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## TECHNICAL REPORT <br> ASD-TR-61-97

## Recurrent Personality Factors Based on Trait Ratings

By<br>Firnest C. Tupes<br>Raymond E. Christal


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\section*{ABSTRACT}

Inierculteistions among ratings on 35 personality traits, selected as representative of the personality domain, were obtsined for eight samples. These samples differed in length of acquaintanzeship from three days to more than a year; ir bind of acquaintancertip from assessmenal proyrams in a military training course to a fraternity house situstion; in. type of subject from airmen with only a high. school education to male and female undergroducte students to tirst-year graduate students; and in type of rater from very naive persons to clinical pzychologists and psychiatrists with years of experience in the evaluation oi parsonality. Centroid or multiplegroup factors were extracted and rotated orthogonally to simple structure. For one study, an independent solution was obtcined in which analytic rotations were accomplished on an IBM 650 computer using Kaiser's normal varimax criterion. Five lairly strony and recurent factors emerged trom each analysi: labeled as (1) Surgency, (2) Agreeableness, (3) Dependability. (1) Emoti..ar I Stability, and (5) Culture.
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\section*{RECURRENT PERSONALITY FACTORS BASED ON TRAIT RATINGS'}

\section*{INTRODUCTION}

The measurement of personality by means of trait ratings has a bistory of at least tifty :vits, dating back to the iavestiyations of Heymans 6 Wiersma ( 1909 ) in which 400 physiciens rated uver 2500 individuals. After a brief surge of interest in the area in the 1920 's, few resadrch studies were carried out on trait ratings until fairly recently. Several early inveatigators reported findings indicoting that ratings of personality traits wert quite uareliable, and thus not :ery useful measurements. At the some time, the increasing popelarity of the Gestalt and Dysamic Psychology theories with their view that mon must be studied as a whole parson in artion did little to itimulete interest in trajt measurement. However, the coscept of the "whole person," aith2ugh it may ultimately leod to qreatest accurocy of description and prediction, is unmanageable from a measurement point of view and will likely remain so for some time to come. Furihermore, as Cattell (1946) has pointed out, the trait concept does mot greclude the concept of the whole person, siace ary person can be raiquely and adequately deseribed by a combination of a number of independeat traits or focters. Althongh early studies indiceted persomality troit ratings to be unreljable (low roter aqreneme', uastoble (specific to the reting situction), and sontaminated by a lerge geantal toctry (baloi, Syaonds (1931) and Alpert (1937) comeleded that such deliciencies might be ourcome by the see of teinly lerge groups of reters who bove abserved the subjects' dop-to-dey betwice o are cecasidnothe period of tive, ad by requiriag the reting of serecal subjects on oee trait of atime, sether thea the reting of each subject on several traity of a lixe.

Several mcent studies bere born ond Symoads' and Allport's coaclasioss. Results from the Vetercas Adminisirotion Pesoerch Progpom on the Selectica of Clinical Psyehologists as reported by Kelly 6 Fiste (1951) tentetively injiceted thet retiogs on persomelity traits were predictive of future tedrovior. Iupes (1957, 1959) in studies using Air Force oflicer candidetes oed sealor Air Force oflicers as subjects found peet retiogs an persceality treits to be predictive of leter pertormance as second liestenemis in the cues of the officer coudidates. and to be reluled to


 though persoeality treil retings by a siagle reter mer be quite unelioble (abow .2 to .3 ), retimgs
 were quite setislectsry (.t 10.9). In pewtal, it mey be coacluded that rotings on perserality troits


 may be volidoted.



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scme or highly siailer veriables usiag beginaing graducte studeats in clinical psyctology for his sample. He obtained about the same factorial structure from rotings of the studeris by themselvos (self-ectisgs), by their peers, and by clinical pi.ychologists. Howewnr, a comparison of the fectors isoleted by Fiske with those defised by Catell is quite difficult, in spite of the foct thet the veriables used by Fiake in the main correspooded quite closely with those used by Cotiell. Sorer similarities cas be soted between the Cottell and riske foctars, but it is difficult to tell whether the differeaces observed are a function of divergent extrection and rotational philowophies, the noture of the semples rated, the settre of the rater groups, of the omission of 13 of the trutit variables from the Fiske study. Attempts to compore the reaults of either the Fiske of Cattell cmalymes with those found by other invertigotors are gearally futile, siace it is ravely possible to determine from the stedies whother all, some, or for thet matter, cuy of the variables used are similar frose one study to asother. When what might be corurrest foctors cre found (e.g. extroversion-introversion, emotionalitrstcility, and condarnity-independence), differences in the actere of veriables identilying these factors are such as to mote impossible any but subjective jodgrants as to their possible timilarities.

The preseat study was designed to help cicrify the persoality inuit-reting demein. Tio goel was to isolete macmisgful and reletivily isdependent troit-roting foctors which are waiversal enough to apperit in a variety of samples, and which ne aot unduly sensitive to the ratimg conditions or situetions.

\section*{METHOD}

Eight intercorrelation matrices were loctored and roloted orthogonally to approximete simple structure. \({ }^{2}\) The matrices mere selected in such a way that differtaces due to the tiaits tuted would be minimized, while dilf(ronces is the type of subjects, reters, and situetions would be maximized. Nowe of the analyses were caried out "blisd" (without ideatilicotion of the vaichles), wor wore they mode isdependebily of owe another. The qoal was to rotete the seperote loctor meatrices inte simile structure whle of the seme lime following ecceptod priscis!es of rotetion and arrivien of simpl: structure.

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All groups of subjects and raters are described below. Briefly, they diffe: in length of acquaintanceship from three days tc a year or more; in kind of acquaintanceship from assessment programs to a military trainin: \({ }^{\text {con }}\) arse to \(\alpha\) fraternity house situation; in type of subject from airmen with only a high srhool education to male and female undergraduate studerts to first-year graduate sludents; and in type of rater from very naive persons to clinical pisychologists or psychiatrists with years of experience in the evaluation of personality. It would appear that any factors comman to all of these groups would have a wide range of generality both in terms of type of subject and type of rating situation.

\section*{DESCRIPTION OF THE EIGHT STUDIE;S}

\section*{STUDY A. OCS 790-CASE SAMPLE}

The subjects were 790 male graduates of OCS Classes 49B, 50A, 50B, 50C, 51B, and 51D. The earliest class, 49B, was graduated in December 1949; the latest, 51D, was graduated in December 1951. All candidates in each class had been selected from a much larger number of applicants (selection ratio about ten applicants for each vacancy) on the basis of a board interview, a biographical inventory designed to measure leadership characteristics, and differential credit for completion of more than the required minimum of two years of college. For applicants on active duty in an enlisted status, an evaiuation form completed by the applicant's commanding officer was also considered. The a erage age was 23.6 years, with a standard deviation of 1.5 and a range of from 20.5 to 26.5 years. The average education was 3.6 years of college, with a standard deviation of 0.6 and a range of from 2 to 6 years. Distributions on both variables were decidedly skewed toward the lower end. Slightly over half of each class came from an enlisted status, with the others selected for OCS directly from civilian life.

Each OCS class was divided at the start of training into flights of from 25 to 30 candidates each. Each flight lived together in one dormitory, ate as a flight, and attended classes and drill as a flight. In fact, nearly all of each candidate's time was spent with his flight, and he soon became intimately acquainted with each of his fellow flight members. It was the well-organized OCS flight which constituted the rating group in the present study. Each cardidate rated all his fellow flight members and was in turn rated by all his feilow flight members on 30 of the 35 Cattell traits. Each rater was required to pick one-third of the group as best described by the definition at each end of each bipolar trait.

Lengths of acquaintanceship at time of rating varied from as little as three weeks for one class to one year in another (this class rated ench other six months after graduation from OCS at the end of an on-the-job training period at Lackland Air Force Base).

