficients | | |
|------------|-----------------------|------------------------|--------------|------|-----|
| | | | a | b | c |
| A | aloof, cold | warm, sociable | .756 | .615 | .51 |
| B | dull | intelligent | .412 | .177 | .38 |
| C | emotional | mature, calm | .576 | .424 | .44 |
| E | submissive | dominant | .016 | .009 | .45 |
| F | glum, silent | talkative | .610 | .166 | .43 |
| G | undependable | conscientious | .224 | .126 | .39 |
| H | timid, shy | adventurous | .596 | .412 | .73 |
| I | tough, realistic | sensitive | .168 | .123 | .38 |
| L | trustful | suspecting | .500 | .359 | .41 |
| M | conventional | bohemian | .469 | .315 | .37 |
| N | awkward, simple | sophisticated | .062 | .032 | .41 |
| O | confident | insecure, anxious | .488 | .324 | .62 |
| α_1 | conservative | critical, radical | .206 | .114 | .43 |
| α_2 | dependent | self-sufficient | .432 | .277 | .51 |
| α_3 | lax, unsure | controlled | .160 | .151 | .52 |
| α_4 | composed | tense, excitable | .616 | .704 | .64 |

Column a - industrial candidate sample, N of 100, Flanagan formula for internal consistency, all items forms A and B combined.

Column b - industrial candidate sample, Pearson r alternate form coefficient between form A and form B without Spearman-Brown conversion to full length.

Column c - normative sample of Cattell, Saunders and Stice, N of 390 students and non-students giving general population range, Pearson r alternate form coefficients corrected by Spearman-Brown formula to full length.

Table IV.-

Correlation Coefficients Between Motivation Distortion Rank (MDR) and Scales of the 16PF, Forms A and B Combined.

| Scale | Low Score Description | High Score Description | Spearman Rho |
|--------|-------------------------|---------------------------|-------------------------|
| A | aloof, cold | warm, sociable | .004 |
| B | dull, low capacity | bright, intelligent | .078 |
| C | emotional, unstable | mature, calm | <u>.576^a</u> |
| D | submissive, mild | dominant, aggressive | .157 |
| F | glum, silent | enthusiastic, talkative | -.018 |
| G | casual, undependable | conscientious, persistent | .129 |
| H | timid, shy | adventurous | <u>.313</u> |
| I | tough, realistic | sensitive, effeminate | -.114 |
| L | trustful, adaptable | suspecting, jealous | <u>-.602</u> |
| M | conventional, practical | bohemian, unconcerned | -.150 |
| N | simple, awkward | sophisticated, polished | .052 |
| O | confident, unshakable | insecure, anxious | <u>-.526</u> |
| 1 | conservative, accepting | experimenting, critical | .135 |
| 2 | dependent, imitative | self-sufficient | .003 |
| 3 | lax, unsure | controlled, exact | <u>.305</u> |
| 4 | phlegmatic, composed | tense, excitable | <u>-.617</u> |
| F(4)II | low anxiety | high anxiety | <u>-.648</u> |

^a With N of 100, Spearman Rho coefficients underlined are significant at the .01 level or beyond.

Table V.-
Score Comparisons Between "Honest" and "Dishonest" Industrial Candidates
on the 16PF, Forms A and B Combined.

