RELATIONSHIP OF RESPONSES ON THE 16 PERSONALITY FACTOR QUESTIONNAIRE FORM 'C' WITH CLASSMATE'S JUDGMENTS.

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CURRICULUM STUDIORUM

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INTRODUCTION

One of the most frustrating elements in personality measurement, by means of a questionnaire, is the psychologist's inability to control adequately the possibility of conscious or unconscious distortion in the subject's responses to the questionnaire items. The psychologist is forced to assume the subject's honesty or objectivity when administering a questionnaire, or to admit, that the responses to the items may not necessarily be indicators of the corresponding traits, but units of behaviors which may or may not have psychological significance in themselves for predictive purposes.

Of particular interest, considering the problem presented, is the possibility of establishing the assumption, that questionnaire responses to items, could indeed be used as indicators of the corresponding traits. The interest in this study is centered on the possible similarity between self ratings i.e. responses to personality questionnaire items and ratings by others on the same traits, and not on the propensity of the possible motivational distortion.

The primary aim of this investigation was an attempt to compare scores obtained on the French form of the 16 Personality Factor Questionnaire form 'C' to judgments of peers for the same traits. Subsumed were the selection of adequate trait descriptions easily understood by a naive

population, and the construction of an instrument to measure peer judgments based on these trait descriptions.

The first part of this thesis is concerned with the review of the literature reporting the results of investigations where peer rating techniques were used in attempting to study the validity of personality questionnaires. This part is concluded by the formulation of the hypothesis.

The second part presents the experimental design of this study describing in detail the trait definitions as used in this investigation, the characteristics of the population, the methods of testing and the statistical operations used.

The third part describes the results obtained. Presentation is made of the experimental reliability of the instruments employed followed by the discussion of the relationships found between the questionnaire scores and ratings of peers. Included herein are recommendations for further investigations.

The appendix contains the tables of statistical data resultant of computations conducted in this study.

CHAPTER I

REVIEW OF THE LITERATURE

The first part of this review will present discussion on the response validity to questionnaire items. This section will be followed by the consideration of the pertinent investigations wherein peer ratings were used as criteria of validating personality questionnaires. The third and final part will state the summary and the development of the hypothesis.

1. The Response Validity of Questionnaire Items.

The usefulness of questionnaire results is mainly dependent on the objectivity or honesty of the responses elicited from the subject. Distortion of the results is feasible by both conscious or unconscious motivational elements present in the subject. Cattell, one of the most sophisticated of the researchers in the domain of personality questionnaires recognizes these elements and attributes them to these sources:

> Briefly we recognize distortion in questionnaire responses from the following sources (a) the intention to present a favourable self-picture in seeking a strongly desired job. This will differ from job to job, but may have a core of commonly distorted items. In a few clinical cases it may actually be reversed as in malingering. (b) The necessary degree of dishonesty which permits (a) to operate. (c) Lack of self insight. (d) Sheer lack of cooperation i.e. careless indifference to how the responses are made.[1]

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1 R.B. Cattell, "A Shortened 'Basic English' Version (Form C) of the 16 P.F. Questionnaire" in Journal of Social Psychology, Vol. 44, Second half, Nov. 1956, p. 266, 274.

Laslett and Bennett[2] claim, that even when a respondent does his best to answer questions truthfully he may lack insight into his true behavior or may unconsciously be quite a different person than the picture he draws of himself on the test.

If such distortions truly exist, even in questionnaires prepared with the aid of factor analytic methods, then their use is only of limited value. Cattell[3] himself admits this flaw and the result of it is the construction of a Motivational Distortion Scale in his 'C' Form of the 16 Personality Factor Questionnaire, which test hereafter will be referred to as the 16 P.F. This Motivational Distortion Scale, Cattell warns, is still in the experimental stage and should not be used, except in cases where the lack of cooperation is obvious.[4]

Thus acknowledging this problem the constructors and users of personality questionnaires attempted utilizing several methods in validating their instruments.

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2 H.R. Laslett and E. Bennett, "A Comparison of Scores on Two Measures of Personality", in Journal of Abnormal and Social Psychology, Vol. 28, No. 4, Jan.-March 1934, p. 460.

3 Cattell, Op. Cit., p. 266.

4 R.B. Cattell, Handbook Supplement For Form C of the Sixteen Personality Questionnaire 'The 16 P.F.', Champaign, Ill., Institute for Personality and Ability Testing 1956, p. 4.

Cattell[5] and others, employing factor analytic techniques in the construction of personality questionnaires measure their instrument's internal validity. Rating techniques are also used in search of validity.

Cattell[6] in the construction of his 16 P.F. did not employ the peer rating technique of validation but measured his instrument's internal validity, that is, the items as stated in the questionnaire were chosen as being good measures of the personality factors, as shown by factor analysis. The validity of Factors in factorial analysis is calculated by obtaining the square root of the factor's coefficient of reliability. He reported a mean correlation of all items with the factors they represent as .37, and the mean correlation of the factor with the group of six items by which it is represented as about .71 . Further studies conducted in an effort to validate Cattell's instrument dealt with social validation data where profiles of score distributions were collected to represent some twenty-eight occupations.[7]

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5 Cattell, Op. Cit., p. 3.

6 Cattell, Op. Cit., p. 3.

7 R.B. Cattell, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Ill., Institute for Personality and Ability Testing, 1957, 21 p.

An attempt by Karson and Pool[8] to measure the construct validity of the 16 P.F. by comparing it to the factors on the M.M.P.I. demonstrated no positive results. In these cases personality questionnaires are checked against ratings by friends, associates or teachers of respondents. Ellis[9] has reviewed many of these studies prior to 1946, and found the results of questionable value. Investigations using peer-rating techniques will now be reviewed.

2. Validity Studies by Peer Rating.

In an attempt to validate their own personality test the STDCR, Guilford and Martin,[10] administered their questionnaire to a group of University of California students and had five friends of each participant rate him on a list of statements corresponding to the traits which the questionnaire measures. Correlations computed between self ratings on the test and ratings by friends show that scores of factors S, D, and R, correlate with judgments of associates .55, .51 and .58

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8 S. Karson and R.J. Pool, "The Construct Validity of the Sixteen Personality Factors Test", in Journal of Clinical Psychology, Vol. 13, No. 3, July 1957, p. 252.

9 Albert Ellis, "The Validity of Personality Inventories", in Psychological Bulletin, Vol. 43, No. 5, Sept. 1946, p. 423.

10 J.P. Guilford and H. Martin, "Age Differences and Sex Differences in Some Introversive and Emotional Traits", in Journal of General Psychology, Vol. 31, Second Half, Oct. 1944, p. 226.

respectively. The authors fail to report measures of experimental reliability of both the questionnaire and the rating technique.

Peters[11] measured the personalities of his population by means of the Bernreuter Personality Inventory, the Bell Adjustment Inventory and the Link Personality Questionnaire and followed these up by administering Guess Who types of rating studies based on the traits that the above questionnaires purport to measure. The author found that correlation reliability coefficients between ratings by peers and questionnaire responses ranged from -.078 to .503 and averaged about .26 . All but two of the factors correlated with peer ratings bore high statistical significance. It is assumed that by high statistical significance the investigator meant significant difference from zero correlation. No mention is made of reliability concerning the Guess Who technique or the experimental use of the questionnaires.

Another study conducted by Drake and others[12] resulted in somewhat more singificant relationships between self ratings and rating by peers. This author, using a sample of

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11 C.C. Peters, "Validity of Personality Inventories Studied by the Guess Who Technique", in Psychological Bulletin, Vol. 37, No. 7, July 1940, p. 453.

12 M.J. Drake, et al, "The Relationship of Self Rating and Classmate Rating on Personality Traits", in Journal of Experimental Education, Vol. 7, No. 3, March 1939, p. 213.

high school students, used on his questionnaire Link's Inventory of Activities and Interests. To obtain judgments of peers on the personality factors measured by the questionnaire, the authors constructed a list of descriptions which corresponded to the traits and asked the subjects to rate their classmates on these. The authors compared each scale, that is, trait, between scores obtained on the test and classmates' rating, and found that correlation coefficients between self ratings and ratings of classmates ranged for boys .49 to .67, and for girls .38 to .57 .

A similar investigation by Bernreuter,[13] on his Self-Sufficiency Test also revealed favourable results. He administered his questionnaire to a male and female college population. Both groups were later given tasks to rate their peers on the personality traits involved in the questionnaire. In the final analysis of the data it was found that ratings of peers correlated positively with the scores on the Self-Sufficiency Test. The coefficient of correlation was found to be .44 .

The studies mentioned above, methodologically of similar nature, seemed to omit one important measure necessary in investigations of this type, that is, the establishment of the experimental test reliability in the given study setting.