Product-moment intercorrelaticn matrices of the 30 traits were computed for each class separately. A final matrix was then obtained by taking the median corrolation between each pair of traits in the separate class matrices. Eignt factors were extracted from this matrix using the complete centroid method, and rotated to orthogoval simple structure.

\section*{STUDY B. OCS3-DAY ASSESSMENT SAMPLE}

The subjects were 125 male officer cundidates in OCS Class 55B, whose ages ranged from \(201 / 2\) through 27. A little more than half had no college training; about a fifth had some college; and about a fifth were college graduates. All had some provious Air Force enlisted service ranging from one year to seven, with a median of \(21 / 2\) years. The majority were planning on an Air Force career and all had been required to sign a contract for three years of commissloned service after graduation from OCS. All had been screened on a measure of general learning ability-the Officer Quality composite of the Air Force Offleer Qualifying Test. Eighty-five per cent of the class had OQ scores as high as the upper \(10 \%\) of the genoral population of young males and as the upper \(40 \%\) of college freshmen.

Ratings were obtained at the end of a three-day assessment program just prior to the start of OCS. Rating groups consisted of 12 candidates, six of whom had observed each other in an intensive series of group and individual performance testr, and six of whom had only shared a barrack floor anc dining table with the other six. Each rater was required to pi:k the four subjects who were best described by each end of the bipolar trait.

Five multiple group factors (corresponding to the five found in Study A) were extracted, along with three centroids. All eight factors were rotated to simple structure.

\section*{STUDY C. OCS END-OF-TRAINING A.SSESSMENT SAMPLE}

These are the same subjects who were used in Study B. At the end of the assessment, the groups were re-formed into OCS flights of from 15 to 20 candidates each. No two flight members had been members of the same assessment group. Near the end of the six-months OCS course, members of each flighic rated each ctiter on the 30 traits. Raters weie asked to pick the third who were best described by each end of each hipolar trait. These ratings, although based on the smme subjects, were entirely independent of the ratings analyzed in Study B.

Five multiple-group and three centroid frubors were extracted from these data and rotated to simple structure.

\section*{STUDY D. COMMAND AND STAFF SCHOOL SAMFLE}

The subjects were 500 students in the Air Force Command and S!aff School Class of 1958. These officers had been screened originally or about the same basis as the OCS samples. However, at the time the trait ratings were obtained the average Command and Staff School officer was about 15 years older and had approximately 15 more years of military experience than the average OCS subject. Nearly all of the officers rated held the rank of major, although the sample included a fow holding the rank of lieutenant colonel.

Hatings on 30 of the bipolar traits were obtained on these subjects after they bad been in attendance at the Command and Staff School about two moaths. Each rating group was composed of from 12 to 14 officers who attended all classes as a unit. Only a third of each group served as raters; these rated all members of the gioup by selecting the four subjects in their seminar group who were best described by each pole of each trait.

Only five multiple-group factors (and no centroids) ware extracted and rotated to simple struc ture. However, at a later time factors were extracted from the intercomelation matrix by the complete centroid method and rotated \(n\) n \(\pi\) IBM 650 computer using the varimax program.

\section*{STUDY E. CATTELL'S WALE UNIVERS:TY SAMPLE}

Suhiects were 133 male university students with an average age of 20 yours. Some were roturning veterans. Ratings on 35 bipolar traits were obtained in groups of 17 men, all of whom lived together in fraternity houses or dormitories. Each rater rated all members of his group on each trait as below average, average, or above average on each trait, with a suggested distribution of 4 , K. and \(1 / 4\) fot the three categories. For a complete dascription of this sample see Cattell (1947).

The intercorreiation metrix \({ }^{3}\) was lactored and rotated twice. In one instance, eight centrold factors were extrocted and rotated; in the second case, tive multiplo-group factors and three centroid factors extracted from the resulting residual matrix were rotated. Only the latior solution is reported, since ine solution based upan the centroid extractions was discovered to contaia errors introduced by the graphic rotational procens.

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\section*{STUDY F. CATTELL'S FEMAIE UNIVERGITY SAMPLE}

The subjects were 140 female university students. Ratings on these students were collected from their peers (all women) at the same lime and in the same manner as in study \(E\). This sample is more completely described by Cattell (1948).

Since this was the only femal: sample studied, it was considered desirable to inelude several mote factors in the analysis than might reasonably be expected to exist. Therefore 12 :nctors were rotated to simple structure; five of these were orthogonalized multiple-rroup factors and the other seven were centroids extracted from the residual matrix. \({ }^{4}\)

\section*{StUdY G. FISKE'S TEAMMATES' RATINGS OF GRADUATE STUDENTS}

The subjects were 128 male graduate students in clinical psychology who perticipated in an intensive assessment program during the summer before they started their graduate iraining. Their median age was 26, nem! y all were veterans, and nearl; al! had World War Il experievce as military psychologists. During the week-long cssessment, they ate, roomed, and took their recreation tooether. ?wenty-four trairees mere assessed each week and were sr \({ }^{1: t}\) e:bitrarily into groups of four who partucipated in a series of situational tests. At the end of the week, each subject roted himself and the other three members of his oroup on a series of variables, including 22 bipolur personolity traits. Rating : were made on an eight-point scale. The three ratings made on each subject by his three teammates were summed to obtain the rating scores used in this study. For a complete description of the sample, the variables, and the rating procedure, see Fiske (1949).
rive multiplegroup lactors and three centroid factors were extrocted from the correlation matrix.

\section*{StUDY H. FISKE‘S Staff members' ratings of giaduate students}

These subjecty were the some as those of Study G. The same rating variables and ratiag acales were used except that stedf members were asked to normally distribute their ratings on eoch trait. The raters wers three asceasmeat stafl members assigned to each group of four subjects, and the rating scores were the sum of the ratings mode by these individuals. tiach statl member was a ellaical paychologist (a low wese paychiutrists) with years of expericact. The raters hed aot only lateacively observed each subject duriag a period of oae week but in addition. hod the results of tea objective tests. lour projective tests, a biographical inventory, an autobiography, and the writo-ups of three itr terviewers. The stafl ratings were mede without knowledge of the teamactes' retiaga.

Five mulliple-group and three centroid foctors were extracted and - : And to approzimate orthogonal simple structure.

\section*{RESULTS}

In coch analysis live lairly strong rotated loctres emerged. In tine four stedies involving Air Force somples and the iwo Fiske samplen, all but ithe itve spoog ixciora wore reaidualized (e.g.. none of the residualized lectors had loodiags on any tralt veriable abuve an aritrary 30 level). In the analysis of Collell's mele zopaple. Iwo lectors were residualizel, and a Fant toctor lavolving primalily an intelligence teat was delimed. In Cottell's temale sample. whot bod bees bdeatlited of the fifth foctor in the other molynes split into iwo inctors. Both of these foctore are reported for comporison purposes.

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The five factors are reporied in Tables 1 through 5 . To save space and to make comparisors easier. each factor loading is presented to only one decimal space (e.g., .6). \({ }^{5}\) In each tahle, the trait ratiag variables are listed in the first column, grouped together in accordance with the fuctoi to which they make the highest contribution. Thus the first group are those variables defining Foctor I , the second group are those defining Factor II, etc. Each of the other columns shows the locid ings of each variable on the appropriate factor in each of the eight stidies. These columns are Irbeled \(A\) through \(H\) to correspond with the letters assiqned to each sample above. Trcits not ruted in ony particular study are so indicated by in \(X\) in the appropriate column.

\section*{FACTOR I: SURGENCY}

Factor I appears to be that labeled by Cattell (1947, 1948) and French (1953) as Surgency and by many other investigators as Extroversion. It is beri detined by the traits Talka veress, Frrakness, Adranturovsness, Assertiveness, Seciability, Energetic, Porpposed, Interest in Opposite Sex, and Cheerfulness. It appears to be a 'rue bipolar factor with negotive loadings (. 3 or greater) obtained for the traits of Emotional Maturity, Mildness, Kindliness, Conventionality, and Calr ress.