| Scale | Honest(N:30) | | Dishonest(N:30) | | Diff. Be- tween Means | F | Parametric t or z | Mann- Whitney z |
|----------------|--------------|-------|-----------------|-------|--------------------------|-------------|--------------------------------------|--------------------------|
| | Mean | SD | Mean | SD | | | | |
| A | 22.93 | 6.22 | 23.60 | 5.20 | .67 | 1.43 | t of .45 | .32 |
| B | 18.63 | 2.27 | 19.23 | 2.22 | .60 | 1.04 | t of 1.04 | .84 |
| C | 34.10 | 5.03 | 41.73 | 4.02 | 7.63 | 1.57 | t of <u>6.52</u> ^b | <u>5.09</u> |
| E | 27.53 | 6.12 | 30.13 | 4.45 | 2.60 | 1.69 | t of <u>1.88</u> | <u>1.98</u> ^a |
| F | 25.20 | 6.65 | 25.70 | 6.00 | .50 | 1.23 | t of .31 | .16 |
| G | 27.10 | 4.11 | 27.63 | 4.18 | .53 | 1.03 | t of .49 | .76 |
| H | 32.43 | 6.04 | 37.57 | 5.82 | 5.14 | 1.08 | t of <u>3.36</u> | <u>3.00</u> |
| I | 16.50 | 5.06 | 15.13 | 5.86 | 1.37 | 1.34 | t of .97 | .63 |
| L | 15.73 | 3.83 | 9.37 | 4.46 | 6.36 | 1.35 | t of <u>5.94</u> | <u>5.15</u> |
| M | 19.50 | 6.20 | 17.23 | 5.22 | 2.27 | 1.41 | t of <u>1.53</u> | <u>1.53</u> |
| N | 25.30 | 3.96 | 25.77 | 4.36 | .47 | 1.21 | t of .44 | .29 |
| O | 17.50 | 5.54 | 10.50 | 3.81 | 7.00 | <u>2.49</u> | z of <u>5.88</u> (t of <u>5.83</u>) | <u>4.65</u> |
| Q ₁ | 22.53 | 4.68 | 23.67 | 4.15 | 1.14 | 1.27 | t of 1.00 | .93 |
| Q ₂ | 18.03 | 4.25 | 18.37 | 5.14 | .34 | 1.46 | t of .28 | .76 |
| Q ₃ | 23.57 | 4.47 | 28.70 | 3.60 | 5.13 | 1.54 | t of <u>3.98</u> | <u>2.70</u> |
| Q ₄ | 19.83 | 6.83 | 9.00 | 4.25 | 10.83 | <u>2.33</u> | z of <u>7.37</u> (t of <u>7.37</u>) | <u>5.57</u> |
| F()II | 57.13 | 12.51 | 33.67 | 10.00 | 23.46 | 1.56 | t of <u>6.03</u> | <u>5.69</u> |

a Single underlined statistics significant at the .05 level.

b Double underlined statistics significant at the .01 level.

the "honest" and "dishonest" subsamples on the C, D, L, O, 3, and 4 scales and the second-order anxiety factor. A Mann-Whitney derived z significant at the .05 level is also found for the difference between subsample means on the 4 scale of the 16PF.

The industrial candidate sample shows a mean F-K index score of -17.29 with a range from -8 to -26 and a standard deviation of 4.46. Sixty per cent of the industrial candidates give F-K scores of -17 or lower. Thirty-one per cent show F-K scores of -20 or lower.

CHAPTER IV

DISCUSSION OF RESULTS

It now remains to discuss and interpret the results of this study and to determine whether or not the specific experimental hypotheses put forward in chapter two should be accepted or rejected.

1. Motivation Distortion Rank as the Best Estimate of the Tendency to Fake Good on the MMPI.

Much thought and preparatory work discussed in chapter two has gone into the selection of the motivation distortion rank (MDR) as the possible best estimate of the tendency to fake good when completing the MMPI. No less than seventeen independently developed estimates of this tendency were considered in the construction of the final measure. The authors of each of these estimates working independently had as their goal the measurement of dissimulation. The positive intercorrelations among these various measures found in the writer's pilot study to the present research would seem to indicate the existence of a common fake good or test-taking factor in the MMPI. The significant positive correlations presented in Table II using one hundred industrial candidates also substantiate the existence of such a common factor.

The motivation distortion rank (MDR) which correlates higher with the other "independent" (no item overlap) estimates of the tendency to fake good than they do with each other would appear to be the best estimate of this common fake good factor in the MMPI. Only four of the coefficients in the matrix presented in Table II are higher than the lowest correlation with the MDR. The correlations presented in Table II would indicate that the estimates of the tendency to fake good can be ranked in the following order with MDR heading the list: MDR, VO, Hy(S-O), RV, F(S-O), Pd(S-O), Pa(S-O) and Ma(S-O).

Despite the fact that some of the correlation between the MDR and the other estimates of the tendency to fake good is attributable to the method of deriving this measure, the MDR should be considered the best estimate of the tendency to fake good when completing the MMPI for a sample of industrial candidates. Experimental hypothesis "a" should be accepted.