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13 R.G. Bernreuter, "The Measurement of Self-Sufficiency", in Journal of Abnormal and Social Psychology, Vol. 28, No. 3, Oct.-Dec. 1933, p. 299.

In all cases, it appears that the reliability of the instruments was taken for granted for they were not reported in the publications.

Studies reporting little or no relationship between questionnaire scores and ratings of peers seem to suffer from the same omission as the above reported. Powell[14] reported a study, conducted on the Neurotic Tendency and Sociability scales of the Bernreuter Personality Inventory. Her attempt was to compare scores obtained on the inventory to ratings of peers obtained by a Guess Who technique describing major aspects of adjustment and maladjustment as measured by these scales. The final results presented little relationship between self ratings and ratings by peers. The median coefficients of correlation were found very low on both factors.

Oliver[15] sought relationship between inventory scores and ratings by peers on the traits of extroversion and introversion. His tools were Laird's Personnel Inventory, C.2, a self rating questionnaire, and Laird's Personnel Inventory, C.3, a rating technique by friends. The results of this investigation bore no meaningful relationships between self ratings

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14 M.G. Powell, "Comparison of Self-Rating, Peer Ratings and Expert's Ratings of Personality Adjustment", in Educational and Psychological Measurement, Vol. 8, No. 2, Summer 1948, p. 233.

15 R.A.C. Oliver, "The Traits of Extroverts and Introverts", in Journal of Social Psychology, Vol. 1, No. 3, Aug. 1930, p. 351.

and ratings by peers. Again, no mention is made of the experimental reliability of the instruments used.

3. Summary and the Hypothesis.

The majority of the studies reviewed have dealt with questionnaires developed by other than factor analytic procedures and therefore may have suffered from lack of purity which factor analytic methods of questionnaire construction profess to offer.[16]

Further analysis indicates that the investigations wherein the peer rating technique was exercised in the trait descriptions corresponding to the traits measured by the questionnaire, some success was achieved in finding significant relationships between scores on questionnaires and peer ratings.

If factorial analysis of personality traits results in the purity of findings i.e. isolation of independent traits, it should be evident that the traits thus measured by the items of a questionnaire should be indicative of the presence or absence of these traits in the respondent. If this is true, then the normal individual, provided with the corresponding trait descriptions should be able to identify a given trait's

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16 R.B. Cattell, "The Description of Personality: I. The Foundations of Trait Measurements", in Psychological Review, Vol. 50, No. 6, Nov. 1943, p. 593.

existence in his behavior, and secondly his peers should also be able to match him to the trait descriptions which the questionnaire purports to measure.

The task of this study therefore, was set to investigate whether the subject's responses to the items on the 16 P.F. Questionnaire form C (French), were indicators of the corresponding traits as countermeasured by peer's ratings. The problem for the purpose of this inquiry is stated in a form of a null hypothesis: there is no relationship between scores on the 16 P.F., and classmate's judgments on the Match Person With Trait Task.

The following chapter will deal with the development of the Match Person With Trait Task technique, and the research design of this investigation. The latter will include the description of the population, the tools used, procedures utilized, and the statistical methods employed.

CHAPTER II

EXPERIMENTAL DESIGN

In order to test the hypothesis stated in preceding chapter the writer developed a method which served as a peer rating technique. This chapter will describe the development of the Match Person With Trait Task, the population used in the study, the tools used, procedures utilized, and the statistical methods employed.

1. The Match Person With Trait Task.

The search for adequate tabulation and measure of peer ratings based on the descriptions of Cattell's sixteen source traits, excluding intelligence, lead the investigator to the examination of the various methods of peer ratings.

According to Symonds[1] one of the most promising peer rating techniques has been developed by Hartshorne and May.[2] This method was named the Guess Who test and formed of simply stated behavioral descriptions to which the subject was asked to respond by selecting a peer or peers who best fit the behavioral description.

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1 P.M. Symonds, Diagnosing Personality and Conduct, New York, The Century Co., 1931, 73 p.

2 H. Hartshorne, M.A. May, and J.B. Maller, Studies in Service and Self Control, New York, McMillan Co., 1929, p.77.

Both, Hartshorne and May[3] and Symonds,[4] have measured high reliability using this technique. The former obtained a reliability coefficients of .95 using the split-half technique, and the latter .88 by an unreported technique. Keisler[5] also reports reliabilities in the eighties using the Guess Who method. Considering the reported value of this technique and the simplicity of construction, this investigator chose to develop a similar method to measure peer judgments.

Of primary concern was the selection of adequate behavioral descriptions corresponding to the sixteen primary source traits isolated by Cattell.[6] Chosen was Cattell's[7] own simplified description of the sixteen factors into positive and negative poles. Thus each factor bears two behavioral descriptions, one which corresponds to a low score and the other with the high score obtainable on the 16 P.F. These descriptions provide thirty-two separate behavioral sets prepared for a naive population, thus hopefully more easily understood.

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3 Hartshorne, Op. Cit., p. 87.

4 Symonds, Op. Cit., p. 74.

5 E.R. Keisler, "An Improved Formula for Scoring Certain Guess Who Ratings at the Adolescent Level", in Journal of Educational Psychology, Vol. 45, No. 3, March 1954, p. 156.

6 R.B. Cattell, Handbook for the Sixteen Personality Factor Questionnaire, Champaign, Ill., Institute for Personality and Ability Testing, 1957, 10 p.

7 Cattell, Op. Cit., p. 9.

These thirty-two behavioral descriptions were then translated into the French language by a professional translator[8] and at the same time adapted for use on both male and female populations. The translation was read by Dayhaw[9] and found satisfactory. The following are the behavioral descriptions, in the translated form, as used in this investigation. Each description, in this presentation, is preceded by its factor symbol, position indicating correspondence to high or low score and the title. The listing may seem long to read but when the reader has become accustomed to the sixteen factors, each with their two poles, it loses much of its lengthy appearance.

Factor A, high score:- Warm.
A tendance à avoir un bon naturel et à être à l'aise; collabore et s'adapte facilement. Aime à traiter avec les gens, adore les activités sociales imposantes. Bon(bonne) organisateur(trice). Généreux(se) dans ses relations personnelles; ne craint pas tellement la critique; excelle à se rappeler les noms des personnes qu'il(elle) rencontre. Souvent on ne peut pas trop s'y fier pour s'acquitter d'un travail de précision ou de ses obligations.

Factor A, low score:- Aloof.
Semble plutôt sévère, froid(e) et réservé(e). S'attache plutôt aux choses qu'aux personnes. Aime travailler seul(e). Evite les conflits d'opinions. Dans sa façon d'agir et ses normes de conduite personnelle, montre de l'exactitude et de la rigidité. A l'occasion, peut être porté(e) à critiquer, à faire de l'obstruction ou à manquer d'indulgence.

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8 Robert Dubuc, B.A., Translator of French and English languages at the Canadian Broadcasting Corporation.

9 L.T. Dayhaw, Ph.D., Professor of Psychology, School of Psychology and Education, University of Ottawa.

Factor B, high score:- Bright.
Manifeste de la vivacité d'esprit, a une intelligence vive et brillante. Est habituellement persévérant(e), consciencieux(se), cultivé(e). A du caractère.
Factor B, low score:- Dull.
Semble plutôt lent(e) à saisir ou à apprendre quelquechose; terne et indolent(e); manifeste peu de goût et d'aptitude pour les formes supérieures du savoir; quelque peu rustaud(e) et grossier(ère).

Factor C, high score:- Emotional.
Semble posséder une certaine maturité émotive; est calme, phlegmatique, envisage la vie de façon réaliste; a de la force de caractère; possède une bonne philosophie de la vie; peut soutenir le bon esprit du groupe.
Factor C, low score:- Mature.
Donne des signes d'immaturité émotive; endure difficilement la contrariété; est évasif(ve); est restreint(e); est fuyant(e); se plaint souvent de fatigue; est facilement ennuyé(e) par les choses et les gens; est généralement mécontent(e); présente divers signes de troubles; craintes, troubles de sommeil etc.

Factor E, high score:- Submissive.
Semble être dominant(e), a confiance en soi; s'affirme souvent; est indépendant(e); s'attaque aux problèmes avec audace et courage.
Factor E, low score:- Dominant.
Porté(e) à être suiveur(se), à dépendre des autres, à suivre le groupe. Est sensible; est démonstratif(ve); s'émeut facilement.

Factor F, high score:- Glum.
Porté(e) à être joyeux(se), volubile, franc(che), éveillé(e). Est souvent choisi(e) comme chef par scrutin populaire.
Factor F, low score:- Enthusiastic.
Est souvent taciturne, réservé(e); porté(e) à s'examiner; parfois renfermé(e), mélancolique, anxieux(se), déprimé(e), rébarbatif(ve), languissant(e) et lent(e).

