

INTRODUCTION

Full details of work completed under this task have been provided in monthly status reports. This report is an abbreviated summary, most of which was extracted from those documents. The task specifications called for the development of an instrument for measuring the Big 5 personality traits, and for relating personality traits to measures of interests, life experiences, perceived abilities and measured abilities.

Most of the time and energy expended in this effort was directed toward the development of the personality measurement instrument, and the steps in achieving this goal are described in considerable detail. Information concerning the relationships of personality traits to other measures is summarized in appendices at the end of this document.

The lead scientist for this project, Dr. Christal, died of a heart attack toward the end of this effort. Shortly after his death, to cut costs senior Air Force leadership closed the division of the Air Force Research Laboratory in which he worked. Therefore, this summary possibly represents the only publically published account of the Air Force Five Factor work completed by the team of Raymond Christal, Jerry Barucky, William Driskill, and Janet Collis.

INITIAL SELECTION OF TRAITS TO DEFINE BIG 5 FACTORS

The Norman-Goldberg List of Factor Definers

During the course of the investigation, two trait lists were identified which appeared to be the most complete, and which covered the domain in a remarkable fashion. The first was the list used by Norman (1967) who investigated 2,800 terms, and finally classified 1,431 of them into 75 categories based on his understanding of their similarities in meaning. Goldberg (1982) selected a subset of 1,710 from the Norman 2,800 word list and included them in a self-report inventory of trait-descriptive adjectives that was administered to 187 college subjects. Responses were aggregated to obtain 75 scores for every subject. A factor analysis of the resulting data yielded the commonly found five-factor structure (Goldberg 1990). Recognizing that 1,431 was too many terms to be used in future studies, Goldberg used the results of his study to identify 133 trait clusters defined by 479 terms. Four additional factor analyses were accomplished using self ratings and ratings of peers. Considering the consistencies found in these factor analyses, he ultimately came up with 100 trait clusters defined by 339 trait adjectives.

Later, through a series of factor analyses, Dr. Goldberg came up with a list of 100 marker traits, which he felt yielded a good definition of the Big 5 structure.

In building the word list for the Air Force inventory, the terms extracted from the 100 trait clusters (from the 1990 study) were combined with the 100 terms he suggested to be used as markers. Duplicates and a number of the words beginning with 'un-' were eliminated, yielding a final list of 205 terms. As mentioned above, most of the words selected came from trait clusters reported in Goldberg's study. Appendix 1 provides a listing of the selected words that are sorted into Goldberg's clusters.

Item Selection

Approximately one-half of Goldberg's categorized list was not included in the Air Force inventory. Some traits were omitted because the category from which they came had about equal loadings on two or more factors. Some were omitted because they did not have high loadings on any factor. Some were omitted because they might generate problems with the invasion of privacy act (for example, those which dealt with morality and prejudice). Many were omitted because it was not certain that airmen would know their meanings. Below are a few examples of terms falling into this latter category:

VERBOSE	LETHARGIC	CAUSTIC
COMPANIONABLE	MELANCHOLIC	BIGOTED
COMMUNICATIVE	MOROSE	TEMPESTUOUS
RAMBUNCTIOUS	SOMBER	VOLATILE
IMPETUOUS	BENEVOLENT	FASTIDIOUS
FLAMBOYANT	HOMESPUN	SLOTHFUL
EXHIBITIONISTIC	CONDESCENDING	AUTONOMOUS
OPPORTUNISTIC	POMPOUS	COSMOPOLITAN

DEVELOPMENT OF RATING SCALES

From the beginning it was planned that the Big 5 inventory would be administered using a computer mouse for answer entry. Attachment 2 provides a description of research to refine a scale for administering the Big 5 inventory using a computer mouse.

ANALYSES OF THE 205-TRAIT INVENTORY

Several analyses were made of the 205-trait inventory responses, all of which yielded about the same results. The solution below was based on 715 cases and involved orthogonal rotations:

205 Variable Orthogonal Solution.

```

Varimax converged in 10 iterations.
Rotated Factor Matrix:
      FACTOR 1      FACTOR 2      FACTOR 3      FACTOR 4      FACTOR 5
FACTOR 1--CONSCIENTIOUSNESS
ORGANIZE      .67556

```

EFFICIENT	.66889			
NEAT	.65805			
PRECISE	.65514			
THOROUGH	.63823			
SLOPPY	-.56666	.36065		
RESPONSI	.56383			
CONSISTE	.54840			
ORDERLY	.54709			
CAREFUL	.53843		.33697	
CONFIDEN	.53318			-.37330
DISORGAN	-.53039			
PUNCTUAL	.52708			
PROMPT	.51846			
INEFFIC	-.50770	.32077		
RELIABLE	.50311			
STEADY	.47721			
ASSERTIV	.47685			-.39778
INCONSIS	-.47089	.30861		
DEPENDA	.47055			
INTELLIG	.47014			.37546
PRACTICA	.46994			
LAZY	-.46626	.32923		
CONCISE	.46390			
INDUSTRI	.46229			
PERFECTI	.45662			
CARELESS	-.45445	.38780		
ABSENT_M	-.45037	.43118		
BRIGHT	.44947			
SMART	.44814			.38362
PERSIST	.43879			.32133
BRAVE	.43760			
FORGETFU	-.43249	.36484		
ECONOMIC	.42983			
PURPOSEF	.42850			.32147
ACTIVE	.42002			
SLUGGISH	-.41775	.37583		
DECISIVE	.41761			.33673
ASSURED	.41535			-.32069
VIGOROUS	.41372			
WISHY_W	-.41214	.31444		
UNRELIAB	-.39269			
ENERGETI	.37576			-.35322
UNDEPEND	-.36698			
METICULO	.35784			
FORMAL	.35086			
PROUD	.34589			
UNSYSTEM	-.32932			
CAUTIOUS	.32804		.30111	
INVENTIV	.31438			
<u>FACTOR 2--SCROOGE (NEUROTICISM?)</u>				
TEMPERAM		.59765		
GRUMPY		.59745		
MOODY		.57479		

TOUCHY		.57045	
BOSSY		.56827	
IRRITABL		.55938	
QUARRELS		.55567	
CRANKY		.55415	
ARGUMENT		.54851	
ABUSIVE		.54685	
GREEDY		.54351	
CRUEL		.53891	
CRABBY		.53539	
SELFISH		.53465	-.30661
RUDE		.53031	
HARSH		.51281	
ANTAGON		.50327	
BULLHEAD		.48181	
STUBBORN		.48154	
JEALOUS		.46948	
VINDICTI		.46879	
SHALLOW		.46337	-.32753
SCATTERB	-.39433	.46299	
UNCOOPER		.45423	
DOMINEER		.45321	
SNOBBISH		.45153	
SELF_PIT	-.30485	.44234	
SUSPICIO		.44182	
IMPOLITE		.43738	
UNKIND		.43162	-.35582
FORCEFUL		.43134	
NEGLIGEN	-.40557	.42758	
HIGH_ST		.42586	
INSENSIT		.42468	-.38799
ENVOIOUS		.42184	
COLD		.42108	-.35356
ERRATIC		.41572	
RASH		.41466	
FAULTFIN		.40618	
PESSIMIS		.40447	
UNSTABLE	-.39997	.40386	
DEFENSIV		.40224	
IMPRACTI	-.35742	.39954	
SMUG		.39682	
CONCEIT		.39563	
INSECURE	-.37231	.38432	.30629
HAPHAZAR	-.36486	.37318	
IGNORANT		.37239	
COMBATIV		.37158	
UNCHARIT		.35443	
UNFORGIV		.34850	
EGOCENTR		.32041	
PATIENT	-.31329		
FRIVOLOU		.30538	
DISTRUST		.30044	

FACTOR 3--AGREEABLENESS

WARM		.65343	
FRIENDLY		.60150	
SYMPATHE		.58502	
CONSIDER		.55936	
KIND		.55896	
AFFECTIO		.54921	
PLEASANT		.53613	
CHEERFUL		.52729	-.30558
POLITE		.52404	
GENEROUS		.50722	
COURTEO		.50276	
EMOTIONA		.49935	
UNDERSTA		.47760	
UNSYMPAT	.32536	-.46601	
RESPECTF		.44493	
SOCIABLE		.43937	-.42588
COOPERA	.37628	.43230	
UNEMOTIO		-.42876	
HELFUL	.38049	.41615	
HAPPY_GO		.41536	
ANXIOUS		.39022	
EASYGOIN		.37090	
MANNERLY		.36715	
AGREEAB		.34470	
TRUSTFUL	.33551	.33967	
IMAGINAT		.33252	
CREATIVE		.31476	
SUGGESTI		.31133	
REASONA		.30053	

FACTOR 4--INTROVERSION/EXTROVERSION

SILENT		.65801	
BASHFUL		.62237	
SHY		.61294	
WITHDRAW		.57412	
UNTALKAT		.56484	
RESERVED		.55646	
QUIET		.53337	
EXTROVER		-.51324	
TIMID		.50373	
INTROVER		.50356	
UNSOCIAB		.46750	
TALKATIV		.34762	-.45641
PASSIVE		.44822	-.31101
SPIRITED	.33043	.38205	-.43823
ZESTFUL			-.43245
BOLD	.37692		-.40240
ENTHUSIA	.35859		-.39569
SUBMISSI			.39526
IMPERSON	.32452		.37422
UNEXICIT		-.36474	.37405
DULL			.36186
NERVOUS	.35412		.36061
OPTIMIST			-.34931

RESTRAIN		.34579
VERBAL		-.34439
INHIBIT		.33990
FEARFUL		.33810
UNADVENT		.33687
DARING	.32648	-.33101

FACTOR 5--OPENNESS-INTELLECT

INSIGHTF			.53786
INTROSPE			.53147
CONTEMP			.52610
FORESIGH	.38124		.48996
INQUISIT			.48350
COMPLEX			.47716
DEEP		.32219	.47466
PERCEPTI	.35216		.46334
UNINQUIS			-.44757
CORDIAL			.43474
IMPERCEP			-.43341
SELF_CRI			.42843
CONSCIEN	.30780		.39891
PHILOSOP			.39841
INNOVATI	.32302		.37032
UNAMBITI		.33030	-.35648
MEDITATI			.33975
UNREFLEC			-.30395

Only loadings above .30 are reported in the above table. Four of the normal Big 5 factors are easily identified, as follows: Introversion, Agreeableness, Conscientiousness (or Dependability), and Intellect. However, what would normally be called the Neuroticism factor was not cleanly identified. Instead, a strong factor was identified which primarily had loadings on the negative traits associated with Agreeableness, such as crabby, grumpy, quarrelsome, cranky, abusive, greedy, cruel, bull-headed and stubborn. This could almost be labeled as a 'Disagreeableness' or 'Scrooge' factor. The oblique solution yielded almost the same picture.

A number of steps were taken to determine if a solution could be obtained using the 205 trait names that would be more in line with the normally reported Big 5 structure. The data were subjected to Principal Axis and Principal Components extractions and to Orthogonal and Oblique rotations. The input data were modified to produce standard scores, which again were factored in a number of ways. The 205 traits were clustered into the original categories suggested by Goldberg and the clusters were factored. In no instance was a clean-cut Neuroticism factor identified.

With 715 subjects the above loadings should be relatively stable. However, the nature of the factors is undoubtedly a function of the traits evaluated. There also is the question of whether there might be 6 or more factors represented in the trait sample. In a series of analyses, 6,7,8,9,10 and up to 30 factors were

extracted and the results reviewed. A subjective review of these solutions led the writer tentatively to conclude that only 5 of the factors remained stable in all of the solutions.

STABILITY OF THE 5-FACTOR SOLUTION

A technique was devised to help resolve the question of factor stability and of whether 6 or more stable factors might be represented in the data. This involved randomly ordering all of the trait names and then dividing them into two independent sets (every other one in set 2). Then 5- and 6-factor orthogonal solutions were obtained in these two independent trait samples and the factor scores were computed and intercorrelated. If a factor is clearly identified by different but related sets of descriptors, and providing the factor score correlation across the two descriptor sets is high, then stability and strength will have been demonstrated. Of particular interest was whether a sixth factor would be identified which showed stability. The results of this investigation are reported on the following pages.

Factor 1

Factor 1--Sample A		Factor 1--Sample B	
QUARRELS	.61576	GRUMPY	.61418
CRUEL	.60690	CRANKY	.60001
HARSH	.59447	BOSSY	.58789
MOODY	.56834	IRRITABL	.58523
TEMPERAM	.55469	ARGUMENT	.58068
CRABBY	.54939	TOUCHY	.56370
SELFISH	.52018	GREEDY	.52401
ABUSIVE	.51463	RUDE	.51874
SNOBBISH	.51408	BULLHEAD	.51853
SHALLOW	.49585	STUBBORN	.50578
COLD	.49574	ANTAGON	.50002
UNCOOPER	.49009	UNKIND	.45279
SMUG	.48528	SCATTERB	.44853
CARELESS	.47358	SELF_PIT	.44471
JEALOUS	.47055	DOMINEER	.44210
VINDICTI	.46747	NEGLIGEN	.43598
HAPHAZAR	.46529	RASH	.40705
ENVIOUS	.45440	SUSPICIO	.40649
SLUGGISH	.44904	DEFENSIV	.40019
ERRATIC	.44772	IMPRACTI	.39843
HIGH_ST	.42324	UNSTABLE	.38830
FORCEFUL	.42304	COMBATIV	.38681
ABSENT_M	.42254	IGNORANT	.37850
WISHY_W	.39179	CONCEIT	.37353
FORGETFU	.39107	UNCHARIT	.36516
EGOCENTR	.39019	IMPOLITE	.35831
PESSIMIS	.38408	DEMANDIN	.35352
UNSYMPAT	.37902	GULLIBLE	.35053
UNDEPEND	.37875	UNFORGIV	.34504

IMPERSON	.37058	FRIVOLOU	.33717
FAULTFIN	.36498	FRETFUL	.32447
NAIVE	.36286	PATIENT	-.30471
UNPREDIC	.36008		
UNOBSERV	.34482		
UNSYSTEM	.32119		

Factor 1--Scrooge, Disagreeableness, Neuroticism

Neither of these two factors is a clean-cut 'Neuroticism' factor. Most of the variables with the highest loadings were designed to have negative loadings on the 'Agreeableness' factor, but they ended defining a factor of their own. A few of the terms, such as fretful, jealous, self-pitying, and unstable are normally found on the Neuroticism factor, but these are not the primary defining traits for the two factors above. Although there is no overlap in the terms defining the above two factors, their nature seems clear, and their factor scores correlated .90.

Factor 2

Factor 2--Sample A		Factor 2--Sample B	
PRECISE	.64797	NEAT	.66698
ORGANIZE	.60031	EFFICIEN	.64382
CAREFUL	.58348	SLOPPY	-.58460
RESPONSI	.55531	CONSISTE	.55036
THOROUGH	.54206	DISORGAN	-.52442
CONFIDEN	.52919	ORDERLY	.52275
DEPENDA	.49525	INEFFIC	-.48071
PERFECTI	.47826	PROMPT	.47220
ASSURED	.43677	RELIABLE	.45989
HELFUL	.43266	LAZY	-.45216
ENERGETI	.43209	STEADY	.44738
ACTIVE	.42831	SMART	.44183
COOPERA	.42756	INTELLIG	.44046
ECONOMIC	.42644	INCONSIS	-.41909
BRAVE	.41185	FORMAL	.41224
PROUD	.40469	PERSIST	.38230
ASSERTIV	.39924	CONCISE	.37814
BRIGHT	.39576	SOPHISTI	.37515
INDUSTRI	.38799	INVENTIV	.36536
DECISIVE	.38251	UNRELIAB	-.36287
CAUTIOUS	.37293		
PUNCTUAL	.36858		
PRACTICA	.36712		
REASONA	.36110		
CREATIVE	.32342		

Factor II Dependability

This is the 'Conscientiousness' or 'Dependability' factor, although note that the trait called conscientiousness does not appear among the loadings in either sample. The highest loaded traits are those which relate to being efficient and organized. It is hypothesized that conscientiousness does not have a high loading on this factor because many airmen do not know what this term means.

Factor 3

Factor 3--Sample A		Factor 3--Sample B	
SILENT	.61987	BASHFUL	.61182
SHY	.56974	TIMID	.55239
UNTALKAT	.54016	QUIET	.55012
WITHDRAW	.51186	RESERVED	.52844
DULL	.45068	UNSOCIAB	.46813
BOLD	-.41716	INTROVER	.44895
DARING	-.41297	EXTROVER	-.41354
NERVOUS	.41204	SUBMISSI	.41255
PASSIVE	.38145	INSECURE	.37842
VERBAL	-.37370	FEARFUL	.36679
ENTHUSIA	-.36402	TALKATIV	-.36243
UNAMBITI	.33677	UNADVENT	.32621
		ZESTFUL	-.31425
		INHIBIT	.30512

Factor 3--Introversion

Both of these factors are clearly related to introversion-extroversion, although both of these trait terms fortuitously ended up in sample B. Factor scores from the two samples correlated .82.

Factor 4

Factor 4--Sample A		Factor 4--Sample B	
FRIENDLY	.55167	CONSIDER	.57730
KIND	.53940	CHEERFUL	.56334
WARM	.53567	COURTEO	.52475
AFFECTIO	.52593	UNDERSTA	.51433
GENEROUS	.48135	SOCIABLE	.49868
POLITE	.46366	SYMPATHE	.48805
EMOTIONA	.45351	RESPECTF	.47514
HAPPY_GO	.42758	SPIRITED	.41951
IMAGINAT	.35165	EASYGOIN	.39510
		UNEXICIT	-.39477
		INSENSIT	-.38160
		AGREEAB	.37311
		UNEMOTIO	-.36101
		TRUSTFUL	.33997
		MANNERLY	.33353
		ADVENTUR	.32706
		ANXIOUS	.30364

Factor 4--Agreeableness

Both of these factors are clearly the 'Agreeableness' or 'Friendliness' factor. Factor scores from the two samples correlated .82.

Factor 5

Factor 5--Sample A		Factor 5--Sample B	
INSIGHTF	.53123	INQUISIT	.55028
FORESIGH	.52621	CONTEMP	.53225
COMPLEX	.48056	INTROSPE	.49231
CONSCIEN	.44443	CORDIAL	.47480
PHILOSOP	.42861	DEEP	.47251
UNINQUIS	-.42527	PERCEPTI	.44243
IMPERCEP	-.41665	SELF_CRI	.40333
METICULO	.38596	INNOVATI	.38215
MEDITATI	.37937	PURPOSEF	.37758
		CULTURED	.34079
		UNREFLEC	-.31124

Factor 5--Intellect, Openness

In both samples, the 'Intellectual-Cultured-Openness' factor is apparent. The factor scores in these two samples correlated .79. Note that conscientiousness loaded on the Sample A factor, and cordial loaded on the Sample B factor. It is believed that in both of the instances many airmen did not know the meaning of these two terms.

Five-Factor Summary

A summary of the above results is provided in the table below, which presents the complete set of intercorrelations among factor scores from the two trait samples. The rows are from sample A while the columns are from sample B. Note that the factors did not appear in the same order, but in each case, the highest correlations are from factors identified as being identical. Note also that, while the within factor correlations are all high, the between factor correlations are extremely low, confirming orthogonality.

	FAC 1	FAC 2	FAC 3	FAC 4	FAC 5
FAC 1	.90	-.13	-.09	.13	-.05
FAC 2	.01	.82	.22	-.02	.06
FAC 3	-.01	-.15	-.10	.82	-.06
FAC 4	.02	.03	.82	.09	.08
FAC 5	.06	.19	-.07	-.07	.79

6 Factor Solution

6-Factor solutions were computed within sample A and Sample B, and the resulting factor scores were intercorrelated. The table below presents the results. Within each solution, the standard Big 5 factors remained in tact, although the correlations of their corresponding factor scores were slightly reduced. The correlations for the 6th factor in the two samples was only -.38 .

	FAC 1	FAC 2	FAC 3	FAC 4	FAC 5	FAC 6
FAC 1	.18	.82	-.03	.10	-.05	.43
FAC 2	-.75	.01	.38	.04	.08	.04
FAC 3	.20	-.02	-.10	.82	-.04	.04
FAC 4	-.17	.06	-.08	-.09	.78	.01
FAC 5	.14	.05	.77	.05	.07	-.21
FAC 6	-.10	.18	.07	-.01	.20	-.38

It can be seen that, while the Big 5 factors are all identifiable in both the sample A and sample B trait solutions, the 6th factor in sample A is related to creativity (creative, imaginative, uncreative, philosophical and wordy) while the 6th factor in sample B is a mushy factor somewhat related to being insensitive and unemotional (insensitive, impolite, unkind, unemotional, unreliable, ignorant, unexcited, uncharitable, distrustful). It was concluded that a stable sixth factor could not be found in this data set.

Stability of 5-Factor Solutions in 10 Random Samples

In order to evaluate the stability of the 5-factor solution using the full 205-trait set, the 205 traits were sorted into 5 random orders each of which was divided into two subsamples. 5-factor orthogonal solutions were obtained in each of these 10 subsamples. Note that a particular trait only appeared in 5 of the ten subsamples. Fortunately, what appeared to be the same 5 factors were identified in all 10 subsamples. A count was made of the number of times each trait loaded on one of these 5 identified factors. Below is reported each of the traits which had significant loadings on the same factor in at least 4 of the 5 possible times, along with its average loading.

FACTOR 1

NAME	#	LOADING	TEMPERAM	5	0.54
CRANKY	5	0.63	ABUSIVE	4	0.50
GRUMPY	4	0.61	ANTAGON	5	0.50
HARSH	4	0.61	JEALOUS	5	0.50
IRRITABL	5	0.61	BULLHEAD	4	0.50
QUARRELS	4	0.61	SNOBBISH	4	0.49
MOODY	5	0.60	ENVIIOUS	4	0.48
CRABBY	4	0.58	STUBBORN	4	0.48
ARGUMENT	5	0.57	CARELESS	4	0.47
CRUEL	5	0.57	COLD	4	0.47
RUDE	5	0.57	SCATTERB	5	0.47
TOUCHY	4	0.57	SELF-PIT	5	0.47
BOSSY	4	0.56	FORCEFUL	5	0.46
GREEDY	4	0.54	SHALLOW	4	0.46
SELFISH	5	0.54	SLUGGISH	4	0.46

SMUG	4	0.46	COMBATIVE	4	0.40
VINDICT	4	0.46	DEFENSIV	4	0.40
ERRATIC	5	0.45	SUSPICIO	5	0.40
UNCOOPER	4	0.45	UNCHARIT	5	0.40
HAPHAZAR	4	0.44	WISHY-W	4	0.40
HIGH_ST	5	0.44	IGNORANT	5	0.39
NEGLIGEN	5	0.44	CONCEIT	5	0.38
ABSENT_M	5	0.43	FAULTFIN	5	0.38
FORGETFUL	4	0.43	PESSIMIS	4	0.37
DOMINEER	4	0.42	EGOCENTR	4	0.36
GULLIBLE	4	0.42	NAIVE	4	0.36
RASH	4	0.42	UNDEPEND	4	0.36
UNSTABLE	4	0.42	UNFORGIV	4	0.36
IMPRACTI	5	0.41	IMPERSONAL	4	0.35
INSENSITIVE	4	0.41	FRIVOLOU	4	0.34

FACTOR 2

NEAT	5	0.67	BRIGHT	4	0.45
PRECISE	5	0.62	LAZY	4	-0.45
EFFICIENT	5	0.61	BRAVE	5	0.44
CAREFUL	4	0.57	DECISIVE	4	0.44
CONSISTENT	5	0.55	ASSURED	5	0.43
SLOPPY	5	-0.55	ECONOMIC	5	0.43
RESPONSI	5	0.53	INDUSTRI	4	0.42
THOROUGH	5	0.53	ACTIVE	4	0.41
DISORGAN	5	-0.52	CONCISE	5	0.41
HELPFUL	4	0.52	FORMAL	4	0.41
ORDERLY	5	0.52	PERSIST	5	0.40
ENERGETI	4	0.50	PRACTICA	5	0.40
COOPERA	4	0.49	PUNCTUAL	5	0.40
DEPENDA	5	0.49	CREATIVE	5	0.39
PERFECTI	5	0.49	INVENTIV	4	0.38
CONFIDENT	5	0.47	SOPHISTIC	5	0.36
PROMPT	5	0.46			
RELIABLE	5	0.46			
STEADY	5	0.46			

FACTOR 3

SILENT	5	0.64	WITHDRAW	5	0.52
BASHFUL	5	0.63	RESERVED	5	0.5
SHY	5	0.62	NERVOUS	4	0.47
TIMID	5	0.58	UNSOCIAB	5	0.46
QUIET	5	0.57	INTROVER	5	0.44
UNTALKAT	5	0.53	SUBMISSI	5	0.44

DULL	4	0.43	FEARFUL	4	0.39
TALKATIV	4	-0.43	VERBAL	4	-0.39
PASSIVE	5	0.41	UNAMBIT	5	0.36
EXTROVERT	5	-0.4	UNADVENT	4	0.34

FACTOR 4

FRIENDLY	4	0.63	UNDERSTA	4	0.5
CHEERFUL	5	0.58	RESPECTF	5	0.48
KIND	5	0.57	SOCIABLE	4	0.48
PLEASANT	4	0.57	SYMPATHE	5	0.48
AFFECTIO	5	0.55	HAPPY-GO	5	0.44
WARM	4	0.54	EMOTIONA	5	0.43
COURTEO	4	0.52	UNEMOTIO	4	-0.43
GENEROUS	4	0.52	UNEXCIT	4	-0.39
POLITE	4	0.52	ADVENTUR	4	0.34

FACTOR 5

INQUISIT	5	0.54	INSIGHTF	5	0.52
CONTEMP	5	0.53	COMPLEX	4	0.49
CORDIAL	5	0.48	FORESIGH	5	0.49
DEEP	5	0.46	SELF-CRI	4	0.42
INTROSPEC	5	0.46	IMPERCEP	5	0.40
CONSCIEN	5	0.45	METICULO	4	0.40
PERCEPTI	4	0.45	PURPOSEF	4	0.39
PHILOSOP	5	0.44	INNOVATI	4	0.38
UNINQUIS	4	0.44	MEDITATI	5	0.38
			CULTURED	5	0.34

Discussion

The above tables reveal remarkable stability for the five factors identified in the random subsamples. With minor exceptions, all five factors were found in each of the 10 random trait lists. Any particular trait could have appeared in up to 5 of the solutions. All those reported in the tables above loaded on the same factors in at least 4 of these 5 of the solutions. It would appear that the five factors would be found in any random half of the trait variables likely to be generated. Nevertheless, there are some things which are bothersome concerning the factors and their definitions.

First, as indicated previously, in no instance was a clean Neuroticism factor identified. Instead a factor was identified which would better be labeled as a 'disagreeableness' or 'scrooge' factor. Traits such as jealous, unstable, and defensive did load on the factor, but they did not have the highest loadings. Furthermore traits such as nervous and fearful ended up on the introversion factor.

Second, the 'Intellect' or 'Openness' factor had two trait loadings which seems out of place. These are for 'cordial' and 'conscientiousness'. It would seem that 'cordial' should have been loaded on the 'Agreeableness' factor, while the trait 'conscientiousness' is often given as the alternative title to the 'Dependableness' factor. These unexpected results may be due to the fact that many airmen do not know the meaning of these terms.

AIRMEN KNOWLEDGE OF TRAIT NAMES

As mentioned previously, there may have been a vocabulary problem which affected the solutions reported in the military sample, which was made up of enlisted personnel. Appendix 3 describes a study on the confusion of trait names.

DEVELOPMENT OF THE 106-TRAIT INVENTORY

As demonstrated in the study above on trait names, the 205-trait inventory did not yield a clean-cut Neuroticism factor. It was finally concluded that this was primarily due to the selection of traits which were included in the analyses. A new factor analysis was performed which included only the 95 traits selected from Goldberg's 100-trait marker list. This solution did produce a cleaner 5-factor solution, with the Neuroticism factor more clearly identified. Factor scores were computed from this solution and correlated with the remaining traits in the 205-trait list, and 11 additional traits were added to the short list, bringing it to a total of 106 terms. These traits were as follows:

- | | | |
|-------------------|-------------------|---------------------|
| 1. ACTIVE | 26. ENTHUSIASTIC | 52. MEDITATIVE |
| 2. AFFECTIONATE | 27. ENVIOUS | 53. MOODY |
| 3. ANXIOUS | 28. EXTROVERTED | 54. NEAT |
| 4. ASSURED | 29. FEARFUL | 55. NEGLIGENT |
| 5. BASHFUL | 30. FORESIGHT | 56. NERVOUS |
| 6. BOLD | 31. FRETFUL | 57. ORDERLY |
| 7. BRIGHT | 32. FRIENDLY | 58. ORGANIZED |
| 8. CAREFUL | 33. GENEROUS | 59. PASSIVE |
| 9. CARELESS | 34. HELPFUL | 60. PATIENT |
| 10. CHEERFUL | 35. HIGH_STRUNG | 61. PERCEPTIVE |
| 11. COLD | 36. IMPRACTICAL | 62. PERFECTIONISTIC |
| 12. COMPLEX | 37. INCONSISTENT | 63. PERSISTENT |
| 13. CONSIDERATE | 38. INDUSTRIOUS | 64. PHILOSOPHICAL |
| 14. CONSISTENT | 39. INEFFICIENT | 65. PLEASANT |
| 15. CONTEMPLATIVE | 40. INNOVATIVE | 66. POLITE |
| 16. COOPERATIVE | 41. INQUISITIVE | 67. PRACTICAL |
| 17. COURTEOUS | 42. INSECURE | 68. PRECISE |
| 18. CREATIVE | 43. INSENSITIVE | 69. PROMPT |
| 19. DEEP | 44. INSIGHTFUL | 70. PUNCTUAL |
| 20. DEFENSIVE | 45. INTROSPECTIVE | 71. QUIET |
| 21. DEPENDABLE | 46. INTROVERTED | 72. RELAXED |
| 22. DISORGANIZED | 47. INVENTIVE | 73. RESERVED |
| 23. EFFICIENT | 48. IRRITABLE | 74. RESPECTFUL |
| 24. EMOTIONAL | 49. JEALOUS | 75. RESPONSIBLE |
| 25. ENERGETIC | 50. KIND | 76. SELF-PITYING |
| | 51. LAZY | 77. SELFISH |

78. SHALLOW	88. TEMPERAMENTAL	98. UNKIND
79. SHY	89. THOROUGH	99. UNREFLECTIVE
80. SILENT	90. TIMID	100. UNSOCIABLE
81. SLOPPY	91. TOUCHY	101. UNSTABLE
82. SLUGGISH	92. TRUSTFUL	102. UNSYMPATHETIC
83. SOCIABLE	93. UNCHARITABLE	103. UNTALKATIVE
84. SPIRITED	94. UNDEPENDABLE	104. VERBAL
85. STEADY	95. UNDERSTANDING	105. WARM
86. SYMPATHETIC	96. UNEMOTIONAL	106. WITHDRAWN
87. TALKATIVE	97. UNINQUISITIVE	

COMPARISON SOLUTIONS FROM 205- AND 106-TRAIT LISTS

By this time, data had been collected from over 1100 subjects. A decision was made to use this common sample to compute solutions using the two lists and to compare them. In each instance, Principal Components factors were extracted and rotated using the VARIMAX method. Factor scores were computed in each instance and were compared.