TAB!.E 1. Leodiage on Recurrent Fceter I trom Eignt Anelysea
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{10}{|l|}{Trili Yeriedle.} \\
\hline He. & Heme Anelyals & A. & B & C & D. & \(E\) & \(E\) & 5 & H \\
\hline 14 & Sldenp ve Tellative & . & . 7 & . 7 & - & . 1 & . & . 9 & . 5 \\
\hline 21 & Secrelly & . 1 & . 7 & . 1 & . & - & .7 & - & . 5 \\
\hline 16 & Cmitnus D. Asvextureas & . & . 7 & . & - & . 7 & . 7 & 7 & . 6 \\
\hline 3 & Sumaisalve va Ausertive & . 7 & . 7 & . 0 & . 7 & . 4 & . 5 & 7 & . 1 \\
\hline 29 & Self-centelned ve Seciable & . 1 & . 7 & * & . 5 & . 7 & 7 & X & \(x\) \\
\hline 7 & Lenguld. Slow re Frange'ic & . 1 & . 7 & . 7 & . 7 & . 5 & . 5 & . & . 7 \\
\hline 33 & Shy, Beahful va Compored & X & \(x\) & \(x\) & \(x\) & . 6 & . & \(x\) & \(x\) \\
\hline 35 & Slinkt ve Morked Intcrent in Oppoulte Srz & \(\boldsymbol{x}\) & \(x\) & \(x\) & \(x\) & . 5 & . 4 & . 4 & . 4 \\
\hline 32 & Depreseed ra Cheorfu! & X & \(x\) & \(\boldsymbol{x}\) & \(x\) & . 5 & . 6 & . 7 & . 6 \\
\hline 10 & Soltelul va Coodnetared & . 1 & . 0 & . 1 & . 1 & . 1 & . 1 & . 0 & \(\because\) \\
\hline 20 & Jeclous F Wet So & -. & -. 1 & . 1 & \(\cdot .1\) & -. 2 & -. 1 & \(x\) & X \\
\hline 21 & Denending ve Emotionally Melure & -. 1 & -. 5 & -. 1 & -. 4 & -. 3 & -. 1 & \(\boldsymbol{\lambda}\) & \(x\) \\
\hline 13 & Solf-willed vo Mald & -. 1 & -. 5 & -. 2 & . 5 & -. \()\) & -. 1 & \(x\) & X \\
\hline 1 & Obetructive ve Coeperwilive & . \(\%\) & . 1 & . 1 & -. 2 & . 4 & . 4 & . 2 & 0.1 \\
\hline 1 & Sumpieloun ve Trustiul & .1 & .1 & . 2 & . 1 & . 0 & .1 & . 1 & . 0 \\
\hline 21 & Hiald va Admpede & . 7 & . 2 & . 4 & .1 & . 1 & . 2 & . & . 1 \\
\hline 17 & Herti, Stom va Kandiy & -. 3 & -. 5 & - 0 & -. 1 & . 1 & \(-1\) & X & \(\boldsymbol{\lambda}\) \\
\hline 5 & Ceal. Alvel ve Altentive lu Peopio & . 5 & . 4 & . 3 & - & . 5 & . 1 & . 5 & . 4 \\
\hline 31 & Altention Gellisg vo self-mutficient & \(x\) & \(x\) & \(x\) & X & -. 5 & - 5 & X & X \\
\hline 18 & Aelemed, Ludolont ve Inatetomily Orderly & -. 8 & -. 1 & -. 2 & . .7 & -. 1 & . .1 & \(x\) & \(x\) \\
\hline 4 & Telvainum ve Respancibla & . & . 0 & . & . 1 & -. 1 & . 0 & - & - 3 \\
\hline 25 & Unecrusuloun on Coanciontiown & \(-.2\) & -. 2 & -. 2 & -. 2 & -. \()\) & -. 1 & \(\cdots\) & -.) \\
\hline 15 & Quatting ve Poyxevering & .1 & . 2 & . \()\) & . 1 & -. 2 & . 1 & \(x\) & X \\
\hline 2) & Uncearmalimal ve Cenvontionel & . 4 & . .5 & -. 1 & -. 4 & - \({ }^{\text {l }}\) & -. \()\) & \(x\) & \(x\) \\
\hline 24 & Neurolic va Met So & - 2 & . 1 & - & . 2 & . \({ }^{4}\) & . 0 & \(x\) & \(x\) \\
\hline 14 & Eerriang. Analewn va plocid & 1 & 0 & 3 & 1 & . 1 & . 7 & -. 8 & . 1 \\
\hline 5 & Eealy Upeet ve Pereed, Touth & .) & . 5 & . 5 & . 4 & - 0 & . 1 & . 0 & . 3 \\
\hline 12 & Hypechenfricest va Not Sm & . 1 & 1 & .) & 1 & 0 & \(-1\) & x & \(x\) \\
\hline 11 & Eentimel va Cale & -.) & -. 1 & . 0 & 0.5 & -. 4 & -. 4 & \(x\) & \(x\) \\
\hline 2 &  & . 0 & . - & . & \(\cdot .2\) & -. 1 & . 0 & . 1 & -. 2 \\
\hline 17 & Dependeat ve Seli-puiticieal & x & X & X & K & \(\mathbf{x}\) & \(x\) & -. 1 & . 2 \\
\hline 1 &  & . 0 & - 1 & .2 & . 1 & 6 & 4 & 2 & . 8 \\
\hline 27 &  & . 0 & -. 1 & . 1 & \(x\) & . 2 & . \(C\) & K & x \\
\hline 14 & rowelcel. Leqicel te imertaptive & X & I & T & \(\cdot .1\) & . 1 & . 1 & . & . \\
\hline 10 & Cluaner. Artwati vo Pultehod & - 1 & . 0 & . 1 & . & . 0 & - 0 & . 0 & -. 1 \\
\hline 3 &  & 4 & - & . & 4 & -1 & -• & ) & 1 \\
\hline
\end{tabular}

 momented in Appontis A-N.

FACTOR II: AGREEABLENESS
This factor corresponds quite closely to that cailed Aqreeableness by French (1953). It, too, 15: a bipoiar factor, defined on the positive end by the variables Geodnatured, Not Jealous. Emotionally Mature, Mildness, Cooperativeness, Trustfulness, Adaptability, Kindliness, Attentiveness to People, and Self-sufficiency (as opposed to Atteation-Cettirg). Traits loaded negatively on Factor II include Assertiveness and to a lesser extent Talkativeness and Orderliness.