Factor G, high score:- Casual.
Est porté(e) à avoir de la force de caractère, du sens de la responsabilité de la détermination, de la persévérance, de l'esprit de suite, de la prévoyance, de l'énergie et de la discipline. Habituellement consciencieux(se), et prévenant(e) pour autrui; possède de la maturité émotive; tient les principes moraux en haute estime; préfère les personnes efficaces.
Factor G, low score:- Conscientious.
Porté(e) à l'inconstance, à l'indécision; est instable, peu consciencieux(se), lâcheur(se). Parfois exigeant(e), impatient(e), indolent(e); est porté(e) à faire de l'obstruction; manque de principes de vie.

Factor H, high score:- Timid.
Est porté(e) à être sociable et bon(ne) collaborateur(trice), aime à expérimenter le nouveau, spontané(e) et démonstratif(ve). Est capable d'affronter les vicissitudes des relations avec les autres et de résoudre sans effort des conflits émotifs. Est enclin à être sentimental(e), manifeste de l'intérêt pour l'autre sexe.
Factor H, low score:- Adventurous.
Est porté(e) à être timide, effacé(e), circonspect(e). A habituellement des sentiments d'infériorité. A généralement de la difficulté à s'exprimer; déteste les rencontres personnelles; préfère avoir un(e) ou deux amis(es) intimes plutôt qu'un groupe d'amis(es); ne semble pas pouvoir suivre les événements de son milieu.

Factor I, high score:- Tough.
Serait plutôt délicat(e), a l'imagination féconde, émotif(ve). Est parfois exigeant(e) et idéaliste. Déteste les gens grossiers. Tend à ralentir l'activité du groupe et à affaiblir le moral par ses remarques négatives.
Factor I, low score:- Sensitive.
Est porté(e) à être pratique, réaliste, viril(e), indépendant(e), a le sens de ses responsabilités. Est parfois dur(e) et cynique. S'efforce de garder les activités de groupe dans les domaines du pratique.

Factor L, high score:- Trustful.
Porté(e) à la méfiance. A le culte du moi; est suffisant(e); s'intéresse à la vie intérieure, a la vie de l'esprit. Se soucie généralement peu des autres. Piètre équipier(ère).

Factor L, low score:- Suspecting.
Ne manifeste pas d'inclination à la jalousie; est souple, joyeux(se), calme; a le souci des autres; est bon(ne) équipier(ère).

Factor M, high score:- Conventional.
Est souvent non-conformiste, insouciant(e), bohème, égocentrique, sensible, imaginatif(ve). Porté(e) à faire des scènes, manque quelque peu du sens de ses responsabilités. A de la difficulté à se faire accepter par le groupe.

Factor M, low score:- Eccentric.
Paraît soucieux(se) de faire les choses comme il le faut, pratique s'en fait facilement; sait garder son sang-froid dans les circonstances imprévues; est souvent correct(e) jusqu'à la minutie.

Factor N, high score:- Simple.
Est porté(e) à être raffiné(e), a du savoir-faire, mondain(e). Parfois entêté(e), raisonné(e). Aborde les problèmes intellectuellement, objectivement.

Factor N, low score:- Sophisticated.
Semble plutôt naturel(le) et simple. Se contente de peu; est parfois grossier(ère) et maladroit(e).

Factor O, high score:- Confident.
A tendance à la dépression, aux sautes d'humeur; s'inquiète facilement et rumine ses problèmes, évite la société des autres; est inquiet(ète) de ses propres mouvements d'humeur. A tendance infantile à s'inquiéter en face des difficultés. Ne se sent ni accepté(e), ni à son aise dans les groupes.

Factor O, low score:- Insecure.
Semble d'une placidité imperturbable. A une confiance en soi, calme et posé(e); capable de faire face aux situations.

Factor Q1, high score:- Conservative.
Semble s'intéresser aux questions d'ordre intellectuel et aux problèmes fondamentaux; s'objecte souvent aux idées anciennes ou nouvelles. Est souvent bien renseigné(e); se sent moins enclin à faire la morale; se prête facilement à essayer du nouveau, s'accommode des inconvénients de la vie.
Factor Q1, low score:- Experienting.
Est souvent prudent(e) à l'excès et tempéré(e). S'oppose à tout changement.

Factor Q2, high score:- Dependent.
Est généralement indépendant(e), habitué(e) à agir à sa guise; sait prendre des décisions et agir en conséquence. Ne cherche pas nécessairement à dominer les autres.
Factor Q2, low score:- Self-Sufficient.
Préfère travailler et prendre ses décisions de concert avec d'autres; aime à se faire accepter et admirer par la société. Est parfois irrésolu(e).

Factor Q3, high score:- Lax.
Maîtrise bien ses émotions et sa conduite en général. Est plutôt prévenant(e) et prudent(e), mais est porté(e) parfois à l'entêtement.
Factor Q3, low score:- Controlled.
Porté(e) à manquer de volonté et de stabilité de caractère. Ne pêche ni par excès de prévenance ni de prudence.

Factor Q4, high score:- Stable.
Porté(e) à être irritable, agité(e), chagriné(e). Est souvent surmené(e), mais incapable de rester inactif(ve); ne voit pas favorablement l'unité de groupe, le bon ordre et la fonction de chef.
Factor Q4, low score:- Tense.
Semble posséder un bon équilibre émotif; est exempt(e) des différents symptomes de nervosité et d'instabilité.

The above descriptions were presented to the experimental population without the identifying factor symbols and indication of high or low score correspondence. They were

randomly mixed and typewritten on white (8 1/2"x 14") sheets of paper, giving sufficient space beside each description for the subject to write in the selected peers' names. At the top of each page the following instruction was written in capitals: "Associez les noms de deux de vos condisciples à chacune des descriptions suivantes:" The thirty-two descriptions appeared on five sheets. For each of the three experimental groups the sheets were bestiched together in Roman Square order to avoid the possibility of constant errors of practice or fatigue, and were preceded by a page of instructions which will be described in the section of this report dealing with experimental procedures.

2. The Population.

The criteria in the selection of the population for this study were: (a) knowledge of the French language as evidenced by inclusion in the French academic group of the high school, (b) a full time student status in grades eleven or twelve, and (c) a minimum of six months of familiarity with classmates.

The male group was made up of 195 students of the University of Ottawa High School, administered by the Roman Catholic order of Oblates of Mary Immaculate. The female groups were chosen from two sources. The Notre-Dame High School in Ottawa, administered by the Sisters of Notre-Dame

provided sixty-seven subjects, and the Pensionnat Notre-Dame-de-Lourdes of Eastview, administered by the Filles de la Sagesse, supplied ninety-four subjects. The mean age of the male group was 16.2, and the mean age of the female group was 16 .

The choice for such groups was prompted by their particular suitability to the 16 P.F.:

> The situation in which a shorter form is requested tend to coincide with those in which a lower level of literacy is to be expected and we decided accordingly to make the form C differ from the A and B forms by being shorter and also by making minimal demands on education and vocabulary.[10]

3. The Tools.

In this experiment two tools were used, 1. the 16 P.F. and 2. the Match Person With Trait Task. As already mentioned in the preceding chapter, the former was chosen for the purity of its factors as reported by Cattell,[11] and the second was constructed for its descriptive qualities of these factors measured by the 16 P.F.[12] The 16 P.F. was scored according to the orthodox method prescribed by the author.[13]

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10 Cattell, Op. Cit., p. 256.

11 Cattell, Op. Cit., p. 593.

12 Cattell, Op. Cit., p. 9.

13 Cattell, Op. Cit., p. 4.

The Match Person With Trait Task scoring was one of summing up the total number of times a student was selected for any one of the descriptions, corresponding to one of the thirty-two factor poles described in the first section of this chapter.

4. The Experimental Procedure.

For each of the three groups two testing sessions were necessary. First the administration of the 16 P.F. and secondly the Match Person With Trait Task. For both occasions, in each school, the testing situations were held constant in the following manner: in order to avoid the probable fatigue and the careless attitude often displayed by students with the anticipation of the weekend, testing sessions for both occasions were arranged for Mondays. During the testing sessions, the staff members of the schools were asked to be absent from the testing rooms in order to provide the subjects with a relatively unrestricted environment in responding to the test. The male subjects were provided with a large study room in the High school. Physical facilities were adequate, with proper lighting and ventilation. Both female groups were tested in the auditoriums of their respective schools, where comfortable seating and writing arrangements were provided.

The first session was devoted to the administration of the 16 P.F. After having been seated, the subjects received their copies of the test and were told not to turn the page until told to do so. Following this the subjects were greeted by the investigator and given standardized comments emphasizing the following points:

1. The tests were to be administered for research purposes only.
2. No one would have access to the individual results obtained from the tests except the researcher.
3. Full cooperation in the honesty of responses was essential to the usefulness of these test results.