205-Trait Solution

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
QUARRELS	.64598	-.10996	-.08052	-.02201	-.06080
GRUMPY	.64060	-.19917	-.11199	.16024	.05900
HARSH	.61964	.06337	-.25125	-.02905	.05953
CRANKY	.61860	-.20793	-.07805	.15580	.06357
IRRITABL	.60666	-.13045	-.10679	.06947	.10279
CRUEL	.60145	-.03963	-.26767	.05287	-.08189
RUDE	.59904	-.12279	-.20581	.02385	-.07717
CRABBY	.59812	-.19770	-.15634	.15485	.10979
ARGUMENT	.58518	-.09898	-.04290	-.13644	.07808
BOSSY	.56955	.08204	-.11869	-.23786	.08790
MOODY	.56764	-.16309	-.05624	.17636	.09643
GREEDY	.55667	-.11643	-.17917	.06031	-.00558
TEMPERAM	.55602	-.10636	-.04753	.04536	.07988
SELFISH	.55226	-.17509	-.27467	.08426	.09469
TOUCHY	.54500	-.09747	-.00583	.12206	.04981
ANTAGON	.53926	-.00323	-.01357	.03162	-.20395
JEALOUS	.52086	-.13671	.04631	.08458	-.09878
ABUSIVE	.51879	-.06107	-.21817	.09248	-.08668
BULLHEAD	.51306	-.12868	-.11029	-.10582	.24951
UNKIND	.51021	-.06591	-.36743	.07251	-.12122
COLD	.50871	.06457	-.34083	.09159	-.08084
SNOBBISH	.50725	-.04650	-.21850	.02608	-.02064
SCATTERB	.50409	-.34158	.06676	.17755	-.06876
STUBBORN	.50254	-.14802	-.10029	-.04920	.27301
UNCOOPER	.50006	-.27167	-.21152	.15913	-.04289
NEGLIGEN	.49430	-.29092	.00697	.12604	-.22262
VINDICTI	.48984	.00717	-.03195	.01351	-.18285
SELF PIT	.48236	-.27228	.04342	.25802	-.06573
RASH	.47993	-.11451	-.02392	-.04208	-.06790
ENVIOUS	.47681	-.13938	.04140	.15271	-.10682
SLUGGISH	.47433	-.37079	-.02013	.28760	-.04312
SHALLOW	.47418	-.09278	-.09888	.26965	-.30564
CARELESS	.47374	-.40512	.00477	.08302	-.03033
ERRATIC	.47108	-.13922	.20857	.02522	-.19408
SMUG	.47103	-.11030	-.11638	.05527	-.09723
DEFENSIV	.46592	.01018	.03104	.09941	.00989
UNSTABLE	.45642	-.34572	-.10093	.21437	-.11552
HAPHAZAR	.45361	-.21240	.09225	.13528	-.21344
IGNORANT	.45325	-.23699	-.09057	.16851	-.10552
IMPRACTI	.45099	-.30658	.01363	.09184	-.21112
HIGH ST	.44319	.04198	.07380	-.05920	.03554
DOMINEER	.44134	.18629	-.02265	-.24492	.01835

UNCHARIT	.44025	-.06388	-.17848	.18665	-.18428
IMPOLITE	.44010	-.10690	-.28038	.15926	-.11080
SUSPICIO	.43873	.02353	-.02237	.11099	.03372
INCONSIS	.43641	-.38119	.00340	.22942	-.08146
FORCEFUL	.43147	.13019	-.17237	-.16122	.20085
INSENSIT	.42624	-.05378	-.30692	.13336	-.21667
CONCEIT	.42046	.02657	-.12409	-.10683	.01907
UNFORGIV	.41533	.00034	-.21203	.07355	-.13019
INEFFIC	.41054	-.39075	.01099	.18456	-.17744
INSECURE	.40668	-.34855	.01621	.37442	.08792
FAULTFIN	.40657	.13608	-.10315	.03646	.11646
PESSIMIS	.40411	-.09796	-.04933	.25161	-.16279
WISHY W	.40321	-.31365	.07178	.25349	-.15338
IMPERSON	.39943	.00822	-.14549	.24391	-.27098
EGOCENTR	.39559	.12330	-.08300	-.12098	-.08640
UNPREDIC	.39449	-.10296	.11426	-.08142	.03188
GULLIBLE	.39051	-.27719	.11200	.26844	-.09415
COMBATIV	.38884	.26022	-.03597	-.12876	-.15184
UNRELIAB	.38700	-.29128	-.09668	.18129	-.11951
FRETFUL	.38642	-.15753	.09318	.27051	-.10887
UNDEPEND	.36913	-.25983	-.09701	.19858	-.12803
UNOBSERV	.36728	-.26279	-.02716	.17595	-.20448
NAIVE	.35855	-.23325	.06525	.27401	-.08869
UNSYSTEM	.35434	-.27775	.04297	.08815	-.10746
FRIVOLOU	.34044	-.09017	.12868	.05490	-.10690
DISTRUST	.33718	-.15576	-.22376	.15068	.15264
DEMANDIN	.33122	.29492	-.06908	-.20570	.20321
UNREFLEC	.32215	-.12597	-.07437	.16322	-.27231
UNSOPHIS	.31783	-.22986	-.06841	.19038	-.17927
PATIENT	-.29619	.29363	.28854	.20725	.05554
UNCREAT	.29030	-.17146	-.18533	.22602	-.21255
WORDY	.27493	.03939	.15525	-.21042	.16807
UNIMAGIN	.27368	-.10980	-.17549	.20723	-.24522
UNRESTRA	.24257	-.09297	.04649	-.16947	-.04666
UNINHIB	.21361	-.08574	-.02773	-.13836	.20915
ORGANIZE	-.14679	.67636	.08954	.05342	.02443
NEAT	-.14113	.67348	.18291	.09621	-.03692
EFFICIEN	-.15182	.65790	.15062	-.03099	.15727
PRECISE	-.15491	.62540	.07639	-.00560	.22938
CONSISTE	-.14805	.57121	.16140	-.08571	.17016
RESPONSI	-.12545	.56787	.21839	-.08627	.16124
CAREFUL	-.15378	.56096	.28512	.11567	-.03209
ORDERLY	-.13813	.54526	.07746	.06371	.17193
CONFIDEN	-.07811	.53857	.23888	-.30646	.02902
PROMPT	-.11917	.53021	.10077	-.07028	.16495
THOROUGH	-.13957	.52361	.10219	-.10570	.30556
SLOPPY	.41744	-.52360	.03528	.06413	-.00786
PERFECTI	-.02512	.50742	.04959	.01417	.23684
STEADY	-.17105	.49992	.20600	-.02181	.16761
DISORGAN	.35460	-.49977	.05151	.05060	-.00612
RELIABLE	-.13128	.48790	.20210	-.10571	.14077
DEPENDA	-.14000	.48469	.24468	-.06629	.19736
BRAVE	.00608	.47674	.25333	-.23802	.06822
FORMAL	-.04191	.46990	.24630	.04565	-.02442
ACTIVE	-.04260	.46565	.28626	-.25874	.00807
ENERGETI	-.03439	.46546	.34210	-.26415	.00773
ECONOMIC	-.05976	.45572	.12330	.07420	.06912
LAZY	.41409	-.45346	.04381	.15134	.01442
ASSURED	-.14066	.44678	.15649	-.23174	.13620
ABSENT_M	.43752	-.44066	.06207	.12954	.10429
BRIGHT	-.11633	.43717	.25800	-.18108	.34916
PROUD	.02857	.43227	.28026	-.18229	-.06740
SMART	-.13277	.42058	.14578	-.13726	.40702
COOPERA	-.22630	.41816	.41157	.02511	.03850
CONCISE	-.11457	.41349	.06246	-.00008	.31644
FORGETFU	.41008	-.41010	.14858	.18844	.01226
PERSIST	.01275	.40994	.12354	-.19698	.31820
INDUSTRI	-.10079	.40712	.04611	-.06895	.34117
CAUTIOUS	-.03389	.40284	.26943	.25975	-.02414
PUNCTUAL	-.09305	.40140	-.04282	-.02934	.33753
ASSERTIV	-.09616	.39883	.08143	-.27164	.32819
PRACTICA	-.12663	.38789	.13624	.07794	.33562
ENTHUSIA	-.03969	.38650	.36872	-.29583	.09499
ADVENTUR	.07000	.36320	.33336	-.25545	.09926
CREATIVE	-.05443	.36221	.28662	-.10269	.22903
SOPHISTI	-.02827	.36219	.17698	-.10317	.23400

INVENTIV	-.04347	.34751	.09985	-.06863	.29097
THRIFTY	-.01869	.23413	.06345	.03730	.11623
FRIENDLY	-.16131	.27378	.63747	-.13864	.03005
KIND	-.23160	.27192	.59212	.08097	.06794
CONSIDER	-.20219	.31063	.57750	.03785	.15262
CHEERFUL	-.12247	.29922	.56856	-.26708	.00968
WARM	-.10963	.12761	.56788	-.01877	.14755
PLEASANT	-.23153	.32040	.56245	-.05132	.07250
AFFECTIO	-.05280	.11127	.55437	-.10410	.16224
POLITE	-.14896	.27873	.54200	.04927	.10501
SYMPATHE	-.14741	.03546	.54008	.10439	.27623
UNDERSTA	-.15480	.27225	.52699	.04914	.10350
COURTEO	-.17736	.35487	.52458	-.02315	.13454
GENEROUS	-.13643	.27713	.51839	-.03090	.02364
HAPPY GO	.06228	.06054	.49553	-.15829	-.10452
HELFUL	-.13146	.41967	.48771	-.02055	.05723
SOCIABLE	-.04929	.25655	.47528	-.42099	.00352
EASYGOIN	-.07595	.08613	.45225	.04104	-.03674
RESPECTF	-.14718	.33888	.44605	.01416	.15089
EMOTIONA	.19180	-.05080	.42314	.07040	.05930
SPIRITED	-.03750	.36567	.42066	-.33494	.11566
AGREEAB	-.16333	.27665	.41683	.08085	-.00144
UNSYMPAT	.39374	.05239	-.39645	.06547	-.16980
REASONA	-.18086	.34015	.38376	.00266	.18575
UNEMOTIO	.15638	.08140	-.38158	.15422	-.02754
MANNERLY	-.11197	.30407	.34974	-.06382	.16686
TRUSTFUL	-.08942	.33839	.34251	.01152	-.03761
RELAXED	-.10649	.19622	.33894	-.10496	-.02798
SUGGESTI	.14809	.24580	.32495	-.00608	-.14384
ANXIOUS	.29619	.09598	.31963	.03938	-.09421
IMAGINAT	-.06735	.25995	.30257	-.07687	.28010
LENIENT	.01989	-.04412	.29439	.16074	.03450
CAREFREE	.19156	-.10109	.27290	-.08393	.01399
SILENT	.08058	.02705	-.07291	.66983	.02007
SHY	.14304	-.04636	-.02312	.65953	-.02930
BASHFUL	.17722	-.12937	.02099	.65350	-.06337
QUIET	.02859	.01420	-.03523	.64022	.04446
TIMID	.25176	-.08340	.04729	.60077	-.15701
UNTALKAT	.07693	-.03691	-.21656	.59780	.03316
WITHDRAW	.32591	-.16503	-.13602	.54530	.00719
RESERVED	.04259	.10634	.01912	.53468	.02464
UNSOCIAB	.26906	-.15144	-.25962	.50369	.04191
TALKATIV	.21510	.04844	.32021	-.48475	.01960
INTROVER	.18044	-.00564	-.00853	.43774	-.08628
DULL	.32206	-.25055	-.19415	.43296	-.04779
NERVOUS	.38246	-.25834	.10061	.42738	-.02090
VERBAL	.22170	.18482	.16083	-.40681	.20377
PASSIVE	.15458	-.04145	.18879	.39614	-.19348
BOLD	.14549	.34310	.11905	-.38720	.19974
SUBMISSI	.24959	-.07781	.17427	.37856	-.24930
EXTROVER	.10251	-.05868	.09908	-.37467	.19959
FEARFUL	.33266	-.21446	.06404	.36059	-.02063
UNEXICIT	.15019	-.11712	-.32521	.35858	.05148
DARING	.15298	.30706	.20292	-.35065	.13285
SIMPLE	.10106	.02474	.19257	.30750	-.27730
UNADVENT	.23264	-.19656	-.11898	.29636	-.09122
ZESTFUL	-.06312	.28666	.24932	-.29198	.27204
PREDICTA	.00679	.05182	.03815	.27769	-.11156
INHIBIT	.20952	-.01554	.08376	.27519	-.07303
RESTRAIN	.02539	-.00539	-.08484	.27485	.21459
UNDEMAND	-.03437	-.21890	.10539	.22629	-.15110
UNCRITIC	-.05476	-.12932	.14038	.18934	-.10699
INQUISIT	-.08871	.07327	.02135	-.10833	.59035
CONTEMP	.01326	-.02184	.00457	.05832	.54528
CORDIAL	-.17587	.10037	.06591	-.08992	.53802
INSIGHTF	-.05498	.09064	.04328	-.02805	.51302
INTROSPE	.01381	.02805	-.01870	.05699	.51155
FORESIGH	-.01095	.22045	.01067	-.07820	.51073
DEEP	.02785	.03889	.21375	-.07186	.50493
SELF_CRI	.13162	.04761	-.01982	.01431	.48643
PERCEPTI	-.14476	.28463	.13753	-.11043	.48582
CONSCIEN	-.12334	.18688	.10067	.00185	.47078
INNOVATI	-.09073	.26981	.07287	-.11625	.46499
PHILOSOP	.02903	.12393	.13087	-.05903	.45613
COMPLEX	.19429	.09878	-.04182	-.07311	.43472
UNINQUIS	.29112	-.08845	.01698	.19725	-.41485

METICULO	-.02548	.24541	-.06215	.02198	.41384
INTELLIG	-.09921	.40511	.13414	-.11910	.41199
PURPOSEF	-.16534	.36411	.14472	-.09214	.40299
DECISIVE	-.10289	.37294	.03932	-.21456	.38120
IMPERCEP	.32755	-.04120	.04326	.22498	-.36928
MEDITATI	.04396	.06414	.06877	.10115	.36583
VIGOROUS	-.02222	.26057	.04573	-.15057	.36489
OPTIMIST	-.17101	.18879	.17311	-.18586	.32234
CULTURED	-.01433	.30281	.22698	-.06542	.31239
UNAMBITI	.28046	-.16061	-.03569	.27989	-.28092
ARTISTIC	-.01731	.16598	.16461	-.00663	.16969

106-Trait Solution

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
ORGANIZE	.68938	-.13852	.11708	.04226	-.00502
NEAT	.68265	-.11107	.21558	.08689	-.07229
EFFICIEN	.65610	-.17419	.16896	-.02520	.12431
PRECISE	.63554	-.15718	.10307	-.01403	.20771
RESPONSI	.58596	-.11303	.24038	-.08675	.12023
CONSISTE	.57493	-.16684	.17848	-.09634	.15365
CAREFUL	.55837	-.09801	.31703	.08198	-.06261
ORDERLY	.55798	-.13372	.11435	.05121	.13267
PROMPT	.54583	-.12255	.12201	-.07645	.12516
THOROUGH	.54559	-.14832	.11336	-.12618	.28404
PERFECTI	.52529	-.05596	.04872	-.00098	.23183
ENERGETI	.50537	-.01929	.30311	-.27800	-.01651
STEADY	.50289	-.17078	.22351	-.04317	.14961
SLOPPY	-.50259	.44629	-.04284	-.01421	.02392
ACTIVE	.50060	-.04311	.24896	-.26381	-.02597
DISORGAN	-.49958	.37101	-.01516	-.01540	.02936
DEPENDA	.48758	-.13909	.28525	-.05621	.16677
PERSIST	.45029	-.00382	.09624	-.21299	.28994
PUNCTUAL	.43287	-.12331	-.02739	-.03168	.28210
BRIGHT	.43230	-.13337	.26090	-.17038	.34584
INDUSTRI	.42337	-.13734	.04465	-.04563	.36069
ASSURED	.41664	-.18770	.16190	-.23418	.14585
ENTHUSIA	.40931	-.04805	.33809	-.30799	.06229
PRACTICA	.40191	-.12180	.15249	.05759	.31956
SPIRITED	.38116	-.05147	.37799	-.34773	.09993
CREATIVE	.37564	-.04305	.23463	-.10973	.26548
INVENTIV	.35454	-.07731	.04888	-.05165	.34905
IRRITABL	-.08781	.59972	-.18981	.02512	.08952
MOODY	-.11240	.59563	-.11560	.12782	.06720
TOUCHY	-.06673	.57249	-.05471	.06072	.02673
JEALOUS	-.12151	.56940	-.00167	.02769	-.10137
TEMPERAM	-.07338	.56450	-.11480	-.01049	.06479
SELF_PIT	-.24485	.55075	-.01653	.17862	-.05366
ENVIOUS	-.11470	.53179	-.02647	.08978	-.07562
SLUGGISH	-.35225	.52494	-.08508	.18901	-.02570
NEGLIGEN	-.26271	.52279	-.11772	.03426	-.16905
SELFISH	-.14023	.52122	-.35873	.02590	.10690
NERVOUS	-.21548	.51152	.08073	.36600	-.04012
UNSTABLE	-.30842	.50889	-.18649	.13143	-.07977
SHALLOW	-.07053	.50435	-.17673	.18225	-.29910
CARELESS	-.37026	.49357	-.11265	.00449	-.00331
IMPRACTI	-.27467	.48998	-.07178	.00721	-.19395
DEFENSIV	.01200	.48856	-.01547	.06688	.03780
INSECURE	-.32354	.48793	-.01179	.29672	.08528
INCONSIS	-.36779	.47793	-.07742	.16131	-.04298
FRETFUL	-.12195	.47149	.02673	.20103	-.09193
INEFFIC	-.37344	.46200	-.06796	.08941	-.12789
UNCHARIT	-.02668	.45773	-.27728	.12684	-.14189
COLD	.09269	.45723	-.45133	.02510	-.04290
HIGH_ST	.07717	.45541	-.02025	-.11565	.06604
LAZY	-.43028	.45174	-.03045	.07870	.02936
FEARFUL	-.18843	.43231	.04434	.28619	-.01643
UNDEPEND	-.23763	.39025	-.17456	.11307	-.09478
ANXIOUS	.10037	.36638	.26168	-.01540	-.06439
UNREFLEC	-.08002	.34616	-.15994	.10830	-.29649
FRIENDLY	.28497	-.06546	.65901	-.18467	-.00697
KIND	.27170	-.14104	.65415	.06381	.01120

CONSIDER	.31587	-.11364	.63068	.01968	.10052
SYMPATHE	.03107	-.04261	.62248	.07042	.23270
WARM	.11822	-.02439	.60858	-.05839	.13423
AFFECTIO	.09613	.02912	.60103	-.12585	.13281
POLITE	.28747	-.05382	.58465	.01991	.05811
COURTEO	.36425	-.09821	.56408	-.05272	.08765
PLEASANT	.34650	-.15183	.56222	-.07755	.03352
UNDERSTA	.28068	-.06027	.55182	.00669	.07444
CHEERFUL	.32313	-.07752	.54531	-.30302	-.01437
GENEROUS	.27398	-.08181	.53484	-.06463	.00661
UNSYMPAT	.08596	.33877	-.51329	.03206	-.12777
HELFUL	.43375	-.07131	.50504	-.03445	.02466
RESPECTF	.36182	-.06600	.48309	-.00855	.10254
UNKIND	-.04644	.45294	-.47208	.01082	-.08595
UNEMOTIO	.10807	.08793	-.44852	.13832	-.00813
EMOTIONA	-.05535	.30508	.44257	.03098	.05704
INSENSIT	-.00891	.39857	-.43408	.08436	-.16778
COOPERA	.42118	-.15190	.43325	-.00191	.00207
TRUSTFUL	.35525	-.03359	.35916	.00593	-.06697
PATIENT	.27105	-.24465	.32187	.19573	.05272
RELAXED	.19133	-.10781	.28490	-.12172	-.01340
SILENT	.02142	.13333	-.04020	.72329	.02328
SHY	-.03207	.21868	-.00275	.70318	-.05013
QUIET	.01761	.09973	.00581	.68755	.04496
BASHFUL	-.10922	.26578	.03005	.67760	-.08028
UNTALKAT	-.04097	.10735	-.17373	.64127	.04555
TALKATIV	.08434	.22211	.22094	-.59053	.04408
TIMID	-.06715	.35721	.02072	.56769	-.14262
RESERVED	.09131	.09753	.04533	.53483	.02893
WITHDRAW	-.13768	.37246	-.17885	.51702	.03118
SOCIABLE	.25320	-.02331	.45370	-.49417	-.00881
UNSOCIAB	-.12617	.29530	-.28704	.49413	.06511
VERBAL	.18582	.18436	.10136	-.47704	.23505
EXTROVER	-.02922	.06807	.05329	-.43265	.18690
INTROVER	-.01913	.20149	-.03782	.42811	-.03519
BOLD	.35203	.08322	.03996	-.39707	.22714
PASSIVE	-.02991	.24488	.13730	.35598	-.15507
INQUISIT	.08945	-.11416	.03758	-.10490	.60777
CONTEMP	-.02493	.00101	.03389	.06498	.57190
DEEP	.01686	.01668	.22553	-.05937	.56253
INTROSPE	.01872	-.00551	-.01071	.04611	.55742
FORESIGH	.23167	-.04891	-.01177	-.08765	.55639
PHILOSOP	.09505	.01594	.12058	-.07888	.54609
INSIGHTF	.11746	-.06564	.04296	-.03831	.52896
INNOVATI	.27912	-.13447	.05198	-.09447	.49225
COMPLEX	.09116	.15618	-.05923	-.07216	.48697
PERCEPT	.28326	-.17094	.16513	-.09792	.48059
MEDITATI	.06263	.05026	.06085	.09112	.41071
UNINQUIS	-.08550	.32760	-.04395	.13881	-.39463

Correlations of Factor Scores from 205- and 106 Solutions.

Correlations:	F106_1	F106_2	F106_3	F106_4	F106_5
FAC205_1	.0151	.9318**	-.1788**	-.0951*	.0444
FAC205_2	.9638**	-.0715	.0228	.0027	.0113
FAC205_3	.0575	.1652**	.9421**	-.0913*	-.0140
FAC205_4	.0117	.1653**	.0501	.9461**	-.0182
FAC205_5	.0547	-.0319	.0445	.0026	.9382**

N of cases: 1078 2-tailed Signif: * - .01 ** - .001

On the surface, the “Scrooge” factor from the 205-trait solution and the “Neuroticism” factor from the 106-trait solution looked different. The top loadings on the “Scrooge” factor included such traits as quarrelsome, grumpy, harsh, cranky, cruel, rude, crabby, argumentative, bossy, greedy, selfish, touchy, antagonistic, bull-headed, unkind, and cold; while the top loadings on the 106-trait solution included such traits as moody, jealous, self-pitying, nervous, unstable, insecure, fretful, and inconsistent. **Although the traits defining the**

two factors appear different, the factor scores correlated .93, suggesting that they had much in common.

Relationship Between Agreeableness, Disagreeableness, and Neuroticism

From the beginning of this stream of research there was some difficulty in identifying a clean-cut Neuroticism factor. The variables normally loaded on the Neuroticism factor were found to load on a factor that was better labeled as 'Scrooge,' and the variables that had the highest loadings on it were originally classified as belonging on the negative side of Agreeableness. The correlation of .93 between the 'Scrooge' factor identified in the 205 variable solution and the 'Neuroticism' factor identified in the 106 variable solution suggested that these two factors had much in common. One of the causes for this high correlation was that some of the variables included in the two solutions were identical. However, this could not have been the sole reason for the high overlap. To gain a better understanding of what was going on, the trait names classified as positive on the Agreeableness factor, those classified as negative on the Agreeableness factor, and those classified as negative on the Emotional Stability (Neuroticism) factor were analyzed as a group (see pp. 3-9 for these classifications).

First, a single principal components factor was extracted from each of the three groups of variables. The intercorrelations of these factors are presented below:

CORRELATIONS OF SINGLE FACTORS EXTRACTED FROM POSITIVE ITEMS ON AGREEABLENESS, NEGATIVE ITEMS ON AGREEABLENESS, AND ITEMS ON NEUROTICISM

Variable	AGREE.-POS.	AGREE.-NEG.	NEUROTICISM
AGREE.-POS.	1.00	-.51	-.27
AGREE.-NEG.	-.51	1.00	.69
NEUROTICISM	-.27	.69	1.00

Notice that the factor identified with the negative traits on Agreeableness correlated higher with the Neuroticism factor than it did with the positive Agreeableness factor (.69 Vs -.51.)