2. Presence of Motivation to Distort Positively in the Industrial Candidate Sample.

The studies of MacLean, Tait and Catterall¹ and Drasgow and Barnette² discussed in chapter two concluded that an MMPI F-K index score of -17 or lower was indicative of the presence of motivation to distort positively or a fake good tendency in the person completing the test. The former writers concluded that F-K scores of -20 or lower are definitely indicative of a fake good record.

The industrial candidate sample in this study showed a mean F-K index score of -17.29 (thereby supporting experimental hypothesis "b") with a range from -8 (the mean for adult normals tested under research conditions not expected to provoke motivational distortion reported by Gough³) to -26. The fake good tendency appears to be present in the industrial candidate group as a whole but individuals within the group range from being relatively "honest" and objective in their self-evaluations to downright "mendacious" and fanciful. Sixty of the candidates in the group show F-K index scores of -17 or lower and these men can be

1 J.C. MacLean, J.I. Tait, and J.D. Catterall, "The F minus K Index on the MMPI", Journal of Applied Psychology, Vol. 37, 1953, p. 315-316.

2 J. Drasgow, and W.L. Barnette, "F-K in a Motivated Group", Journal of Consulting Psychology, Vol. 1, 1957, p. 399-401.

3 H.C. Gough, "The F minus K Dissimulation Index for the MMPI", Journal of Consulting Psychology, Vol. 14, 1950, p. 408-413.

said to display an above average tendency to fake good when completing the MMPI. Thirty-one candidates give F-K index scores of -20 or lower and these with three exceptions are the subjects that have been designated "dishonest" according to their position on the motivation distortion rank. Relatively speaking, these candidates with F-K scores of -20 or lower are in fact "dishonest" when completing the MMPI.

One very important clarification must be made at this point. It is not the writer's claim that the F-K index, the motivation distortion rank (M-R) or any of the other estimates of test dissembling mentioned in the literature are objective, scientific measures of "dishonesty" of the same nature as the polygraph or psychogalvanometer lie detectors. These are simply numerical estimates, statistically derived of a perhaps artificial test-taking factor which may exist only in the personality and vocational interest questionnaire realm. To the writer's knowledge there have been no research attempts to correlate these questionnaire measures of test-taking "dishonesty" with more objective measures of human lying such as the polygraph lie detector. Perhaps, as will be elaborated below, the fake good factor in personality questionnaires is in fact an integral part or equivalent of the anxiety factor in personality and may have little whatever to do with generally defined dishonesty.

Nevertheless, to return to the more immediate question, the industrial candidates in this study do show a strong group tendency to fake good when completing the MPI and presumably when completing the 16PF since the two tests were administered at the same time as part of the same battery. Nothing can be said about their honesty in completing income tax returns but it is apparent that they were somewhat "dishonest" when answering the personality questionnaires of an industrial psychologist.

3. Reliability of the 16PF.

Two estimates of reliability for forms A and B of the 16PF for the industrial candidate sample are presented in Table III. As Cattell, Saunders and Stice⁴ have taught us to expect these coefficients are embarrassingly low and of surprising disparity.

The internal consistency reliability coefficients for forms A and B combined derived by use of the Flanagan formula range from a low of .016 for the F scale to a high of .826 for the Q4 scale. With a sample of one hundred an internal consistency reliability coefficient of .25 derived

⁴ H.B. Cattell, D.P. Saunders and G. Stice, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, p. 3-4.

by means of the Flanagan formula may be considered significant at least for research purposes if not for personality trait evaluation or diagnostic labelling. By this criterion, five of the 16PF scales (E, G, I, N and α_1) must be considered unreliable. The significance of this unreliability will become more apparent in the following discussion of the relation between motivational distortion and the 16PF scales.

It is perhaps surprising to find that some of the scales of the 16PF prove to be more reliable for the industrial candidate sample (a relatively homogeneous group of uniformly high intelligence, educational background and socioeconomic status and narrower age range) than for the test authors' normative population, supposed to be representative of the general population. When comparing internal consistency coefficients with alternate form corrected for full length the industrial candidate sample shows higher reliabilities on the E, G, C, L, N and α_4 scales than the test authors' normative general population sample.