Following these standardized comments the instructions were read verbatim to the subjects as each read his own copy. Upon completion of instructions testing commenced.

The administration of the Match Person With Trait Task followed seven days after the first session. The choice for this timing, was again to avoid the weekend fatigue previously mentioned. The second session was a less formal one, for acquaintance with the experimenter had already been established in the first session. The subjects were greeted and the mimeographed task material distributed. Again the subjects were asked not to turn the page until instructed to do so. The subjects were then asked to read the following standardized instructions while the administrator read aloud:

L'expérience à laquelle vous allez participer servira à compléter le test que vous avez pris il y a quelques jours. Il ne s'agit pas d'un examen, ni d'un test. Vous aidez l'expérimentateur à trouver certaines choses qu'il cherche concernant la mesure en psychologie. Les succès de cette expérience dépend de votre collaboration et de votre jugement.

A l'intérieur de ces quelques pages vous trouverez des paragraphes qui décrivent des personnes. Ils sont tous différents les uns des autres. On vous demande de lire chacune de ces descriptions et de choisir deux de vos condisciples qui ressemblent le plus aux caractéristiques que vous êtes en train de lire. Ne lisez pas à l'avance. Lisez un paragraphe à la fois et nommez deux condisciples qui répondent le mieux à la description. Si l'une ou l'autre de ces descriptions s'applique à vous, mettez votre nom sur la ligne pointillée.

Par exemple:

Manifeste de la vivacité d'esprit, a une intelligence vive et brillante. Est habituellement persévérant(e), consciencieux(se), cultivé(e). A du caractère.

Efforcez-vous d'être le plus objectif et le plus exact possible sans perdre trop de temps à réfléchir. Puisqu'il s'agit ici d'une expérience scientifique, les résultats resteront confidentiels et ne serviront qu'à améliorer notre connaissance des personnes. Vous n'avez pas besoin de mettre votre nom sur cette page, mais si vous le mettez, l'expérimentateur aura plus de renseignements sur son expérience. Par conséquent, vous pouvez rester anonyme ou inscrire votre nom, comme il vous plaît.

After reading of these instructions the task commenced.

The investigator, through informal observation, during both testing sessions, was satisfied that the subjects were serious and interested in participating in this project.

5. Statistical Methods.

For each of the three groups the same statistical methods were employed. The 16 P.F. questionnaires were scored and the Match Person With Trait Task data was tabulated.

Since the investigator sought to establish a relationship between scores on the 16 P.F. and judgments of peers on the traits measured by the questionnaire, the individuals had to be dichotomized for each factor on the basis of peer ratings as measured by the Match Person With Trait Task, as those hypothetically to be high scoring and low scoring on the 16 P.F. In order to obtain this dichotomy, peer rating frequencies were used. Thus for every individual each of the 16 P.F. factors, dichotomized into positive and negative poles were frequencies of peer selections. The preponderance of frequencies in either pole established the individual's position in the dichotomy. Considering the fact, that all individuals are not equally known by one another, a basis for further differentiation was established. First those individuals were selected whose preponderance of vote frequencies in one of the two categories was only one, secondly those with a preponderance of two and finally those with three. Further differentiation by predominance of vote frequencies in one of the two categories was made impossible due to the reduction of the sample with each increase in differentiation. The differentiated samples, by preponderance of frequencies, will from

here on be referred to as majorities one, two and three.

Thus having established dichotomies for each factor, the 16 P.F. scores of the individuals selected in the positive pole i.e. hypothetically high scoring group, were compared to the scores of individuals selected in the negative pole i.e. hypothetically low scoring group, by means of a t test employing the following formula:[14]

$$1.\quad \sigma_{cG} = \sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{N_1 + N_2 - 2}}$$

$$2.\quad \sigma_D = \sigma_{cG} \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}$$

$$3.\quad t = \frac{D}{\sigma_D}$$

This formula was chosen due to the small sample present in the poles compared.

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14 L.T. Dayhaw, Manuel de Statistique, Ottawa, Editions de l'Université d'Ottawa, 1958, p. 361.

The two female groups were combined after it was ascertained by means of an F test that no significant difference exists between the scores of each group on the fifteen factors dealt with. To combine the groups the following formula was used:[15]

$$\Sigma x^2_t = (\Sigma x^2_a + \Sigma x^2_b) + (n_a d^2_a + n_b d^2_b)$$

The experimental reliability of the 16 P.F. was determined by means of the Pearson r, coefficient of correlation by the following formula:[16]

$$r^2 = \frac{[N\Sigma XY - (\Sigma X)(\Sigma Y)]^2}{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}$$

The coefficients of correlation were corrected by the Spearman-Brown formula:[17]

$$r_{tt} = \frac{2r_{hh}}{1 + r_{hh}}$$

Since each page bore the same number of items equally weighted only the pages had to be re-arranged to split the whole

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15 J.P. Guilford, Fundamental Statistics in Psychology and Education, New York, McGraw-Hill, 1956, p. 510.

16 Guilford, Op. Cit., p. 141.

17 Guilford, Op. Cit., p. 452.

test into two halves. Pages two, five and six constituted one half, and pages three, four and seven constituted the other half.

The following chapter will be devoted to the discussion of results and suggestions for further research.

CHAPTER III

THE RESULTS AND THEIR INTERPRETATION

Before attempting to present and discuss the results, it seems appropriate to begin this chapter with a study of the reliability of the tools. Subsequently there will be three parts to the comparison between 16 P.F. Scores and Peer Ratings: the male, the female, and the two compared. Finally these results will be interpreted. The *t* tests will be presented in Appendices one to five, because of their volume; but to facilitate communication, the reader will have the more pertinent data in table form in the body of this chapter.

1. The Reliability of the Tools.

Since it was not feasible to check the reliability of the 16 P.F. by the test-retest method, coefficients of reliability were calculated by the split-half technique, following the procedures described in the preceding chapter. Testing these coefficients of correlation for significant differences from zero, factors A, E, F, I, M, N, and Q1, of the male group were found to be significant at the .01 level of probability. In the female group only factors A, C, F, and F, reached this level of significance. Table I on the following page presents the results of this study.

Table I.-

Reliabilities of the 16 P.F. Obtained on Two Groups by the Split-Half Method.[1] (N:100).

Factor	Title	r Male	r Female
A,	Aloof vs Warm	.309	.397
C,	Emotional vs Mature	.235	.347
E,	Submissive vs Dominant	.500	.424
F,	Glum vs Enthusiastic	.748	.459
G,	Casual vs Conscientious	.261	.239
H,	Timid vs Adventurous	-.035	-.346
I,	Tough vs Sensitive	.472	.002
L,	Trustful vs Suspecting	.051	.099
M,	Conventional vs Eccentric	.359	-.110
N,	Simple vs Sophisticated	.363	-.101
O,	Confident vs Insecure	-.024	-.133
Q1,	Conservative vs Experimenting	.309	.172
Q2,	Dependent vs Self-Sufficient	-.090	.229
Q3,	Lax vs Controlled	.145	.295
Q4,	Stable vs Tense	.174	.268

1 Corrected by the Spearman-Brown Formula.

A type of "response matching" reliability estimation was performed on the Match Person With Trait Test as the best substitute for test-retest and split-half techniques, which were not utilized because of administrative obstacles and test design characteristics. This approach to reliability estimation will now be described.

In the administration of the Match Person With Trait Task, the subjects were informed that anonymity was permissible, but that, if they revealed their identity, they would better assist the investigator. Thus 38% of the male group and 42% of the female group signed their names to the Task. Using these signed papers it was possible to ascertain the trait descriptions with which the subject had identified himself i.e. wrote his own name beside a given trait description or descriptions. Thus after the votes given an individual on all descriptions by all the judges were tallied, it was possible to learn the number of times he indicated himself as possessing a certain trait, and further to discover, whether the votes of others agreed or disagreed with his judgment regarding self. If disagreement was shown between self judgment and judgments of others on a given trait, for the purpose of this reliability study, further differentiation was made to indicate disagreement by one vote or by more than one vote. The traits with which the individual did not identify himself were also considered, since lack of self and peer

agreement that the trait in question was not possessed; on the other hand, discrepancy between self and peer ratings meant disagreement. This disagreement was also differentiated to indicate disagreement by one and by more than one.

Hence, each factor was considered separately in the following manner: 1. In the case of the individuals who rated themselves four categories were set up: (a) the number of cases confirmed by peers' ratings; (b) the number of cases where one disagreement occurred in the peers' vote; (c) the number of cases where more than one disagreement occurred; and (d) the number of cases where no mention occurred in peers' votes. 2. In the case of individuals who have not rated themselves similar categories were set up: (a) the number of cases confirmed by peers' agreement; (b) the number of cases where one disagreement occurred in the peers' vote; and (c) the number of cases where more than one disagreement occurred in the peers' votes. Tables II, III, and IV, present separate findings for each school studied. The scrutiny of these tables reveals a close relationship between explicit self ratings and ratings by peers. Thus the subjects who revealed their identify and rated themselves in a given category agree largely with the opinion others have of them. In the category where individuals have not rated themselves as possessing a given trait less agreement was found with peers' ratings.