In a second analysis, the three sets of variables were combined and subjected to a factor analysis in which three principal components factors were extracted and subjected to oblique rotations (oblim). The three-factor solution is presented below:

Pattern Matrix:

	Factor 1	Factor 2	Factor 3
BOSSY	.67337	-.04484	-.08424
DEMANDIN	.62693	.12383	-.30418
DOMINEER	.62258	.06430	-.19235

HARSH	.61309	-.17338	.04543
ARGUMENT	.56104	-.02861	.13604
BULLHEAD	.53482	-.07708	.06815
QUARRELS	.51880	-.09765	.24884
STUBBORN	.51414	-.06416	.10296
COMBATIV	.48871	.05313	-.08666
IRRITABL	.46286	-.08554	.32282
FAULTFIN	.46109	.01782	.02189
CONCEIT	.44972	-.12316	-.06089
TEMPERAM	.44071	-.02786	.28830
EGOCENTR	.42234	-.06699	-.04772
GRUMPY	.42074	-.12359	.41966
CRUEL	.41910	-.30082	.18597
RUDE	.41056	-.26787	.21312
DEFENSIV	.41049	.10020	.26701
TOUCHY	.40725	.00828	.35189
CRABBY	.40564	-.15482	.37897
GREEDY	.40235	-.21520	.22691
HIGH_ST	.39870	.10606	.16766
ANTAGON	.39490	-.04395	.24810
SELFISH	.39099	-.31040	.20504
COLD	.36750	-.32288	.09644
SNOBBISH	.36650	-.25193	.13744
SUSPICIO	.36116	.02347	.21914
VINDICTI	.34784	-.05273	.23596
ABUSIVE	.30016	-.26193	.23925
SMUG	.29659	-.18182	.22798
SELF_CRI	.27414	.13527	-.04124
UNFORGIV	.25911	-.22134	.17026
CONSIDER	.01798	.73506	-.02041
FRIENDLY	.01901	.71073	-.04111
KIND	-.07783	.70079	.03842
COURTEO	.04835	.68457	-.06845
POLITE	.00825	.67092	.03479
HELFUL	.08303	.64677	-.09127
PLEASANT	-.04857	.63984	-.09135
UNDERSTA	-.01185	.63213	.01780
AFFECTIO	.09629	.61581	.05712
RESPECTF	.07439	.61387	-.08366
SYMPATHE	-.08239	.61133	.18865
WARM	-.01380	.60902	.08467
GENEROUS	.00500	.60338	-.02355
COOPERA	-.03427	.56725	-.09650
REASONA	.05481	.52117	-.17689
AGREEAB	-.10054	.47832	.01890
TRUSTFUL	.06204	.47159	-.03394
EASYGOIN	-.07715	.43474	.12362
UNKIND	.28857	-.42202	.16423
UNSYMPAT	.22382	-.42013	.04199
EMOTIONA	.09774	.41764	.38406
INSENSIT	.15387	-.38599	.21332
IMPOLITE	.14231	-.37065	.26678
SUGGESTI	.16951	.36288	.09860
ANXIOUS	.24564	.35420	.28572
PATIENT	-.24020	.35065	-.04987
RELAXED	.02456	.32275	-.17792
DISTRUST	.14631	-.27474	.17975
LENIENT	-.08792	.25331	.23645
NERVOUS	.01165	.05281	.70538
INSECURE	.05703	-.06689	.60586
FEARFUL	-.00130	.00327	.58577
GULLIBLE	.02768	-.01198	.57692
SELF_PIT	.13963	-.05928	.57044
FRETFUL	.06033	.02809	.56375
NAIVE	.00027	-.05001	.52692
UNSTABLE	.04854	-.27204	.50227
ENVOIOUS	.21734	.00038	.48472
CRANKY	.40380	-.09399	.43307
UNDEMAND	-.40919	-.06984	.42506
JEALOUS	.33202	.02033	.41663
UNCOOPER	.17170	-.34111	.35689
UNCRITIC	-.30605	.04570	.32396
IMPERSON	.15692	-.18914	.29877
UNCHARIT	.17156	-.25487	.28668
CORDIAL	.07929	.20035	-.28591

Structure Matrix:

	Factor 1	Factor 2	Factor 3
HARSH	.66309	-.31300	.26101
BOSSY	.65832	-.16964	.12155
QUARRELS	.61202	-.26058	.42082
ARGUMENT	.60675	-.17649	.30564
IRRITABL	.57507	-.25236	.47592
BULLHEAD	.57102	-.20494	.24042
GRUMPY	.56924	-.30209	.56858
STUBBORN	.55775	-.19505	.26646
DOMINEER	.55289	-.02672	-.02460
CRABBY	.54891	-.32147	.53015
CRUEL	.53706	-.42923	.37213
TEMPERAM	.53063	-.18264	.42267
RUDE	.52945	-.40026	.38979
SELFISH	.51654	-.43692	.38505
GREEDY	.51409	-.34878	.38997
DEMANDIN	.51204	.05568	-.14782
TOUCHY	.50805	-.15294	.46882
ANTAGON	.47652	-.18046	.37254
DEFENSIV	.46707	-.04365	.36532
COLD	.46405	-.42130	.27227
FAULTFIN	.46370	-.08457	.15248
SNOBBISH	.45996	-.35887	.29787
CONCEIT	.45808	-.20552	.09639
COMBATIV	.45219	-.03201	.04446
VINDICTI	.42778	-.17668	.34856
ABUSIVE	.42541	-.37647	.38247
HIGH ST	.42508	-.01414	.26128
EGOCENTR	.42263	-.14636	.08962
SUSPICIO	.42005	-.09972	.31940
SMUG	.40157	-.29321	.35312
UNFORGIV	.35565	-.31251	.29289
SELF_CRI	.23345	.08594	.00987
CONSIDER	-.14378	.73559	-.17162
FRIENDLY	-.14362	.71545	-.18685
KIND	-.21518	.70911	-.13342
COURTEO	-.11670	.68889	-.20006
PLEASANT	-.21082	.66958	-.24169
POLITE	-.12382	.66177	-.10560
HELFUL	-.08066	.64859	-.20473
UNDERSTA	-.14065	.63085	-.12020
RESPECTF	-.08011	.61591	-.19263
GENEROUS	-.12976	.60734	-.15052
COOPERA	-.18263	.59506	-.22722
WARM	-.11822	.59393	-.04897
SYMPATHE	-.15699	.58865	.03453
AFFECTIO	-.01759	.58324	-.04588
REASONA	-.10721	.54721	-.27185
UNKIND	.42589	-.51814	.33816
AGREEAB	-.19642	.49561	-.11221
UNSYMPAT	.32511	-.47651	.19664
TRUSTFUL	-.04781	.46566	-.11623
INSENSIT	.29786	-.46401	.34032
IMPOLITE	.29863	-.45759	.38714
EASYGOIN	-.13327	.42478	.00861
PATIENT	-.32906	.41217	-.19451
RELAXED	-.09570	.35542	-.23945
DISTRUST	.25693	-.34401	.28086
SUGGESTI	.12133	.30596	.07077
LENIENT	-.07270	.22162	.15691
NERVOUS	.20603	-.09979	.69753
INSECURE	.24777	-.20793	.63671
SELF_PIT	.31844	-.21029	.62375
GULLIBLE	.19836	-.14064	.58754
FEARFUL	.16873	-.12113	.58470
FRETFUL	.21868	-.10469	.57536
UNSTABLE	.25258	-.38924	.57432
CRANKY	.54993	-.27176	.57076
ENVIOUS	.35853	-.14886	.54798
NAIVE	.16443	-.16221	.53764
JEALOUS	.44913	-.13872	.50907
UNCOOPER	.34801	-.45346	.47953
UNCHARIT	.30914	-.35225	.39093

IMPERSON	.28408	-.28599	.38476
EMOTIONA	.12115	.31518	.32366
UNDEMAND	-.27051	-.07357	.32067
CORDIAL	-.04650	.24440	-.30544
ANXIOUS	.25383	.24132	.28192
UNCRITIC	-.22132	.04162	.22504

Factor Correlation Matrix:

	Factor 1	Factor 2	Factor 3
Factor 1	1.00000		
Factor 2	-.21197	1.00000	
Factor 3	.29144	-.21284	1.00000

In the above solution, the first factor could accurately be labeled as a Scrooge factor. The traits having the highest loadings on it are those originally classified as negative traits on the Agreeableness factor, such as bossy, demanding, domineering, harsh, argumentative, bull-headed, quarrelsome, and stubborn. The second factor can be labeled as Agreeableness, with the top defining traits being considerate, friendly, kind, courteous, and polite. The third factor looks like a fairly clean-cut Neuroticism factor, which is defined by traits such as nervous, insecure, fearful, fretful, and unstable.

It should also be noted, that the Scrooge factor (negative Agreeableness) has a higher correlation with the Neuroticism factor than with the Agreeableness factor (.29 vs. -.21).

Note that in the above solution, some of the terms that were classified as being negative traits on Agreeableness did in fact find themselves on that factor. These include unkind, unsympathetic, insensitive, and impolite. In the main, however, these were antonyms of words classified as positive on Agreeableness, including kind, sympathetic, and polite.

A second solution was computed in which only two principal component factors were extracted and subjected to oblique rotations. This solution is provided below:

Pattern Matrix:			STUBBORN	.53377	-.01043
			NERVOUS	.53148	.06316
			BOSSY	.53099	.02089
			SELFISH	.52969	-.25922
			BULLHEAD	.52727	-.02146
			INSECURE	.51009	-.04983
			VINDICTI	.48644	-.01351
			SUSPICIO	.47705	.06129
			FRETFUL	.47096	.04178
			ABUSIVE	.47042	-.22062
			HIGH_ST	.46224	.14410
			GULLIBLE	.45670	.00002
			UNCOOPER	.45478	-.30796
			SNOBBISH	.45126	-.20605
			SMUG	.44999	-.14359
			UNSTABLE	.44804	-.25086
			FEARFUL	.43627	.01209
			COLD	.42937	-.27527
			UNKIND	.42201	-.37788
			FAULTFIN	.41768	.06251
			NAIVE	.39958	-.04024
GRUMPY	.69536	-.07217			
CRANKY	.68727	-.04496			
IRRITABL	.65560	-.03273			
CRABBY	.65521	-.10450			
QUARRELS	.65058	-.04014			
TOUCHY	.61827	.05312			
TEMPERAM	.60402	.02042			
JEALOUS	.59951	.05846			
ARGUMENT	.59556	.02906			
HARSH	.58945	-.10741			
SELF_PIT	.55502	-.03497			
ENVIIOUS	.55231	.02903			
RUDE	.54812	-.21602			
DEFENSIV	.54746	.14111			
GREEDY	.54539	-.16562			
CRUEL	.53896	-.24750			
ANTAGON	.53570	-.00024			

DOMINEER	.39365	.11993	UNDERSTA	-.06726	.61104
UNCHARIT	.39261	-.22558	AFFECTIO	.05853	.60639
ANXIOUS	.38904	.37122	RESPECTF	-.06563	.60020
IMPERSON	.38154	-.16319	WARM	-.01643	.58952
UNFORGIV	.37846	-.18640	SYMPATHE	.00103	.58668
IMPOLITE	.36501	-.34081	GENEROUS	-.08024	.58422
CONCEIT	.36152	-.07635	COOPERA	-.16509	.54429
COMBATIV	.35679	.09770	REASONA	-.14214	.50712
EGOCENTR	.34118	-.02445	TRUSTFUL	-.02347	.46203
DEMANDIN	.30727	.17624	AGREEAB	-.12693	.45353
DISTRUST	.29282	-.24893	EMOTIONA	.32613	.41975
SELF_CRI	.19394	.15702	EASYGOIN	-.02337	.41523
UNCRITIC	-.03065	.01943	UNSYMPAT	.27381	-.38425
CONSIDER	-.08116	.71300	SUGGESTI	.18165	.36932
FRIENDLY	-.09303	.68922	INSENSIT	.33688	-.35537
KIND	-.11720	.67140	PATIENT	-.28631	.31527
COURTEO	-.08489	.66634	RELAXED	-.14732	.31208
POLITE	-.04129	.65082	LENIENT	.07168	.24030
HELFUL	-.06741	.63277	CORDIAL	-.16656	.19725
PLEASANT	-.18181	.61325	UNDEMAND	-.03249	-.10090

Structure Matrix:

	Factor 1	Factor 2	UNFORGIV	.42141	-.27359
GRUMPY	.71198	-.23238	IMPERSON	.41914	-.25109
CRANKY	.69763	-.20331	NAIVE	.40885	-.13230
CRABBY	.67929	-.25546	FAULTFIN	.40328	-.03372
IRRITABL	.66314	-.18378	CONCEIT	.37911	-.15965
QUARRELS	.65983	-.19003	DOMINEER	.36601	.02923
HARSH	.61420	-.24322	DISTRUST	.35017	-.31639
TOUCHY	.60603	-.08933	EGOCENTR	.34681	-.10305
TEMPERAM	.59931	-.11875	COMBATIV	.33428	.01550
RUDE	.59789	-.34231	ANXIOUS	.30351	.28159
CRUEL	.59598	-.37167	DEMANDIN	.26667	.10545
SELFISH	.58941	-.38126	SELF_CRI	.15776	.11233
ARGUMENT	.58887	-.10816	UNCRITIC	-.03513	.02649
JEALOUS	.58604	-.07967	CONSIDER	-.24544	.73170
GREEDY	.58355	-.29127	FRIENDLY	-.25183	.71066
SELF_PIT	.56308	-.16285	KIND	-.27189	.69840
ENVIÖUS	.54562	-.09823	COURTEO	-.23842	.68590
STUBBORN	.53617	-.13341	POLITE	-.19124	.66033
ANTAGON	.53575	-.12367	PLEASANT	-.32310	.65514
BULLHEAD	.53222	-.14294	HELFUL	-.21321	.64830
BOSSY	.52618	-.10145	UNDERSTA	-.20805	.62654
UNCOOPER	.52573	-.41274	RESPECTF	-.20392	.61532
INSECURE	.52157	-.16736	GENEROUS	-.21485	.60271
ABUSIVE	.52125	-.32900	WARM	-.15226	.59331
NERVOUS	.51693	-.05930	AFFECTIO	-.08119	.59290
DEFENSIV	.51495	.01497	SYMPATHE	-.13414	.58644
UNKIND	.50907	-.47511	COOPERA	-.29050	.58233
UNSTABLE	.50583	-.35409	REASONA	-.25898	.53987
SNOBBISH	.49873	-.31002	AGREEAB	-.23143	.48278
COLD	.49279	-.37419	TRUSTFUL	-.12992	.46744
VINDICTI	.48955	-.12559	UNSYMPAT	.36234	-.44734
SMUG	.48307	-.24727	INSENSIT	.41875	-.43298
SUSPICIO	.46293	-.04862	EASYGOIN	-.11904	.42062
FRETFUL	.46134	-.06673	PATIENT	-.35894	.38123
GULLIBLE	.45670	-.10521	RELAXED	-.21923	.34602
UNCHARIT	.44459	-.31604	EMOTIONA	.22942	.34461
IMPOLITE	.44354	-.42491	SUGGESTI	.09656	.32746
FEARFUL	.43349	-.08843	CORDIAL	-.21201	.23563
HIGH_ST	.42904	.03760	LENIENT	.01631	.22379
			UNDEMAND	-.00924	-.09342

Factor Correlation Matrix:

	Factor 1	Factor 2
Factor 1	1.00000	
Factor 2	-.23040	1.00000

In the above solution, nearly all the traits originally classified as being on the negative side of Agreeableness ended up with their highest loadings on the factor previously labeled as Scrooge. Note, however, that this factor also included nearly all of the traits that were originally classified as being on the Neuroticism factor (jealous, self-pitying, envious, insecure, nervous, defensive, unstable, fretful, high-strung, naive, anxious, etc.). It is suggested that the reason the scrooge terms ended up with the higher loadings on this factor is that there were so many more of them (36 vs. 18). Perhaps there are more words in the English language that relate to disagreeableness than there are which relate to neuroticism. This is certainly true in the list provided by Goldberg, who made the original classifications. The correlation between the two factors in the above solution is $-.23$.

The above analyses tend to support the conclusion that many of the trait terms that have been classified as being on the negative side of the Agreeableness factor are more closely related to Neuroticism than they are to Agreeableness. Discarding many of these terms was one of the things done in reducing the 205-trait list to the 106-trait list.

PEER RATING STUDY

Plan for Collecting Peer Ratings.

There was an important question concerning whether individuals could be trusted to provide an honest and accurate report of their personality characteristics. Untrustworthy results could be either from a purposeful distortion, or from an inaccurate self-image. It was decided that self ratings should be compared with peer ratings to provide information bearing on the question. Such information would reveal the level of inter-rater agreement concerning a subject's personality characteristics, and would indicate the correspondence between self report and peer reports. This study is available in Appendix 4.

DEVELOPMENT OF A SELF-DESCRIPTION INVENTORY USING BEHAVIORAL STATEMENTS

After a thorough review of the literature and considering some of the problems encountered in measuring and validating the Big-Five factors defined by trait statements, a decision was made to evaluate the possibility of developing a new inventory using behavioral statements. Many of the validation studies reported in the literature have been based on inventories using behavioral statements.

Validation Studies Involving Personality and Integrity Tests

Ones et al. (1993)

There have been three large-scale validation studies during the past several years which provide guidance for the production of personality predictor variables. The most recent was a meta-analysis conducted by Ones, *et al* (1993). and is entitled: "Meta-analysis of integrity tests: a critical examination of validity generalization and moderator variables. " This study involved analyses of 665 validity coefficients across 576,464 data points, and considered the following moderator variables:

1. Predictor type (overt vs. personality-based).
2. Job performance measurement method (supervisory ratings vs. external).
3. Counterproductive behaviors measurement (admissions vs. external).
4. Breadth of criteria (narrow vs. broad counter productivity).
5. Validation strategy (predictive vs. concurrent).
6. Validation sample (applicants vs. employees).
7. Job complexity (high, medium, low).

The general conclusion from this study was that integrity test validities are positive and in many cases substantial for predicting both job performance and counterproductive behaviors on the job.

Sachett, *et al* (1989) classified honesty tests into two categories: "Overt integrity tests and personality based tests." Ones *et al* accepted these classifications and reported separate validities for each class. They state that "given the descriptors of these claimed constructs, we believe these (personality) tests may all measure the general construct of broadly defined conscientiousness, one of the five personality dimensions studied by Barrick and Mount (1991)."

Without going into detail, the findings from Ones, *et al*. study are summarized in the tables below:

Overall Meta-Analyses of the Validity of Integrity Tests

ANALYSIS CATEGORY	TOTAL N	# CORRELATIONS	EST. TRUE VALIDITY
All integrity tests predicting overall job performance	63,500	222	.34
All integrity tests predicting counterproductive behaviors	384,293	443	.47

Meta-analyses of the Validity of Integrity Tests for Predicting Overall Job Performance: All performance Criteria

ANALYSIS CATEGORIES	TOTAL N	# CORR	EST. TRUE VALIDITY
1. A. Overt integrity tests	27,768	84	.33
B. Personality-based tests	35,732	138	.35
2. A. Supervisory ratings of overall job performance	36,250	153	.35
B. Production records	2,210	10	.28
3. A. Concurrent validation	31,866	135	.37
B. Predictive validation	30,150	79	.31
4. A. Applicant Sample	24,264	43	.40
B. Employee Sample	24,354	135	.29
5. A. Low complexity jobs	1,633	19	.45
B. Medium complexity jobs	14,701	80	.32
C. High complexity jobs	754	11	.46

Moderator Analyses for Predicting Counterproductive Behaviors

ANALYSES CATEGORIES	TOTAL N	# CORR.	EST. TRUE VALIDITY
1. A. Overt integrity tests	242,967	305	.55
B. Personality tests	141,326	138	.32
2. A. Admissions of counter productivity	219,479	255	.58
B. Externally measured	164,674	187	.32
3. A. (narrow criteria)	103,258	152	.52
B. Broad counter productivity	279,805	290	.45
4. A. Concurrent validation	212,385	295	.56
B. Predictive validation	166,404	138	.36
5. A. Applicant samples	258,034	183	.44
B. Employee samples	93,914	153	.54
6. A. Low complexity jobs	9,654	44	.43
B. Medium complexity jobs	19,866	78	.40
C. High complexity jobs	2,246	21	.68

A few consequential quotes from the Ones *et al* paper are provided below:

" Overt and personality tests appear to have similar levels of operational validity when the criterion is job performance."

" For personality-based tests, the estimated true validities from applicant samples are equal to or higher than validities obtained from employee samples."

"The conclusion we infer is that the response distortion does not destroy the criterion validity of these tests"

"The implications of these findings are substantial. For example, the most commonly used selection procedure could become a combination of general mental ability and an integrity test. Also, these findings raise the question of whether general conscientiousness is in actuality the motivation variable that has been so elusive in personnel psychology..... That is, conscientiousness may be the most important trait motivation variable. Across jobs in general, mental ability and conscientiousness may be the two most important determinants of job performance."

Barrick and Mount (1991)

The second meta-analysis was performed by Barrick and Mount (1991) and involved analyses of studies validating the Big Five personality dimensions for measures of job performance. Their review of the literature uncovered 231 criterion studies, 117 of which were accepted for inclusion in their analysis. Without going into detail, their conclusions were as follows:

1. Conscientiousness showed consistent relations with all job performance criteria for all occupational groups.
2. Extroversion was a valid predictor for two occupations involving social interactions, managers and sales.
3. Both Openness to Experience and Extroversion were valid predictors of the training proficiency criterion (across occupations).

McHenry, et al.(1990)

A third major study involved the validation results from the Army's Project A, which was reported in 1990. A validation study was conducted using predictor and criterion scores from 4,039 subjects in nine MOS's. The 74 potential predictor scores were averaged into 24 predictor composites to avoid over-fitting. Four of these were computed from ABLE: Achievement Orientation, Dependability, Adjustment, and Physical Condition. Six vocational interest composites were computed from AVOICE, the Army's interest inventory. Five job performance scores were developed, based on analyses of Project A performance Data. These were as follows:

1. Core Technical Task Proficiency

2. General Task Proficiency
3. Peer Support and Leadership, Effort, and Self Development
4. Maintaining Personal Discipline
5. Physical Fitness and Military Bearing

The general cognitive ability composites, computed from the ASVAB, were the best predictors of Core Technical Proficiency and General Soldiering Proficiency. The best prediction of factors 3, 4, and 5 was provided by the temperament/personality composites from ABLE. The mean R for predicting Effort and Leadership was .33, with Achievement Orientation making the largest contribution. The mean R for predicting Personal Discipline was .32, with the Able Dependability composite making the largest contribution. Finally, the ABLE composites correlated .37 with Physical Fitness, with the key predictor being the Able Physical Condition composite. The ABLE composites correlated .26 and .27 respectively with Core Technical Proficiency and General Soldiering Proficiency.

It should be mentioned that only 7 items were specifically included in ABLE to measure conscientiousness, although a number of the Achievement Orientation items could have been so classified.

DEVELOPMENT OF A SELF DESCRIPTION INVENTORY

Behavioral Statements vs. Trait Names

Most of the instruments used in the studies above measured personal characteristics by having individuals rate the extent to which they agreed or disagreed with behavioral statements. The work accomplished under the present task thus far used ratings of trait names. Each of these approaches has its advantages and disadvantages. There are a finite number of trait names, and they can be rated quickly. On the other hand, an infinite variety of behavioral statements could be generated, and they take longer to read and respond to.

One of the problems with trait names is that they are subject to various definitions. For example, the trait "INQUISITIVE" can be interpreted as meaning intellectual curiosity, nosiness, or general interest in another's welfare. Separate behavioral statements could be written for each of these areas. A second problem with using trait names is that some airmen do not know what some trait names mean. As previously reported, a significant number of airmen do not know the meaning of words like introspective, introverted, contemplative, foresight, and so on. The meaning of such words could be made obvious in the context of behavioral statements.

Trait names are often broad in meaning and tend to cover more of the variance of an underlying factor. This broadness could lead to more overlap (higher

correlations) among trait names. For example the present list includes the trait 'Quiet' and also the trait 'Silent'. It also contains the trait 'Shy' along with the trait 'Bashful'. These broad and highly overlapping terms would undoubtedly yield high intercorrelations and therefore higher factor loadings (which account for the intercorrelations). On the other hand, behavioral statements are more specific and tend to cover narrow and restricted aspects of factors. It is hypothesized that this would lead to lower intercorrelations and lower factor loadings. This is not to imply that behavioral statements are not as good as trait names in defining factors. It does suggest that more behavioral statements may be needed to cover the same territory.

In light of the above observations, the decision was made to begin work on a second measure of the Big Five factors which involves use of behavioral statements.

Development of Initial Statements for a Behavioral Statement Inventory.

The stimuli for generating behavioral statements were the 106 trait names in the in-house Big Five inventory (described above). However, before writing the statements, a number of existing inventories which were composed of behavioral statements were reviewed. There tended to be considerable overlap in the content of these inventories, which was to be expected, since they were all designed to measure common factors. Each inventory tended to use its own rating scale, which ranged from a simple two-alternative 'agree-disagree' ; to three defined alternatives in the Army ABLE; to five levels of agreement in the NEO; to a 45 point agreement-disagreement scale used in the Gluck inventory (see the appendix). A decision was made to build a new 45-point scale which could be used for computer administration using a mouse. Figure 1.2, below, is roughly what the scale looked like:

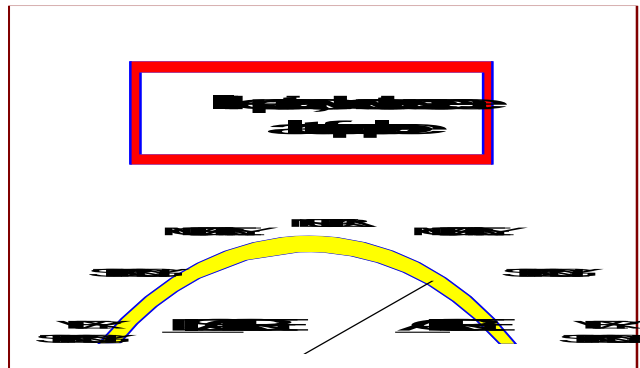


Figure 1. 1 Scale for Self Description Statements

The items in this first version of what was to be called the "Self Description Inventory" are presented below.

Draft Statements for the Self Description Inventory

Introversion-Extroversion

- 001: I love to drive a car at high speed.
- 002: I speak up when I feel I can make a contribution.
- 003: I am not comfortable telling others what to do.
- 004: I tend to take charge in group meetings.
- 005: I work better alone than with a group.
- 006: I am a timid person and am easily embarrassed.
- 007: I like to be where there is a lot of action.
- 008: I like movies that are exciting and fast moving.
- 009: I have a lot of influence over others.
- 010: I am a very shy person.
- 011: I am a very sociable and outgoing person.
- 012: I go out of my way to meet people.
- 013: I avoid meetings and social gatherings when possible.
- 014: My friends consider me to be bashful.
- 015: If things get too boring at a party, I try to get things going.
- 016: I love excitement.
- 017: Most of my friends would describe me as a "talker".
- 018: I tend to be a loner.
- 019: I am quick to offer advice or information to others.
- 020: I like to strike up conversations with strangers.
- 021: I prefer to work alone rather than with a group.
- 022: At social functions, I talk to as many people as possible.
- 023: I would rather be a follower than a leader.
- 024: In meetings, I tend to let others do most of the talking.
- 025: I find meeting new people to be an unpleasant experience.
- 026: I am uneasy when I am the center of attention.
- 027: In high school, I seldom asked questions in class.
- 028: I like parties, where there are a lot of people.
- 029: In high school, I was often called down for talking in class.
- 030: I want to live a 'fast paced' life.

Neuroticism-Emotional Stability

- 031: I tend to get upset easily.
- 032: I worry about people saying things behind my back.
- 033: It is difficult for people to make me angry.
- 034: Sometimes I get so upset, I get sick at my stomach.
- 035: I get very upset when I am criticized.
- 036: I am often nervous and tense.
- 037: I often feel tired and run down.
- 038: I often worry a lot about the future.
- 039: I have periods when I feel sorry for myself.
- 040: When I am under great stress, I often feel like I am about to break down.
- 041: I am often sad and depressed.

042: I maintain my cool when things are going wrong.
043: I often feel jittery and tense.
044: I often have headaches when things are not going well.
045: I get rattled when I am under time pressure.
046: Sometimes I feel weak and shaky in the knees.
047: When things go wrong, I keep a cool head.
048: I hardly ever feel lonely or blue.
049: When I have a problem, I often have trouble sleeping.
050: I have a strong fear of failure.
051: When I face a difficult decision, I have a hard time making up my mind.
052: My feelings are easily hurt.
053: When things are not going right, I sometimes feel like crying.
054: Sometimes I feel discouraged and simply want to give up.
055: I'm often fearful that I will fail to reach my goals.
056: I feel inferior to many of my friends.
057: I worry more than most people.
058: When I am emotionally upset, I can't think clearly.
059: I am jealous of others who get what I would like to have.
060: I often lose my temper with other people.
061: I am always worried about how things might go wrong.
062: I often have feelings of guilt for something I have done or didn't do.

Agreeableness

063: I practically never lose my temper.
064: I get a lot of pleasure in helping others with their problems.
065: I don't get much pleasure in talking with people.
066: I am considered to be easy to get along with.
067: I work well as a part of a team.
068: I like to help others, even if there is nothing in it for me.
069: I try to get even when someone has done me wrong.
070: I don't accept criticism very well.
071: I like to help others when they are down on their luck.
072: I often let others have their way to avoid unpleasant feelings.
073: I laugh a lot.
074: I am good at cheering people up.
075: I have trouble remembering the names of people.
076: There are some people that I simply cannot get along with.
077: I have a hard time liking some people.
078: I feel sorry for a lot of people I know who have personal problems.
079: I resent it when I don't get my way.
080: I always treat other people with kindness.
081: Some people consider me to be unfriendly.
082: I seldom get mad at anyone.
083: Nearly all people are likable when you really get to know them.
084: I get along well with most everybody.

- 085: I have a lot of sympathy for others who are having problems.
086: At times, I am not very cooperative with others.
087: I find many people to be boring.
088: I am cheerful most of the time.
089: I like to help others, even if they don't deserve it.
090: I seldom argue with people.
091: I never carry a grudge.

Openness-Intellect

- 092: I believe that having polished manners is important.
093: I spend a lot of time contemplating what I should do in life.
094: I like to spend time in intellectual discussions with my friends.
095: I try to analyze and evaluate conditions, so that I can predict the future.
096: I enjoy visiting art museums.
097: I have no appreciation for abstract art.
098: I would rather read a good book than to watch television.
099: I am highly interested in all the fields of science.
100: I spend a lot of time analyzing the motives behind the actions of other people.
101: I am better than most in seeing what the future holds.
102: I love to find innovative solutions to difficult problems.
103: I often think about the wonders of nature.
104: I spend a lot of time in meditation and deep thought.
105: I feel that I am more intellectual than most of my friends.
106: I find intellectual things more interesting than football, baseball, or basketball.
107: I often analyze why I am the way I am.
108: I am often in deep thought, when others think that I am day dreaming.
109: Philosophical discussions bore me.
110: I often try to find new and more efficient ways of doing things.
111: I would not enjoy going to an opera or ballet.
112: I prefer listening to classical music rather than popular music.
113: I have a good imagination.
114: I am fascinated with the theory of evolution.
115: The more complex a problem, the more I enjoy trying to solve it.
116: I have thought a lot about the origin of the universe.
117: I spend a lot of time analyzing my internal feelings.
118: I have a lot of intellectual curiosity.
119: I would enjoy being a theoretical scientist.
120: I enjoy reading poetry.

Conscientiousness-Dependability

- 121: I often end up doing more than I planned to do.
122: I always wash my hands after using the bathroom.

- 123: Sometimes I take it easy when I should be working.
- 124: I generally took careful notes in class.
- 125: I dislike working in messy surroundings.
- 126: If I commit myself to do something, I always carry through.
- 127: I have a habit of making careless errors in working math problems.
- 128: I always try to do more than is expected of me.
- 129: I believe that doing more than is called for is a waste of time.
- 130: I believe that rules and regulations should always be followed.
- 131: I believe that work is more important in life than play.
- 132: I often lose interest in things after I have started them.
- 133: I generally saved my receipts and warranty information for things I bought during high school.
- 134: I have a hard time working for long periods without a break.
- 135: People can count on me when I say I will do something.
- 136: I was willing to work hard for good grades in high school.
- 137: I would rate myself as being a very persistent worker.
- 138: Before writing a paper in high school, I always made an outline first.
- 139: I have a habit of "forgetting" things that I would rather not do.
- 140: I tend to keep on working, even if I am tired.
- 141: I always tried to do better than my friends in school.
- 142: I hate having to do routine and repetitive work.
- 143: I have to admit that I am lazy at times.
- 144: I don't mind volunteering for extra work.
- 145: I like to have a place for everything and everything in its place.
- 146: I often let down toward the end of the day for lack of energy.
- 147: When I was growing up, I nearly always picked up and cleaned my room.
- 148: I like to work with people who are highly organized.
- 149: I believe it is more important to live for the moment than to work for the future.
- 150: I sometimes cut classes in high school to do something which was more fun.
- 151: Sometimes I work too fast and make careless errors.
- 152: I believe in setting up a personal budget and sticking to it.
- 153: I like to keep all my belongings neat and organized.
- 154: In high school, I generally proofread my assignments for spelling and math errors before turning them in.
- 155: When I get an assignment, I always do my best.
- 156: I generally make a written list before I go shopping.
- 157: I try to set a schedule for accomplishing tasks, and stick to it.
- 158: I feel guilty when I do not do my best.
- 159: I try to do a good job in the first place, so it doesn't have to be done again.
- 160: I don't mind working long hours when the chips are down.
- 161: I don't believe in working harder than others, since they will hate you for it.
- 162: I try to be fully prepared before I undertake any task.
- 163: I tend to leave boring jobs unfinished.
- 164: I tend to set higher standards for myself than others set for me.