TABLE 2. Loedings on Recurrent Fact a II frem Eight Anolyses
Treif Veriable
Me. Nome
14 Sileat va Tainative
23 Secretive ve Frank
it Coutious ve Adventurous
3 Subaisaive ve Assertive
A9 Self-coutained vi Secieble
7 Lemquid, Slow vs Energelic
33 Shy, Bewhiul vi Composed
35 Slight ve Marked Interest in Opposite Sex
32 Dopreseed vi Cheorlul
\begin{tabular}{|c|c|c|c|c|c|c|c|}
\hline 4. & 8 & \(C\) & D & E & \(F\) & 6 & M \\
\hline . 0 & -. 2 & -.! & -. 2 & -. 1 & -. 1 & -. 2 & . 1 \\
\hline . 1 & . 1 & . 3 & . 0 & -. 2 & -. 2 & . 2 & . 5 \\
\hline .1 & . 0 & . 1 & -. 2 & . 1 & . 0 & . 1 & . 2 \\
\hline -. 4 & -. 4 & -. 3 & -. 4 & -. 6 & -. 5 & -. 1 & -. 4 \\
\hline . 2 & . 1 & . 2 & . 1 & . 0 & . 1 & \(\mathbf{x}\) & X \\
\hline . 0 & . 0 & . 0 & . 0 & . 2 & . 1 & . 0 & . 1 \\
\hline \(\mathbf{X}\) & X & \(\mathbf{x}\) & X & -. 1 & . 0 & \(x\) & X \\
\hline \(x\) & X & \(\mathbf{x}\) & \(\mathbf{x}\) & . 0 & -. 1 & . 0 & . 2 \\
\hline X & \(\mathbf{x}\) & \(\mathbf{X}\) & \(\boldsymbol{x}\) & . 3 & . 4 & . 3 & . 4 \\
\hline
\end{tabular}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline 10 & Spiteful vs Goodnetured & . 8 & . 7 & . & . 7 & . 7 & . 1 & . 7 & . 1 \\
\hline 30 & Joelous va Not So & . & . 7 & - & . 6 & . & . 8 & \(x\) & \(\mathbf{x}\) \\
\hline 22 & Dencralme ve Emstioaclly Moture & . 8 & . 6 & . 1 & . 6 & . 7 & . 1 & \(x\) & \(\mathbf{x}\) \\
\hline 13 & Self-willed va Lid \(^{\text {d }}\) & . 7 & . 6 & . 7 & . 6 & . 6 & . 1 & X & \(x\) \\
\hline 1 & Obetruelive ve Coeperative & . 7 & . 5 & . 7 & . 6 & . 6 & . 5 & . 6 & . \\
\hline 1 & Suepleious ve Truetful & . 4 & . 3 & . 7 & . 6 & . 6 & . 7 & . 6 & .7 \\
\hline 21 & Pugid va Adepichle & . 6 & . 4 & . 7 & . 4 & . 6 & . 6 & . 4 & . 7 \\
\hline 17 & Himb, Stom vickiady & 6 & . 4 & . 5 & . 5 & . 7 & . 7 & X & X \\
\hline 5 & - , Al. Aloet va Attentiva te People & . 7 & . 5 & . 4 & . 5 & . 3 & . 7 & . 4 & . 5 \\
\hline 31 & Altention Gelling ve sell-uuticiont & \(\times\) & X & X & X & . 4 & . 5 & \(x\) & X \\
\hline 18 & Ne:ored, Indelemt va Inatateatly Oeterly & -. 3 & -. 2 & -. 2 & -. 1 & -. 1 & -. 1 & \(x\) & \(x\) \\
\hline 1 & Fri-olous va Reaparmible & . 3 & . 5 & . 4 & .2 & . 3 & . 4 & . 0 & . 2 \\
\hline 25 & tiame.upule : ve Conectontioun & . 5 & . 5 & . 6 & . 4 & . 4 & . 6 & . 3 & . 4 \\
\hline 15 & rwiti \(\%\) va Persevering & . 3 & . 2 & . & . 0 & - 1 & . 0 & \(x\) & \(x\) \\
\hline 23 & Yncenventionel vi Converlional & . 2 & . 1 & - & . 3 & . 2 & . 3 & \(\mathbf{x}\) & \(x\) \\
\hline 26 & Newrell = ra Not Sn & . 3 & . 1 & . 1 & . 3 & . 2 & . 3 & X & x \\
\hline 24 & Merriane Ancimua vo Plocid & . 3 & . \()\) & . 3 & . 1 & . 0 & . 2 & . 3 & . \\
\hline 6 & ten. Leet ve Peteod. iongh & .1 & -. 1 & . 2 & 0 & . 0 & -. 1 & . 1 & . 1 \\
\hline 12 & M-pechondrioes' ve Mil So & . 4 & . 1 & 4 & . 1 & 1 & . 4 & \(x\) & \(x\) \\
\hline 11 & Eentionel va Colm & . 4 & . 3 & . & . 1 & . 2 & . & \(x\) & \(x\) \\
\hline 2 & Cr Angeabls \#x Pimelionelly Steke & . 5 & . 4 & . 5 & . \({ }^{1}\) & 2 & . 6 & . 1 & . 2 \\
\hline 17 & Dependen' y Self-avili' 'onl & X & X & X & \(x\) & X & \(x\) & . 2 & . 0 \\
\hline - & Beortah ve intolloctuel. Cultured & . 2 & . 2 & . 1 & . 1 & - 1 & . 3 & . 0 & . 1 \\
\hline 17 &  & 1 & . 0 & . 0 & \(x\) & . 0 & \(\bullet .1\) & x & \(x\) \\
\hline :1 & frealleel. Lepicel ve limequative & \(x\) & \(x\) & \(\times\) & . 0 & 1 & . 1 & . 1 & . 0 \\
\hline 19 & Cimesp, Rwluapt vo Poliched & \(\because\) & . 1 & . 1 & . 3 & . 1 & . 1 & .1 & . 2 \\
\hline 80 & Immetere re indepondent-hinded & . 1 & -. 1 & . 1 & -. 1 & . 0 & . 1 & -. 1 & -. 2 \\
\hline
\end{tabular}


\section*{FACTOR II: DEPENDABII.ITY.}

The primary definers of this factor are Orde.liness, Responsibility, Conscientiousness, Perseverance, and Conventionalicy, with sevaral other variables (Cooperctivevess, Mildness, and Emotional Stability) having positive loodingz above .3. Practically all definers of Factor I are loaded negatively on this factor, as are Trustfulaess, and laginctive. The factor in many respects is like that labelet hy French (1953) as Eapendability or by Fiske (1949) as Conformity. It appears to te quite similor ts the old "w" or Will factor found by Webb (1915).