Table II.-

Analysis of Male Self Ratings to Cattell's 16 P.F. as Obtained by the Match Person With Trait Task (N:71).

Factor	Title	Self Rated Not Self Rated	Agreement	Disagreement by:1	Disagreement by:>1	Contradiction
A,	Warm vs	SR	31	0	0	0
	Aloof	NSR	9	18	13	0
C,	Emotional vs	SR	23	0	0	0
	Mature	NSR	15	15	18	0
E,	Submissive vs	SR	16	1	1	0
	Dominant	NSR	13	17	23	0
F,	Glum, Silent vs	SR	21	0	1	0
	Enthusiastic	NSR	15	11	23	0
G,	Casual vs	SR	24	0	0	0
	Conscientious	NSR	15	14	18	0
H,	Timid	SR	26	1	1	0
	Adventurous	NSR	10	13	20	0
I,	Tough vs	SR	20	1	2	0
	Sensitive	NSR	13	20	15	0
L,	Trustful vs	SR	18	1	1	0
	Suspecting	NSR	16	14	21	0
M,	Conventional vs	SR	14	0	1	0
	Eccentric	NSR	12	21	23	0
N,	Simple vs	SR	18	0	0	0
	Sophisticated	NSR	15	18	20	0
O,	Confident vs	SR	22	0	3	0
	Insecure	NSR	8	19	19	0
Q1,	Conservative vs	SR	13	0	1	0
	Experimenting	NSR	16	21	20	0
Q2,	Dependent vs	SR	16	0	1	0
	Self Sufficient	NSR	17	15	22	0
Q3,	Lax vs	SR	18	3	2	0
	Controlled	NSR	16	17	15	0
Q4,	Stable vs	SR	27	1	0	0
	Tense	NSR	13	16	14	0

Table III.-

Analysis of Female Self Ratings to Cattell's 16 P.F. as Obtained by the Match Person With Trait Task (N:30).

Factor	Title	Self Rated / Not Self Rated	Agreement	Disagreement by:1	Disagreement by:>1	Contradiction
A,	Warm vs	SR	13	1	0	1
	Aloof	NSR	3	7	5	0
C,	Emotional vs	SR	7	0	0	0
	Mature	NSR	6	7	10	0
E,	Submissive vs	SR	9	0	0	0
	Dominant	NSR	8	7	6	0
F,	Glum, Silent vs	SR	10	0	0	1
	Enthusiastic	NSR	7	7	5	0
G,	Casual vs	SR	11	0	0	0
	Conscientious	NSR	5	3	11	0
H,	Timid vs	SR	9	0	0	1
	Adventurous	NSR	6	7	7	0
I,	Tough vs	SR	8	0	0	0
	Sensitive	NSR	6	10	6	0
L,	Trustful vs	SR	6	0	0	0
	Suspecting	NSR	9	7	8	0
M,	Conventional vs	SR	10	1	0	0
	Eccentric	NSR	7	4	8	0
N,	Simple vs	SR	5	0	0	0
	Sophisticated	NSR	5	10	10	0
O,	Confident vs	SR	14	0	0	1
	Insecure	NSR	5	3	7	0
Q1,	Conservative vs	SR	7	0	1	1
	Experimenting	NSR	5	7	9	0
Q2,	Dependent vs	SR	7	0	0	0
	Self Sufficient	NSR	5	8	10	0
Q3,	Lax vs	SR	7	0	0	0
	Controlled	NSR	5	9	9	0
Q4,	Stable vs	SR	12	0	0	0
	Tense	NSR	5	7	6	0

Table IV.-

Analysis of Female Self Ratings to Cattell's 16 P.F. as Obtained by the Match Person With Trait Task (N:39).

Factor	Title	Self Rated / Not Self Rated	Agreement	Disagreement by:1	Disagreement by:>1	Contradiction
A,	Warm vs Aloof	SR	11	0	0	0
		NSR	4	9	15	0
C,	Emotional vs Mature	SR	12	0	0	1
		NSR	2	12	12	0
E,	Submissive vs Dominant	SR	8	0	0	0
		NSR	3	11	17	0
F,	Glum, Silent vs Enthusiastic	SR	10	0	0	0
		NSR	9	8	12	0
G,	Casual vs Conscientious	SR	11	0	0	0
		NSR	5	7	16	0
H,	Timid vs Adventurous	SR	10	1	0	0
		NSR	3	10	15	0
I,	Tough vs Sensitive	SR	9	0	0	0
		NSR	11	10	9	0
L,	Trustful vs Suspecting	SR	4	0	0	0
		NSR	6	11	18	0
M,	Conventional vs Eccentric	SR	8	0	2	0
		NSR	9	9	11	0
N,	Simple vs Sophisticated	SR	11	0	0	0
		NSR	11	5	12	0
O,	Confident vs Insecure	SR	10	0	1	0
		NSR	8	5	15	0
Q1,	Conservative vs Experimenting	SR	7	0	0	0
		NSR	14	8	10	0
Q2,	Dependent vs Self Sufficient	SR	7	0	0	0
		NSR	17	9	6	0
Q3,	Lax vs Controlled	SR	6	1	0	0
		NSR	5	10	17	0
Q4,	Stable vs Tense	SR	15	0	0	0
		NSR	12	3	9	0

2. Relationships Between 16 P.F. Scores and Peer Ratings.

Now attention will center on the male group first of all, then on the female group; finally a comparison will be made between the two groups.

The Male Group. To repeat, here we compare individuals rated by peers as belonging to one pole of a 16 P.F. factor to individuals rated by peers as belonging to the opposite pole of the same factor. They are compared on the basis of their 16 P.F. scores. Significant differences were found for factors: A (Aloof versus Warm), F (Glum, Silent versus Enthusiastic), M (Conventional versus Eccentric) and Q1 (Conservative versus Experimenting). The remaining eleven factors revealed no significant relationships between scores on the 16 P.F. and ratings of peers. Table V, presents the statistical results obtained on the above named factors. It is of interest to note that these significant factor findings correspond with the factors which have been found significant in the reliability study of the 16 P.F. as seen in Table I, page 27 .

The Female Group. Since two female groups were used each will be reported separately and then the combined results will be presented.

School "A" results show significant relationships between scores on the 16 P.F. and ratings of peers on factors F (Glum, Silent versus Enthusiastic), H (Timid versus Adventurous), N (Simple versus Sophisticated), O (Confident versus

Table V.-

Means, Differences between 16 P.F. scores and t's Obtained From the Male Group on Factors Related to Peer Ratings.

Factor	N	M	D	t	p
A[1]	66 74	7.39 6.34	1.05	2.853	.01
F[2]	39 48	8.03 6.40	1.63	2.772	.01
M[1]	67 76	6.51 5.66	.85	2.237	.05
Q1[3]	17 10	6.76 4.60	2.16	2.177	.05

1 Obtained at majority of one level.
2 Obtained at majority of two level.
3 Obtained at majority of three level.

Insecure), Q2 (Dependent versus Self-Sufficient), and Q4 (Stable versus Tense). The nine remaining factors were found below a level of significant relationship between ratings of peers and self ratings on the 16 P.F.

Results obtained from the school "B" group, indicate significant relationships for factors A (Aloof versus Warm), and F (Glum, Silent versus Enthusiastic). The remaining thirteen factors did not show significant relationships between self rating on the 16 P.F. and ratings by peers. Table VI, presents the results of the significant findings in both schools.

Combining the two female groups the following factors were found to bear significant relationships with peer ratings: A (Aloof versus Warm), F (Glum, Silent versus Enthusiastic), H (Timid versus Adventurous), N (Simple versus Sophisticated), O (Confident versus Insecure), Q3 (Lax versus Controlled), and Q4 (Stable versus Tense). The comparison of the remaining eight factors with peer ratings did not show significant findings. Table VII provides the statistical data of the factors where significant relationships were found.

Comparing the findings obtained from the male and female groups it was discovered that the 16 P.F. factors found significantly related to peer ratings were not all the same for both groups. Those found significant in the male group were the factors which yielded significant reliability coeffi-

Table VI.-

Means, Differences between 16 P.F. scores and t's Obtained From the Two Female Groups on the Factors Related to Peer Ratings.