The alternate form corrected for full length coefficients reported by the test authors are indeed very low (ten are below .50) when compared with reliabilities of .70 and .80 that the contemporary psychometrist has come to expect. The test author's justification for the low reliability of certain scales of the 16PF has already been discussed in chapter two.

It would appear that the individual scale reliabilities for the 16PF demonstrated by the industrial candidate sample are no lower and in some cases somewhat higher than was to be expected and than have been demonstrated by other researchers⁵ and the test authors themselves.

4. The Relation between Motivational Distortion and the 16PF.

Having established that motivation to distort positively or the tendency to fake good is present in the industrial candidate sample and that the motivation distortion rank (MDR) is the best estimate of this tendency, the relations between MDR and the scales of the 16PF must now be examined.

The data presented in Table IV show significant correlations between MDR and six scales (C, H, L, O, Σ_2 , and Σ_4) and the second-order anxiety factor F(2)II of the 16PF, forms A and B combined. The null form of experimental hypothesis "c" must be rejected. These results are corroborated by the significant differences between means of the "honest" and "dishonest" subsamples presented in Table V. The null form of experimental hypothesis "d" must also be rejected.

⁵ S. Karson and K.N. Pool, "The Construct Validity of the Sixteen Personality Factors Test", Journal of Clinical Psychology, Vol. 13, 1957, p. 245-252.

The correlations between MDR and the scales of the 16PF must be interpreted with the reliability of these scales in mind according to the statistical principle that correlation is lowered not only by lack of relation but also by poor reliability. Scales A, M and Q₂ all show relatively good reliability but insignificant correlation with MDR leading to the conclusion that scores on these three scales are genuinely not related to the tendency to fake good. Scales E, G, I, N and Q₁ display insignificant reliability but with the exception of scale N some modicum of correlation with MDR. Perhaps this relation would be significant if these scales had been more reliable. Similarly scales B and F show relatively low reliability and insignificant correlation with MDR. Scales C, H, L, O and Q₄ all show good reliability and significant correlations with MDR. Scores on these scales may be said to have a genuine relation with the tendency to fake good. Scale Q₃ has a relatively low reliability but at the same time a significant correlation with MDR which might have been considerably greater had this scale been more reliable. Keeping reliability in mind it would appear that scales C, H, L, O, Q₃, and Q₄ as well as the second-order anxiety factor which is a product of loadings on precisely these six scales do have a significant relation with the tendency to fake good when completing self-report personality inventories. Scales A,

M and ψ_2 bear no significant relation with this tendency. No definite relation or lack of it can be claimed for the remaining scales.

How then are these correlations between an estimate of the tendency to fake good when completing a personality inventory and six scales and the second-order anxiety factor of the 16PF to be interpreted? It is apparent that a number of interpretations are possible. Perhaps certain scales of the 16PF are genuinely susceptible to motivational distortion contrary to the claims of its authors. On the other hand, the MMPI and all the so-called validity measures which comprise it may merely offer another questionnaire estimate of the anxiety factor in personality with highly anxious individuals showing a lower tendency to fake good or at least lower scores on an estimate of this tendency.

Let us begin with the former position, that the 16PF is in fact the victim of motivational distortion. This study has demonstrated highly significant correlations between an estimate of the tendency to fake good when completing a personality inventory and six scales of the test. It is five of these scales about which Cattell, Saunders and Utice have some reservations as to their freedom from the influence of motivational distortion. They state that "in scales C, S, L, O, ψ_3 and ψ_4 an attempt to

represent a 'desirable character' might be expected to operate, no systematic motivational distortion has yet been experimentally found".⁶

Can the writer be presumptuous enough to claim that the present study provides this hitherto unavailable experimental evidence. Perhaps not. Nevertheless, the results of this study would indicate that the stronger the tendency in an industrial candidate to fake good when completing a personality inventory the more mature and calm (C), the less timid and shy (H), the less suspicious and jealous (L), the less insecure and the more confident (O), the more controlled (Q₃) and the less tense and excitable (Q₄) he makes himself appear. These results are certainly not hard to accept in the light of a common sense evaluation of the successful industrial executive personality.