TABLE 3. Leedings on Recwront Fector III frem Eigh Anclyses
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline Mo. & Neme Amalyala & A & B & C & D & E & F & 6 & H \\
\hline 14 & Sllent va Talketive & -. 2 & -. 3 & -. 2 & -. 2 & -. 3 & -. 3 & . 0 & -. 1 \\
\hline 28 & Secrotive ve Frank & -. 2 & -. 3 & . 0 & -. 1 & - 1 & -. 2 & . 0 & . 2 \\
\hline 16 & Centious ve Adventuroun & -. 4 & -. 1 & -.? & -. 2 & -. 4 & -. 5 & -. 4 & . 1 \\
\hline 3 & Submiscive ve Assortive & -. 1 & -. 3 & -. 2 & - 1 & -. 1 & . 0 & . 0 & . 1 \\
\hline 29 & Sell-egatained va Sociable & -. 4 & -. 4 & -. 2 & -. 4 & -. 4 & -. 3 & x & \(x\) \\
\hline 7 & Leaguld, Slow va Enorqetic & . 3 & . 0 & . 1 & -. 1 & -. 2 & . 0 & -. 1 & . 0 \\
\hline 33 & Shy, Bashial va Composed & \(x\) & x & \(x\) & x & -. 3 & -. 2 & x & x \\
\hline 35 & Suith ve Merked Intereat in Oppoalte Sex & \(x\) & \(x\) & \(x\) & \(x\) & -. 2 & -. 3 & -. 4 & -. 4 \\
\hline 32 & Depressed ve Chaorful & \(\mathbf{x}\) & X & \(x\) & x & -. 4 & -. 3 & -. 1 & . 0 \\
\hline 10 & Soltotul ve Goodnalured & . 0 & . 0 & . 3 & . 0 & .1 & -. 2 & . 0 & . 4 \\
\hline 20 & Jeslour ve Not So & . 0 & . 0 & . 2 & .1 & . 0 & . 0 & x & \(x\) \\
\hline 22 & Homendine ve Emollonally Mature & . 2 & .1 & . 3 & . 2 & .2 & . 2 & \(x\) & x \\
\hline 13 & Soit-willed ve Mild & . 2 & . 1 & . 4 & . 3 & . 3 & . 1 & \(x\) & x \\
\hline 1 & Otatruetive va Cooporetiva & . 4 & . 5 & . 5 & . 2 & . 3 & . 3 & . 2 & . 3 \\
\hline 9 & Susplelous ve Truatiul & \(\cdot 1\) & . 2 & 1 & . 2 & . 0 & . 0 & . 1 & . 3 \\
\hline 21 & Rigid va Adaptable & -. 3 & -. 2 & -. 2 & -. 2 & -. 1 & -. 1 & \(-.1\) & . 1 \\
\hline 17 & Here, Stom ve Kindly & . 0 & -. 1 & . 2 & . 1 & 1 & -. 1 & \(x\) & x \\
\hline 3 & Coal Aloel ve Attontive to Pemple & .1 & -. 1 & . 5 & . 1 & . 0 & . 0 & . 2 & . 1 \\
\hline 31 & Altoation Gotling va Soll-aufliciont & X & \(x\) & X & K & - 4 & 1 & X & K \\
\hline 11 & Rolerod, indelent ve Lnaditionlly Orderir & . 7 & . 4 & . 5 & . 3 & . 5 & . 7 & \(x\) & \(x\) \\
\hline 4 & Fitvelowe ve Rosponallue & . 6 & . 4 & . & . 6 & 6 & . 6 & 1 & . 7 \\
\hline 25 & Unsernouleun va Conscionitioun & . 5 & . 3 & . 6 & . 6 & . 4 & . & . & . 7 \\
\hline is & Oulting ve Pornewitag & . 6 & . 3 & 4 & . 3 & - & . 7 & \(x\) & \(x\) \\
\hline 33 & Uncearenticanl va Cemrenueasl & . & 1 & . 6 & . 4 & . 5 & . 5 & X & x \\
\hline 28 & Nouralic ice Nol So & .1 & . 0 & . & .1 & . 0 & 1 & \(x\) & \(x\) \\
\hline 24 & Werry.ar. Ansioun va Plecis & . 1 & . 0 & -. 1 & -. 1 & -. 2 & . 1 & . 0 & \(\cdots\) \\
\hline * & Eenlly Upeet ve Foined. Touph & . 0 & -. 1 & - 1 & . 0 & -. 1 & 1 & 1 & . 1 \\
\hline 12 & Mrpechondiciecal va Net So & . 1 & . 1 & . 0 & . 0 & 1 & . 0 & \(x\) & \(x\) \\
\hline 11 & Limotimel ra Colm & . 2 & . 2 & .1 & . 1 & . 2 & . 2 & X & \(x\) \\
\hline 2 & Cranemele va Emotiomolly Sield. & \(\because\) & . 1 & . 1 & 1 & 2 & . & . & . 4 \\
\hline 11 & Dopendonl ve Fell-wellieloul & x & \(\times\) & X & \(x\) & \(\times\) & \(x\) & - & . 2 \\
\hline \(\cdots\) & Bearimh va intellereval. Cultured & . 1 & . 0 & \(\cdots\) & -* & .) & 1 & . 3 & . \({ }^{\circ}\) \\
\hline 21 & Lectime Arthatic Froling ve Entheitcally Fenlidiove & . 1 & .1 & 1 & \(\lambda\) & . 0 & 1 & x & x \\
\hline 14 & Preetical. Leoteel vo imoglnalivo & x & \(x\) & X & \(\cdot .1\) & -. 1 & . 3 & 1 & . 0 \\
\hline 19 & Cimury. Ambured vi Peliohod & 1 & . 1 & . 1 & .1 & . & .) & . 2 & . 2 \\
\hline 30 & inmelime va indepandenituladel & . 0 & . 0 & . 1 &  & . 0 & .1 & . 2 & . 2 \\
\hline
\end{tabular}

\footnotetext{

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\section*{ERZATUM}

Tupes, E.C. A. Christal, R.E. Recurrent personality taztorz Ezeod on trait ratings. Luckland A:- Fcrce Base, Texas: Personnel Laboratory. Aeronautical Systems Division, May 1961. (Technical Report ASD-7R-61-97)

Page 8. line 5
For . . . loaded negatively on this factor, as are Truatfuiness, and Inaginative.

Reod . . . loaded negatively on this factnr, as arr Adaptability and Imaginative.

\section*{FACTOH I\%: BMOTIONAL STABILITY}

The inverse of this factor seems to be that listed by French (1953) as Emotionality. It is loaded highest by Not Neurotic, Placid, Poised, Not Hypochondriacal, Calm, Emotionaily Stable, and Self-sulficient (as opposed to Dependent). Seconaary definers of the factor are Lack of Jealousy, Emotional Maturity, Cooperativeness, Trustfulness, Adaptability, Resmnsibility, Perseveranca, and Indapendent-Mindedness. Kindliness has a significant negative lsading on this factor.

TA8LE 4. Loadings on Recurrent Fiector IV frem Eight Analyses
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|}
\hline & Variable & & & & & & & & \\
\hline No. & Nome Analysis & A & B & \(c\) & D & \(E\) & F & 6 & H \\
\hline 14 & Sllent va Telkative & -. 2 & -. 1 & -. 4 & -. 1 & . 0 & -. 2 & .2 & . 0 \\
\hline 28 & Secretive va Frank & .1 & . 1 & . .1 & . 0 & -. 1 & . 0 & . 0 & . 0 \\
\hline 16 & Coutious ve Adventurous & .2 & . 4 & . 1 & . 1 & . 1 & . 2 & . 2 & . 2 \\
\hline 3 & Submisaive va Aesertive & . 2 & . 4 & . 1 & . 2 & . 1 & . 2 & . 1 & . 2 \\
\hline 23 & Sell-contained vs Sociable & -. 1 & . 1 & -. 2 & -. 1 & -. 1 & -. 3 & X & X \\
\hline 7 & Lenguid, Slow va Energetic & . 3 & . 2 & . 1 & . 1 & . 4 & . 1 & -. 2 & -. 4 \\
\hline 33 & Shy, Beshtul ve Composed & \(x\) & \(x\) & X & x & . 2 & . 2 & X & 8 \\
\hline 35 & Slight va Marked Interest in Oppomite Sen & \(x\) & \(\mathbf{x}\) & \(\mathbf{x}\) & \(\mathbf{x}\) & -. 1 & -. 1 & . 2 & . 3 \\
\hline 32 & Depreased ve Choertul & \(\mathbf{x}\) & \(x\) & X & \(\mathbf{x}\) & . 1 & . 0 & . 3 & . 4 \\
\hline 10 & Spitelu' va Goodnetised & . 2 & . 2 & .2 & . 1 & . 0 & -. 2 & .1 & . 1 \\
\hline 20 & Jealoux va Not So & . 5 & . 3 & . 4 & . 3 & . 4 & . 1 & \(x\) & x \\
\hline 22 & Demanding va Emolionally Mature & . 4 & . 3 & . 2 & . 2 & . 3 & . 1 & \(x\) & \(x\) \\
\hline 13 & Soll-willed ve Mild & . 3 & .1 & .2 & . 0 & . 1 & -. 2 & \(x\) & X \\
\hline 1 & Obstructive vs Coopereltre & . 3 & . 4 & . 3 & . 1 & . 1 & . .1 & .1 & . 1 \\
\hline 9 & Suspleious ve Trustiul & . 6 & . 3 & . 4 & . 5 & . 4 & . 3 & . 1 & . 3 \\
\hline 21 & Rivid ve Aduptoble & . 4 & . 4 & . 3 & . 0 & . 2 & . 1 & . 3 & . 3 \\
\hline 17 & Herd, Stern va Kindiy & -. 4 & -. 3 & -. 4 & -. 4 & -. 3 & -. 5 & X & X \\
\hline 5 & Cuol, Alool ve Attontive to People & . 1 & . 0 & -. 1 & -. 1 & -. 1 & -. 1 & . 0 & . 1 \\
\hline 31 & Attention Getting va Solf-aulliciron: & X & \(\mathbf{x}\) & \(x\) & X & . 4 & . 1 & X & \(y\) \\
\hline 18 & Relaxed, Indoleni va Inaistently Orderly & . 0 & . 0 & . 0 & -. 1 & . 3 & . 0 & \(x\) & \(x\) \\
\hline 4 & Fitvolous va Remponaible & . 5 & . 2 & . 4 & . 2 & . 3 & .1 & . 0 & . 0 \\
\hline 25 & Unecripuloun va Connelon'loun & . 2 & . 2 & . 2 & .1 & . 0 & -. 2 & . 0 & -. 1 \\
\hline 15 & Qulting ve Permer iting & . 4 & . 5 & . 4 & . 2 & . 4 & . 2 & X & X \\
\hline 23 & Unconventional va Conventional & . 1 & -. 2 & . 0 & -. 1 & .0 & -. 4 & X & X \\
\hline 16 & Nnupolic vy Not So & . 7 & . 7 & . 5 & . 6 & . 7 & . 5 & \(x\) & \(x\) \\
\hline 24 & Worrying, Anmious va Placid & .7 & . 7 & . 6 & . 7 & . 6 & . 0 & . 7 & . 0 \\
\hline 6 & Eienty Upaet var Poimed, Tough & . 7 & . 5 & . 6 & . 5 & . 1 & . 7 & . 7 & . 1 \\
\hline 12 & Hypechundriacel wn Not So & .7 & . 6 & . 6 & . 5 & . 5 & . 5 & \(x\) & \(x\) \\
\hline 11 & Emothonol va Calm & - 4 & . 5 & . 6 & . 4 & . 4 & . 5 & \(x\) & X \\
\hline 2 & Chenguable vu Emotionally Stable & . 6 & 4 & . 6 & . 4 & . 4 & . 4 & . 2 & . 4 \\
\hline 17 & Depondu..i vi Selfomulticiont & X & X & X & X & \(\mathbf{X}\) & X & . 4 & . 6 \\
\hline \(\cdots\) & Anopiah va Intellectucl. Cultuped & . 7 & . 1 & . 1 & . 2 & . 3 & . 1 & . 2 & . 1 \\
\hline 27 & Lecting Artiatte Feeline re Fixtheticelly Fontidicua & .1 & . 1 & . 0 & X & -. 1 & . 0 & X & X \\
\hline 14 & Pinrlieal. legical va imeginative & \(x\) & x & X & . 1 & -. 1 & -. 4 & . 0 & 0 \\
\hline 1. & Clummy, Awtword va follished & . 7 & . 1 & . 2 & . 2 & . 3 & . 0 & . \({ }^{\text {l }}\) & . \\
\hline 10 & Immelure ve Independent-Minded & . 5 & . 4 & . 5 & . 4 & . 5 & . 4 & . \(]\) & .) \\
\hline
\end{tabular}