- 165: I am almost always on time or a little early for appointments.
- 166: I don't like living according to a schedule.
- 167: If I start something, I work until it is finished to my satisfaction.
- 168: Some of my friends feel that I am too much of a perfectionist.
- 169: If a job is too difficult, I have a tendency to give up.
- 170: I have a habit of putting off things that I should be attending to.
- 171: I don't like to make detailed plans before I start something.
- 172: I feel bad if I don't do my very best on a work project.

Miscellaneous (some from ABLE)

- 173: I am more honest than most people I know.
- 174: I was suspended or expelled at least once in high school.
- 175: People often turn to me when they need advice on decisions.
- 176: I feel confident I will be a success in the Air Force.
- 177: I often thought about quitting high school and getting a job.
- 178: I have a lot of influence over my friends.
- 179: I have done some things just because I knew they were against the rules.
- 180: I hate a lot of rules and regulations.
- 181: I have sometimes lied in order to get what I wanted.
- 182: My energy tends to run out early in the day.
- 183: In high school, I was sent to the principal or counselor several times for getting into trouble.
- 184: I tire easily.
- 185: On a number of occasions, I played sick just to skip school.
- 186: I stayed up all night a number of times when I was in high school.
- 187: I feel I have what it takes to handle almost any situation.
- 188: I feel that is O.K. to break a law if I think the law is bad.
- 189: I would enjoy a leadership role.
- 190: I got into fights on a number of occasions while in high school.
- 191: So far, I have been successful in achieving the goals I have set for myself.
- 192: Before joining the Air Force, I exercised or did hard physical work daily.
- 193: I like to work fast and get the job done quickly.
- 194: I believe that military discipline is good for a person.
- 195: I believe that young people should listen to their elders more often.
- 196: Before joining the Air Force, I was in excellent physical condition.
- 197: I feel as good now as I ever have.
- 198: Drug laws in the U.S.A. are too strict.
- 199: Other people know me better than I know myself.
- 200: While in high school, I spent a lot of time participating in team sports.
- 201: Some days, it is difficult for me to get going.
- 202: I was sometimes disrespectful to my high school teachers.
- 203: I believe I have a lot to offer the Air Force.
- 204: People should have greater respect for authority.
- 205: In high school, I often went against my parent'/guardian's wishes.
- 206: I have more energy than most of my friends.

The 106 trait terms and the 206 self description statements were each administered to approximately 469 subjects. The self description statements were administered to an additional 129 subjects, bringing the total to 598 cases for that instrument. A series of factor analyses was computed in order to compare the factorial structures yielded by these two item types.

FACTOR ANALYSIS OF THE 106-ITEM TRAIT INVENTORY AND THE 206-ITEM SELF DESCRIPTION INVENTORY

Factor analysis of the 106 item Trait Inventory (N=469 cases)

FACTOR 1--CONSCIENTIOUSNESS (LOADINGS ABOVE .35)

LOAD.	ITEM
.72	Organized
.71	Neat
.69	Precise
.65	Orderly
.62	Consistent
.61	Thorough
.60	Efficient
.57	Careful
.57	Perfectionistic
.56	Responsible
.55	Prompt
-.54	Disorganized
-.54	Sloppy
-.49	Lazy
.45	Steady
-.45	Inconsistent
.43	Dependable
.43	Helpful
.43	Energetic
.41	Active
.38	Punctual
.38	Insightful
.38	Assured
-.38	Careless
.37	Respectful
.37	Enthusiastic
.37	Cooperative
.36	Persistent
-.35	Inefficient

FACTOR 2--NEUROTICISM (LOADINGS ABOVE .40).

LOAD	ITEM
.66	Moody
.61	Jealous
.60	Irritable
.59	Touchy
.57	Envious
.56	Temperamental
.53	Unstable
.52	Self-Pitying
.51	Unkind
.50	Selfish
.49	Defensive
.48	Nervous
.47	Cold
.47	Sluggish
.47	Undependable
.46	Fearful
.45	Careless
.45	Insensitive
.45	Negligent
.44	Shallow
.44	Uncharitable
.44	Sloppy
.44	Lazy
.43	High Strung
.42	Fretful
.42	Unreflective
.41	Inefficient
.40	Impractical

**FACTOR 3--AGREEABLENESS
(LOADINGS ABOVE .35)**

LOAD.	ITEM
.71	Friendly
.70	Kind
.67	Sympathetic
.65	Warm
.63	Pleasant
.60	Considerate
.57	Affectionate
.57	Helpful
.52	Courteous
.52	Generous
.52	Polite
.49	Cheerful
-.48	Unsympathetic
-.47	Insensitive
-.47	Unkind
.46	Understanding
.41	Respectful
.41	Enthusiastic
.41	Cooperative
.39	Sociable
.38	Trustful
.37	Spirited
-.37	Cold
-.35	Unemotional

-.39	Extroverted
-.38	Assured
.36	Insecure
-.35	Bold

**FACTOR 5--OPENNESS-
INTELLECT (LOADINGS
ABOVE .35)**

LOAD.	ITEM
.75	Philosophical
.74	Deep
.63	Contemplative
.58	Inventive
.56	Insightful
.55	Innovative
.53	Meditative
.53	Bright
.53	Complex
.51	Creative
.51	Perceptive
.48	Introspective
.45	Industrious
.42	Foresighted
.41	Inquisitive
.35	Persistent

**FACTOR 4--INTROVERSION
(LOADINGS ABOVE .35)**

LOAD.	ITEM
.76	Quiet
.72	Silent
.71	Shy
.64	Bashful
.62	Untalkative
.61	Withdrawn
-.60	Talkative
-.57	Sociable
.53	Timid
.53	Unsociable
-.48	Verbal
.47	Reserved

Factor Analysis of the Initial 206-Item Self Description Inventory

**FACTOR 1--CONSCIENTIOUSNESS-DEPENDABILITY (LOADINGS ABOVE
.40) N=598**

ITEM #	LOAD.	ITEM
128	.61	I always try to do more than is expected of me.
130	.61	I believe that rules and regulations should always be followed.
137	.60	I would rate myself as being a very persistent worker.
153	.59	I like to keep all my belongings neat and organized.
126	.55	If I commit myself to do something, I always carry through.
145	.55	I like to have a place for everything and everything in its place.
159	.54	I try to do a good job in the first place, so it doesn't have to be done again.
162	.53	I try to be fully prepared before I undertake any task.
148	.53	I like to work with people who are highly organized.
136	.51	I was willing to work hard for good grades in high school.
163	-.49	I tend to leave boring jobs unfinished.
157	.49	I try to set a schedule for accomplishing tasks, and stick to it.
164	.48	I tend to set higher standards for myself than others set for me.
194	.48	I believe that military discipline is good for a person.
092	.47	I believe that having polished manners is important.
204	.47	People should have greater respect for authority.
152	.47	I believe in setting up a personal budget and sticking with it.
155	.47	When I get an assignment, I always do my best.
123	-.47	Sometimes I take it easy when I should be working.
167	.46	If I start something, I work until it is finished to my satisfaction.
170	-.46	I have a habit of putting off things that I should be attending to.
188	-.45	I feel that it is O.K. to break a law if I think the law is bad.
154	.45	In high school, I generally proofread my assignments for spelling and math errors before turning them in.
144	.44	I don't mind volunteering for extra work.
195	.44	I believe that young people should listen to their elders more often.
140	.44	I tend to keep on working, even if I am tired.
131	.43	I believe that work is more important in life than play.
147	.43	When I was growing up, I nearly always picked up and cleaned my room.
169	-.43	If a job is too difficult, I have a tendency to give up.
165	.42	I am almost always on time or a little early for appointments.
143	-.42	I have to admit that I am lazy at times.
129	-.42	I believe that doing more than is called for is a waste of time.
172	.41	I feel bad if I don't do my very best on a work project.
124	.41	I generally took careful notes in class.
158	.41	I feel guilty when I do not do my best.

068	.40	I like to help others, even if there is nothing in it for me.
115	.40	The more complex a problem, the more I enjoy trying to solve it.
180	-.40	I hate a lot of rules and regulations.
110	.40	I often try to find new and more efficient ways of doing things.

FACTOR 2--NEUROTICISM (LOADINGS ABOVE .40 REPORTED) N=598

ITEM#	LOAD.	ITEM
040	.59	When I am under great stress, I often feel like I am about to break down.
057	.59	I worry more than most people.
061	.58	I am always worried about how things might go wrong.
041	.57	I am often sad and depressed.
053	.57	When things are not going right, I sometimes feel like crying.
045	.57	I get rattled when I am under time pressure.
046	.56	Sometimes I feel weak and shaky in the knees.
043	.56	I often feel jittery and tense.
201	.55	Some days, it is difficult for me to get going.
039	.55	I have periods when I feel sorry for myself.
054	.55	Sometimes I feel discouraged and simply want to give up.
055	.54	I'm often fearful that I will fail to reach my goals.
052	.54	My feelings are easily hurt.
036	.53	I am often nervous and tense.
037	.52	I often feel tired and run down.
058	.52	When I am emotionally upset, I can't think clearly.
006	.52	I am a timid person and am easily embarrassed.
031	.52	I tend to get upset easily.
038	.52	I often worry a lot about the future.
146	.51	I often let down toward the end of the day for lack of energy.
034	.50	Sometimes I get so upset, I get sick at my stomach.
044	.50	I often have headaches when things are not going well.
184	.48	I tire easily.
062	.47	I often have feelings of guilt for something I have done or didn't do.
049	.46	When I have a problem, I often have trouble sleeping.
170	.46	I have a habit of putting off things that I should be attending to.
035	.46	I get very upset when I am criticized.
056	.46	I feel inferior to many of my friends.
051	.45	When I face a difficult decision, I have a hard time making up my mind.
151	.45	Sometimes I work too fast and make careless errors.
182	.45	My energy tends to run out early in the day.
059	.44	I am jealous of others who get what I would like to have.
070	.43	I don't accept criticism very well.
032	.43	I worry about people saying things behind my back.

048	-.43	I hardly ever feel lonely or blue.
026	.42	I am uneasy when I am the center of attention.
134	.43	I have a hard time working for long periods without a break.
123	.42	Sometimes I take it easy when I should be working.
010	.41	I am a very shy person.
139	.40	I have a habit of "forgetting" things that I would rather not do.
127	.40	I have a habit of making careless errors in working math problems.
132	.40	I often lose interest in things after I have started them.
050	.40	I have a strong fear of failure.

FACTOR 3--EXTROVERSION (LOADINGS ABOVE .35 REPORTED) N=598

ITEM	LOAD	ITEM
	.	
011	.69	I am a very sociable and outgoing person.
022	.65	At social functions, I talk to as many people as possible.
007	.55	I like to be where there is a lot of action.
073	.54	I laugh a lot.
015	.54	If things get too boring at a party, I try to get things going.
028	.51	I like parties, where there are a lot of people.
016	.50	I love excitement.
074	.48	I am good at cheering people up.
012	.47	I go out of my way to meet people.
088	.47	I am cheerful most of the time.
017	.46	Most of my friends would describe me as a "talker."
014	-.45	My friends consider me to be bashful.
010	-.44	I am a very shy person.
018	-.44	I tend to be a loner.
013	-.44	I avoid meetings and social gatherings when possible.
009	.44	I have a lot of influence over others.
020	.44	I like to strike up conversations with strangers.
065	-.42	I don't get much pleasure in talking with people.
066	.40	I am considered to be easy to get along with.
025	-.39	I find meeting new people to be an unpleasant experience.
026	-.39	I am uneasy when I am the center of attention.
084	.39	I get along well with most everybody.
071	.39	I like to help others when they are down on their luck.
019	.38	I am quick to offer advice or information to others.
002	.37	I speak up when I feel I can make a contribution.
067	.36	I work well as part of a team.
189	.35	I would enjoy a leadership role.
004	.35	I tend to take charge in group meetings.
175	.35	People often turn to me when they need advice on decisions.
064	.35	I get a lot of pleasure in helping others with their problems.

**FACTOR 4--OPENNESS-INTELLECT (LOADINGS ABOVE .38 REPORTED)
N=598**

ITEM#	LOAD.	ITEM
104	.60	I spend a lot of time in meditation and deep thought.
118	.60	I have a lot of intellectual curiosity.
119	.58	I would enjoy being a theoretical scientist.
094	.58	I like to spend time in intellectual discussions with my friends.
120	.54	I enjoy reading poetry.
109	-.54	Philosophical discussions bore me.
116	.54	I have thought a lot about the origin of the universe.
096	.53	I enjoy visiting art museums.
105	.53	I feel that I am more intellectual than most of my friends.
099	.52	I am highly interested in all the fields of science.
106	.51	I find intellectual things more interesting than football, baseball, or basketball.
117	.50	I spend a lot of time analyzing my internal feelings.
102	.46	I love to find innovative solutions to difficult problems.
111	-.46	I would not enjoy going to an opera or ballet.
035	.46	I get very upset when I am criticized.
098	.46	I would rather read a good book than to watch television.
100	.45	I spend a lot of time analyzing the motives behind the actions of others.
112	.44	I prefer listening to classical music rather than popular music.
101	.44	I am better than most in seeing what the future holds.
103	.43	I often think about the wonders of nature.
107	.43	I often analyze why I am the way I am.
108	.41	I am often in deep thought, when others think that I am day dreaming.
114	.40	I am fascinated with the theory of evolution.
113	.39	I have a good imagination.
115	.38	The more complex a problem, the more I enjoy trying to solve it.

FACTOR 5--AGREEABLENESS (LOADINGS ABOVE .35 REPORTED) N=598

ITEM#	LOAD.	ITEM
082	-.59	I seldom get mad at anyone.
060	.50	I often lose my temper with other people.
033	-.50	It is difficult for people to make me angry.
081	.49	Some people consider me to be unfriendly.
063	-.47	I practically never lose my temper.
090	-.47	I seldom argue with people.
066	-.47	I am considered to be easy to get along with.
080	-.46	I always treat other people with kindness.
084	-.40	I get along well with most everybody.
077	.40	I have a hard time liking some people.

190	.40	I got into fights on a number of occasions while in high school.
031	.40	I tend to get upset easily.
069	.39	I try to get even when someone has done me wrong.
076	.39	There are some people that I simply cannot get along with.
079	.37	I resent it when I don't get my way.
091	-.36	I never carry a grudge.
042	-.36	I maintain my cool when things are going wrong.

Each of the above solutions has strengths and weaknesses. The Introversion factor in the trait solution should have included more extroversion terms. The Agreeableness factor in the Self Description inventory is rather weak and needed to be strengthened with additional statements. The Neuroticism factor defined by the trait statements did not seem to cover physical symptoms which are scattered throughout the Self Description inventory. The Intellect/Openness factor defined by the trait names did not cover the culture area very well.

Factor Analysis of the Combined Instruments

The Trait Inventory and the Self Description Inventory were both administered to a sample of 469 subjects. Below are the primary loadings obtained from a factor solution which included all 106 trait names and all 206 self description statements.

FACTOR 1--CONSCIENTIOUSNESS--DEPENDABILITY (LOADING ABOVE .41 REPORTED)

LOADING	ITEM
.69	Precise
.66	Organized
.65	Neat
.64	I would rate myself as being a very persistent worker.
.61	I like to keep all my belongings neat and organized.
.61	I always try to do more than is expected of me.
.59	Consistent
.59	Orderly
.59	Perfectionistic
.58	Careful
.57	Thorough
.55	Efficient
.54	If I commit myself to do something, I always carry through.
.54	I like to have a place for everything and everything in it's place.
.54	Responsible
.52	I like to work with people who are highly organized.
.52	I try to do a good job in the first place, so it doesn't have to be done again.
.52	I believe that rules and regulations should always be followed.

- .51 I try to be fully prepared before I undertake any task.
- .51 I was willing to work hard for good grades in high school.
- .49 Steady
- .49 I tend to leave boring jobs unfinished.
- .48 Helpful
- .48 Prompt
- .48 I tend to set higher standards for myself than others set for me.
- .47 I believe in setting up a personal budget and sticking with it.
- .47 Lazy
- .46 I try to set a schedule for accomplishing tasks, and stick to it.
- .45 Disorganized
- .45 When I get an assignment, I always do my best.
- .45 I believe that military discipline is good for a person.
- .45 Energetic
- .45 Dependable
- .44 If a job is too difficult, I have a tendency to give up.
- .44 I believe that having polished manners is important.
- .44 If I start something, I work until it is finished to my satisfaction.
- .44 Sloppy
- .44 Insightful
- .43 People should have greater respect for authority.
- .43 Some of my friends feel that I am too much of a perfectionist.
- .42 I tend to keep on working, even if I am tired.
- .42 When I was growing up, I nearly always picked up and cleaned my room.
- .42 I don't mind volunteering for extra work.
- .42 Respectful
- .42 The more complex a problem, the more I enjoy trying to solve it.
- .42 I have to admit that I am lazy at times.
- .41 Spirited
- .41 I believe I have a lot to offer the Air Force.
- .41 Courteous
- .41 Enthusiastic

FACTOR 2--NEUROTICISM (LOADINGS ABOVE .43 ARE REPORTED).

LOADING	ITEM
.61	Moody
.58	Jealous
.54	Some days, it is difficult for me to get going.
.53	I tend to get upset easily.
.53	Touchy
.53	Nervous
.53	I have periods when I feel sorry for myself.
.52	Sometimes I feel discouraged and simply want to give up.
.52	Self-Pitying

- .52 Temperamental
- .52 I am often sad and depressed.
- .52 Envious
- .52 I often lose my temper with other people.
- .51 I often feel tired and run down.
- .51 I am always worried about how things might go wrong.
- .50 I often feel jittery and tense.
- .50 I worry more than most people.
- .50 Defensive
- .50 Irritable
- .50 I get very upset when I am criticized.
- .50 When I am emotionally upset, I can't think clearly.
- .59 When I am under great stress, I often feel like I am about to break down.
- .49 I don't accept criticism very well.
- .49 When things are not going right, I sometimes feel like crying.
- .49 I am often nervous and tense.
- .48 I tire easily.
- .47 I have a habit of putting off things that I should be attending to.
- .47 I am jealous of others who get what I would like to have.
- .46 I often worry a lot about the future.
- .46 I often have headaches when things are not going well.
- .46 Sometimes I get so upset, I get sick at my stomach.
- .45 I hardly ever feel lonely or blue.
- .45 Sometimes I work too fast and make careless errors.
- .45 My feelings are easily hurt.
- .45 I get rattled when I am under time pressure.
- .44 I have sometimes lied in order to get what I wanted.
- .44 Sometimes I feel weak and shaky in the knees.
- .44 Sometimes I take it easy when I should be working.
- .43 I often let down toward the end of the day for lack of energy.
- .43 I resent it when I don't get my way.
- .43 Fearful
- .43 My energy tends to run out early in the day.

FACTOR 3--EXTROVERSION (LOADINGS ABOVE .35 ARE REPORTED)

LOADING	ITEM
-.66	Quiet
.65	I am a very sociable and outgoing person.
.63	Sociable
-.63	Shy
-.62	I am a very shy person.
-.60	My friends consider me to be bashful.
-.59	Silent
.57	Talkative

- .55 Untalkative
- .55 At social functions, I talk to as many people as possible.
- .54 Bashful
- .54 Withdrawn
- .53 Unsociable
- .51 Most of my friends would describe me as a "talker."
- .48 Verbal
- .47 I like to be where there is a lot of action.
- .46 I am uneasy when I am the center of attention.
- .46 If things get too boring at a party, I try to get things going.
- .45 Timid
- .44 Active
- .44 I am a timid person and am easily embarrassed.
- .44 I have a lot of influence over others.
- .44 I tend to be a loner.
- .44 In meetings, I tend to let others do most of the talking.
- .43 I laugh a lot.
- .42 Assured
- .40 Bold
- .40 I am uneasy when I am the center of attention.
- .39 I tend to take charge in group meetings.
- .39 I like to strike up conversations with strangers.
- .38 I love excitement.
- .37 I speak up when I feel I can make a contribution.
- .37 I avoid meetings and social gatherings when possible.
- .36 I would enjoy a leadership role.
- .36 Reserved
- .36 I would rather be a follower than a leader.
- .36 I am not comfortable telling others what to do.
- .36 I go out of my way to meet people.

FACTOR 4--OPENNESS--INTELLECT (LOADINGS ABOVE .35 REPORTED)

LOADING	ITEM
.67	Deep
.67	Philosophical
.64	I spend a lot of time in meditation and deep thought.
.62	I have a lot of intellectual curiosity.
.53	I would enjoy being a theoretical scientist.
.53	I like to spend time in intellectual discussions with my friends.
.53	Meditative
.52	I enjoy reading poetry.
-.51	Philosophical discussions bore me.
.51	I feel that I am more intellectual than most of my friends.
.51	Contemplative
.51	I am highly interested in all the fields of science.

- .50 I try to analyze and evaluate conditions, so that I can predict the future.
- .50 I spend a lot of time analyzing my internal feelings.
- .50 I enjoy visiting art museums.
- .49 I have thought a lot about the origin of the universe.
- .49 Inventive
- .49 I love to find innovative solutions to difficult problems.
- .46 I find intellectual things more interesting than football, baseball, or basketball.
- .45 I am better than most in seeing what the future holds.
- .45 Complex
- .44 Creative
- .44 I am often in deep thought, when others think that I am day dreaming.
- .43 I spend a lot of time analyzing the motives behind the actions of others.
- .43 I would not enjoy going to an opera or ballet.
- .42 I often analyze why I am the way I am.
- .42 Innovative
- .42 I have a good imagination.
- .41 I would rather read a good book than to watch television.
- .40 Introspective
- .39 I often think about the wonders of nature.
- .38 I prefer listening to classical music rather than popular music.
- .38 I am fascinated with the theory of evolution.
- .36 I spend a lot of time contemplating what I should do in life.

FACTOR 5--AGREEABLENESS (LOADINGS ABOVE .30 REPORTED)

LOADING	ITEM
.64	Friendly
.59	Pleasant
.58	Kind
.56	Sympathetic
.54	Warm
-.50	Unkind
-.50	Some people consider me to be unfriendly.
.49	I always treat other people with kindness.
.49	I am considered to be easy to get along with.
-.49	Insensitive
.49	Considerate
-.48	Unsympathetic
.47	Affectionate
.47	Cheerful
.56	Generous
-.46	Cold

- .46 I have a lot of sympathy for others who are having problems.
- .45 I get along well with most everybody.
- .42 I like to help others, even if there is nothing in it for me.
- .40 I like to help others when they are down on their luck.
- .40 Selfish
- .39 Understanding
- .37 I am cheerful most of the time.
- .36 I am good at cheering people up.
- .36 I get a lot of pleasure in helping others with their problems.
- .35 I feel sorry for a lot of people I know who have personal problems.
- .33 I seldom argue with people.
- .33 I seldom get mad at anyone.
- .32 Patient
- .32 Unemotional
- .31 I like to help others, even if they don't deserve it.

Thirteen out of the top 15 loadings on the Agreeableness factor were trait names, which demonstrates that this factor was not covered well in the Self Description Inventory. It is interesting to note that the loadings for the trait names defining the Introversion factor flipped, and that the combined factor became that of Extroversion. In general, the highest loadings on each of the factors tended to be associated with the trait names, as hypothesized.

Factor Score Correlations:

The factor scores from the trait names and self description statements were labeled as follows:

TRAITS:

- T_1 Conscientiousness
- T_2 Neuroticism
- T_3 Agreeableness
- T_4 Introversion
- T_5 Openness/Intellect

SELF DESCRIPTION

- SD_1 Conscientiousness
- SD_2 Neuroticism
- SD_3 Extroversion (note that T_4 is Introversion)
- SD_4 Openness/Intellect
- SD_5 Disagreeableness (note that T_3 is Agreeableness)

The correlations between the trait and self description factors were computed and are as follows:

Correlations:	T_1	T_2	T_3	T_4	T_5
SD_1	.6819**	-.0765	.1698**	.1742**	.1272*
SD_2	-.1451*	.4612**	.2103**	.3668**	-.1022
SD_3	.0104	.0546	.3264**	-.6353**	.1014
SD_4	-.0908	-.1309*	-.0430	.0599	.7032**
SD_5	.1025	.2726**	-.3787**	-.1914**	.0794

N of cases: 469 2-tailed Signif: * - .01 ** - .001

Note that the correlations between three of the factors are substantial, as follows:

Conscientiousness	.68
Introversion/Extroversion	-.64
Openness/Intellect	.70

Even the above correlations suggest that the trait and self-description factor factors had some reliable independence. That is, they didn't cover exactly the same aspects of the underlying factors. The correlations for the two remaining factors were considerably lower, as follows:

Neuroticism	.46
Agreeableness/Disagreeableness	-.37

It has already been noted that the self description factor on Agreeableness was extremely weak, and new items needed to be written to strengthen it. The relatively low correlation for the Neuroticism factor was somewhat of a surprise. However, a careful review of the items in the two factors reveals significant differences in the terms and statements defining the two factors. To throw some light on these differences, the individual items defining Neuroticism in each form were factored to identify subfactors, and the subfactors were intercorrelated. The results of these analyses are reported below.

Subfactors for Self Description Statements Loaded on Neuroticism

FACTOR SDX1

LOAD.	ITEM
.65	When I am under great stress, I often feel like I am about to break down.
.60	When I am emotionally upset, I can't think clearly.
.59	Sometimes I get so upset, I get sick at my stomach.
.57	When I have a problem, I often have trouble sleeping.
.55	When things are not going right, I sometimes feel like crying.

- .40 I get rattled when I am under time pressure.
- .33 Sometimes I feel discouraged and simply want to give up.

FACTOR SDX2

LOAD	ITEM
.74	My energy tends to run out early in the day.
.73	I tire easily.
.64	I often feel tired and run down.
.58	I often let down toward the end of the day for lack of energy.
.44	I have a hard time working for long periods without a break.
.39	Sometimes I feel weak and shaky in the knees.

FACTOR SX3

LOAD	ITEM
.69	Sometimes I work too fast and make careless errors.
.68	I have a habit of putting off things that I should be attending to.
.61	I have a habit of "forgetting" things that I would rather not do.
.58	Sometimes I take it easy when I should be working.
.54	I have a habit of making careless errors in working math problems.
.48	Some days, it is difficult for me to get going.
.41	I often lose interest in things after I have started them.
.31	When I face a difficult decision, I have a hard time making up my mind.

FACTOR SX4

LOAD.	ITEM
.68	I have a strong fear of failure.
.65	I often worry a lot about the future.
.63	I am always worried about how things might go wrong.
.57	I'm often fearful that I will fail to reach my goals.
.52	I worry more than most people.

FACTOR SX5

LOAD.	ITEM
.75	I am a very shy person.
.70	I am a timid person and am easily embarrassed.
.61	I am uneasy when I am the center of attention.

FACTOR SX6

LOAD.	ITEM
.73	I don't accept criticism very well.
.71	I get very upset when I am criticized.

- .46 My feelings are easily hurt.
- .40 I am jealous of others who get what I would like to have.
- .39 I tend to get upset easily.

FACTOR SX7

LOAD.	ITEM
.63	I feel inferior to many of my friends.
.46	I often have feelings of guilt for something I have done or didn't do.
.46	I often feel jittery and tense.
.41	I often have headaches when things are not going well.
.41	I worry about people saying things behind my back.

FACTOR SX8

LOAD.	ITEM
-.52	I hardly ever feel lonely or blue.
.49	I am often sad and depressed.
.39	I am often nervous and tense.
.31	I have periods when I feel sorry for myself.

Subfactors for Trait Items Loaded on Neuroticism

FACTOR TX1

LOAD.	ITEM
.57	Fretful
.57	Negligent
.55	Inefficient
.54	Unstable
.53	Nervous
.52	Fearful
.52	Impractical
.51	Undependable
.51	Uncharitable
.50	Shallow
.31	Unreflective

FACTOR TX2

LOAD.	ITEM
.70	Moody
.69	Irritable
.68	Temperamental
.68	Touchy
.57	Defensive

.42 High-Strung

FACTOR TX3

LOAD. ITEM

.75 Lazy
.70 Sloppy
.64 Sluggish
.48 Careless

FACTOR TX4

LOAD. ITEM

.72 Insensitive
.70 Cold
.65 Unkind

FACTOR TX5

LOAD. ITEM

.79 Envious
.69 Jealous
.54 Selfish
.45 Self-Pitying

The intercorrelations among the trait and self description factors above are provided in the following table:

Intercorrelations of the Trait and Self Description Factor Scores

Correlations:	TX1	TX2	TX3	TX4	TX5
SDX1	.1116	.1714**	.0562	-.0691	.0100
SDX2	.1977**	.0706	.3289**	-.0026	.1090
SDX3	.0608	.0685	.3634**	.0432	.1532**
SDX4	.1031	.1963**	-.0459	-.0682	.1275*
SDX5	.2470**	.0862	.0742	-.1337*	-.0302
SDX6	-.0110	.3028**	-.0296	.0355	.3067**
SDX7	.2456**	.1130	.0933	-.0205	.1762**
SDX8	.0627	.1906**	-.0120	.0281	.0751

N of cases: 469 2-tailed Signif: * - .01 ** - .001

The correlations above are not very impressive. There appear to be considerable differences in the Neuroticism subfactors measured by the traits and those measured by the descriptive statements. A review of these subfactors reveals problems. For example TX4 was made up of Insensitive, Cold, and Unkind. This subfactor belongs more on the Agreeableness factor than on the

Neuroticism. Interestingly, no SDX subfactor correlated higher than .13 with this TX subfactor. The TX3 subfactor looked more like the negative side of Conscientiousness than Neuroticism. The SX5 subfactor clearly belongs on an Introversion factor. None of the TX subfactors correlated with SX8, which clearly belongs on the Neuroticism factor.