Furthermore, despite the fact that Cattell and his co-authors state that the question responses on the 16PF are treated as verbal behaviour with factor loading and not as valid self-ratings they do in fact measure anxiety with rather obvious questions such as the following: "I tend to tremble or perspire when I think of a difficult task ahead."; "In some moods I get easily put off my work by distractions and daydreams."; "I am properly regarded as

⁶ Cattell, et al., op. cit., p. 3.

only a plodding half-successful person."; "I am brought almost to tears by having things go badly wrong."; "I am troubled by feelings of guilt and remorse over quite small matters.". It is left to the judgment of the reader as to whether or not a forty year old man with an I.Q. of 128 candidating for a \$13,000 job can or will see through such items and the personality characteristics they are intended to measure.

Perhaps the argument is stated too boldly. Nevertheless, the fact remains that an industrial candidate sample which showed a pronounced group tendency to fake good on personality inventories did also show a definite relation between an estimate of this fake good tendency and six potentially fakable scales of the 16PF. There seems to be strong evidence to support the belief that certain scales of the 16PF are in fact subject to the influence of motivational distortion.

But what of the alternative explanation for the correlations observed between the tendency to fake good and certain scales of the 16PF, the explanation which holds that MDI and the so-called fake good measures which comprise it are really only another estimate of the anxiety factor in personality or the explanation which holds that the people who cheat on personality inventories have a relatively low

level of anxiety? Here again there is compelling evidence for the acceptance of this point of view.

It is precisely those scales (C, H, L, O, Q₃, and Q₄) which Cattell and Scheier⁷ have found to comprise the second-order anxiety factor F(Q)II which are also found to correlate significantly with the tendency to fake good as estimated by MDR and no other 16PF scales are so correlated. Further, MDR shows a very high correlation (-.648) with the second-order anxiety factor, the higher the anxiety level the lower the tendency to fake good. Could it not be possible that the industrial candidate with high anxiety as measured by the questionnaire factor F(Q)II which is significantly correlated with objective measures and psychiatric ratings of anxiety⁸ has a deteriorated view of himself or perhaps is afraid to cheat on personality tests when applying for a new job and consequently scores low on a measure of the tendency to fake good. Parenthetically, the relatively unanxious intrepid candidate has a highly favourable self-percept, strong self-confidence and no fear of hyperbole when reflecting this self-percept in response to a personality questionnaire.

7 R.B. Cattell and I.M. Scheier, The Meaning and Measurement of Neuroticism and Anxiety, New York, Ronald Press, 1961, iii-535 p.

8 Ibid., p. 85-86.

Cattell and Scheier have found that V(Q)II, the questionnaire anxiety factor has an equivalent expression as a single first-order factor, U.I. 24 in objective test behaviour.⁹ These two estimates of anxiety are highly correlated and both have a high and consistent association with clinically evaluated levels of anxiety. Certain of the objective tests which load on U.I. 24 at the high anxiety pole lend considerable support to the belief that motivational distortion is an integral part or equivalent of anxiety. Cattell and Scheier report that high anxiety objectively measured is associated with low willingness to bluff in answering questions, more willingness to admit common frailties, high critical severity, high ratio of self-criticism to criticism of others, low ratio of favourable to unfavourable self-reference events, and high self-criticism to self-approval ratio.¹⁰ With these facts in mind it is quite simple to see how a highly anxious person could have a low tendency to fake good when completing a personality inventory. Other experimental evidence for this position is offered by Bendig¹¹ who found a correlation

9 Cattell and Scheier, op. cit., p. 85.

10 Ibid., p. 86.

11 A.S. Bendig, "College Norms for and Concurrent Validity of Cattell's IPAF Anxiety Scale", Psychological Newsletter, Vol. 10, 1959, p. 263-267.

of $-.50$ between the MMPI L lie scale and the MMT Anxiety Scale¹² using a sample of two hundred college students and Karson and Pool¹³ who found significant negative correlation between the MMPI K scale and the F(Q)II anxiety factor of the 16PF using a sample of seventy-one U.S.I. officers.

And so there is considerable evidence to support the belief that motivational distortion or the tendency to fake good is an integral part or equivalent of anxiety.