\footnotetext{

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\section*{FACTOR V: CULTUIRE}

Factor \(V\) is the least clear of the five factors identified by the eight analyses. It appears to be similor to the factor labeled by French (1953) as Culture and by Fiske (1949) as the Inquiring Intelleet. It is defined by the variables, Cultured, Esthetically Fastidious, Imaginative, Socially Polished, and Independent-Hinded, with secondary loadings by Energetic, Poise, Emotional Stability, and all the variables in Factor III. It will be noted that loadings for two factors are shown under Column \(F\). This is the analyais of the female college atudents, and in this sample only, Factor \(V\) split into two quite distinct subfactors. The firat of thase has a pattern of loadings quite similar to the Factor \(V\) found recurriag throughout the studies. The second of these is defined by the variables Esthetically Fastidious, Socially Polished, and laterest in the Opposite Sex.

TABLE 5. Loodinge on Recurrent Fector \(V\) from Eight Analyses


\footnotetext{
Nete.-A coll entry of \(X\) denatem variable nol uned in mfudy.
}

\section*{DiSCUSSION}

The results of these analyses clearly indicate that difterences in samples, sitiations, raters, and lengths and kinds of acquaintanceship have little effect on the factor structure in'se-iying ratings of personality traits. Statistical tests are not needed to indicate the similarity of corresponding factors from one analysis to another. There can be no doubt that the five factor: found throughout all eight analyses are recurrent.

In evalunting the results of a series of factor solutions, such as those presen ed ir Tables through 5 , it is natural for the reair-r to wonder to what exten: the results =.ight aff iet \(h\) gses hirithe
 loosely by many analysts, and it is also undoul. adly true that a preconceived salwin yen be fabred through a little "forcing" dusing the rotaiional \(t\) :cess.

The first factors rotuted were those from 'he "ajecase OCS sampie described in Stuly id. Wi : these rotations were not made blini. they were miva with no preconceived notions us to low' the \(t\) nal solution should appear. Even so, there were certcin "choice points" during the icticu ui: 1 proces.s at which somewhat arbitrary decisions were rade. These are the same types of decision: wich aris familiar to all who have participated in orthogonal graphical rotations. In the main they : ie it two types: (a) those concerning final positioning of reference axes when there was a choice if fivorinc one or the other of two factors or of balancing the two; and (b) those concerning thether \(t\), tenpt the buildup or residualization of weak factors introduced into the rotational system. The ui sof rimple structure do not provide clear guidance in either event, and the rotator is generally lelt with the job of imposing some subjectivity in deciding which alternatives best fit the criter:c.

The choice on final positioning of the reference axes is probably not too citicai, it c: it generally affects oniy the relative magnitude of the loadings on the two factors :onsiderec ad doer not greatly affect the pattern of factor definers. The dec. ion concerning the b:ildup or \(1 \in \boldsymbol{s}^{i}\). ualization of weak factors is considerably more serious, and whether the choice goes one way ot tie othor can uffect both the number and noture of factors reported.

Individuals seem to wive at their decisions ir many different ways. Geveraily the ":nc: pos:tioning of reference axes is subjective, although it many times is tempered wit ircascn, I: r:gard is the rotation of weak factors, some preier to be guided by one or more of the tw nty casimulie naticc: criteria which propose to estimate the true rank of the criginal intercorrelation natrix. Und rrunateiy, the various criteria often do not agree, even witen the beginning communality estinates are icentical. Other individuals prefer to over extract and fight the battle on the rotation boo:d. If a weal \(!\) retor cin be built up into something they interpret as meaningful they accept it; otherw: se they make a sirong attempt at residualization.

In the current study the final positioning of reference axe- : Study A was made arbite nily with in the general bounds of acceptable simple structure. Once thes :cisions har been made, the tendency was to make choices in the same direction in iater anclyses-still staying witin the bounds ef simpac structure. A variety of criteria were considercd in making decisions concern ing 'ise \(1 \mathrm{~m}_{1}\) : c : on anc rotation of weak factors. These incleded sever. 1 statistical criteria relating to \(:\) un \(, \mathrm{x}, \mathrm{k}\), the iesults reported by past investi;ators anulyzing the same data, the results of attempted rui. \({ }^{2}\)., zud residualizations of such factors, and, admitted!., a little subjective judgment. The actial iu nber of factors rotated varied from only five in the Command and Staff School analysis to 12 in the t ? r : ation of the Cattell women's sample. In every sarr.pie except one t... re uppeared to be five relativelj strong and recurrent personality factors and sething riore of any consequence. In the Cattel womer:\% sample, the fifth factor appears to tive split into two related factors.

Subsequen \(\stackrel{1}{\text { t }}\) to completion of all eight analyses, a progran became a, ailable for accomplishing analytic rotations by means of the IBM 550 computer :.sing the normal varimax cri mion (Kai: er, 1958). There are good indications that this complet: ly objective analytical rotati , procedu e will
ot only save many hours of labar, but will briag considerably mole rigor to what has thus far beer: is it! er loose area. Perhaps the most encouraging note is that the normal varimux solution appeurs ti. 1.2 nvmiant under changes in the romposition of \(u\) test Eatery. Thas submitting one or more of the "na yses in the current paper for rnalyiie cotution usitg the mora! varimax criterion would serve at if ast two purposes: (a) it woild semove (or confirm! any dowints the reader (or authors) might have
 a. atiart under chana: in in: con: position if the l. int-rating hattery.