School	Factor	N	M	D	t	p
A	F^2	16 23	8.31 6.00	2.31	2.499	.02
	H^3	16 16	6.37 5.00	1.37	2.025	.05
	N^3	13 13	5.92 4.61	1.31	2.466	.05
	O^1	15 27	7.13 5.11	2.02	3.133	.01
	$Q2^1$	15 13	7.87 6.38	1.49	3.458	.01
	$Q4^1$	15 31	7.87 5.97	1.90	2.712	.01
B	A^2	13 19	8.77 6.63	2.14	2.765	.01
	F^3	8 10	9.25 6.10	3.15	3.001	.01

1 Obtained at majority of one level.
2 Obtained at majority of two level.
3 Obtained at majority of three level.

Table VII.-

Means, Variances and t's for the Combined Groups of Females.

Factor	N	M	σ^2	t	p
A[1]	56 63	7.30 7.11	5.7845 5.0188	2.263	.05
P[3]	20 20	9.00 5.85	6.5003 4.7275	4.200	.001
H[3]	29 29	6.79 5.69	4.2054 3.3179	2.157	.05
N[1]	51 62	6.37 5.47	3.3944 4.2478	2.432	.02
O[2]	31 48	6.68 5.06	2.7334 4.9324	3.682	.01
Q3[1]	75 53	6.55 5.63	5.3438 5.6276	2.190	.05
Q4[2]	28 48	7.22 6.00	5.6013 5.4981	2.179	.05

1 Obtained at majority of one level.
2 Obtained at majority of two level.
3 Obtained at majority of three level.

cients of correlation measuring the 16 P.F. experimental reliability. The females on the other hand did not exhibit this phenomenon. Out of seven factors which were found significantly related to peer ratings only four corresponded to factors reliably measured by the 16 P.F. These comparisons are presented for the reader in Table VIII.

3. Interpretation of Results.

These findings for both the male and female groups must now be interpreted.

Perhaps the most important aspect to consider is the quality of the verbal description of the personality factor poles arrived at by factorial analysis. It is believed that the purity of a mathematically isolated personality factor will suffer when an attempt is made at a verbal representation of its behavioral components. The above reasoning was arrived at by the empirical inspection of the factor pole descriptions used in this study. It was found that there is considerable overlapping in these descriptions thus making specific differentiations difficult for the raters.

Next in order attention should be centered on the analysis of the social quality of these behavioral descriptions. Upon examining them it becomes evident that some factors may bear a greater amount of socially undesirable behavioral components than others; as a result, they may not lend themselves

Table VIII.-

Comparison of Significant Factors, for the Male and Female Groups, to the Corresponding Coefficients of Reliability on the 16 P.F.

Factor	t		r	
	Male	Female	Male	Female
A	2.853	2.263	.309	.397
F	2.772	4.200	.748	.459
H		2.157		-.346
M	2.237		.359	
N		2.432		-.101
O		3.602		-.133
Q1	2.177		.309	
Q3		2.190		.295
Q4		2.179		.268

as readily to identification of peers or self by the raters. To substantiate this possibility the writer asked thirty-six graduate students of the School of Psychology and Education of the University of Ottawa to read each behavioral description and indicate the social acceptability of each factor for males and females. The factors predominantly mentioned as more socially acceptable corresponded to those which have been found significant in the main study where self ratings on the 16 P.F. were compared to ratings of peers. Thus a two-fold possibility emerges: a) those factors which bear more social acceptability are easily discerned and reported objectively by the adolescents of this study, hence the correct judgment of peers on the traits and the resultant identification of those self rated on the 16 P.F. b) the items on the 16 P.F. corresponding to these socially accepted traits present less difficulty in self identification; hence less hesitation is required by the adolescent to respond to the item spontaneously.

The presence of more 16 P.F. factors related to ratings by peers in the female group might be attributed to the possibility that females of that age, education and experience are probably more perceptive, have more insight and social experience on the factors where relationships were found between self ratings on the 16 P.F. and ratings by peers.

Finally the coefficients of reliability of the fifteen factors found by the split-half correlation method, call for much caution and reserve in the interpretations of the findings in this study.

These results tend to reject the null hypothesis, that there is no relationship between the scores on the 16 P.F. and classmate's judgments on the Match Person With Trait Task, for factors A, F, M, and Q1, in the male group and for factors A, F, H, I, O, Q3, and Q4, in the female group.

SUMMARY AND CONCLUSIONS

In this investigation seeking relationships between self ratings i.e., scores on the 16 P.F., French Form 'C', and ratings of peers, significant relationships were found to exist for factors A, F, M, and Q1 in the male group, and factors A, F, H, N, O, Q3, and Q4 in the female group.

The analysis of these findings seems to indicate a variety of possible conclusions.

The difficulty in translating pure factorial entities into behavioral descriptions may have affected the reliability of the items. The social acceptability of the factor descriptions, hypothetically different for males and females, could have brought about the relationships reported. The lack of such social acceptability, on the other hand could have caused an inconsistency of ratings with a consequent lack of relationships between self ratings and ratings of peers.

The presence of more personality factors significantly related to peer ratings in the female group might be attributed to the possibility that females of that age, education and experience are more perceptive, have more insight and social experience related to these factors.

Conclusions of this investigation must be restricted to speculation because of the low reliability coefficients

found in the experimental study of the instruments.

Two suggestions emerge from this study for possible further investigations.

An attempt should be made to determine for male and female populations the social acceptability of response to factor descriptions and the items on the 16 P.F.

Secondly, overlapping of factor descriptions should be studied and ameliorated to obtain a closer parallel between the factor purity and its behavioral panorama.

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A description of various methods of rating techniques. Essential in providing information about the Guess Who technique which was partially adopted in this investigation.

APPENDICES

APPENDIX 1

STATISTICAL DATA FOR MALES

Factor and Majority	N	M	Σx^2	D	t	p
A,1	66	7.39	251.62			
	74	6.34	364.88	1.05	2.853	.01
A,2	39	7.46	155.63			
	36	6.42	172.88	1.04	2.114	.05
A,3	21	6.62	74.86			
	16	6.06	68.88	.56	.830	
C,1	74	5.78	402.66			
	63	5.52	309.69	.26	.655	
C,2	45	5.82	298.47			
	30	5.30	116.30	.52	.929	
C,3	31	6.16	238.33			
	23	5.13	91.68	1.03	1.493	
E,1	65	4.71	530.71			
	78	4.77	453.62	.06	.136	
E,2	42	5.05	353.80			
	46	4.59	215.24	.46	.836	
E,3	30	5.27	271.78			
	27	4.74	147.25	.53	.901	
F,1	55	7.89	385.23			
	74	6.62	559.26	1.27	2.602	.01
F,2	39	8.03	278.94			
	48	6.40	345.48	1.63	2.772	.01
F,3	28	7.96	182.92			
	27	6.04	198.92	1.92	2.648	.01
G,1	66	7.20	412.44			
	66	6.56	286.02	.64	1.592	
G,2	40	7.45	239.80			
	44	6.86	181.20	.59	1.190	
G,3	25	6.76	82.62			
	29	6.83	116.17	.07	.132	

STATISTICAL DATA FOR MALES (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
H,1	81	7.23	388.31			
	69	6.58	303.06	.65	1.868	
H,2	53	7.07	255.44			
	40	6.40	149.60	.68	1.519	
H,3	34	7.47	166.44			
	21	6.52	47.23	.95	1.709	
I,1	76	4.89	611.00			
	59	4.39	241.91	.50	1.142	
I,2	38	5.32	324.76			
	31	4.42	125.96	.90	1.440	
I,3	20	5.85	190.50			
	19	4.74	79.73	1.11	1.279	
L,1	64	5.27	330.30			
	72	4.75	286.82	.52	1.402	
L,2	36	4.86	174.32			
	44	4.75	158.14	.11	.123	
L,3	17	5.18	92.43			
	25	4.16	83.47	1.02	1.543	
M,1	67	6.51	314.74			
	76	5.66	457.44	.85	2.237	.05
M,2	31	6.93	173.72			
	36	5.78	212.28	1.15	1.926	
M,3	13	6.31	88.82			
	22	6.04	144.92	.27	.291	
N,1	67	5.89	234.13			
	76	5.95	413.60	.06	.167	
N,2	41	5.83	145.85			
	44	5.64	208.20	.19	.301	
N,3	24	6.08	97.92			
	23	5.74	126.49	.34	.499	