The question still remains, does the industrial candidate of high intelligence, strong motivation to get a new job and strong tendency to fake good see through certain test items so as to score low on anxiety a socially undesirable characteristic in successful business executives or does the genuinely highly anxious industrial candidate have a deteriorated view of himself and a fear to cheat on personality tests which results in his giving a low fake good score? Does strong tendency to fake good result in low anxiety scores or does strong anxiety result in low fake good scores or are anxiety and the tendency to fake good really coextensive. These are questions which can be answered only by further research that will attempt to

12 H.B. Cattell, The MMT Anxiety Scale, Champaign, Illinois, Institute for Personality and Ability Testing, 1957.

13 Karson and Pool, Op. Cit.

determine if the traditional questionnaire measures of the tendency to fake good are related to objective, extra-questionnaire measures of anxiety. This is research which the writer himself intends to pursue.

SUMMARY AND CONCLUSIONS

In the analysis of the relation between a composite estimate of the tendency to fake good when completing personality inventories and the scales of the Sixteen Personality Factor Questionnaire, claimed to be free from the influence of motivational distortion, it was found that the null hypothesis of no significant relation was rejected.

The industrial candidate sample showed a marked but disparate operationally defined tendency to fake good. The motivation distortion rank, a composite measure, was found to be the best estimate of this tendency.

Six scales and the second-order anxiety factor of the 16PF were found to be significantly correlated with this estimate of motivation to distort positively or the tendency to fake good. These correlations have been given two explanations.

On the one hand they are said to occur because certain scales of the 16PF are subject to the influence of the tendency to fake good contrary to the claims of its authors.

On the other hand these correlations are said to offer support for the view that the tendency to fake good is an integral part or equivalent of the anxiety factor in personality.

Several suggestions for further research intended to confirm one of these explanations emerge from this study.

Attempts should be made to determine if questionnaire measures of the tendency to fake good are related to objective, non-fakable, extra-questionnaire measures of anxiety. Further, it would be significant to learn if questionnaire estimates of the tendency to fake good are related to objective measures of human dishonesty such as the polygraph lie detector.

Until such time as the relationship between motivational distortion and anxiety objectively measured is definitely established caution should be exercised in the use of the 16PF for evaluating the personality traits of industrial candidates of high intelligence presumed to have strong motivation to dissemble.

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Cattell, R.B., D.A. Saunders and G.F. Stice, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Illinois, Institute for Personality and Ability Testing, 1957, ii-54 p.

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of the tendency to fake good.

APPENDIX 1

ABSTRACT OF

Motivational Distortion and Its Relation to the Scales of a
Factored Personality Questionnaire

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Motivational Distortion and Its Relation to the Scales of a Factored Personality Questionnaire¹

Many attempts have been made to overcome or measure the tendency to fake good when completing personality inventories.

The authors of the Sixteen Personality Factor Questionnaire (16PF) claim to have eliminated the systematic influence of motivational distortion or the tendency to fake good in their test by the selection of items highly loaded for a given personality factor but not appearing to involve it.

In this project their claims have been evaluated experimentally using a sample of one hundred industrial applicants candidating for a new job. Each of these candidates completed the 16PF, forms A and B and the Minnesota Multiphasic Personality Inventory (MMPI). Correlations were computed between the sixteen scales of the factored test and a composite estimate of the tendency to fake good comprised of the K, L, N, Sp and Tt scales and the subtle minus obvious T-scores for the D, Hy, Pd, Pa and Ma scales of the MMPI.

¹ Ted Schefer, Master's thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, April 1964, vii-82 p.

The results upheld the hypothesis of a significant relation between six scales (C, H, L, O, 13, and 14) and the second-order anxiety factor F(2)II of the 16PF and the composite estimate of the tendency to fake good in a sample which showed a skewed (mean F-K index score of -17.29) but disparate (F-K index range of -8 to -26) tendency to fake good.

Two alternative explanations for the results obtained have been offered. One holds that certain scales of the 16PF are subject to the systematic influence of motivational distortion contrary to the claims of its authors. A strong tendency to fake good is held to result in low questionnaire anxiety scores. The other maintains that the tendency to fake good is an integral part or equivalent of the anxiety factor in personality. A high degree of anxiety is held to result in low questionnaire fake good scores.

Suggestions for further research intended to confirm one of these explanations have been offered.

Some doubt has been cast upon the efficacy and validity of the 16PF for industrial personality testing.