The Command and te: Eatwoi samplo Study n) was selected for onalytic rotation because in ar cuthors' judqment it wa; th co. most suibject to critieism. This is because all the factors were : rac;ed by the multipie rroup method and oniy five factors were introduced into the rotational process.
, an irder to maximize the in: \({ }^{4}\) apondence o! the new solution, only the intercorrelation matrix was :- o rie statist:an services siction, with instructions to extract eight cirtrcid factors and obtain a .,irsu: varimax solvion. The v.riables in this matrix were not identifiea. It was the decision of if! cons iltonts in the statistical services section to rotate only six factors, the iust of which was \(r \cdot\), idu alized by the analytic procedure. \({ }^{6}\) The five : dentifiable factors are reported in Table 6 along v :htic -oresponding solution obtained via graphic iotations. It can be seen that the two solutions \(r\). fo : a i practical purposes identical. In every instance the luadings tre the defining variables are f:actly the same or differ by only .1, No loadiny differs by mere than .2, even among the nondefining 1 riable.

17 :any ways it seems remarkabie that such stability should be found in un area which to date 1.s grinted anything but consistent results. Undsubtedi the consistency has always been there, i,:t it \(i\) as been hidden by inconsistency of factoria! tecimiques and philosophies, the lack of replica. on urin: identical variables, and iisorreement anong analysts as to factor titles. None of the facas iden :iied in this study are new. They have icen identified many times in previous analyses, . Athouct: hey have not always been called by the sume names.
\(F^{\bullet}\) s so, it might surprise some to timit the zaine fuctors emerging from such a wide variety of
;ample:: ‘ nd conditions. One interpretation is that there are only five fundamental concepts running
\(h: n: 1{ }^{\prime} h:=35\) trait names used in these :turies. If the common variance in these 35 binolar traits
cflent if \(y\) iive fundamental meaning curcepts, then it is reasonable to expect these concepts to
re:spmer ! to the factors identiiied in cay sample to which the 35 trits are applied.

It si puld be noted that there maj s.xist little relationship between the magnitude of intercorrelat ons ob:a ned among trait-rating varichies and the level of inter-ratar agreement concerning which ':aits appy to given individuais being rated. Thus it would be possible to identify very strong traitatiag fastors having no practical utility. As indicated above, however, trait ratings besed on the rariable:: ncluded in this study net only grant satisfactory inter-rater agreemen coefficients, but are slated \(t\).) :wiet sueaningful criterio.

It is unlikely that the five lactors identified are the on'ly fundamental per onality factors. There it. quite I kely other fundamenta! concepts involved anong the Allport-Odbert odjectives on which the : r:idbles ised in the present study were based. The 35 traits (or more accurc ely trait clusters) used in the prisent study represent the distillate drawn by Cattell frum the interrel tionships anong some 175 trait: which in turn ware seler iad as representative of the Allport-Odbert adjectives. The commu\(n\) - 'ities o: the trait-rating variables in the various samples studied are on the whole quite sizable avtenging . \(f(\) to .85 ); however, for some traits they are as low as .4 or. 5 . Thus many of the traits have spe: :inic variances greatly in excess of their common variance. In many cases these specific variances wol.! d bec one common variances were sther variables to be included in the analyses. Thus it is likely that other indamental factors may be identified in future studies.

\footnotetext{
\({ }^{6}\) One varlable had a loading of 24 on the Eixth factor; all other variablea had loadinge below 20.
}

TABLE 6. Comparison of Nermal Varimax Solution with that Obtained using Graphic Rotations

Irgit \(V_{\text {griable }}\)
No: Name
\begin{tabular}{rl}
14 & Silent vs Talkative \\
28 & Secretive vs Frank \\
16 & Cautious vs Adventurous \\
3 & Submissive vs Assertive \\
29 & Self-contained vs Sociable \\
7 & Leuguid, Slow vs Energetic
\end{tabular}

10 Spiefill vs Goodnatured
20 Jealous vs Not So
22. Demanding vs Emotionally Mature

13 Self-wilied vs Mild
Obstructive vs Ccoperative
9 Suspicious vs Trustful
21 Rigid vs Adaptable
17 Herd, Stera vs Kindly
\(\leqslant\) Cool, Aloof vs Attentive to People
18 Releced, Indolent va Insistently Orderly
Frivolous vs Responsible
Unscrupulous vs Conscisatious
Quitting vs Persevering
Unconvertional va Conventional
Neurotic ve Not So
Warrying, Anxious vs Placid
Easily Upset va Poised, Tough
Hypochoodriccal va Not So
Emotional ve Calm
Chorgeable va Emotionally Stohle
Boorish va Latellectual, Cultured Practical, Logical vs Imuginative Clumay, Awhward va Polished
Immature vs Independent-Mipded

\begin{tabular}{cc|cc|}
\hline-1 & .1 & .8 & .7 \\
-7 & -.1 & .6 & .6 \\
-.5 & -.4 & .5 & .6 \\
-.6 & -.5 & .5 & .6 \\
-.3 & -.2 & .7 & .6 \\
.0 & .1 & .5 & .6 \\
.0 & .1 & .5 & .1 \\
-.3 & -.3 & .6 & .5 \\
.3 & .4 & .6 & .5 \\
&
\end{tabular}
\[
\begin{array}{rrrr}
-.1 & -.2 & -.1 & -.1 \\
-.2 & -.1 & -2 & .2 \\
-.2 & -.2 & .3 & .4 \\
-1 & -1 & .0 & .0 \\
-.5 & -.4 & .2 & .3
\end{array}
\]

\[
\begin{array}{rrrr}
.1 & .2 & .2 & .3 \\
.0 & .1 & .0 & .1 \\
.3 & .4 & -.1 & .0 \\
.1 & .2 & . . & .2 \\
.6 & -.5 & . .2 & .3 \\
. .2 & . .2 & .2 & .3 \\
& & & \\
.2 & .1 & .0 & .1 \\
.1 & -.1 & .0 & .0 \\
.0 & .0 & .2 & .3 \\
.4 & .4 & -.2 & -.1
\end{array}
\]

\[
\begin{array}{rr}
.0 & .0 \\
.1 & .1 \\
.1 & .2 \\
.3 & .3 \\
.1 & .2 \\
.1 & .2 \\
-.4 & -.2 \\
.0 & .1 \\
.1 & .1
\end{array}
\]
\[
\begin{array}{rrrr}
.2 & .1 & .0 & -.1 \\
.4 & .3 & .1 & .0 \\
.3 & .2 & .1 & .0 \\
.0 & .0 & -.1 & -.1 \\
.1 & .1 & .3 & .2 \\
.5 & .5 & .2 & .0 \\
.1 & .0 & .1 & -.1 \\
-.3 & -.4 & -.2 & -.2 \\
.0 & -.1 & .0 & .1
\end{array}
\]
\[
\begin{array}{|cc|}
\hline .5 & .5 \\
.7 & .6 \\
.6 & .6 \\
.6 & .5 \\
.4 & .4 \\
\hline
\end{array}
\]
\[
\begin{array}{rrrr}
-.3 & -.1 & .4 & .3 \\
.2 & .2 & .3 & .1 \\
.1 & .1 & .2 & .3 \\
.1 & .2 & .4 & .5 \\
-.1 & -.1 & .0 & .0
\end{array}
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1 & .1
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.1 & -1 \\
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\begin{array}{rr}
-.1 & -1 \\
.1 & .0 \\
.0 & .0
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\begin{array}{ll}
.0 & .0 \\
.2 & .3
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\section*{. 3}
\[
3.3
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\begin{tabular}{ll}
.3 & .2 \\
.1 & .0 \\
.2 & .1 \\
.3 & .1
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\begin{array}{ll}
.1 & .2 \\
.0 & .1 \\
.2 & .2 \\
.3 & .4
\end{array}
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\begin{tabular}{|ll|}
\hline .7 & .8 \\
.5 & .5 \\
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.5 & .6 \\
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Nape.-V : Vurimez Solution, C - Crophic Rotations.