STATISTICAL DATA FOR MALES (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
O,1	67	5.46	358.55			
	77	5.34	453.56	.12	.316	
O,2	40	5.65	215.00			
	45	5.29	267.06	.36	.688	
O,3	20	5.60	62.80			
	32	5.38	161.36	.22	.365	
Q1,1	58	5.71	316.01			
	68	5.47	328.94	.24	.588	
Q1,2	32	6.22	209.47			
	24	5.38	103.63	.84	1.292	
Q1,3	17	6.76	113.06			
	10	4.60	34.40	2.16	2.177	.05
Q2,1	70	7.66	199.77			
	59	7.61	232.03	.05	.153	
Q2,2	43	7.56	110.60			
	35	7.29	141.14	.27	.651	
Q2,3	19	7.42	46.63			
	16	7.06	74.94	.36	.553	
Q3,1	78	6.55	399.31			
	63	6.03	367.94	.52	1.310	
Q3,2	39	6.41	233.44			
	32	5.50	228.00	.91	1.451	
Q3,3	20	5.75	103.75			
	17	5.47	86.24	.28	.364	
Q4,1	60	5.60	363.94			
	77	5.52	377.22	.08	.199	
Q4,2	35	5.63	186.17			
	39	5.74	186.97	.11	.207	
Q4,3	19	5.26	129.68			
	16	6.06	78.94	.80	.939	

APPENDIX 2

STATISTICAL DATA FOR FEMALES, SCHOOL "A"

Factor and Majority	N	M	Σx^2	D	t	p
A,1	32	6.78	209.52			
	35	7.26	176.77	.48	.805	
A,2	20	7.15	166.50			
	22	6.77	109.80	.38	.644	
A,3	12	6.75	110.22			
	10	5.90	20.90	.85	.884	
C,1	41	5.97	292.94			
	35	5.57	142.40	.40	.716	
C,2	25	6.40	160.00			
	19	5.79	79.08	.61	1.075	
C,3	19	6.63	124.48			
	11	5.91	64.93	.72	.731	
E,1	31	3.55	153.60			
	43	3.14	208.18	.41	.779	
E,2	22	3.95	104.90			
	27	2.85	143.34	1.10	1.667	
E,3	17	4.12	91.69			
	13	2.62	61.02	1.50	1.744	
F,1	24	7.67	139.36			
	37	6.67	188.15	1.00	1.619	
F,2	16	8.31	103.50			
	23	6.00	120.00	2.31	2.499	.02
F,3	12	8.83	75.68			
	10	5.60	68.40	3.23	2.811	.02
G,1	28	7.96	108.92			
	38	7.29	151.66	.67	1.334	
G,2	21	7.67	78.69			
	19	7.68	88.06	.01	.015	
G,3	16	7.56	69.88			
	12	7.83	65.68	.27	.310	

STATISTICAL DATA FOR FEMALES, SCHOOL "A" (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
H,1	49	5.61	255.53			
	28	5.18	68.04	.43	.610	
H,2	30	5.73	165.78			
	18	5.22	53.14	.51	.784	
H,3	16	6.37	65.80			
	16	5.00	44.00	1.37	2.025	.05
I,1	37	7.43	138.90			
	26	7.42	114.44	.01	.018	
I,2	17	8.35	91.84			
	14	7.21	72.30	1.14	1.328	
I,3	7	8.43	23.68			
	11	6.82	61.61	1.61	1.442	
L,1	35	5.00	204.00			
	41	5.15	175.02	.15	.288	
L,2	15	5.47	61.80			
	25	5.08	105.93	.39	.568	
L,3	8	5.00	39.00			
	16	5.25	76.96	.25	.116	
M,1	25	6.12	126.53			
	42	6.48	208.46	.36	.628	
M,2	12	6.50	69.00			
	22	6.59	117.36	.09	1.053	
M,3	5	7.40	21.20			
	15	6.13	83.78	1.27	1.018	
N,1	28	6.21	62.60			
	34	5.53	130.44	.68	1.486	
N,2	22	5.86	42.60			
	24	5.25	70.44	.61	1.293	
N,3	13	5.92	14.97			
	13	4.61	29.05	1.31	2.466	.05

STATISTICAL DATA FOR FEMALES, SCHOOL "A" (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
0,1	33	6.45	126.10			
	36	5.25	160.66	1.20	2.346	.02
0,2	15	7.13	45.78			
	27	5.11	114.61	2.02	3.133	.01
0,3	10	7.10	32.90			
	16	4.75	70.96	2.35	2.803	.01
Q1,1	29	4.52	175.23			
	31	4.52	137.73	.00	.000	
Q1,2	18	4.78	107.14			
	11	4.36	46.55	.42	.460	
Q1,3	(N, too small)					
Q2,1	31	7.93	109.72			
	26	6.96	98.92	.97	1.872	
Q2,2	15	7.87	61.78			
	13	6.38	57.02	1.49	3.450	.01
Q2,3	7	7.86	12.86			
	5	6.00	10.00	1.86	2.236	.05
Q3,1	43	6.28	190.72			
	34	5.68	167.36	.60	1.196	
Q3,2	24	6.55	85.90			
	21	5.86	108.58	.69	1.086	
Q3,3	14	6.71	34.80			
	10	6.20	89.60	.51	.518	
Q4,1	29	7.69	160.32			
	41	6.32	214.78	1.37	2.404	.02
Q4,2	15	7.87	57.78			
	31	5.97	158.94	1.90	2.712	.01
Q4,3	8	8.12	8.84			
	19	6.10	89.79	2.02	2.413	.05

APPENDIX 3

STATISTICAL DATA FOR FEMALES, SCHOOL "B"

Factor and Majority	N	M	Σx^2	D	t	p
A,1	24	8.00	94.00			
	28	6.93	137.72	1.07	1.787	
A,2	13	8.77	36.27			
	19	6.63	102.48	2.14	2.765	.01
A,3	7	9.00	16.00			
	10	6.90	48.90	2.10	2.049	
C,1	27	7.11	190.61			
	28	5.89	188.82	1.22	1.692	
C,2	17	7.18	154.43			
	14	5.57	111.36	1.61	1.474	
C,3	11	6.91	82.93			
	9	6.22	71.57	.69	.524	
E,1	20	4.75	113.70			
	33	4.27	166.45	.48	.723	
E,2	14	4.64	75.22			
	20	4.80	67.20	.16	.202	
E,3	9	4.22	51.57			
	9	4.44	34.19	.22	.202	
F,1	17	8.94	94.88			
	30	7.27	199.78	1.67	2.150	.05
F,2	11	9.09	88.93			
	17	7.23	89.01	1.86	1.838	
F,3	8	9.25	53.48			
	10	6.10	24.90	3.15	3.001	.01
G,1	24	7.46	127.92			
	28	6.86	205.44	.60	.830	
G,2	16	7.44	81.88			
	17	6.41	164.15	1.03	1.050	
G,3	9	7.11	34.87			
	11	5.64	92.55	1.47	1.230	

STATISTICAL DATA FOR FEMALES, SCHOOL "B" (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
H,1	30	6.83	156.20			
	23	6.61	69.43	.22	.378	
H,2	19	6.79	105.08			
	15	6.67	37.35	.12	.169	
H,3	13	7.31	50.82			
	13	6.54	35.21	.77	1.037	
I,1	22	8.09	113.86			
	27	7.74	155.25	.35	.509	
I,2	9	8.44	28.19			
	13	8.23	72.27	.21	.457	
I,3	6	8.33	9.34			
	10	7.90	56.90	.43	.349	
L,1	24	4.79	145.86			
	28	4.86	157.44	.07	.091	
L,2	12	4.92	48.96			
	17	4.88	103.69	.04	.045	
L,3	8	4.87	10.90			
	11	4.36	54.55	.51	.560	
M,1	17	6.23	63.01			
	32	5.87	157.60	.36	.554	
M,2	12	6.67	52.68			
	21	6.00	88.00	.67	.869	
M,3	7	6.14	40.86			
	9	6.44	32.15	.30	.137	
N,1	23	6.56	109.57			
	28	5.39	132.62	1.17	1.594	
N,2	16	6.94	82.88			
	16	5.62	59.80	1.32	1.713	
N,3	10	7.50	66.50			
	10	5.90	48.90	1.60	1.413	

STATISTICAL DATA FOR FEMALES, SCHOOL "B" (Cont'd.)