Interestingly, these problems seem to evaporate when one looks at the joint solution which combined the trait and self description statements. For this reason, the variables on this joint Neuroticism factor (loaded above .43), were subjected to a subfactor solution. Ten subfactors are presented in the table below, which accounted for more than 50 percent of the covariance.

Subfactor Analysis for Combined Trait and Self-Description Items

FACTOR NEU01

LOAD.	ITEM
.72	I tire easily.
.67	My energy tends to run out early in the day.
.64	I often feel tired and run down.
.60	I often let down toward the end of the day for lack of energy.
.50	Sluggish
.49	Sometimes I feel weak and shaky in the knees.
.47	Some days, it is difficult for me to get going.
.47	I often have headaches when things are not going well.
.36	I get rattled when I am under time pressure.
.34	Sometimes I feel discouraged and simply want to give up.
.34	I feel inferior to many of my friends.

FAC NEUR02

LOAD.	ITEM
.70	I have done some things just because I knew they were against the rules.
.58	I have sometimes lied in order to get what I wanted.
.53	On a number of occasions, I played sick just to skip school.
.52	Sometimes I take it easy when I should be working.
.52	I have a habit of putting off things that I should be attending to.
.52	Sometimes I work too fast and make careless errors.
.46	At times, I am not very cooperative with others.
.35	I have a habit of "forgetting" things that I would rather not do.

FACTOR NEUR03

LOAD.	ITEM
.67	I am always worried about how things might go wrong.

- .64 I worry more than most people.
- .62 I often worry a lot about the future.
- .62 I'm often fearful that I will fail to reach my goals.
- .56 I have a strong fear of failure.
- .37 I often feel jittery and tense.
- .36 I often have feelings of guilt for something I have done or didn't do.

FACTOR NEUR04

LOAD.	ITEM
.59	My feelings are easily hurt.
.58	When things are not going right, I sometimes feel like crying.
.58	When I am under great stress, I often feel like I am about to break down.
.55	Emotional
.50	When I am emotionally upset, I can't think clearly.
.44	Sometimes I get so upset, I get sick at my stomach.
.43	When I have a problem, I often have trouble sleeping.
-.42	I hardly ever feel lonely or blue.
.32	I get very upset when I am criticized.

FACTOR NEUR05

LOAD.	ITEM
.59	Touchy
.57	Moody
.56	Irritable
.54	Temperamental
.51	Anxious
.49	High_Strung
.48	Fretful
.47	Defensive
.31	I don't accept criticism very well.

FACTOR NEUR06

LOAD.	ITEM
.65	Unstable
.63	Insecure
.49	Self-Pitying
.48	Fearful
.45	I am often nervous and tense.
.42	I am often sad and depressed.
.39	Nervous

NEUR07

LOAD.	ITEM
.67	I am jealous of others who get what I would like to have.
.66	Envious
.60	Jealous
.36	I have periods when I feel sorry for myself.
.34	I worry about people saying things behind my back.

NEU08

LOAD.	ITEM
-.72	I practically never lose my temper.
.60	I often lose my temper with other people.
.55	I tend to get upset easily.
-.43	When things go wrong, I keep a cool head.

NEUR09

LOAD.	ITEM
.55	I resent it when I don't get my way.
.48	I have a hard time working for long periods without a break.
.42	When I face a difficult decision, I have a hard time making up my mind.
.33	I often lose interest in things after I have started them.

FACTOR NEUR10

LOAD.	ITEM
.60	I have a hard time liking some people.
.58	There are some people that I simply cannot get along with.
.38	I try to get even when someone has done me wrong.

Analyses such as the one presented above gave strong evidence that either new items would have to be written to improve the trait inventory or the self description inventory, or that some type of joint inventory should be used to measure the personality domain.

CONSTRUCTION OF THE DRAFT REVISED INVENTORY

The first step in the construction of a new inventory involved selecting self description and trait statements from the joint solution. Because different instructions and rating scales were used, it was decided that for the time being, two shortened inventories would be retained. Below are presented the separate solutions for the new draft trait and self description inventories. Note that some statements are reported which had low loadings. However these statements are appropriately positioned in the joint solution which will be reported last.

Draft Self Description Inventory Factor Solution

FACTOR 1--NEUROTICISM (LOADINGS ABOVE .46 REPORTED)

LOADING	ITEM
.62	I am often sad and depressed.
.61	I worry more than most people.
.61	When things are not going right, I sometimes feel like crying.
.61	When I am under great stress, I often feel like I am about to break down.
.59	I am always worried about how things might go wrong.
.59	I often feel jittery and tense.
.59	I tend to get upset easily.
.58	I have periods when I feel sorry for myself.
.58	Sometimes I feel discouraged and simply want to give up.
.57	Sometimes I feel weak and shaky in the knees.
.57	I am often nervous and tense.
.57	Some days, it is difficult for me to get going.
.56	I get rattled when I am under time pressure.
.56	My feelings are easily hurt.
.55	I often feel tired and run down.
.54	I often worry a lot about the future.
.54	When I am emotionally upset, I can't think clearly.
.54	I'm often fearful that I will fail to reach my goals.
.53	I often have headaches when things are not going well.
.53	Sometimes I get so upset, I get sick at my stomach.
.51	I get very upset when I am criticized.
.50	I often let down toward the end of the day for lack of energy.
.50	I am a timid person and am easily embarrassed.
.49	I tire easily.
.48	I don't accept criticism very well.
-.48	I hardly ever feel lonely or blue.
.48	I often lose my temper with other people.
.46	I am jealous of others who get what I would like to have.
.46	My energy tends to run out early in the day.
.45	Sometimes I work too fast and make careless errors.
.44	I have sometimes lied in order to get what I wanted.
.41	I resent it when I don't get my way.

FACTOR 2--CONSCIENTIOUSNESS (LOADINGS ABOVE .36 REPORTED)

FACTOR	ITEM
.65	I would rate myself as being a very persistent worker.
.65	I always try to do more than is expected of me.
.62	I try to set a schedule for accomplishing tasks, and stick to it.
.59	If I commit myself to do something, I always carry through.

- .59 I try to do a good job in the first place, so it doesn't have to be done again.
- .57 I try to be fully prepared before I undertake any task.
- .57 I believe that rules and regulations should always be followed.
- .57 I like to work with people who are highly organized.
- .55 I like to have a place for everything and everything in its place.
- .53 When I get an assignment, I always do my best.
- .51 I tend to set higher standards for myself than others set for me.
- .51 I tend to leave boring jobs unfinished.
- .50 If I start something, I work until it is finished to my satisfaction.
- .50 I believe that having polished manners is important.
- .50 I believe in setting up a personal budget and sticking with it.
- .50 I try to set a schedule for accomplishing tasks, and stick to it.
- .48 I was willing to work hard for good grades in high school.
- .47 I have a habit of putting off things that I should be attending to.
- .47 Sometimes I take it easy when I should be working.
- .46 I believe that military discipline is good for a person.
- .44 I like to help others, even if there is nothing in it for me.
- .43 If a job is too difficult, I have a tendency to give up.
- .41 I like to help others when they are down on their luck.
- .39 I get a lot of pleasure in helping others with their problems.
- .36 I speak up when I feel I can make a contribution.

FACTOR 3--OPENNESS/INTELLECT (LOADINGS ABOVE .38 REPORTED)

LOADING	ITEM
.62	I spend a lot of time in meditation and deep thought.
.61	I have a lot of intellectual curiosity.
.60	I would enjoy being a theoretical scientist.
.58	I like to spend time in intellectual discussions with my friends.
.57	I have thought a lot about the origin of the universe.
.56	I enjoy visiting art museums.
-.56	Philosophical discussions bore me.
.56	I enjoy reading poetry.
.55	I am highly interested in all the fields of science.
.51	I find intellectual things more interesting than football, baseball, or basketball.
.51	I believe that young people should listen to their elders more often.
.50	I spend a lot of time analyzing my internal feelings.
.49	I would rather read a good book than watch television.
.47	I prefer listening to classical music rather than popular music.
.47	I often think about the wonders of nature.
-.46	I would not enjoy going to an opera or ballet.
.45	I love to find innovative solutions to difficult problems.
.44	I try to analyze and evaluate conditions, so that I can predict the future.

- .44 I spend a lot of time analyzing the motives behind the actions of others.
- .44 I am fascinated with the theory of evolution.
- .43 I am better than most in seeing what the future holds.
- .41 I am often in deep thought, when others think that I am day dreaming.
- .41 I often analyze why I am the way I am.
- .38 I have a good imagination.

FACTOR 4--EXTROVERSION (LOADINGS ABOVE .33 REPORTED)

LOADING	ITEM
.68	At social functions, I talk to as many people as possible.
.56	If things get too boring at a party, I try to get things going.
.55	Most of my friends would describe me as a "talker."
.55	I laugh a lot.
-.52	I am a very shy person.
.51	I like parties, where there are a lot of people.
-.51	My friends consider me to be bashful.
.50	I go out of my way to meet people.
.50	I like to strike up conversations with strangers.
.50	I like to be where there is a lot of action.
-.48	I avoid meetings and social gatherings when possible.
-.47	I tend to be a loner.
.45	I am good at cheering people up.
.45	I am cheerful most of the time.
.45	I have a lot of influence over others.
-.43	I am uneasy when I am the center of attention.
.42	I tend to take charge in group meetings.
-.38	In meetings, I tend to let others do most of the talking.
.33	I would enjoy a leadership role.

FACTOR 5-AGREEABLENESS (LOADINGS ABOVE .32 REPORTED)

LOADING	ITEM
.56	I seldom get mad at anyone.
.52	I am considered to be easy to get along with.
.50	I seldom argue with people.
-.48	Some people consider me to be unfriendly.
.47	I always treat other people with kindness.
.44	I get along well with most everybody.
.36	I am not comfortable telling others what to do.
.32	I have a lot of sympathy for others who are having problems.

The agreeableness factor was very weak. It gathers strength when it is joined with the agreeableness factor defined by the trait ratings. Additional self

description items designed to measure agreeableness were to be written for inclusion in the next form of the inventory.

Draft Trait Inventory Factor Solution

FACTOR 1--CONSCIENTIOUSNESS (LOADINGS ABOVE .40 REPORTED)

LOADING	ITEM
.75	ORGANIZED
.74	NEAT
.72	PRECISE
.69	ORDERLY
.63	CONSISTENT
.63	THOROUGH
.61	EFFICIENT
.60	PERFECTIONISTIC
.59	CAREFUL
-.58	DISORGANIZED
-.57	SLOPPY
.55	PROMPT
.54	RESPONSIBLE
-.51	LAZY
.48	STEADY
.43	DEPENDABLE
.42	ENERGETIC
.40	ACTIVE

FACTOR 2-AGREEABLENESS (LOADINGS ABOVE .45 REPORTED)

LOADING	ITEM
.72	FRIENDLY
.71	KIND
.68	SYMPATHETIC
.66	PLEASANT
.66	WARM
.60	AFFECTIONATE
.60	CONSIDERATE
.56	HELPFUL
.53	CHEERFUL
.52	GENEROUS
-.51	UNSYMPATHETIC
-.50	INSENSITIVE
-.49	UNKIND
.45	UNDERSTANDING

FACTOR 3-NEUROTICISM (LOADINGS ABOVE .32 REPORTED)

LOADING	ITEM
.71	MOODY
.67	JEALOUS
.66	IRRITABLE
.63	TOUCHY
.62	TEMPERAMENTAL
.60	ENVIOUS
.53	DEFENSIVE
.53	SELFISH
.62	SELF-PITYING
.45	COLD
.45	NERVOUS
.44	FEARFUL
-.32	PATIENT

FACTOR 3--INTROVERSION (LOADINGS ABOVE .37 REPORTED)

LOADING	ITEM
.78	QUIET
.75	SHY
.72	SILENT
.69	BASHFUL
.62	WITHDRAWN
-.58	TALKATIVE
-.58	SOCIABLE
.57	TIMID
.56	UNSOCIABLE
-.47	VERBAL
.47	RESERVED
-.40	ASSURED
-.37	BOLD

FACTOR 5--OPENNESS/INTELLECT (LOADINGS ABOVE .48 REPORTED)

LOADING	ITEM
.80	PHILOSOPHICAL
.76	DEEP
.62	CONTEMPLATIVE
.60	INVENTIVE
.56	INNOVATIVE
.56	MEDITATIVE
.54	CREATIVE
.53	COMPLEX
.48	INTROSPECTIVE

Note that factor 5 (openness) did not seem to include items related to culture. On the other hand the self description openness factor contained a number of such items. This was one bit of evidence suggesting the merits of using a joint solution to fully define the factors. The joint solution of the phase 2 trait and self description inventories is reported below.

Draft Joint Inventory Factor Solution

FACTOR 1--CONSCIENTIOUSNESS (LOADINGS ABOVE .40 REPORTED)

LOADING	ITEM
.72	PRECISE
.71	ORGANIZED
.70	I like to keep all my belongings neat and organized.
.64	I would rate myself as being a very persistent worker.
.63	ORDERLY
.63	CONSISTENT
.62	PERFECTIONISTIC
.62	THOROUGH
.60	CAREFUL
.59	I always try to do more than is expected of me.
.58	EFFICIENT
.56	RESPONSIBLE
.56	I like to have a place for everything and everything in it's place.
.54	If I commit myself to do something, I always carry through.
.53	I like to work with people who are highly organized.
.51	I try to be fully prepared before I undertake any task.
.51	STEADY
-.51	DISORGANIZED
.50	I try to do a good job in the first place, so it doesn't have to be done again.
.49	PROMPT
-.49	SLOPPY
.49	HELPFUL
.48	I was willing to work hard for good grades in high school.
-.48	I tend to leave boring jobs unfinished.
-.47	LAZY
.47	I believe in setting up a personal budget and sticking with it.
.46	I try to set a schedule for accomplishing tasks, and stick to it.
.46	When I get an assignment, I always do my best.
.46	I believe that rules and regulations should always be followed.
.46	I tend to set higher standards for myself than others set for me.
.46	If I start something, I work until it is finished to my satisfaction.
.45	ENERGETIC
.44	DEPENDABLE
.43	I believe that having polished manners is important.

- .43 ACTIVE
- .42 If a job is too difficult, I have a tendency to give up.
- .42 ASSURED
- .40 I believe that military discipline is good for a person.

FACTOR 2--NEUROTICISM (LOADINGS ABOVE .42 REPORTED)

LOADING	ITEM
.61	MOODY
.59	JEALOUS
.57	I am often sad and depressed.
.56	I have periods when I feel sorry for myself.
.56	SELF-PITYING
.55	NERVOUS
.55	Some days, it is difficult for me to get going.
.54	I tend to get upset easily.
.54	ENVIOUS
.54	Sometimes I feel discouraged and simply want to give up.
.54	I often feel jittery and tense.
.54	When things are not going right, I sometimes feel like crying.
.54	I worry more than most people.
.53	TOUCHY
.53	I often feel tired and run down.
.52	I am often nervous and tense.
.52	I am always worried about how things might go wrong.
.52	TEMPERAMENTAL
.52	I often lose my temper with other people.
.51	I get very upset when I am criticized.
.51	When I am under great stress, I often feel like I am about to break down.
.50	I don't accept criticism very well.
.50	IRRITABLE
.50	When I am emotionally upset, I can't think clearly.
.50	DEFENSIVE
.50	I tire easily.
.48	Sometimes I feel weak and shaky in the knees.
.48	I often have headaches when things are not going well.
.48	I am jealous of others who get what I would like to have.
.48	Sometimes I get so upset, I get sick at my stomach.
.48	I often worry a lot about the future.
-.47	I hardly ever feel lonely or blue.
.47	My feelings are easily hurt.
.46	I get rattled when I am under time pressure.
.46	FEARFUL
.46	I am a timid person and am easily embarrassed.
.45	My energy tends to run out early in the day.

- .45 I have a habit of putting off things that I should be attending to.
- .45 Sometimes I take it easy when I should be working.
- .44 I often let down toward the end of the day for lack of energy.
- .44 I'm often fearful that I will fail to reach my goals.
- .43 Sometimes I work too fast and make careless errors.
- .43 I have sometimes lied in order to get what I wanted.
- .42 I resent it when I don't get my way.

FACTOR 3--EXTROVERSION (LOADINGS ABOVE .34 REPORTED)

LOADING	ITEM
-.69	QUIET
-.65	SHY
.65	SOCIABLE
-.65	I am a very shy person.
-.62	SILENT
.61	TALKATIVE
-.61	My friends consider me to be bashful.
.60	At social functions, I talk to as many people as possible.
.58	Most of my friends would describe me as a "talker."
-.56	BASHFUL
-.53	WITHDRAWN
-.52	UNSOCIABLE
.52	VERBAL
-.48	In meetings, I tend to let others do most of the talking.
.47	If things get too boring at a party, I try to get things going.
-.47	I tend to be a loner.
-.46	I am uneasy when I am the center of attention.
.46	I laugh a lot.
.45	I have a lot of influence over others.
-.45	TIMID
.44	I like to strike up conversations with strangers.
.43	I like to be where there is a lot of action.
.42	I tend to take charge in group meetings.
-.41	I avoid meetings and social gatherings when possible.
.41	I go out of my way to meet people.
.40	I like parties, where there are a lot of people.
.38	I speak up when I feel I can make a contribution.
.37	BOLD
-.36	RESERVED
-.35	I am not comfortable telling others what to do.
.34	I would enjoy a leadership role.

FACTOR 4-OPENNESS/INTELLECT (LOADINGS ABOVE .31 REPORTED)

LOADING	ITEM
----------------	-------------

- .68 PHILOSOPHICAL
- .67 DEEP
- .66 I spend a lot of time in meditation and deep thought.
- .62 I have a lot of intellectual curiosity.
- ..55 MEDITATIVE
- .54 I would enjoy being a theoretical scientist.
- .54 I like to spend time in intellectual discussions with my friends.
- .53 I enjoy reading poetry.
- .53 Philosophical discussions bore me.
- .52 I have thought a lot about the origin of the universe.
- .52 I am highly interested in all the fields of science.
- .51 I spend a lot of time analyzing my internal feelings.
- .50 I enjoy visiting art museums.
- .50 I try to analyze and evaluate conditions, so that I can predict the future.
- .50 CONTEMPLATIVE
- .49 I feel that I am more intellectual than most of my friends.
- .48 I love to find innovative solutions to difficult problems.
- .48 INVENTIVE
- .46 I find intellectual things more interesting than football, baseball, or basketball.
- .46 I am better than most in seeing what the future holds.
- .44 COMPLEX
- .44 I am often in deep thought, when others think that I am day dreaming.
- .43 I would rather read a good book than to watch television.
- .43 CREATIVE
- .43 I would not enjoy going to an opera or ballet.
- .42 I spend a lot of time analyzing the motives behind the actions of others.
- .42 I often think about the wonders of nature.
- .42 I often analyze why I am the way I am.
- .42 I have a good imagination.
- .41 I am fascinated with the theory of evolution.
- .41 INNOVATIVE
- .41 INTROSPECTIVE
- .40 I prefer listening to classical music rather than popular music.

FACTOR 5--AGREEABLENESS (LOADINGS ABOVE .33 REPORTED)

LOADING	ITEM
.66	FRIENDLY
.63	PLEASANT
.61	KIND
.59	SYMPATHETIC
.56	WARM

- .53 UNKIND
- .52 Some people consider me to be unfriendly.
- .51 INSENSITIVE
- .51 I always treat other people with kindness.
- .51 UNSYMPATHETIC
- .50 CONSIDERATE
- .50 CHEERFUL
- .49 I am considered to be easy to get along with.
- .49 AFFECTIONATE
- .49 COLD
- .47 GENEROUS
- .47 I have a lot of sympathy for others who are having problems.
- .45 I get along well with most everybody.
- .44 I like to help others, even if there is nothing in it for me.
- .43 I like to help others when they are down on their luck.
- .40 SELFISH
- .39 I am cheerful most of the time.
- .39 UNDERSTANDING
- .38 I am good at cheering people up.
- .38 I get a lot of pleasure in helping others with their problems.
- .35 I feel sorry for a lot of people I know who have personal problems.
- .35 I seldom argue with people.
- .33 I seldom get mad at anyone.
- .33 PATIENT

Based on the information in the above tables, new forms of the self description inventory and the trait inventory were developed. A total of 109 items were selected for inclusion in the self description inventory, while only 67 items were selected for inclusion in the trait inventory. This is a total of 176 items out of the original 312 items available in the previous forms. Fourteen new items were written for inclusion in the self description inventory to strengthen the Agreeableness factor, bringing the total to 123, and the grand total to 280.

One of the problems was deciding whether to use the trait name or the self description statement form of the personality inventory. The solutions provided above shows both types of variables helping to define the Big 5 factors, but there seems to be some indication that the two item classes may not be measuring the same facets. On the following pages, all items with loadings above .30 on a factor identified in the joint solution were subjected to a separate factor analysis. If either the trait names or the self descriptive statements were uniquely identifying some of these subfactors, this would indicate the wisdom of either writing additional items for a missing facet in one or the other of the inventories or, deciding to always use both types of items in the final version to make sure that all facets are covered. All of the solutions presented below involve **oblique** rotations (just to be different) of principal component factors . Eigenvalues above 1.0 was used as the criterion for factor rotation.

Facet Analysis of the Combined Draft Inventories

Subfactors for the Conscientiousness Factor

LOADING

VARIABLE

Subfactor 1--Dependability

- .54 Prompt
- .46 Thorough
- .42 Dependable
- .37 Consistent
- .34 Efficient

Subfactor 2--Neatness and Orderliness

- .73 Neat
- .72 I like to have a place for everything and everything in its place.
- .71 Organized
- .69 I like to keep all my belongings neat and organized.
- .67 Orderly
- .63 Disorganized
- .58 Sloppy

Subfactor 3--Laziness, Procrastination

- .72 Sometimes I work too fast and make careless errors.
- .71 Sometimes I take it easy when I should be working.
- .65 I have a habit of putting off things that I should be attending to.
- .60 Lazy
- .45 I tend to leave boring jobs unfinished.

Subfactor 4--Follows Rules and Regulations

- .67 I believe that military discipline is good for a person.
- .60 I believe that rules and regulations should always be followed.
- .36 I like to work with people who are highly organized.

Subfactor 5--Considerate and Cooperative

- .85 Considerate
- .71 Helpful
- .54 Careful
- .39 I believe that having polished manners is important.

Subfactor 6--Perfectionistic and Precise

- .72 Contemplative
- .62 Perfectionistic
- .51 I tend to set higher standards for myself than others set for me.
- .48 Precise

Subfactor 7--Efficient scheduling

- .63 I try to set a schedule for accomplishing tasks, and stick to it.
- .59 I believe in setting up a personal budget and sticking with it.
- .50 I speak up when I feel I can make a contribution.

Subfactor 8--Energetic, Assured

- .73 Active
- .64 Energetic
- .48 If a job is too difficult, I have a tendency to give up.
- .44 Assured
- .38 I try to do a good job in the first place, so it doesn't have to be done again.
- .34 I always try to do more than is expected of me.
- .30 Responsible
- .28 Steady

Subfactor 9--Effort

- .72 When I get an assignment, I always do my best.
- .61 If I start something, I work until it is finished to my satisfaction.
- .41 If I commit myself to do something, I always carry through.
- .40 I try to be fully prepared before I undertake any task.
- .31 I was willing to work hard for good grades in high school.
- .29 I would rate myself as being a very persistent worker.

Subfactors for the Neuroticism Factor**LOADING****ITEM****Subfactor 1--Depression**

- .66` Sometimes I get so upset, I get sick at my stomach.
- .54 When things are not going right, I sometimes feel like crying.
- .54 When I am under great stress, I often feel like I am about to break down.
- .49 I have periods when I feel sorry for myself.
- .41 I am often sad and depressed.
- .31 Sometimes I feel discouraged and simply want to give up.

Subfactor 2--Irritability

- .74 Irritable
- .72 Temperamental
- .69 Moody
- .62 Touchy
- .61 I often lose my temper with other people.
- .55 Defensive

Subfactor 3--Laziness, Procrastination

- .65 Sometimes I work too fast and make careless errors.
- .57 Sometimes I take it easy when I should be working.
- .54 I have a habit of putting off things that I should be attending to.
- .49 Lazy
- .48 Some days, it is difficult for me to get going.
- .47 I have sometimes lied in order to get what I wanted.

Subfactor 4--Envious and Jealous

- .69 Envious
- .67 I am jealous of others who get what I would like to have.
- .61 Jealous
- .41 Self-Pitying

Subfactor 5--Timidity, Nervousness and Fearfulness

- .66 Timid
- .49 I am a timid person and am easily embarrassed.
- .49 Nervous
- .48 Fearful

Subfactor 6--Sensitivity to Criticism

- .68 I don't accept criticism very well.
- .65 I get very upset when I am criticized.
- .53 My feelings are easily hurt.
- .35 When I am emotionally upset, I can't think clearly.

Subfactor 7-- Worrying

- .71 I am always worried about how things might go wrong.
- .69 I worry more than most people.
- .68 I often worry a lot about the future.
- .59 I'm often fearful that I will fail to reach my goals.
- .33 I often feel jittery and tense.
- .28 I hardly ever feel lonely or blue.

Subfactor 8--Lack of energy, Tired

- .73 I tire easily.
- .68 My energy tends to run out early in the day.
- .57 I often feel tired and run down.
- .48 I often let down toward the end of the day for lack of energy.
- .44 Sometimes I feel weak and shaky in the knees.
- .37 I often have headaches when things are not going well.
- .23 I get rattled when I am under time pressure.

Subfactor 9--Selfishness

- .58 I resent it when I don't get my way.
- .54 Selfish

- .37 I am often nervous and tense.
- .35 I tend to get upset easily.

Subfactors for the Extroversion/Introversion Factor

LOADING

ITEM

Subfactor 1--Bashful and Shy (Neg.)

- .78 I am a very shy person.
- .78 Shy
- .76 My friends consider me to be bashful.
- .72 Bashful
- .64 I am a timid person and am easily embarrassed.
- .57 Timid
- .39 Quiet

Subfactor 2--Talkative

- .78 Talkative
- .65 Most of my friends would describe me as a "talker."
- .61 Verbal
- .55 I laugh a lot.
- .38 Sociable
- .37 Silent

Subfactor 3-- Assured

- .66 Active
- .65 Assured
- .44 I speak up when I feel I can make a contribution.
- .43 I am good at cheering people up.
- .43 Bold

Subfactor 4--Socially Active

- .78 I like parties, where there are a lot of people.
- .66 I like to be where there is a lot of action.
- .66 If things get too boring at a party, I try to get things going.

Subfactor 5--Glad-Handler

- .74 I like to strike up conversations with strangers.
- .74 I go out of my way to meet people.
- .52 At social functions, I talk to as many people as possible.

Subfactor 6--Assertive (Neg.)

- .77 I would enjoy a leadership role.
- .76 I tend to take charge in group meetings.
- .70 I am not comfortable telling others what to do.
- .55 I have a lot of influence over others.

- .47 In meetings, I tend to let others do most of the talking.
- .34 I am uneasy when I am the center of attention.

Subfactor 7--Unsociable

- .64 I avoid meetings and social gatherings when possible.
- .55 I tend to be a loner.
- .35 Unsociable

Subfactor 8--Reserved

- .82 Reserved
- .49 Withdrawn

Subfactors for the Agreeableness Factor

LOADING

ITEM

Subfactor 1--Considerate, Friendly

- .78 Considerate
- .75 Helpful
- .71 Kind
- .56 Generous
- .52 Warm
- .50 Friendly
- .39 Pleasant

Subfactor 2--Patient

- .78 I seldom get mad at anyone.
- .64 I seldom argue with people.
- .61 Patient
- .49 Irritable

Subfactor 3--Cold and Insensitive

- .79 Cold
- .74 Insensitive
- .67 Unkind
- .66 Unsympathetic
- .44 Selfish

Subfactor 4--Helpful

- .68 I get a lot of pleasure in helping others with their problems.
- .68 I like to help others when they are down on their luck.
- .58 I like to help others, even if there is nothing in it for me.
- .42 Understanding
- .41 I am good at cheering people up.

Subfactor 5--Cheerful (Neg.)

- .77 I am cheerful most of the time.
- .73 Cheerful
- .65 I laugh a lot.
- .38 Affectionate

Subfactor 6--Sympathetic

- .73 I have a lot of sympathy for others who are having problems.
- .72 I feel sorry for a lot of people I know who have personal problems.
- .48 Sympathetic

Subfactor 7--Friendly

- .63 I am considered to be easy to get along with.
- .60 I get along well with most everybody.
- .44 I always treat other people with kindness.
- .42 Some people consider me to be unfriendly.

Subfactors for the Openness/Intellect Factor

LOADING

ITEM

Subfactor 1--Philosophical, Intellectual

- .66 Contemplative
- .60 Philosophical
- .59 Deep
- .53 I feel that I am more intellectual than most of my friends.
- .53 Complex
- .49 Philosophical discussions bore me.
- .47 Introspective
- .47 I have a lot of intellectual curiosity.
- .46 I like to spend time in intellectual discussions with my friends.
- .40 I love to find innovative solutions to difficult problems.