\section*{summary}

The present study was designed to help clarify the personality traiter ing doande. The goel
 is oppestr in \(n\) ' wisty of semples, and which are not unduly sensitive to the retime conditions or situr: 5 ax.
 - rrei.etions amonq thene traits wert oblaibed lo eight semples. These somples differed ia lemph of

progrons in a military training course to a frateraity bouse situation; in type of subject from airmen with only a high schooi education to male and female undergroduate students to first-year graduate students; and in type of rater from very naive persons to cliaicel psychologists and psychiatrists with years of experience in the evaluation of personality. Centroid or muitivio-group factors were extracted from the intercorrelations and rotated orthogonally to simple structure. For one of the studies an independent solution was obtained in which analytic ratations were accomplished by an IBM 650 computer using Kaiser's normal varimax criterion.

In all solutions except one there apfe:cei to be five relatively strong and recurrent factors and sothing more of any consequenc* In one solution, bosed upon data from undergraducte women, the fifth \{sctor split into two bighl\} leted fuctors. The solution oblained by andiytic rotations usin the normal varimar criterion was for an proctical purposes identical to the corsesponding solution obtained via graphic rotations to the simple structure criterion.

The five recurreat factors were labeled as (1) Surgency, (2) Agreeableness, (3) Dependability, (4) Emotional Stability, and (5) Culture.

While so claim is mode by the cuthors that the live factors adeatified are the only personality dimeasions, reasons are given in support of theis fundanental nature and probable invariance.

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Meurotie vs Not So
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APPESDIX D (Continued)

\begin{tabular}{|c|c|c|c|c|c|c|}
\hline Yo. & Nago & I & II & III & IV & V \\
\hline 14 & Silent vs Talisative & & & & & \\
\hline \(2 E\) & Sscraity ys Frank & \(8 \therefore 0\) & -114 & 138 & - \(\mathrm{Cl}_{4}\) & 042 \\
\hline It & Cautiois vs Aiventirous & 784 & 044 & 074 & 036 & -176 \\
\hline 3 & Siorissive vs Assertive & 829 & -c66 & 013 & 144 & 007 \\
\hline 29 & Self-contained vs Sociabla & 734 & -338 & 225 & 269 & 103 \\
\hline 7 & L27.7ud, Slow vs Enereosic & 619 & 137 & -223 & -135 & 127 \\
\hline 7 & murnt, slow vo snereailc & 762 & 034 & 318 & 149 & 158 \\
\hline 10 &  & & & & & \\
\hline 2) & cealsus ts iot So & 033 & 752 & -069 & -096 & -111 \\
\hline 22 & Denandirir ys Emotionaily : & \(-291\) & 682 & 000 & 166 & -012 \\
\hline 23 & Sėr-wiled vs Kild & -4,38 & 631 & OOL & 087 & -0, \\
\hline 1 & & \(-17\) & 525 & 091 & -1.51 & -079 \\
\hline F & Susisisious vs ir:stin & -279 & 705 & 203 & -074 & 110 \\
\hline 2 & 3.i.id v3 Atapraile & -015 & 606 & 101 & 394 & -073 \\
\hline \(1 i\) &  & 151 & 535 & -259 & -084 & 011/1 \\
\hline 5 &  & -340 & 389 & -113 & -526 & -112 \\
\hline & Col, A-s. vs R-tenzeve to People & 330 & 520 & 153 & -193 & -089 \\
\hline 28 & Relaxad, Ensilent ts Insistently Orderly & & -130 & & & \\
\hline \(\pm\) & Frivolois rs Responsiole & -252
-237 & -130
246 & 750 & -100
118 & 033 \\
\hline 25 & :nserepolvos vs Conscientious & -237 & 382 & 650 & - 218 & 018 \\
\hline 15 & Qui ition vs Persz*ariag & -310 & 038 & 627
\(72 \%\) & -016 & -0.46 \\
\hline 23 & lnconvenitomal is Conventional & -042 & 193 & 723
294 & 171
-147 & 039
-083 \\
\hline 24 & Cierutie vs \#ot So & & 118 & 19. & 547 & \\
\hline 2 & Worwinn, Auciois vs Placid & 199 & ? 25 & -07\% & 54i4 & \(\bigcirc 0178\) \\
\hline 5 & Easily ipset vs Poised, Touph & 049
385 & -30 & -306 & 624
490 & 164 \\
\hline 22 & ispoct:ondriacal vs \(\because \mathrm{at}\) So & 151 & 146 & -03L & 402 & -205 \\
\hline 11 & Enctiona: vo Caly & 1514 & 142 & 219 & & -205 \\
\hline 2 & Chan-eable vs Erotionally Staole & -574
-20 & 416 & 219
44 & 335
349 & \(0 \times 6\)
2.6 \\
\hline \(\cdots\) & Eoorian vs Intelle=taal, Cultired & & & & & \\
\hline 34 & Prictical, Lorical v3 Imarinative & 104 & 068 & 594 & 163 & 4.7 \\
\hline 19 & Climsy, dwhward vs Polished & OLO & 354 & 42 & 119 & 458 \\
\hline C & inmaticg os Ewe;endent-Mindad & 1:02 & - \(\times 15\) & 544 & \(39 ?\) & 2815 \\
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> APPENDIX G (Continued)
TABLE G2. Loadinge on Five Orthogonalized Multiple-Group and One Centroid Factor from Fiske: Teamates Ratings


\begin{tabular}{|c|c|c|c|c|c|}
\hline \(\stackrel{m}{1}\) &  & 으ำ范年 & 88 & ！－\％\％ & ¢ \\
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\hline \multicolumn{2}{|l|}{It Vopreble} \\
\hline & Neme \\
\hline 14 & silent ve Talkat！ve \\
\hline 28 & ：sectetive ve Frank \\
\hline 16 & Cantious ve Adventurous \\
\hline 3 & Submiszive ve Alsertive \\
\hline 7 & Larguid，Slow ve Energatic \\
\hline 35 & Stight ve Morked Interest in Opposite Sex \\
\hline 32 & Copressed ve Choerful \\
\hline 10 & Spiteful ve Gsodnatured \\
\hline 1 & Obatrective vs Cooperctive \\
\hline 9 & Suapicious ve Trustiul \\
\hline 21 & Rigid ve Adoptable \\
\hline 5 & Cool，Aloot ve Attontive to Peopla \\
\hline 4 & Y：rolous ve kesponsible \\
\hline 2. & I＇n srupulous ve Conscientiou． \\
\hline 24 & Wertring，Anxious vx Placid \\
\hline ： & Fis：Iy Upset ve Poised，Touch \\
\hline 2 & Changeable vas Emotionally Stable \\
\hline 37 & Cependent va Seli－zulficient \\
\hline 8 & Boorish ve Intelicestual，Cultured \\
\hline 34 & Practical，Logical vs Imacinative \\
\hline 19 & Clumay，Awtwart vs Polished \\
\hline 30 & Immature vs Independent－Mindo． \\
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\end{tabular}

APPENDiX H (Continued)
\begin{tabular}{|c|c|c|c|c|}
\hline  & §్ర్రి్లి్గ్ & \% &  &  \\
\hline
\end{tabular}







\begin{tabular}{|c|c|c|c|c|c|c|}
\hline  &  &  & \[
\begin{aligned}
& \bar{y} \\
& \text { ba }
\end{aligned}
\] & &  & \\
\hline 0
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\(u\)
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\(u\)
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\(u\)
\(\vdots\)
\(\vdots\) & & &  & 0
4
4
3
3
3
3
3
3 & &  \\
\hline \％ &  &  & \(\stackrel{-}{-}\) & &  & \\
\hline
\end{tabular}```