Factor and Majority	N	M	Σx^2	D	t	p
O,1	23	5.74	92.49			
	24	5.04	124.92	.70	1.091	
O,2	16	6.25	32.96			
	21	5.00	122.00	1.25	1.791	
O,3	10	6.10	20.90			
	12	5.17	57.68	.93	1.096	
Q1,1	24	4.87	204.70			
	24	4.71	76.86	.16	.224	
Q1,2	12	4.83	113.68			
	14	4.86	57.72	.03	.033	
Q1,3	7	6.00	70.00			
	10	4.70	46.10	1.30	.948	
Q2,1	28	8.14	133.44			
	23	7.87	74.71	.27	.466	
Q2,2	18	8.11	97.74			
	12	7.58	26.96	.53	.674	
Q2,3	11	8.09	56.93			
	7	7.28	17.44	.81	.777	
Q3,1	32	6.91	202.78			
	19	5.53	130.72	1.38	1.826	
Q3,2	18	6.55	118.40			
	14	5.64	109.22	.91	.927	
Q3,3	13	6.38	111.02			
	10	5.10	46.90	1.28	1.148	
Q4,1	21	6.48	185.23			
	31	6.61	193.29	.13	.169	
Q4,2	13	6.46	85.21			
	17	6.06	104.88	.40	.416	
Q4,3[1]						

1 N too small for computation of t.

APPENDIX 4

STATISTICAL DATA FOR SCHOOLS "A" AND "B" COMBINED

Factor and Majority	N	M	σ^2	t	p
A,1	56	7.30	5.7845		
	63	7.11	5.0188	2.263	.05
A,2	33	7.79	6.7711		
	41	6.71	5.1825	1.862	
A,3	19	7.58	7.8211		
	20	6.40	3.7400	1.532	
C,1	68	6.42	7.4222		
	63	5.71	5.2827	1.614	
C,2	42	6.72	7.6330		
	33	5.70	5.7827	1.708	
C,3	30	6.73	6.9319		
	20	6.05	6.8488	.895	
E,1	51	4.02	5.5844		
	76	3.63	5.2430	.929	
E,2	36	4.22	5.1165		
	47	3.68	5.4091	1.059	
E,3	26	4.15	5.5123		
	22	3.36	5.1285	1.179	
F,1	41	8.44	6.1639		
	67	6.94	5.8790	3.061	.01
F,2	27	8.63	7.2739		
	40	6.52	5.5949	3.297	.01
F,3	20	9.00	6.5003		
	20	5.85	4.7275	4.200	.001
G,1	52	7.73	4.6167		
	66	7.11	5.4558	1.512	
G,2	37	7.57	4.3527		
	36	7.08	7.4078	.860	
G,3	25	7.40	4.2367		
	23	7.22	8.0763	.861	

STATISTICAL DATA FOR SCHOOLS "A" AND "B" COMBINED (Cont'd.)

Factor and Majority	N	M	σ^2	t	p
H,1	79	6.07	5.5624		
	51	5.82	3.2018	.694	
H,2	49	6.14	5.7945		
	33	5.88	3.2634	.553	
H,3	29	6.79	4.2054		
	29	5.69	3.3179	2.157	.05
I,1	59	7.68	4.3859		
	53	7.58	5.1141	.244	
I,2	26	8.38	4.6184		
	27	7.70	5.6142	1.097	
I,3	13	8.36	2.5425		
	21	7.33	5.9343	1.522	
L,1	59	4.91	5.9405		
	69	5.03	4.8385	.293	
L,2	27	5.23	4.1769		
	42	5.00	5.0006	.442	
L,3	16	4.94	3.1230		
	27	4.89	5.0620	.081	
M,1	42	6.16	4.5158		
	74	6.22	5.0381	.143	
M,2	24	6.58	5.0772		
	43	6.30	4.8628	.491	
M,3	12	6.66	5.5576		
	24	6.25	4.8529	.506	
N,1	51	6.37	3.3944		
	62	5.47	4.2478	2.432	.02
N,2	38	6.31	3.5865		
	40	5.40	3.2889	2.167	.05
N,3	23	6.61	4.1557		
	23	5.17	3.7981	2.441	.02

STATISTICAL DATA FOR SCHOOLS "A" AND "B" COMBINED (Cont'd.)

Factor and Majority	N	M	σ^2	t	p
0,1	56	6.16	4.0254		
	60	5.17	4.7703	2.538	.02
0,2	31	6.68	2.7334		
	48	5.06	4.9324	3.682	.01
0,3	20	6.60	2.9400		
	28	4.93	4.6375	2.982	.01
Q1,1	53	4.68	7.1988		
	55	4.60	3.9105	.178	
Q1,2	30	4.80	7.3613		
	25	4.64	4.2324	.250	
Q1,3[1]					
Q2,1	59	8.03	4.1323		
	49	7.39	3.7497	1.684	
Q2,2	33	8.00	4.8482		
	25	6.96	3.7186	1.926	
Q2,3	18	8.00	3.8898		
	12	6.75	2.6849	1.894	
Q3,1	75	6.55	5.3438		
	53	5.63	5.6276	2.190	.05
Q3,2	42	6.55	4.8643		
	35	5.77	6.2345	1.444	
Q3,3	27	6.55	5.4279		
	20	5.65	7.1275	1.200	
Q4,1	50	7.18	7.2677		
	72	6.44	5.5494	1.574	
Q4,2	28	7.22	5.6013		
	48	6.00	5.4981	2.179	.05
Q4,3[2]					

1 Data too small.
2 Data too small.

APPENDIX 5

COMPARISON OF MALE AND FEMALE STATISTICAL DATA

Factor and Majority Number	Girls 1 t	Girls 2 t	Girls Combined t	Boys t
A,1	.805	1.787	2.263	2.853
A,2	.644	2.765	1.862	2.114
A,3	.864	2.049	1.532	.830
C,1	.716	1.692	1.614	.655
C,2	1.075	1.574	1.708	.929
C,3	.731	.524	.895	1.493
E,1	.779	.723	.929	.136
E,2	1.667	.202	1.059	.836
E,3	1.744	.202	1.179	.901
F,1	1.619	2.150	3.061	2.602
F,2	2.459	1.838	3.297	2.772
F,3	2.811	3.001	4.200	2.648
G,1	1.334	.830	1.512	1.592
G,2	.015	1.050	.860	1.190
G,3	.310	1.230	.861	.132
H,1	.610	.378	.694	1.868
H,2	.784	.169	.553	1.519
H,3	2.025	1.037	2.157	1.709
I,1	.018	.509	.244	1.142
I,2	1.328	.457	1.097	1.440
I,3	1.442	.349	1.552	1.279
L,1	.288	.091	.293	1.402
L,2	.568	.045	.442	.123
L,3	.116	.560	.081	1.543

COMPARISON OF MALE AND FEMALE STATISTICAL DATA
(Continued.)

Factor and Majority Number	Girls 1 t	Girls 2 t	Girls Combined t	Boys t
M,1	.628	.554	.143	2.237
M,2	1.053	.869	.491	1.926
M,3	1.018	.137	.506	.291
N,1	1.486	1.594	2.432	.167
N,2	1.293	1.713	2.167	.301
N,3	2.466	1.413	2.441	.499
O,1	2.346	1.091	2.538	.316
O,2	3.133	1.791	3.682	.688
O,3	2.803	1.096	2.982	.365
Q1,1	.000	.224	.178	.588
Q1,2	.460	.033	.250	1.292
Q1,3		.948		2.177
Q2,1	1.872	.466	1.684	.153
Q2,2	3.458	.674	1.926	.651
Q2,3	2.236	.777	1.894	.553
Q3,1	1.196	1.826	2.190	1.310
Q3,2	1.386	.927	1.444	1.451
Q3,3	.518	1.148	1.200	.364
Q4,1	2.404	.169	1.574	.199
Q4,2	2.712	.416	.416	.207
Q4,3	2.413			.939

APPENDIX 6

ABSTRACT OF

Relationship of Responses on the 16 Personality Factor Questionnaire, Form 'C' With Classmate's Judgments.[1]

The validity of personality questionnaires has in the past been approached by means of comparing scores obtained on the questionnaire to ratings of peers on the personality factors which the questionnaire purports to measure.

In this study a French translation of Cattell's 16 P.F. form 'C' and a peer rating task on the factor descriptions corresponding to the sixteen factors were employed.

It was hypothesized that there would be no relationship between scores on the 16 P.F. and ratings of peers.

To test the hypothesis a population of male and female French-Canadian high school students were chosen from grades eleven and twelve. Both groups were administered the 16 P.F. and a peer rating task. The scores of individuals rated by peers as belonging to one pole of the 16 P.F. factor were compared to individuals rated by peers as belonging to the opposite pole of the same factor.

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1 John O. Wyspianski, master's thesis presented to the School of Psychology and Education of the University of Ottawa, Ontario, April, 1961, vii-62 p.

Significant relationships were found between 16 P.F. scores and ratings of peers for factors A, F, M, and Q1, in the male group, and factors A, F, H, N, O, Q3, and Q4, in the female group. The above results tend to reject the null hypothesis for these factors.

The analysis of findings seemed to indicate a variety of possible conclusions.

The translation of pure factorial entities into behavioral descriptions may have affected the reliability of the items. The social acceptability of factor descriptions, hypothetically different for males and females, could have brought about the relationships reported.

The presence of more factors significantly related to peer ratings in the female group might be attributed to the possibility that females of that age, education and experience are more perceptive, have more insight and social experience to these factors.

Conclusions of this investigation must be restricted to speculation because of the low reliability coefficients found in the experimental study of the instruments.

Two suggestions for further research were made. An attempt to determine the social acceptability of factor descriptions, and a study of the overlapping of descriptions for possible amelioration to obtain a closer parallel between factor purity and its behavioral panorama.