Subfactor 2--Cultured

- .74 I would not enjoy going to an opera or ballet.
- .74 I prefer listening to classical music rather than popular music.
- .62 I enjoy visiting art museums.
- .59 I would rather read a good book than to watch television.
- .49 I enjoy reading poetry.
- .44 I find intellectual things more interesting than football, baseball, or basketball.

Subfactor 3--Creative

- .82 Creative
- .74 Innovative
- .73 I have a good imagination.
- .67 Inventive

Subfactor 4--Foresighted

- .70 I spend a lot of time analyzing the motives behind the actions of others.
- .64 I am better than most in seeing what the future holds.
- .58 I often analyze why I am the way I am.
- .47 I try to analyze and evaluate conditions, so that I can predict the future.

Subfactor 5--Meditative

- .70 I am often in deep thought, when others think that I am day dreaming.
- .63 I spend a lot of time in meditation and deep thought.
- .57 Meditative
- .55 I try to analyze and evaluate conditions, so that I can predict the future.

Subfactor 6--Scientific Curiosity

- .69 I am fascinated with the theory of evolution.
- .67 I would enjoy being a theoretical scientist.
- .67 I have thought a lot about the origin of the universe.
- .66 I am highly interested in all the fields of science.
- .53 I often think about the wonders of nature.

A careful study of the above facets indicated that each item type uniquely contributed to the definition of factors. The facets labeled as dependability, reserved, considerate and insensitive were exclusively defined by trait terms, and those of irritability, and creativity had only one self descriptive statement on them. On the other hand, a large number of facets were defined exclusively by the self description statements. It is concluded that either new statements or trait names would have to be produced before either type of item would satisfactorily define the entire domain. However, it was decided that, for the present, each type of item should be retained in the final form, with some additional self description items written for the agreeableness factor.

The 14 new items which were included in the draft self description inventory are listed below:

ITEM #	ITEM
SDRSP207	I try to be kind to everyone I know.
SDRSP208	I am always considerate of the feelings of others.
SDRSP209	I try to always be polite, even to those who are not polite to me.
SDRSP210	Even if I don't like them, I try always to be considerate of others.
SDRSP211	I try to be pleasant in every situation.
SDRSP212	I try to respect others' points of view, even if I don't agree with them..
SDRSP213	I am always generous when it comes to helping others.

SDRSP214	I have to admit that sometimes I am unkind to my friends.
SDRSP215	I am considered by others to be a very friendly person.
SDRSP216	My friends feel free to tell me their secrets.
SDRSP217	Many times I will disagree just to start an argument.
SDRSP218	I have little sympathy for those who encounter failures.
SDRSP219	I'm not very patient with individuals who are incompetent.
SDRSP220	I try to be cheerful, even when things are not going well.

Comparison of 5-Factor and 6-Factor Solutions.

Earlier in this research stream, comparisons were made of 5-factor solutions and 6-factor solutions to see if a 6th factor could be identified which would hold up on a type of cross validation. This effort involved splitting 206 trait names into random halves and computing 5- and 6- factor solutions in each. Factor scores were computed in each instance, and were intercorrelated. In every instance the same 5-factor solution was obtained, but in no instance was a 6th factor identified which held up across solutions. However, this exercise was conducted with the full 206-variable trait list in which a factor called "Scrooge" was identified and a clean-cut 'Neuroticism' factor was not identified. Since then, a number of modifications in the trait list has been made, and the trait list was combined with a large number of self description statements. The 5 factor solutions are now in line with those currently being identified in the literature as the "Big 5" structure.

It was felt desirable to again compare five factor solutions with six factor solutions to see if a stable sixth factor could be identified using the new combined trait and self description inventory. The results of this effort are presented below.

The steps involved in the analysis were as follows:

1. Select every-other item (either trait or self-description) into Form A.
2. Select the remaining items for inclusion in Form B.
3. Perform a 5- and a 6- factor extraction and rotation separately for Form A and Form B: Compute factor scores in each instance.
4. Intercorrelate the factor scores for the 5-factor and 6-factor solutions. Determine if a sixth factor can be identified which holds up on cross-validation.

The results of this effort are presented on the next several pages. First the two 5-factor solutions are provided, along with a matrix of intercorrelations among the factor scores. To conserve space, the complete 6-factor solutions are not

presented. However the intercorrelations of the factor scores from these two solutions are presented.

Comparisons of 5-factor Solutions from Independent Item Samples

Factor 1--Conscientiousness, Item sample A

LOADING	ITEM
.71	Precise
.68	I would rate myself as being a very persistent worker.
.66	Consistent
.64	Careful
.63	Neat
.59	I always try to do more than is expected of me.
.59	If I commit myself to do something, I always carry through.
.56	I try to do a good job in the first place, so it doesn't have to be done again.
.56	Steady
.53	Helpful
.52	Prompt
.51	Dependable
-.50	I tend to leave boring jobs unfinished.
-.49	Lazy
.49	I try to be fully prepared before I undertake any task.
.49	If I start something, I work until it is finished to my satisfaction.
.49	Active
.48	I like to have a place for everything and everything in it's place.
.45	Assured
.42	I believe that having polished manners is important.
.39	I speak up when I feel I can make a contribution.

Factor 1--Conscientiousness Item Sample B.

.75	Organized
.69	I like to keep all my belongings neat and organized.
.66	Orderly
.63	Perfectionistic
.58	Thorough
.56	Efficient
.55	I was willing to work hard for good grades in high school.
.54	Responsible
-.53	Disorganized
.53	I like to work with people who are highly organized.
.50	I try to set a schedule for accomplishing tasks, and stick to it.
-.49	Sloppy
.49	I believe in setting up a personal budget and sticking with it.

- .48 I tend to set higher standards for myself than others set for me.
- .48 I believe that rules and regulations should always be followed.
- .46 When I get an assignment, I always do my best.
- .43 Innovative
- .42 Energetic
- .41 I believe that military discipline is good for a person.
- .38 If a job is too difficult, I have a tendency to give up.

Factor 2--Neuroticism Item Sample A

- .62 I tend to get upset easily.
- .61 I often lose my temper with other people.
- .59 Temperamental
- .58 Touchy
- .58 Jealous
- .56 Irritable
- .55 I get very upset when I am criticized.
- .55 I don't accept criticism very well.
- .55 I often feel tired and run down.
- .54 When things are not going right, I sometimes feel like crying.
- .54 I have periods when I feel sorry for myself.
- .50 I am always worried about how things might go wrong.
- .50 I am jealous of others who get what I would like to have.
- .50 When I am emotionally upset, I can't think clearly.
- .50 I often have headaches when things are not going well.
- .49 I hardly ever feel lonely or blue.
- .46 I get rattled when I am under time pressure.
- .46 My energy tends to run out early in the day.
- .46 I have a habit of putting off things that I should be attending to.
- .46 I have sometimes lied in order to get what I wanted.
- .45 I am a timid person and am easily embarrassed.
- .43 Sometimes I work too fast and make careless errors.

Factor 2--Neuroticism Item Sample B

- .62 Nervous
- .61 I worry more than most people.
- .60 I often feel jittery and tense.
- .60 I am often sad and depressed.
- .59 Some days, it is difficult for me to get going.
- .59 I am often nervous and tense.
- .58 When I am under great stress, I often feel like I am about to break down.
- .57 Sometimes I feel discouraged and simply want to give up.
- .57 Self-Pitying
- .52 Sometimes I get so upset, I get sick at my stomach.

- .52 Moody
- .52 Fearful
- .51 I tire easily.
- .51 I'm often fearful that I will fail to reach my goals.
- .51 Sometimes I feel weak and shaky in the knees.
- .51 I often worry a lot about the future.
- .50 Envious
- .50 My feelings are easily hurt.
- .49 I often let down toward the end of the day for lack of energy.
- .44 Defensive
- .43 Sometimes I take it easy when I should be working.
- .39 I resent it when I don't get my way.

Factor 3--Extroversion/Introversion Item Sample A

- .70 Quiet
- .66 I am a very shy person.
- .66 Talkative
- .62 Most of my friends would describe me as a "talker."
- .59 At social functions, I talk to as many people as possible.
- .57 Verbal
- .53 Unsociable
- .48 I like to strike up conversations with strangers.
- .48 I laugh a lot.
- .45 I have a lot of influence over others.
- .44 Timid
- .43 I go out of my way to meet people.
- .42 I avoid meetings and social gatherings when possible.
- .38 Bold
- .34 I am not comfortable telling others what to do.

Factor 3--Extroversion/Introversion Items Sample B

- .64 Sociable
- .60 Shy
- .58 My friends consider me to be bashful.
- .57 Silent
- .55 If things get too boring at a party, I try to get things going.
- .52 Bashful
- .51 I like parties, where there are a lot of people.
- .51 Withdrawn
- .51 I like to be where there is a lot of action.
- .46 In meetings, I tend to let others do most of the talking.
- .44 I am uneasy when I am the center of attention.
- .44 I tend to be a loner.
- .43 I tend to take charge in group meetings.

- .41 I am good at cheering people up.
- .36 Reserved
- .33 I would enjoy a leadership role.

Factor 4--Openness/Intellect Items Sample A

- .66 Philosophical
- .62 I have a lot of intellectual curiosity.
- .57 I enjoy visiting art museums.
- .55 I enjoy reading poetry.
- .55 Meditative
- .53 Philosophical discussions bore me.
- .52 Creative
- .52 Contemplative
- .52 I try to analyze and evaluate conditions, so that I can predict the future.
- .51 Inventive
- .50 I have a good imagination.
- .48 I feel that I am more intellectual than most of my friends.
- .48 I would not enjoy going to an opera or ballet.
- .45 I often think about the wonders of nature.
- .44 I am often in deep thought, when others think that I am day dreaming.
- .43 I prefer listening to classical music rather than popular music.

Factor 4--Openness/Intellect Items Sample B

- .66 I spend a lot of time in meditation and deep thought.
- .65 Deep
- .56 I would enjoy being a theoretical scientist.
- .56 I like to spend time in intellectual discussions with my friends.
- .54 I have thought a lot about the origin of the universe.
- .53 I spend a lot of time analyzing my internal feelings.
- .53 I am highly interested in all the fields of science.
- .50 I find intellectual things more interesting than football, baseball, or basketball.
- .49 I spend a lot of time analyzing the motives behind the actions of others.
- .48 I am better than most in seeing what the future holds.
- .48 I love to find innovative solutions to difficult problems.
- .46 Complex
- .46 I would rather read a good book than to watch television.
- .45 I often analyze why I am the way I am.
- .44 I am fascinated with the theory of evolution.
- .43 Introspective

Factor 5--Agreeableness Items Sample A

- .65 Friendly
- .57 Sympathetic
- .54 Some people consider me to be unfriendly.
- .53 I am considered to be easy to get along with.
- .53 I have a lot of sympathy for others who are having problems.
- .50 Warm
- .50 Affectionate
- .49 Cheerful
- .45 I like to help others, even if there is nothing in it for me.
- .43 I like to help others when they are down on their luck.
- .43 I am cheerful most of the time.
- .42 Unkind
- .41 I seldom get mad at anyone.
- .39 I seldom argue with people.

Factor 5--Agreeableness Items Sample B

- .64 Unsympathetic
- .62 Insensitive
- .61 Kind
- .60 Pleasant
- .57 Cold
- .54 Considerate
- .52 Generous
- .50 I always treat other people with kindness.
- .50 I get along well with most everybody.
- .43 Understanding
- ..39 I get a lot of pleasure in helping others with their problems.
- .32 I feel sorry for a lot of people I know who have personal problems.
- .31 Patient

The factors were rearranged in the above display in order to put the same factors together for comparison. The intercorrelation matrix for the originally computed factor scores in the five factor solutions is as follows:

Correlations:	B51	B52	B53	B54	B55
A51	-.0840	.8406**	-.0111	-.0937	.0960
A52	.8305**	-.0240	-.0043	-.0368	-.1460**
A53	-.1624**	-.0895	.0824	-.8081**	-.0078
A54	-.0001	.1182*	.8043**	.0363	.0281
A55	.1966**	.0936	-.0334	-.0973	.7565**

N of cases: 509 2-tailed Signif: * - .01 ** - .001

The correlations between the same factors in the five factor solutions are as follows:

Factor	Correlation
Conscientiousness	.84
Neuroticism	.83
Extro/Introversion	.81
Openness/Intellect	.80
Agreeableness	.76

As mentioned previously, the A and B items samples were also subjected to six-factor solutions. The intercorrelations among factor scores were as follows:

Correlations:	B61	B62	B63	B64	B65	B66
A61	-.1530**	.7904**	-.0075	-.0625	.2360**	.0922
A62	.7837**	.0051	-.0111	-.0398	-.0722	.2850**
A63	-.1805**	-.1059	.0831	-.8054**	.0590	.0856
A64	-.0148	.0947	.7964**	.0525	.1036	.0630
A65	.1556**	.0340	-.0820	-.0471	.7168**	-.1950**
A66	.2222**	.0141	.0516	-.0475	.1638**	-.2943**
N of cases:	509	2-tailed Signif: * - .01 ** - .001				

Note that in the six-factor solution, the sixth factor correlated only -.29 with itself across the two item samples. Thus there is strong evidence that the five-factor solution is the one which should be reported. The correlations among the first five factors varied from .72 to .81.

ANALYSES OF THE REVISED TRAIT AND SELF DESCRIPTION INVENTORIES

The 67-item version of the trait inventory and the 123-item version of the Self-Description Inventory were administered to a new sample of nearly 500 subjects. A series of analyses was conducted to evaluate these new instruments as separate and consolidated measures of the Big 5 factor domain. In the first set of analyses the two instruments were analyzed separately and the factor scores for equivalent factors were correlated to evaluate whether they were covering the same content. The results of this effort are reported below:

Factor Analysis of the 67-Trait Inventory. (Principal Components & Orthogonal Rotations)

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
Factor 1--Conscientiousness					
ORGANIZR	.77853	.18852	.02097	-.01315	.00855
NEATR	.73815	.18956	-.00319	-.07294	-.04705
ORDERLYR	.67123	.14227	.00633	-.07862	.07050
PRECISER	.63391	.08331	-.08348	-.12914	.24136
THOROUGH	.63386	.19462	-.18687	-.10745	.20572
RESPNSR	.61771	.18018	-.05091	-.14044	.04488

STEADYR	.61155	.11899	-.14842	-.09532	.15853
CONSISTR	.59713	.21166	.00143	-.13830	.17588
EFFICIER	.54645	.19893	-.14799	-.13630	.29125
DISORGAR	-.54315	-.07423	.03625	.40257	.04588
SLOPPYR	-.53012	-.07593	.05310	.39318	.09435
PERFECTR	.52689	.02360	.00429	-.05251	.25419
ASSURED	.52213	.18329	-.24643	-.07431	.20840
DEPENDAR	.49865	.33212	-.12899	-.01298	.04880
CAREFULR	.48584	.29879	.11104	-.04037	.04708
PROMPTR	.44911	.20995	.02055	-.08622	.12047

Factor 3--Agreeableness

KINDR	.34524	.71746	.00673	-.04052	.07168
WARMR	.16653	.68488	-.10210	-.01108	.15540
SYMPATHR	.10694	.67177	.09243	.03597	.18165
FRIENDLR	.21469	.66634	-.27393	.02379	.00417
CONSIDER	.28677	.65315	-.00541	-.08661	.10363
GENEROUS	.21539	.64159	-.08646	.01189	.14804
PLEASANT	.22316	.64159	-.15342	-.01635	.13478
CHEERFUL	.26889	.59074	-.29918	-.02518	.09855
AFFECTIR	.12587	.58970	-.10109	.11317	.13377
UNSYMPAR	.01586	-.56476	.09491	.28315	.00942
UNDERSTR	.24761	.56206	-.03434	-.05921	.23213
UNKINDR	-.08794	-.55950	.10980	.35382	.04460
INSENSIR	-.03834	-.51628	.07330	.34065	.09025
HELPFULR	.37622	.50715	-.18184	-.07468	.17984
COLDR	-.07709	-.45303	.08197	.44420	.06597
ENERGETR	.35132	.43837	-.35287	-.00264	.10023

Factor 3-- Introversion

SHYR	-.07123	-.00147	.75865	.20710	-.03888
QUIETR	.05820	-.10748	.75089	.05461	.02528
SILENTR	-.01015	-.14004	.74064	.12868	.04008
BASHFULR	.00056	.05543	.71637	.21235	-.07824
WITHDRAR	-.14342	-.20875	.67434	.23978	.01995
TIMIDR	-.11072	.07347	.60872	.25394	-.07984
TALKATIR	.01833	.27404	-.57877	.27990	.06712
SOCIABLR	.15931	.38523	-.57467	.09381	.02692
UNSOCIAL	-.04962	-.34322	.56998	.19284	.10436
BOLDR	.24866	.07323	-.51096	.05017	.27957
VERBALR	.11318	.13433	-.49221	.25156	.21185
RESERVER	.20052	-.10525	.49043	.05634	.07749
ACTIVER	.32339	.34971	-.38572	.03984	.04461

Factor 4--Neuroticism

IRRITABR	-.02818	-.18115	.04953	.68648	.00720
MOODYR	-.12927	-.07459	.02994	.67574	-.01827
TOUCHYR	-.08282	.01186	.02195	.67151	-.00107
TEMPERAR	-.10048	-.11404	-.10340	.64007	-.00949
JEALOUSR	-.06630	-.00076	.16004	.63113	-.15403
ENVOUSR	-.14356	-.02231	.22280	.59618	-.01122
NERVOUSR	-.13237	.09236	.47067	.53605	-.09125
DEFENSIR	.01147	.03813	-.01935	.53335	.00726
SELF_PIR	-.21508	-.00715	.30955	.51499	.05098
LAZYR	-.37146	-.06098	.12651	.47101	.00747
SELFISHR	-.09864	-.33874	.14530	.45026	.05699
FEARFULR	-.18250	.12630	.34394	.39181	-.11968
PATIENTR	.24800	.24145	.14465	-.36946	.17445

Factor 5--Openness/Intellect

DEEPR	.16280	.13570	-.00060	-.02047	.69405
PHILOSOR	.04066	.05973	.01787	-.01256	.68261
INNOVATR	.27904	.14193	-.17383	-.13725	.63601
CONTEMPR	.18266	.13078	.09232	-.08506	.62943
CREATIVR	.18898	.12460	-.21855	-.06513	.61704
MEDITATR	-.08510	.07730	.15544	.07921	.60393
INVENTIR	.23938	.06234	-.15734	-.04689	.59498
INTROSPR	.11519	.21535	-.03210	-.06195	.57782
COMPLEXR	.04292	-.06500	-.08102	.15759	.49792

Below is reported the factor analysis of the 123-item Self Description Inventory. Note that the item numbers are included along with the loadings and the item content. Again the factors were extracted using the Principal Components method were rotated orthogonally.

Factor Analysis of the 123-item Self Description Inventory

FACTOR 1--NEUROTICISM

LOAD.	ITEM #	ITEM
.72	036	I am often nervous and tense.
.71	043	I often feel jittery and tense.
.67	040	When I am under great stress, I often feel like I am about to break down.
.66	061	I am always worried about how things might go wrong.
.66	057	I worry more than most people.
.64	041	I am often sad and depressed.
.63	034	Sometimes I get so upset, I get sick at my stomach.
.62	031	I tend to get upset easily.
.61	045	I get rattled when I am under time pressure.
.60	037	I often feel tired and run down.
.60	058	When I am emotionally upset, I can't think clearly.
.59	039	I have periods when I feel sorry for myself.
.58	052	My feelings are easily hurt.
.57	038	I often worry a lot about the future.
.57	054	Sometimes I feel discouraged and simply want to give up.
.56	044	I often have headaches when things are not going well.
.56	046	Sometimes I feel weak and shaky in the knees.
.56	035	I get very upset when I am criticized.
.54	201	Some days, it is difficult for me to get going.
.52	055	I'm often fearful that I will fail to reach my goals.
.52	006	I am a timid person and am easily embarrassed.
.51	146	I often let down toward the end of the day for lack of energy.
.49	053	When things are not going right, I sometimes feel like crying.
.48	184	I tire easily.
.47	060	I often lose my temper with other people.
.47	070	I don't accept criticism very well.
.46	059	I am jealous of others who get what I would like to have.
.46	170	I have a habit of putting off things that I should be attending to.
-.43	048	I hardly ever feel lonely or blue.
.42	214	I have to admit that sometimes I am unkind to my friends.
.42	182	My energy tends to run out early in the day.
.41	151	Sometimes I work too fast and make careless errors.
.41	079	I resent it when I don't get my way.
.29	078	I feel sorry for a lot of people I know who have personal problems.
.26	003	I am not comfortable telling others what to do.

FACTOR 2--AGREEABLENESS

LOAD	ITEM#	ITEM
.64	207	I try to be kind to everyone I know.
.63	210	Even if I don't like them, I try always to be considerate of others.
.62	080	I always treat other people with kindness.
.62	211	I try to be pleasant in every situation.
.60	208	I am always considerate of the feelings of others.
.59	209	I try to always be polite, even to those who are not polite to me.
.57	213	I am always generous when it comes to helping others.
-.56	081	Some people consider me to be unfriendly.
.56	215	I am considered by others to be a very friendly person.
.54	066	I am considered to be easy to get along with.
.52	068	I like to help others, even if there is nothing in it for me.
.51	071	I like to help others when they are down on their luck.
.50	084	I get along well with most everybody.
.49	220	I try to be cheerful, even when things are not going well.
.45	085	I have a lot of sympathy for others who are having problems.
.43	082	I seldom get mad at anyone.
.42	212	I try to respect others' points of view, even if I don't agree with them.
-.41	217	Many times I will disagree just to start an argument.
.40	092	I believe that having polished manners is important.
.40	064	I get a lot of pleasure in helping others with their problems.
.39	090	I seldom argue with people.
-.34	219	I am not very patient with individuals who are incompetent.
-.26	218	I have little sympathy for those who encounter failures.

FACTOR 3--EXTROVERSION

LOAD	ITEM#	ITEM
.65	015	If things get too boring at a party, I try to get things going.
.65	022	At social functions, I talk to as many people as possible.
.60	017	Most of my friends would describe me as a "talker."
-.59	010	I am a very shy person.
.58	074	I am good at cheering people up.
.58	004	I tend to take charge in group meetings.
.57	028	I like parties, where there are a lot of people.
..56	012	I go out of my way to meet people.
.55	073	I laugh a lot.
.55	007	I like to be where there is a lot of action.
.52	020	I like to strike up conversations with strangers.
-.51	014	My friends consider me to be bashful.
.47	002	I speak up when I feel I can make a contribution.
.47	009	I have a lot of influence over others.
-.46	026	I am uneasy when I am the center of attention.
-.46	024	In meetings, I tend to let others do most of the talking.
..45	088	I am cheerful most of the time.
-.43	018	I tend to be a loner.
-.40	013	I avoid meetings and social gatherings when possible.

.38	189	I would enjoy a leadership role.
.34	216	My friends feel free to tell me their secrets.

FACTOR 4--CONSCIENTIOUSNESS

LOAD.	ITEM#	ITEM
.62	157	I try to set a schedule for accomplishing tasks, and stick to it.
.60	153	I like to keep all my belongings neat and organized.
.60	162	I try to be fully prepared before I undertake any task.
.59	145	I like to have a place for everything and everything in its place.
.59	167	If I start something, I work until it is finished to my satisfaction.
.58	155	When I get an assignment, I always do my best.
.57	126	If I commit myself to do something, I always carry through.
.55	128	I always try to do more than is expected of me.
.54	137	I would rate myself as being a very persistent worker.
.54	159	I try to do a good job in the first place, so it doesn't have to be done again.
.54	130	I believe that rules and regulations should always be followed.
.52	148	I like to work with people who are highly organized.
.51	164	I tend to set higher standards for myself than others set for me.
.46	136	I was willing to work hard for good grades in high school.
-.46	123	Sometimes I take it easy when I should be working.
.45	152	I believe in setting up a personal budget and sticking with it.
-.42	181	I have sometimes lied in order to get what I wanted.
-.40	169	If a job is too difficult, I have a tendency to give up.
-.39	163	I tend to leave boring jobs unfinished.
.36	194	I believe that military discipline is good for a person.

FACTOR 5-OPENNESS/INTELLECT

LOAD.	ITEM#	ITEM
.64	119	I would enjoy being a theoretical scientist.
.64	116	I have thought a lot about the origin of the universe.
.63	103	I often think about the wonders of nature.
.62	104	I spend a lot of time in meditation and deep thought.
-.62	109	Philosophical discussions bore me.
.59	094	I like to spend time in intellectual discussions with my friends.
.57	118	I have a lot of intellectual curiosity.
.55	099	I am highly interested in all the fields of science.
.55	117	I spend a lot of time analyzing my internal feelings.
.54	114	I am fascinated with the theory of evolution.
.54	106	I find intellectual things more interesting than football, baseball, or basketball.
.53	096	I enjoy visiting art museums.
.53	120	I enjoy reading poetry.
.52	095	I try to analyze and evaluate conditions, so that I can predict the future.
.51	100	I spend a lot of time analyzing the motives behind the actions of others.
.48	112	I prefer listening to classical music rather than popular music.
.47	102	I love to find innovative solutions to difficult problems.
.45	108	I am often in deep thought, when others think that I am day dreaming.

.41	101	I am better than most in seeing what the future holds.
.40	105	I feel that I am more intellectual than most of my friends.
.39	107	I often analyze why I am the way I am.
.38	098	I would rather read a good book than to watch television.
-.34	111	I would not enjoy going to an opera or ballet.
.32	113	I have a good imagination.

It is interesting to note that the agreeableness factor, which was poorly defined by the original version of the Self Description Inventory now has considerable strength.

Correlations Between Trait and Self Description Inventory Factors.

Below is an intercorrelation matrix which reports the correlations between factor scores derived from the trait and self description inventory responses

:Correlations:	TRAIT1	TRAIT2	TRAIT3	TRAIT4	TRAIT5
SD1	-.1746**	.0783	.3096**	.6090**	-.0420
SD2	.1264*	.6506**	.1705**	-.1610**	-.0222
SD3	.0143	.2407**	-.7348**	.2030**	.1560**
SD4	.6780**	.0906	.0327	-.0818	.1014
SD5	-.0576	.0207	.0778	-.1034	.7205**

N of cases: 482 2-tailed Signif: * - .01 ** - .001

The correlations for the corresponding factors are as follows:

Conscientiousness	.68
Agreeableness	.65
Introversion/Extroversion	-.74
Neuroticism	.61
Openness/Intellect	.72

These correlations are only modest, considering the fact that they are supposed to be representing measurements of the same factors. There is considerable room for each of the two solutions to measure reliable variance which is independent of that measured by the other. Because of this, the decision was once again made to combine the two inventories and compute a common factor analysis. The results of this analysis are presented below.

Factor Analysis of the Combined 67-Item Trait Inventory and the 123-Item Self Description Inventory

FACTOR 1-NEUROTICISM

LOAD	ITEM#	ITEM
.66	043	I often feel jittery and tense.
.65	036	I am often nervous and tense.

.65	040	When I am under great stress, I often feel like I am about to break down.
.64	061	I am always worried about how things might go wrong.
.62	057	I worry more than most people.
.61	031	I tend to get upset easily.
.61	034	Sometimes I get so upset, I get sick at my stomach.
.61	041	I am often sad and depressed.
.61		NERVOUS
.60	039	I have periods when I feel sorry for myself.
.59		MOODY
.58		TOUCHY
.57		ENVIOUS
.57	058	When I am emotionally upset, I can't think clearly.
.57	038	I often worry a lot about the future.
.56	037	I often feel tired and run down.
.55	045	I get rattled when I am under time pressure.
.55		IRRITABLE
.54		JEALOUS
.54	054	Sometimes I feel discouraged and simply want to give up.
.53	060	I often lose my temper with other people.
.53		SELF-PITYING
.53	046	Sometimes I feel weak and shaky in the knees.
.53		TEMPERAMENTAL
.53	035	I get very upset when I am criticized.
.52	052	My feelings are easily hurt.
.51	044	I often have headaches when things are not going well.
.51	201	Some days, it is difficult for me to get going.
.50	059	I am jealous of others who get what I would like to have.
.48	070	I don't accept criticism very well.
.48	055	I'm often fearful that I will fail to reach my goals.
.46	053	When things are not going right, I sometimes feel like crying.
.45	079	I resent it when I don't get my way.
.45		DEFENSIVE
.45	146	I often let down toward the end of the day for lack of energy.
.44	214	I have to admit that sometimes I am unkind to my friends.
.43		FEARFUL
.43	170	I have a habit of putting off things that I should be attending to.
.43	184	I tire easily.
.43		LAZY
.42	151	Sometimes I work too fast and make careless errors.
-.41	048	I hardly ever feel lonely or blue.
.41	123	Sometimes I take it easy when I should be working.
.40	181	I have sometimes lied in order to get what I wanted.
.36	217	Many times I will disagree just to start an argument.
-.34	098	I would rather read a good book than to watch television.
.35	219	I am not very patient with individuals who are incompetent.
-.35		PATIENT

.33 182 My energy tends to run out early in the day.

FACTOR 2--AGREEABLENESS

LOAD	ITEM#	ITEM
.68		KIND
.65	207	I try to be kind to everyone I know.
.63		FRIENDLY
.62		CONSIDERATE
.62	080	I always treat other people with kindness.
.61		PLEASANT
.61		GENEROUS
.60	208	I am always considerate of the feelings of others.
.60	211	I try to be pleasant in every situation.
.60	215	I am considered by others to be a very friendly person.
.57		WARM
.57		SYMPATHETIC
.57	066	I am considered to be easy to get along with.
.57	213	I am always generous when it comes to helping others.
.56	210	Even if I don't like them, I try always to be considerate of others.
-.54	081	Some people consider me to be unfriendly.
.54		CHEERFUL
.52	068	I like to help others, even if there is nothing in it for me.
.52	209	I try to always be polite, even to those who are not polite to me.
.51		UNDERSTANDING
.51	084	I get along well with most everybody.
.51	071	I like to help others when they are down on their luck.
.50	088	I am cheerful most of the time.
.50	085	I have a lot of sympathy for others who are having problems.
.50	220	I try to be cheerful, even when things are not going well.
.49		HELPFUL
-.48		UNKIND
.47		AFFECTIONATE
.44	064	I get a lot of pleasure in helping others with their problems.
-.44		UNSYMPATHETIC
-.43		INSENSITIVE
-.42		COLD
.40	092	I believe that having polished manners is important.
.39	212	I try to respect others' points of view, even if I don't agree with them.
-.38		SELFISH
.33	082	I seldom get mad at anyone.
.30	078	I feel sorry for a lot of people I know who have personal problems.
-.26	218	I have little sympathy for those who encounter failures.
.25	090	I seldom argue with people.

FACTOR 3--CONSCIENTIOUSNESS

LOAD	ITEM#	ITEM
.74		ORGANIZED
.66		NEAT
.63	153	I like to keep all my belongings neat and organized.
.63		PRECISE
.62		THOROUGH
.60		ORDERLY
.58		RESPONSIBLE
.56	157	I try to set a schedule for accomplishing tasks, and stick to it.
.56	167	If I start something, I work until it is finished to my satisfaction.
.56		CONSISTENT
.56	145	I like to have a place for everything and everything in it's place.
.55	126	If I commit myself to do something, I always carry through.
.55		PERFECTIONISTIC
.54	148	I like to work with people who are highly organized.
.53	155	When I get an assignment, I always do my best.
.53		STEADY
.52		EFFICIENT
.52	128	I always try to do more than is expected of me.
.52	162	I try to be fully prepared before I undertake any task.
-.52		DISORGANIZED
.52	137	I would rate myself as being a very persistent worker.
.49		DEPENDABLE
-.47		SLOPPY
.47	159	I try to do a good job in the first place, so it doesn't have to be done again.
.47		CAREFUL
.46		PROMPT
.46	164	I tend to set higher standards for myself than others set for me.
.45		ASSURED
.43	130	I believe that rules and regulations should always be followed.
.39	152	I believe in setting up a personal budget and sticking with it.
.38	136	I was willing to work hard for good grades in high school.
-.37	169	If a job is too difficult, I have a tendency to give up.
.34	194	I believe that military discipline is good for a person.
-.33	163	I tend to leave boring jobs unfinished.

FACTOR 4--EXTROVERSION

LOAD	ITEM#	ITEM
-.70		QUIET
-.69	010	I am a very shy person.
-.68		SILENT
-.65		SHY
.64	022	At social functions, I talk to as many people as possible.
.63		TALKATIVE

-.62		BASHFUL
.61	017	Most of my friends would describe me as a "talker."
.61		SOCIABLE
-.61	014	My friends consider me to be bashful.
-.59		WITHDRAWN
.59	015	If things get too boring at a party, I try to get things going.
.55	004	I tend to take charge in group meetings.
-.54	006	I am a timid person and am easily embarrassed.
.54		VERBAL
-.53		UNSOCIABLE
.53		BOLD
.52	012	I go out of my way to meet people.
.51	028	I like parties, where there are a lot of people.
-.51		TIMID
-.51	026	I am uneasy when I am the center of attention.
.50	074	I am good at cheering people up.
.50	007	I like to be where there is a lot of action.
.50	073	I laugh a lot.
.47	020	I like to strike up conversations with strangers.
-.46	024	In meetings, I tend to let others do most of the talking.
-.45	018	I tend to be a loner.
-.44		RESERVED
.41		ACTIVE
.40	009	I have a lot of influence over others.
.40	002	I speak up when I feel I can make a contribution.
.39	189	I would enjoy a leadership role.
.39		ENERGETIC
-.39	013	I avoid meetings and social gatherings when possible.
.28	216	My friends feel free to tell me their secrets.
-.24	003	I am not comfortable telling others what to do.

FACTOR 5--OPENNESS/INTELLECT

LOAD	ITEM#	ITEM
.65	104	I spend a lot of time in meditation and deep thought.
.64		PHILOSOPHICAL
-.62	109	Philosophical discussions bore me.
.61	119	I would enjoy being a theoretical scientist.
.61	116	I have thought a lot about the origin of the universe.
.61		DEEP
.60	118	I have a lot of intellectual curiosity.
.59	103	I often think about the wonders of nature.
.58	094	I like to spend time in intellectual discussions with my friends.
.58		MEDITATIVE
.56	117	I spend a lot of time analyzing my internal feelings.
.55		CONTEMPLATIVE

.53	100	I spend a lot of time analyzing the motives behind the actions of others.
.52	095	I try to analyze and evaluate conditions, so that I can predict the future.
.51	106	I find intellectual things more interesting than football, baseball, or basketball.
.51	120	I enjoy reading poetry.
.51	099	I am highly interested in all the fields of science.
.51	096	I enjoy visiting art museums.
.50		INTROSPECTIVE
.50	102	I love to find innovative solutions to difficult problems.
.49	114	I am fascinated with the theory of evolution.
.49	108	I am often in deep thought, when others think that I am day dreaming.
.46		INNOVATIVE
.46		INVENTIVE
.44		CREATIVE
.43		COMPLEX
.43	105	I feel that I am more intellectual than most of my friends.
.43	101	I am better than most in seeing what the future holds.
.43	112	I prefer listening to classical music rather than popular music.
.39	107	I often analyze why I am the way I am.
.36	113	I have a good imagination.
-.31	111	I would not enjoy going to an opera or ballet.

Correlations of Factor Scores From Random Halves of Variables.

There was hope that the Big 5 factors would be sufficiently covered so that alternate forms to be created. As a first attempt, the items were randomly divided into two halves and each half was factored. The correlations between the corresponding factor scores in these random halves were computed to be as follows:

1. Neuroticism	.88
2. Agreeableness	.82
3. Introversion	.88
4. Conscientiousness	.77
5. Openness/intellect	.85

Development of Alternate Forms

In an effort to build short alternate forms of the trait-self description inventory, all of the variables were ordered by factor and by factor loading within factor. There was a desire to have equal numbers of trait names in each of the two forms and also to have equal numbers of behavioral statements in the two forms. Therefore, once the variables had been ordered as described above, every other trait name from the top of the list to the bottom of the list were selected for one of the two forms, while the remaining trait names were place in the other. In a like manner, every other self-description item was selected for inclusion in one of the two forms, with the remaining ones into the other. At this stage, no attention was

given to the number of positive or negative terms entering the forms. This procedure ended up with two more items in form A than there was in form B; therefore one item was arbitrarily moved from form A to form B, leaving 95 total items in each form.

In order to evaluate how well the Big 5 factors were represented in the two forms, each was subjected to a factor analysis and the resulting factor scores were correlated. The two solutions are presented below:

Factor Analysis of Form A1(Principal Components Factors, Orthogonal Rotations)

FACTOR 1--NEUROTICISM

LOAD	ITEM#	ITEM
.62	043	I often feel jittery and tense.
.62	040	When I am under great stress, I often feel like I am about to break down.
.62	057	I worry more than most people.
.61	034	Sometimes I get so upset, I get sick at my stomach.
.60	038	I often worry a lot about the future.
.60	039	I have periods when I feel sorry for myself.
.59		TOUCHY
.59		NERVOUS
.57		IRRITABLE
.55	060	I often lose my temper with other people.
.53	045	I get rattled when I am under time pressure.
.52		SELF-PITYING
.52	035	I get very upset when I am criticized.
.51		DEFENSIVE
.50	055	I'm often fearful that I will fail to reach my goals.
.49	044	I often have headaches when things are not going well.
.49	059	I am jealous of others who get what I would like to have.
.45	079	I resent it when I don't get my way.
.44	214	I have to admit that sometimes I am unkind to my friends.
.41	107	I often analyze why I am the way I am.
.40		LAZY
-.40	048	I hardly ever feel lonely or blue.
-.39	098	I would rather read a good book than to watch television.
.38	184	I tire easily.
-.33	082	I seldom get mad at anyone.
.28	182	My energy tends to run out early in the day.

FACTOR 2--CONSCIENTIOUSNESS

LOAD	ITEM#	ITEM
------	-------	------

.74		ORGANIZED
.64		PRECISE
.64	153	I like to keep all my belongings neat and organized.
.61		ORDERLY
.61	167	If I start something, I work until it is finished to my satisfaction.
.58	126	If I commit myself to do something, I always carry through.
.58	155	When I get an assignment, I always do my best.
-.57		DISORGANIZED
.55		CONSISTENT
.53	162	I try to be fully prepared before I undertake any task.
.53		STEADY
-.52		SLOPPY
.50	159	I try to do a good job in the first place, so it doesn't have to be done again.
.48	130	I believe that rules and regulations should always be followed.
.47		PROMPT
-.43	181	I have sometimes lied in order to get what I wanted.
.42	194	I believe that military discipline is good for a person.
.42	136	I was willing to work hard for good grades in high school.
.42	092	I believe that having polished manners is important.

FACTOR 3--INTROVERSION

LOAD	ITEM#	ITEM
.73		QUIET
.72		SHY
.71	010	I am a very shy person.
.68		BASHFUL
.61		WITHDRAWN
-.61	017	Most of my friends would describe me as a "talker."
.57	006	I am a timid person and am easily embarrassed.
-.57	015	If things get too boring at a party, I try to get things going.
.56		UNSOCIABLE
.55		TIMID
-.50	073	I laugh a lot.
-.50	028	I like parties, where there are a lot of people.
-.49	074	I am good at cheering people up.
.046	024	In meetings, I tend to let others do most of the talking.
-.41	009	I have a lot of influence over others.
-.41		ACTIVE
-.39	189	I would enjoy a leadership role.

FACTOR 4--AGREEABLENESS

LOAD	ITEM#	ITEM
.70		KIND

.64		CONSIDERATE
.62	080	I always treat other people with kindness.
.61		GENEROUS
.59	211	I try to be pleasant in every situation.
.59		SYMPATHETIC
.57	066	I am considered to be easy to get along with.
.54		UNDERSTANDING
-.54		UNKIND
.54	210	Even if I don't like them, I try always to be considerate of others.
.49	068	I like to help others, even if there is nothing in it for me.
.49	084	I get along well with most everybody.
-.49		UNSYMPATHETIC
.48	088	I am cheerful most of the time.
-.47		COLD
.33	216	My friends feel free to tell me their secrets.
-.28	218	I have little sympathy for those who encounter failures.

FACTOR 5--OPENNESS/INTELLECT

LOAD	ITEM#	ITEM
.70	104	I spend a lot of time in meditation and deep thought.
.68		PHILOSOPHICAL
.63		MEDITATIVE
.61	119	I would enjoy being a theoretical scientist.
.61	118	I have a lot of intellectual curiosity.
.60	094	I like to spend time in intellectual discussions with my friends.
.56	100	I spend a lot of time analyzing the motives behind the actions of others.
.53	108	I am often in deep thought, when others think that I am day dreaming.
.52	106	I find intellectual things more interesting than football, baseball, or basketball.
.52		INTROSPECTIVE
.52	102	I love to find innovative solutions to difficult problems.
.50	099	I am highly interested in all the fields of science.
.48		COMPLEX
.44		INVENTIVE
.41	101	I am better than most in seeing what the future holds.
-.28	111	I would not enjoy going to an opera or ballet.

Factor Analysis of Form B1 (Principal Components Factors, Orthogonal Rotations)

FACTOR 1--NEUROTICISM

LOAD	ITEM#	ITEM
.66	036	I am often nervous and tense.
.64	061	I am always worried about how things might go wrong.
.63	031	I tend to get upset easily.
.62	041	I am often sad and depressed.
.60	058	When I am emotionally upset, I can't think clearly.
.59	037	I often feel tired and run down.
.59		MOODY
.58		ENVIOUS
.57	046	Sometimes I feel weak and shaky in the knees.
.57	054	Sometimes I feel discouraged and simply want to give up.
.55		JEALOUS
.55	201	Some days, it is difficult for me to get going.
.54	052	My feelings are easily hurt.
.52		TEMPERAMENTAL
.50	053	When things are not going right, I sometimes feel like crying.
.49	070	I don't accept criticism very well.
.49	146	I often let down toward the end of the day for lack of energy.
.47	170	I have a habit of putting off things that I should be attending to.
.44		FEARFUL
.44	123	Sometimes I take it easy when I should be working.
.43	151	Sometimes I work too fast and make careless errors.
.36	217	Many times I will disagree just to start an argument.
.36	169	If a job is too difficult, I have a tendency to give up.
.36	219	I am not very patient with individuals who are incompetent.
-.35		PATIENT
.34	163	I tend to leave boring jobs unfinished.

FACTOR 2--AGREEABLENESS

LOAD	ITEM#	ITEM
.67	207	I try to be kind to everyone I know.
.63	208	I am always considerate of the feelings of others.
.63		FRIENDLY
.61		PLEASANT
.61	215	I am considered by others to be a very friendly person.
.60	213	I am always generous when it comes to helping others.
.57		WARM
.56	071	I like to help others when they are down on their luck.
.54	085	I have a lot of sympathy for others who are having problems.
-.53	081	Some people consider me to be unfriendly.
.53	209	I try to always be polite, even to those who are not polite to me.
.52	220	I try to be cheerful, even when things are not going well.
.51.		CHEERFUL
.48		HELPFUL
.48	064	I get a lot of pleasure in helping others with their problems.

.45		AFFECTIONATE
.41	212	I try to respect others' points of view, even if I don't agree with them.
-.40		SELFISH
-.39		INSENSITIVE
.35	078	I feel sorry for a lot of people I know who have personal problems.

FACTOR 3--CONSCIENTIOUSNESS

LOAD	ITEM#	ITEM
.65		THOROUGH
.63		NEAT
.61		RESPONSIBLE
.56		EFFICIENT
.56		PERFECTIONISTIC
.55	157	I try to set a schedule for accomplishing tasks, and stick to it.
.54	145	I like to have a place for everything and everything in it's place.
.54		DEPENDABLE
.53	148	I like to work with people who are highly organized.
.49		CAREFUL
.49	137	I would rate myself as being a very persistent worker.
.48	128	I always try to do more than is expected of me.
.47		ASSURED
.47	164	I tend to set higher standards for myself than others set for me.
.42	152	I believe in setting up a personal budget and sticking with it.

FACTOR 4-EXTROVERSION

LOAD	ITEM#	ITEM
.65		TALKATIVE
-.65		SILENT
.65	022	At social functions, I talk to as many people as possible.
.62		SOCIABLE
.59		VERBAL
-.58	014	My friends consider me to be bashful.
.56		BOLD
.56	004	I tend to take charge in group meetings.
.55	012	I go out of my way to meet people.
-.52	026	I am uneasy when I am the center of attention.
.50	007	I like to be where there is a lot of action.
.50	020	I like to strike up conversations with strangers.
-.45		RESERVED
-.45	018	I tend to be a loner.
.41	002	I speak up when I feel I can make a contribution.
.41	013	I avoid meetings and social gatherings when possible.

.40		ENERGETIC
-.27	090	I seldom argue with people.
-.24	003	I am not comfortable telling others what to do.

FACTOR 5--OPENNESS/INTELLECT

LOAD	ITEM#	ITEM
.64	116	I have thought a lot about the origin of the universe.
.63	103	I often think about the wonders of nature.
-.63	109	Philosophical discussions bore me.
.58		DEEP
.57	120	I enjoy reading poetry.
.56	096	I enjoy visiting art museums.
.56	117	I spend a lot of time analyzing my internal feelings.
.54	095	I try to analyze and evaluate conditions, so that I can predict the future.
.53		CONTEMPLATIVE
.52	114	I am fascinated with the theory of evolution.
.48	112	I prefer listening to classical music rather than popular music.
.46		INNOVATIVE
.44		CREATIVE
.39	105	I feel that I am more intellectual than most of my friends.
.37	113	I have a good imagination.

Correlations Between Form A1 and Form B1 Factor Scores

The above tables of factor loadings represent the first cut at building short alternative forms of the trait-self description inventories. Since no attention was paid to the distribution of negative terms, the variance of the items, or the use of opposites (like kind and unkind) in the same form, some additional modifications will have to be made. However, the correlations between factor scores from these initial forms give a good indication of the internal consistency of the factors being measured. The correlations between form A1 and Form B1 factor scores are provided below:

Correlations:	NEURO2	AGREE2	CONSCI2	EXTROV2	OPEN/INT2
NEURO1	.9166**	-.0117	.0326	.0503	-.0045
CONSCI1	-.0984	.1238*	.8332**	-.0123	.0055
INTROV1	.1031	.0021	.0026	-.8810**	.0373
AGREE1	-.0048	.8518**	.0431	.0496	.0126
OPEN/INT1	.0207	-.0293	.0924	.0626	.8389**

N of cases: 482 2-tailed Signif: * - .01 ** - .001

The correlations between comparable factors were quite respectable, considering that they were defined by completely independent sets of terms and that they were defined by a relatively small number of items. These correlations can be considered to be a type of reliability coefficient, since they are split-half

correlations. They can be corrected to double length to estimate the reliability coefficients for the combined forms, as follows:

FACTOR	SPLIT-HALF	FULL-LENGTH
NEUROTICISM	.917	.957
CONSCIENTIOUSNESS	.833	.909
INTROVERSION/EXTROVERSION	-.881	.937
AGREEABLENESS	.852	.920
OPENNESS/INTELLECT	.839	.912

Scoring Alternatives

There is a question as to how the various forms of the trait-self description inventory should be scored. It would be very difficult to compute a form of the factor scores for individuals in future samples. Normally what is done is to compute a unit-weighted sum of the variables which have significant loadings on each factor. These scores are algebraic totals, since values on variables with positive weights are added, while scores on variables with negative weights are subtracted from the total.

While factor scores obtained with orthogonal rotations are unrelated, this is far from being the case for unit-weighted composite scores. Even though the final forms of the inventories were yet to be developed, it was decided to compute unit-weighted composites for forms 1A and 1B to get an indication of the likely levels of composite correlations.

In order to bring all of the correlations into positive manifold, two steps were taken. First the two Neuroticism scores were multiplied by -1 and the names changed to "Emotional Stability." Perhaps "Non-Neuroticism" would have been more accurate, but in this should be understood as the meaning of emotional stability labels in the present analysis. The second change was to multiply the "Introversion" scores in form 2B by -1 and change the name of the resulting scores to "Extroversion." Once these changes had been made, the correlations among composite scores produced a positive manifold matrix, as follows:

Correlations of Form A1 and Form B1 Composite Scores

Correlations:	EMOSTAB1	EMOSTAB2	CONSC1	CONSC2	EXTROV1	EXTROV2
EMOSTAB1	1.0000	.9245**	.5063**	.4396**	.3979**	.3220**
EMOSTAB2	.9245**	1.0000	.5762**	.5002**	.3995**	.3172**
CONSC1	.5063**	.5762**	1.0000	.8859**	.3053**	.2862**
CONSC2	.4396**	.5002**	.8859**	1.0000	.3532**	.3707**
EXTROV1	.3979**	.3995**	.3053**	.3532**	1.0000	.8879**
EXTROV2	.3220**	.3172**	.2862**	.3707**	.8879**	1.0000
AGREE1	.4203**	.4415**	.6009**	.5811**	.3721**	.4063**
AGREE2	.3981**	.4174**	.6006**	.5854**	.3873**	.4421**
OPEN1	.1221*	.1680**	.2551**	.3115**	.1741**	.2084**
OPEN2	.1195*	.1768**	.2647**	.3134**	.1783**	.2298**
Correlations:	AGREE1	AGREE2	OPEN1	OPEN2		

EMOSTAB1	.4203**	.3981**	.1221*	.1195*
EMOSTAB2	.4415**	.4174**	.1680**	.1768**
CONSC1	.6009**	.6006**	.2551**	.2647**
CONSC2	.5811**	.5854**	.3115**	.3134**
EXTROV1	.3721**	.3873**	.1741**	.1783**
EXTROV2	.4063**	.4421**	.2084**	.2298**
AGREE1	1.0000	.8887**	.2476**	.2657**
AGREE2	.8887**	1.0000	.2491**	.2569**
OPEN1	.2476**	.2491**	1.0000	.8579**
OPEN2	.2657**	.2569**	.8579**	1.0000

N of cases: 482 2-tailed Signif: * - .01 ** - .001

The correlations between comparable composites in the above table are underlined and printed in bold. It appears that the reliabilities for the composite scores are higher than for the factor scores, as shown below:

Reliabilities of Composite Scores

<u>VARIABLE</u>	<u>SPLIT-HALF</u>	<u>FULL LENGTH</u>
EMOTIONAL STABILITY	.925	.961
CONSCIENTIOUSNESS	.886	.939
EXTROVERSION	.888	.941
AGREEABLENESS	.889	.941
OPENNESS/INTELLECT	.858	.924

Score Distributions

As indicated above, it would be difficult to compute factor scores for future subjects. It is proposed that composite scores be used, as described above. However, the means and standard deviations for the form A1 and B1 composite scores are not equivalent. The means and standard deviations for the A1 and B1 composite scores are reported below:

Variable	Mean	Std Dev
EMOSTAB1	112.30	159.09
EMOSTAB2	143.89	159.05
CONSC1	217.45	93.44
CONSC2	174.17	72.31
EXTROV1	120.39	114.14
EXTROV2	125.89	108.19
AGREE1	216.02	77.36
AGREE2	243.75	90.33
OPEN1	71.57	100.96
OPEN2	76.36	93.63

STEPS TOWARD ITEM REDUCTION

The 190-item inventory was too long to be administered in 30 minutes. Therefore, 26 items were selected for removal, using the following ground rules:

1. 14 items were removed from the Neuroticism factor, since it was defined by the largest number of items.
2. Items were removed which had low loadings on their primary factor.
3. Items were removed which conceptually had a loose relationship with the primary factors on which they were loaded.

Factor Analysis of 164-Item Joint Inventory

Below is a factor analysis of the 164-item joint inventory:

Factor 1--Neuroticism (38 items)

LOAD	ITEM#	ITEM
.67	043	I often feel jittery and tense.
.66	036	I am often nervous and tense.
.66	040	When I am under great stress, I often feel like I am about to break down.
.64	061	I am always worried about how things might go wrong.
.64	041	I am often sad and depressed.
.63	057	I worry more than most people.
.62		NERVOUS
.62	034	Sometimes I get so upset, I get sick at my stomach.
.62	031	I tend to get upset easily.
.61	039	I have periods when I feel sorry for myself.
.59		MOODY
.59		ENVIOUS
.58	058	When I am emotionally upset, I can't think clearly.
.57		TOUCHY
.57	038	I often worry a lot about the future.
.56	037	I often feel tired and run down.
.56	045	I get rattled when I am under time pressure.
.56		SELF-PITYING
.55		JEALOUS
.55		IRRITABLE
.54	052	My feelings are easily hurt.
.54	054	Sometimes I feel discouraged and simply want to give up.
.54	035	I get very upset when I am criticized.
.54	046	Sometimes I feel weak and shaky in the knees.
.52	060	I often lose my temper with other people.
.52		TEMPERAMENTAL
.52	044	I often have headaches when things are not going well.
.50	201	Some days, it is difficult for me to get going.
.50	059	I am jealous of others who get what I would like to have.
.49	070	I don't accept criticism very well.
.49	055	I'm often fearful that I will fail to reach my goals.
.49	053	When things are not going right, I sometimes feel like crying.

.45		DEFENSIVE
.45		FEARFUL
.45	079	I resent it when I don't get my way.
.44	146	I often let down toward the end of the day for lack of energy.
.42	170	I have a habit of putting off things that I should be attending to.
-.42	048	I hardly ever feel lonely or blue.

Factor 2--Agreeableness (35 items)

LOAD	ITEM#	ITEM
.69		KIND
.66	207	I try to be kind to everyone I know.
.65		FRIENDLY
.63	080	I always treat other people with kindness.
.63		CONSIDERATE
.62		PLEASANT
.62		GENEROUS
.61	208	I am always considerate of the feelings of others.
.61	215	I am considered by others to be a very friendly person.
.60	211	I try to be pleasant in every situation.
.59		WARM
.57	213	I am always generous when it comes to helping others.
.57		SYMPATHETIC
.57	066	I am considered to be easy to get along with.
.56		CHEERFUL
-.55	081	Some people consider me to be unfriendly.
.55	210	Even if I don't like them, I try always to be considerate of others.
.53		UNDERSTANDING
.53	068	I like to help others, even if there is nothing in it for me.
.52	084	I get along well with most everybody.
.52	088	I am cheerful most of the time.
.52	071	I like to help others when they are down on their luck.
.51	085	I have a lot of sympathy for others who are having problems.
.50	209	I try to always be polite, even to those who are not polite to me.
-.50		UNKIND
.50		HELPFUL
.50	220	I try to be cheerful, even when things are not going well.
.49		AFFECTIONATE
-.46		UNSYMPATHETIC
.46	064	I get a lot of pleasure in helping others with their problems.
-.45		INSENSITIVE
-.43		COLD
-.40		SELFISH
.39	212	I try to respect others' points of view, even if I don't agree with them.

.38

ENERGETIC

Factor 3--Conscientiousness (31 items)

LOAD	ITEM#	ITEM
.76		ORGANIZED
.67		NEAT
.65	153	I like to keep all my belongings neat and organized.
.63		PRECISE
.62		THOROUGH
.62		ORDERLY
.58		RESPONSIBLE
.57	145	I like to have a place for everything and everything in it's place.
.56		CONSISTENT
.56	157	I try to set a schedule for accomplishing tasks, and stick to it.
.56		PERFECTIONISTIC
.55	167	If I start something, I work until it is finished to my satisfaction.
.54	126	If I commit myself to do something, I always carry through.
.54	148	I like to work with people who are highly organized.
.53		STEADY
.53		EFFICIENT
-.52		DISORGANIZED
.52	155	When I get an assignment, I always do my best.
.51	128	I always try to do more than is expected of me.
.51	162	I try to be fully prepared before I undertake any task.
.51	137	I would rate myself as being a very persistent worker.
.49		DEPENDABLE
.47		CAREFUL
-.47		SLOPPY
.47		ASSURED
.46	159	I try to do a good job in the first place, so it doesn't have to be done again.
.46		PROMPT
.45	164	I tend to set higher standards for myself than others set for me.
.41	130	I believe that rules and regulations should always be followed.
.40	136	I was willing to work hard for good grades in high school.
-.39	181	I have sometimes lied in order to get what I wanted.

Factor 4--Extroversion (31 items)

LOAD	ITEM#	ITEM
-.72		QUIET
-.70	010	I am a very shy person.
-.68		SILENT
-.66		SHY
.66	022	At social functions, I talk to as many people as possible.

.65		TALKATIVE
-.64		BASHFUL
.63	017	Most of my friends would describe me as a "talker."
-.62	014	My friends consider me to be bashful.
.61		SOCIABLE
.60	015	If things get too boring at a party, I try to get things going.
-.59		WITHDRAWN
.54	004	I tend to take charge in group meetings.
.54		VERBAL
-.54	006	I am a timid person and am easily embarrassed.
.53	012	I go out of my way to meet people.
-.52		UNSOCIABLE
.52	028	I like parties, where there are a lot of people.
.52		BOLD
-.50		TIMID
.50	007	I like to be where there is a lot of action.
-.50	026	I am uneasy when I am the center of attention.
.49	020	I like to strike up conversations with strangers.
.48	074	I am good at cheering people up.
.48	073	I laugh a lot.
-.46	024	In meetings, I tend to let others do most of the talking.
-.45	018	I tend to be a loner.
-.44		RESERVED
-.39	013	I avoid meetings and social gatherings when possible.
.39	002	I speak up when I feel I can make a contribution.
.38	009	I have a lot of influence over others.

Factor 5--Openness/Intellect (29 items)

LOAD	ITEM#	ITEM
.65		PHILOSOPHICAL
.65	104	I spend a lot of time in meditation and deep thought.
-.62	109	Philosophical discussions bore me.
.62	119	I would enjoy being a theoretical scientist.
.62		DEEP
.61	116	I have thought a lot about the origin of the universe.
.60	118	I have a lot of intellectual curiosity.
.59	103	I often think about the wonders of nature.
.59	094	I like to spend time in intellectual discussions with my friends.
.58		MEDITATIVE
.57	117	I spend a lot of time analyzing my internal feelings.
.56		CONTEMPLATIVE
.53	100	I spend a lot of time analyzing the motives behind the actions of others.
.53	095	I try to analyze and evaluate conditions, so that I can predict the future.

.51	099	I am highly interested in all the fields of science.
.50		INTROSPECTIVE
.50	102	I love to find innovative solutions to difficult problems.
.50	106	I find intellectual things more interesting than football, baseball, or basketball.
.50	114	I am fascinated with the theory of evolution.
.49	096	I enjoy visiting art museums.
.49	120	I enjoy reading poetry.
.49	108	I am often in deep thought, when others think that I am day dreaming.
.47		INNOVATIVE
.46		INVENTIVE
.44	105	I feel that I am more intellectual than most of my friends.
.44	101	I am better than most in seeing what the future holds.
.44		COMPLEX
.43		CREATIVE
.42	112	I prefer listening to classical music rather than popular music.

Facet Analysis of 164-Item Inventory

A facet analysis was conducted to determine the various facets of each of the Big 5 factors as measured by the revised 164-item inventory. The results of this analysis are presented below. The titles given to each facet were arbitrarily assigned.

FACTOR 1-NEUROTICISM

FACET 1--TIRED AND SHAKY

LOAD	ITEM#	ITEM
.68	146	I often let down toward the end of the day for lack of energy.
.63	037	I often feel tired and run down.
.62	201	Some days, it is difficult for me to get going.
.57	044	I often have headaches when things are not going well.
.57	058	When I am emotionally upset, I can't think clearly.
.53	046	Sometimes I feel weak and shaky in the knees.
.48	045	I get rattled when I am under time pressure.
.45	034	Sometimes I get so upset, I get sick at my stomach.
.40	054	Sometimes I feel discouraged and simply want to give up.

FACET 2--NERVOUS

.62		NERVOUS
.60		FEARFUL
.57		SELF-PITYING
.53	036	I am often nervous and tense.
.51	043	I often feel jittery and tense.
.48	041	I am often sad and depressed.
.45	053	When things are not going right, I sometimes feel like crying.

.39	040	When I am under great stress, I often feel like I am about to break down.
.39	052	My feelings are easily hurt.

FACET 3--IRRITABLE

.73		TEMPERAMENTAL
.72		MOODY
.70		IRRITABLE
.67		TOUCHY
.58		DEFENSIVE
.54	060	I often lose my temper with other people.

FACET 4--WORRYING

.72	038	I often worry a lot about the future.
.71	061	I am always worried about how things might go wrong.
.60	055	I'm often fearful that I will fail to reach my goals.
.56	057	I worry more than most people.
-.50	048	I hardly ever feel lonely or blue.

FACET 5--ENVOIOUS AND JEALOUS

.75	059	I am jealous of others who get what I would like to have.
.67		ENVOIOUS
.56	079	I resent it when I don't get my way.
.56		JEALOUS
.43	170	I have a habit of putting off things that I should be attending to.
.41	039	I have periods when I feel sorry for myself.

FACET 6--SENSITIVE TO CRITICISM

.77	070	I don't accept criticism very well.
.73	035	I get very upset when I am criticized.
.41	031	I tend to get upset easily.

FACTOR 2--AGREEABLENESS/DISAGREEABLENESS

FACET 1--FRIENDLY

LOAD	ITEM#	ITEM
.72	066	I am considered to be easy to get along with.
.70	215	I am considered by others to be a very friendly person.
.66	088	I am cheerful most of the time.
.65	084	I get along well with most everybody.
.61		FRIENDLY
-.60	081	Some people consider me to be unfriendly.
.47	220	I try to be cheerful, even when things are not going well.

FACET 2--KIND AND CONSIDERATE

.70	209	I try to always be polite, even to those who are not polite to me.
-----	-----	--

.68	210	Even if I don't like them, I try always to be considerate of others.
.65	208	I am always considerate of the feelings of others.
.64	080	I always treat other people with kindness.
.54	207	I try to be kind to everyone I know.
.54	211	I try to be pleasant in every situation.
.50		CONSIDERATE
.39	212	I try to respect others' points of view, even if I don't agree with them.

FACET 3--WARM AND SYMPATHETIC

.68	SYMPATHETIC
.68	AFFECTIONATE
.65	WARM
.54	UNDERSTANDING
.53	KIND
.51	PLEASANT
.41	GENEROUS

FACET 4--HELPFUL

.72	064	I get a lot of pleasure in helping others with their problems.
.67	085	I have a lot of sympathy for others who are having problems.
.67	071	I like to help others when they are down on their luck.
.59	068	I like to help others, even if there is nothing in it for me.
.58	213	I am always generous when it comes to helping others.

FACET 5--COLD AND INSENSITIVE

-.75	COLD
-.72	UNKIND
-.67	INSENSITIVE
-.67	UNSYMPATHETIC
-.52	SELFISH

FACET 6--ENERGETIC AND CHEERFUL

.63	ENERGETIC
.53	CHEERFUL
.47	HELPFUL

FACTOR 3--CONSCIENTIOUSNESS

FACET 1--ORGANIZED

LOAD	ITEM#	ITEM
-.68		DISORGANIZED
.67		ORGANIZED
-.64		SLOPPY
.60		ORDERLY

.53	148	I like to work with people who are highly organized.
.43	157	I try to set a schedule for accomplishing tasks, and stick to it.
-.31	181	I have sometimes lied in order to get what I wanted.

FACET 2--STEADY AND EFFICIENT

.72	STEADY
.63	EFFICIENT
.60	THOROUGH
.59	CONSISTENT
.59	ASSURED
.58	RESPONSIBLE

FACET 3--HARD WORKING

.71	128	I always try to do more than is expected of me.
.64	155	When I get an assignment, I always do my best.
.63	167	If I start something, I work until it is finished to my satisfaction.
.58	159	I try to do a good job in the first place, so it doesn't have to be done again.
.54	126	If I commit myself to do something, I always carry through.
.52	136	I was willing to work hard for good grades in high school.
.48	164	I tend to set higher standards for myself than others set for me.

FACET 4--DEPENDABLE

.62	130	I believe that rules and regulations should always be followed.
.53		CAREFUL
.51		DEPENDABLE
.51	137	I would rate myself as being a very persistent worker.
.50	162	I try to be fully prepared before I undertake any task.
.47		PROMPT

FACET 5--PERFECTIONISTIC

.69	PERFECTIONISTIC
.49	PRECISE

FACTOR 4--EXTROVERSION/INTROVERSION

FACET 1--BASHFUL AND SHY

.79		BASHFUL
.74		SHY
.71	010	I am a very shy person.
.70	006	I am a timid person and am easily embarrassed.
.69	014	My friends consider me to be bashful.
.67		TIMID
.57		QUIET
.54		SILENT
.46	026	I am uneasy when I am the center of attention.

.40 RESERVED

FACET 2--A TALKATIVE

.78 017 Most of my friends would describe me as a "talker."
.74 TALKATIVE
.51 020 I like to strike up conversations with strangers.
.48 VERBAL
.47 073 I laugh a lot.

FACET 3--UNSOCIABLE

.70 UNSOCIABLE
-.59 SOCIABLE
.57 018 I tend to be a loner.
.57 WITHDRAWN
-.49 022 At social functions, I talk to as many people as possible.
.49 013 I avoid meetings and social gatherings when possible.
-.45 012 I go out of my way to meet people.

FACET 4--ASSERTIVE

.72 004 I tend to take charge in group meetings.
.63 002 I speak up when I feel I can make a contribution.
.59 009 I have a lot of influence over others.
-.52 024 In meetings, I tend to let others do most of the talking.
.45 074 I am good at cheering people up.
.40 BOLD

FACET 5--SOCIALLY ACTIVE

.76 028 I like parties, where there are a lot of people.
.75 007 I like to be where there is a lot of action.
.46 015 If things get too boring at a party, I try to get things going.

FACTOR 5--OPENNESS/INTELLECT

FACET 1--SCIENTIFIC CURIOSITY

LOAD	ITEM#	ITEM
.72	114	I am fascinated with the theory of evolution.
.72	099	I am highly interested in all the fields of science.
.67	116	I have thought a lot about the origin of the universe.
.65	119	I would enjoy being a theoretical scientist.
.55	103	I often think about the wonders of nature.

FACET 2--MEDITATIVE

.68 104 I am better than most in seeing what the future holds.
.65 108 I am often in deep thought, when others think that I am day
 dreaming.
.64 117 I spend a lot of time analyzing my internal feelings.

.62		MEDITATIVE
.48	100	I spend a lot of time analyzing the motives behind the actions of others.
.38	101	I am better than most in seeing what the future holds.

FACET 3--INNOVATIVE

.85		INVENTIVE
.82		CREATIVE
.80		INNOVATIVE
.49	102	I love to find innovative solutions to difficult problems.

FACET 4--INTROSPECTIVE

.69		INTROSPECTIVE
.67		CONTEMPLATIVE
.56		DEEP
.44		PHILOSOPHICAL
.39	094	I like to spend time in intellectual discussions with my friends.

FACET 5--CULTURED

.74	112	I prefer listening to classical music rather than popular music.
.66	120	I enjoy reading poetry.
.64	096	I enjoy visiting art museums.
.58	106	I find intellectual things more interesting than football, baseball, or basketball.
-.43	109	Philosophical discussions bore me.

FACET 6--INTELLECTUAL

.69	105	I feel that I am more intellectual than most of my friends.
.57		COMPLEX
.51	118	I have a lot of intellectual curiosity.
.43	095	I try to analyze and evaluate conditions, so that I can predict the future.
.39	094	I like to spend time in intellectual discussions with my friends.

ESTIMATED RELIABILITY OF FACTOR SCORES FROM THE SPLIT-HALVES CORRELATIONS

In order to estimate the internal consistency reliability of the factor scores, the 164-item inventory was divided into two halves. This was accomplished by ordering items in terms of their loadings on primary factors and then first selecting every other trait item and then every other self description item into one form, called 'Form A'. Form B was made up of the remaining items. The two forms were factor analyzed by extracting principal component factors and rotating them orthogonally using the varimax system. Factor scores were computed for each form, and the factor scores from the two forms were

correlated. The results from the factor analyses and the correlations between factor scores are presented below:

Factor Analysis of **Form A** from the 164-Item Inventory

Factor 1--Neuroticism

LOAD	ITEM#	ITEM
.65	036	I am often nervous and tense.
.65	061	I am always worried about how things might go wrong.
.64	040	When I am under great stress, I often feel like I am about to break down.
.62	039	I have periods when I feel sorry for myself.
.62	034	Sometimes I get so upset, I get sick at my stomach.
.59	037	I often feel tired and run down.
.59		TOUCHY
.59	038	I often worry a lot about the future.
.56		JEALOUS
.56	052	My feelings are easily hurt.
.55		IRRITABLE
.54		SELF-PITYING
.53	060	I often lose my temper with other people.
.51	044	I often have headaches when things are not going well.
.51	201	Some days, it is difficult for me to get going.
.48		DEFENSIVE
.47		FEARFUL
.46	146	I often let down toward the end of the day for lack of energy.
.45	079	I resent it when I don't get my way.
.44	170	I have a habit of putting off things that I should be attending to.

Factor 2--Conscientiousness

LOAD	ITEM#	ITEM
.75		ORGANIZED
.63		THOROUGH
.61		ORDERLY
.60	126	If I commit myself to do something, I always carry through.
.58		EFFICIENT
.58	155	When I get an assignment, I always do my best.
.57	128	I always try to do more than is expected of me.
.57	157	I try to set a schedule for accomplishing tasks, and stick to it.
.56		STEADY
.53	162	I try to be fully prepared before I undertake any task.
.50		CAREFUL
.50		ASSURED
.49	164	I tend to set higher standards for myself than others set for me.

.47	136	I was willing to work hard for good grades in high school.
-.46		SLOPPY

Factor 3--Agreeableness

LOAD	ITEM#	ITEM
.71		KIND
.65	080	I always treat other people with kindness.
.64		CONSIDERATE
.63		GENEROUS
.60		SYMPATHETIC
.57	213	I am always generous when it comes to helping others.
-.55		UNKIND
.55	209	I try to always be polite, even to those who are not polite to me.
.54	210	Even if I don't like them, I try always to be considerate of others.
.53	068	I like to help others, even if there is nothing in it for me.
.52	085	I have a lot of sympathy for others who are having problems.
.52	066	I am considered to be easy to get along with.
.49		CHEERFUL
-.49		COLD
-.48		INSENSITIVE
.47	220	I try to be cheerful, even when things are not going well.
.41	212	I try to respect others' points of view, even if I don't agree with them.

Factor 4--Extroversion

LOAD	ITEM#	ITEM
-.69		SILENT
-.68	010	I am a very shy person.
.66		TALKATIVE
-.65		SHY
.64	015	If things get too boring at a party, I try to get things going.
-.60		WITHDRAWN
.58	028	I like parties, where there are a lot of people.
-.56		UNSOCIABLE
.55	007	I like to be where there is a lot of action.
.55		VERBAL
-.51	026	I am uneasy when I am the center of attention.
-.51	006	I am a timid person and am easily embarrassed.
.51	073	I laugh a lot.
.49	020	I like to strike up conversations with strangers.
-.44	013	I avoid meetings and social gatherings when possible.
.40	009	I have a lot of influence over others.

Factor 5--Openness/Intellect

LOAD	ITEM#	ITEM
.73	104	I spend a lot of time in meditation and deep thought.
.69		PHILOSOPHICAL
.65		MEDITATIVE
.64	117	I spend a lot of time analyzing my internal feelings.
.60	116	I have thought a lot about the origin of the universe.
.60	100	I spend a lot of time analyzing the motives behind the actions of others.
.59	094	I like to spend time in intellectual discussions with my friends.
.59		CONTEMPLATIVE
.56		INTROSPECTIVE
.56	108	I am often in deep thought, when others think that I am day dreaming.
.48	105	I feel that I am more intellectual than most of my friends.
.47	102	I love to find innovative solutions to difficult problems.
.46	099	I am highly interested in all the fields of science.
.43	096	I enjoy visiting art museums.

Factor Analysis of **Form B** From the 164-Item Inventory

Factor 1--Agreeableness

LOAD	ITEM#	ITEM
.72		FRIENDLY
.69		PLEASANT
.67	215	I am considered by others to be a very friendly person.
.65	207	I try to be kind to everyone I know.
.63		WARM
.60	211	I try to be pleasant in every situation.
.60	084	I get along well with most everybody.
-.58	081	Some people consider me to be unfriendly.
.57	208	I am always considerate of the feelings of others.
.57	088	I am cheerful most of the time.
.57		UNDERSTANDING
.56		HELPFUL
.56		AFFECTIONATE
.55	071	I like to help others when they are down on their luck.
.53	074	I am good at cheering people up.
.48	064	I get a lot of pleasure in helping others with their problems.
.48		ENERGETIC
-.43		UNSYMPATHETIC

Factor 2--Neuroticism

LOAD	ITEM#	ITEM
.70	043	I often feel jittery and tense.
.68	041	I am often sad and depressed.
.64	031	I tend to get upset easily.
.64	057	I worry more than most people.
.64		NERVOUS
.59		MOODY
.58	035	I get very upset when I am criticized.
.58	058	When I am emotionally upset, I can't think clearly.
.58		ENVIOUS
.57	046	Sometimes I feel weak and shaky in the knees.
.56	045	I get rattled when I am under time pressure.
.56	054	Sometimes I feel discouraged and simply want to give up.
.54	070	I don't accept criticism very well.
.53	053	When things are not going right, I sometimes feel like crying.
.51		TEMPERAMENTAL
.51	059	I am jealous of others who get what I would like to have.
.49	055	I'm often fearful that I will fail to reach my goals.
-.47	048	I hardly ever feel lonely or blue.
.38		SELFISH

Factor 3--Conscientiousness

LOAD	ITEM#	ITEM
.70	153	I like to keep all my belongings neat and organized.
.67		NEAT
.64	145	I like to have a place for everything and everything in it's place.
.61		PERFECTIONISTIC
.61		PRECISE
.56	148	I like to work with people who are highly organized.
.56		CONSISTENT
.54		RESPONSIBLE
-.52		DISORGANIZED
.52	167	If I start something, I work until it is finished to my satisfaction.
.52	137	I would rate myself as being a very persistent worker.
.48		DEPENDABLE
.48		PROMPT
.47	159	I try to do a good job in the first place, so it doesn't have to be done again.
.46	130	I believe that rules and regulations should always be followed.
-.42	181	I have sometimes lied in order to get what I wanted.

Factor 4--Extroversion

LOAD	ITEM#	ITEM
-.74		QUIET

-.68		BASHFUL
-.64	014	My friends consider me to be bashful.
.63	017	Most of my friends would describe me as a "talker."
.60	022	At social functions, I talk to as many people as possible.
.59	004	I tend to take charge in group meetings.
-.53		TIMID
.52		SOCIABLE
-.50	024	In meetings, I tend to let others do most of the talking.
.50		BOLD
.48	012	I go out of my way to meet people.
-.47		RESERVED
-.39	018	I tend to be a loner.
.36	002	I speak up when I feel I can make a contribution.

Factor 5--Openness/Intellect

LOAD	ITEM#	ITEM
.65	119	I would enjoy being a theoretical scientist.
.61	103	I often think about the wonders of nature.
-.60	109	Philosophical discussions bore me.
.60		DEEP
.59	118	I have a lot of intellectual curiosity.
.56		INVENTIVE
.55	120	I enjoy reading poetry.
.55		INNOVATIVE
.54	114	I am fascinated with the theory of evolution.
.54	095	I try to analyze and evaluate conditions, so that I can predict the future.
.53	106	I find intellectual things more interesting than football, baseball, or basketball.
.51	112	I prefer listening to classical music rather than popular music.
.51		CREATIVE
.46	101	I am better than most in seeing what the future holds.
.43		COMPLEX

Correlations Between Form A and Form B Factor Scores

The correlations between Form A and Form B factor scores are shown below. Note that the factors are numbered as in the above tables. Note also that the correlations for corresponding factors are printed in bold.

Correlations:	FORMB1	FORMB2	FORMB3	FORMB4	FORMB5
FORMA1	.0432	.8835**	-.0161	-.0536	-.0728
FORMA2	.1154	-.0773	.8122**	.0278	.0788
FORMA3	.8032**	-.0470	.0762	-.1720**	.0021
FORMA4	.2533**	-.0250	-.0601	.8574**	-.0084
FORMA5	.0441	.0794	-.0203	.0137	.7934**

Correlations for corresponding factors are shown below. Since these are correlations for split-halves, they are corrected to double-length using the Spearman-Brown formula. These can be viewed as estimates for the reliabilities of factor scores from the full-length inventory.

<u>Factor</u>	<u>Corr.</u>	<u>Corrected</u>
Neuroticism	.8835	.9381
Conscientiousness	.8122	.8967
Agreeableness	.8032	.8909
Extroversion	.8574	.9280
Openness/Intellect	.7934	.8848

The above are estimates of the reliabilities of factor scores. However, it would be very difficult to routinely compute factor scores for future subjects. The normal procedure is to compute unit-weighted composite scores based on the variables with primary loadings on each factor. This was done, both for the factors in Form A and in Form B. In order to obtain all positive correlations in the matrix, the scores on the Neuroticism factor were multiplied by -1 and the revised scores were labeled as 'Emotional Stability.' The correlation matrix between the composite scores for Form A and Form B are as shown below:

Correlations of Form A and Form B Factor Composite Scores

Correlations:	EMOSTAB2	CONSC2	AGREE2	EXTRO2	OPEN2
EMOSTAB1	.9021**	.4509**	.3450**	.3440**	.1896**
CONSC1	.4621**	.8709**	.5901**	.3408**	.3301**
AGREE1	.4040**	.5877**	.8723**	.3277**	.2429**
EXTRO1	.4051**	.2551**	.4871**	.9069**	.1955**
OPEN1	.0453	.1972**	.2179**	.1172*	.7996**
N of cases:	482	2-tailed Signif: * - .01 ** - .001			

Reliabilities of Composite Scores

The split-half and corrected reliabilities for the composite scores are as follows:

COMPOSITE	CORRELATION	CORRECTED r
Emotional Stability	.9021	.95
Conscientiousness	.8709	.93
Agreeableness	.8723	.93
Extroversion	.9069	.95
Openness/Intellect	.7996	.89

Intercorrelations of Full Composite Scores

As expected, composite scores are significantly correlated, even though the factor scores are not. The correlations among the five composite scores are listed below:

Correlations:	EMOSTAB	CONSCI	AGREE	EXTROV	OPENINT
EMOSTAB	1.0000	.4796**	.3998**	.3946**	.1277*
CONSCI	.4796**	1.0000	.6246**	.3152**	.2904**
AGREE	.3998**	.6246**	1.0000	.4289**	.2507**
EXTROV	.3946**	.3152**	.4289**	1.0000	.1713**
OPENINT	.1277*	.2904**	.2507**	.1713**	1.0000

N of cases: 482 2-tailed Signif: * - .01 ** - .001

Composite Score Distributions

It was expected that the means and standard deviations for the composite scores would be highly variable. The size of the mean is a complex function of the number of items in a composite, the social appeal of the items, and the number of items which received negative weights. If a factor is defined by an equal number of positive and negative terms, it is possible for the mean composite score to be near zero. The actual means and standard deviations for the present composites were as follows:

Variable	Mean	Std Dev
EMOSTAB	197.38	252.92
CONSCI	352.19	150.68
AGREE	443.49	157.83
EXTROV	195.64	196.10
OPENINT	132.68	179.08

Factor Analyses of Composite Scores

If the matrix of intercorrelations of the five composite scores is subjected to a factor analysis, only one factor is identified, as follows:

FACTOR	1
AGREE	.81372
CONSCI	.81328
EMOSTAB	.70870
EXTROV	.65964
OPENINT	.44196

However, if composite scores are computed for the 28 facets, as described above and labeled below, the five-factor structure is cleanly identified, as displayed below:

Facet Identification

Neuroticism

NEU1	Tired and Shaky
NEU2	Nervous
NEU3	Irritable
NEU4	Worrying
NEU5	Envious and Jealous
NEU6	Sensitive to Criticism

Agreeableness

AGRE1	Friendly
AGRE2	Kind and Considerate
AGRE3	Warm and Sympathetic
AGRE4	Helpful
AGRE5	Cold and Insensitive
AGRE6	Cheerful and Energetic

Conscientiousness

CON1	Organized
CON2	Steady and Efficient
CON3	Hard Working
CON4	Dependable
CON5	Perfectionistic

Extroversion

EXT1	Shy and Bashful
EXT2	Talkative
EXT3	Unsociable
EXT4	Assertive
EXT5	Socially Active

Openness/Intellect

OPN1	Scientific Curiosity
OPN2	Meditative
OPN3	Innovative
OPN4	Introspective
OPN5	Culture
OPN6	Intellectual

Factor Analysis of Composite Scores for Facets

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
NEU2	.85068	.02890	-.18249	-.22433	.02858
NEU1	.79453	-.11483	-.23803	-.14836	-.09553
NEU4	.77900	.03279	-.14775	-.18490	.09964
NEU5	.74747	-.19648	-.24427	-.04537	-.05510
NEU3	.72431	-.27018	-.06533	.15277	-.03223
NEU6	.71649	-.27592	-.11591	-.05416	-.04913
AGRE3	.03479	.79733	.26536	.20047	.13836
AGRE2	-.19811	.79249	.31127	-.01577	.09666
AGRE1	-.18471	.70993	.25001	.34377	-.04613
AGRE5	.34213	-.68061	-.02411	-.06468	.00209
AGRE4	-.03328	.67618	.26033	.21796	.17823
AGRE6	-.17007	.58174	.35268	.41292	.01908
CON5	-.13410	.05855	.76882	.07503	.17582
CON2	-.26021	.27547	.73363	.18256	.10746
CON1	-.24543	.26774	.72652	.01255	.04975
CON3	-.18896	.30846	.70635	.18238	.13420
CON4	-.15760	.42062	.70465	.00023	.01451
EXT2	.06187	.19422	.00378	.81026	.08506
EXT5	.06535	.09734	.06713	.75522	-.04604
EXT1	.41967	-.00734	-.01541	-.75363	-.00693
EXT3	.26939	-.34135	-.10723	-.75263	.10911

EXT4	-.15960	.14108	.28998	.71576	.26158
OPN6	.15392	-.11146	.12645	-.05270	.80132
OPN4	-.03802	.15688	.25060	.10634	.79607
OPN2	.20702	.07503	.01750	.07603	.79090
OPN1	-.10859	.04612	.02643	-.02226	.75994
OPN5	-.19845	.10271	-.01725	-.03240	.75041
OPN3	-.16269	.08295	.37864	.31014	.47525

Intercorrelations Of Facet Composites

The intercorrelation matrix of facet composites which produced the above factor solution is provided below:

Correlations:	NEU1	NEU2	NEU3	NEU4	NEU5	NEU6
NEU1	1.0000	.7465**	.5264**	.6287**	.6296**	.5822**
NEU2	.7465**	1.0000	.5144**	.6902**	.6404**	.6286**
NEU3	.5264**	.5144**	1.0000	.4895**	.5628**	.5144**
NEU4	.6287**	.6902**	.4895**	1.0000	.5528**	.5141**
NEU5	.6296**	.6404**	.5628**	.5528**	1.0000	.5403**
NEU6	.5822**	.6286**	.5144**	.5141**	.5403**	1.0000
AGRE1	-.3624**	-.2923**	-.3158**	-.2384**	-.2998**	-.3680**
AGRE2	-.3309**	-.2117**	-.3614**	-.1940**	-.3959**	-.3934**
AGRE3	-.1893**	-.0345	-.1593**	-.0694	-.1799**	-.2536**
AGRE4	-.2290**	-.1267*	-.1634**	-.0883	-.2944**	-.2642**
AGRE5	.3403**	.3073**	.3805**	.2192**	.3708**	.3613**
AGRE6	-.3856**	-.2896**	-.2058**	-.2450**	-.3434**	-.3461**
CON1	-.3869**	-.3018**	-.3197**	-.2388**	-.4228**	-.2958**
CON2	-.4120**	-.3766**	-.2777**	-.3189**	-.4351**	-.3925**
CON3	-.3762**	-.3165**	-.2531**	-.2617**	-.3890**	-.3064**
CON4	-.3458**	-.2641**	-.2572**	-.2267**	-.3786**	-.3107**
CON5	-.3288**	-.2496**	-.1933**	-.1963**	-.2660**	-.2505**
EXT1	.4091**	.5061**	.1808**	.4044**	.3597**	.3274**
EXT2	-.1012	-.1059	.0768	-.1053	-.0557	-.0501
EXT3	.3625**	.3658**	.2030**	.3166**	.3305**	.3261**
EXT4	-.3164**	-.3415**	-.0809	-.2706**	-.2710**	-.2364**
EXT5	-.0963	-.1302*	.0654	-.1058	-.0134	-.0521
OPN1	-.1865**	-.0554	-.1222*	.0115	-.0896	-.1162
OPN2	.0774	.1559**	.0945	.2141**	.0410	.0430
OPN3	-.3186**	-.2419**	-.1764**	-.1835**	-.2603**	-.2041**
OPN4	-.1817**	-.0901	-.0862	-.0246	-.1859**	-.1442*
OPN5	-.2168**	-.0770	-.1427*	-.0740	-.1877**	-.1536**
OPN6	.0253	.0983	.0825	.1725**	.0832	.0804

Correlations:	AGRE1	AGRE2	AGRE3	AGRE4	AGRE5	AGRE6
NEU1	-.3624**	-.3309**	-.1893**	-.2290**	.3403**	-.3856**
NEU2	-.2923**	-.2117**	-.0345	-.1267*	.3073**	-.2896**
NEU3	-.3158**	-.3614**	-.1593**	-.1634**	.3805**	-.2058**
NEU4	-.2384**	-.1940**	-.0694	-.0883	.2192**	-.2450**
NEU5	-.2998**	-.3959**	-.1799**	-.2944**	.3708**	-.3434**
NEU6	-.3680**	-.3934**	-.2536**	-.2642**	.3613**	-.3461**
AGRE1	1.0000	.6586**	.6337**	.5733**	-.4882**	.6745**
AGRE2	.6586**	1.0000	.6424**	.6555**	-.5001**	.5437**
AGRE3	.6337**	.6424**	1.0000	.5940**	-.5300**	.6891**
AGRE4	.5733**	.6555**	.5940**	1.0000	-.3959**	.4706**
AGRE5	-.4882**	-.5001**	-.5300**	-.3959**	1.0000	-.4057**
AGRE6	.6745**	.5437**	.6891**	.4706**	-.4057**	1.0000
CON1	.4109**	.4405**	.3853**	.3639**	-.3591**	.4208**
CON2	.4513**	.4718**	.4720**	.3817**	-.3498**	.5911**
CON3	.4513**	.5351**	.4270**	.4880**	-.3057**	.5054**
CON4	.4768**	.6010**	.4974**	.4317**	-.3600**	.4619**
CON5	.3163**	.3112**	.3181**	.3223**	-.1597**	.3118**
EXT1	-.3024**	-.0789	-.1664**	-.1931**	.2567**	-.3457**
EXT2	.4104**	.1250*	.3241**	.2723**	-.1748**	.4239**
EXT3	-.5328**	-.3320**	-.3947**	-.3904**	.3862**	-.5581**
EXT4	.4159**	.2559**	.3717**	.4068**	-.2418**	.4774**
EXT5	.3533**	.1328*	.1846**	.2726**	-.0580	.3083**
OPN1	.0501	.1392*	.1080	.1228*	-.0563	.0957
OPN2	-.0218	.0976	.1804**	.1807**	.0010	.0353
OPN3	.2713**	.2568**	.3339**	.2965**	-.1159	.4211**
OPN4	.1927**	.2885**	.3120**	.3166**	-.1264*	.2322**

OPN5	.0260	.1736**	.1899**	.1896**	-.1220*	.0992
OPN6	-.0730	.0082	.0415	.1128	.0999	-.0716
Correlations:	CON1	CON2	CON3	CON4	CON5	EXT1
NEU1	-.3869**	-.4120**	-.3762**	-.3458**	-.3288**	.4091**
NEU2	-.3018**	-.3766**	-.3165**	-.2641**	-.2496**	.5061**
NEU3	-.3197**	-.2777**	-.2531**	-.2572**	-.1933**	.1808**
NEU4	-.2388**	-.3189**	-.2617**	-.2267**	-.1963**	.4044**
NEU5	-.4228**	-.4351**	-.3890**	-.3786**	-.2660**	.3597**
NEU6	-.2958**	-.3925**	-.3064**	-.3107**	-.2505**	.3274**
AGRE1	.4109**	.4513**	.4513**	.4768**	.3163**	-.3024**
AGRE2	.4405**	.4718**	.5351**	.6010**	.3112**	-.0789
AGRE3	.3853**	.4720**	.4270**	.4974**	.3181**	-.1664**
AGRE4	.3639**	.3817**	.4880**	.4317**	.3223**	-.1931**
AGRE5	-.3591**	-.3498**	-.3057**	-.3600**	-.1597**	.2567**
AGRE6	.4208**	.5911**	.5054**	.4619**	.3118**	-.3457**
CON1	1.0000	.6462**	.5913**	.5940**	.5581**	-.1560**
CON2	.6462**	1.0000	.6303**	.6266**	.5747**	-.2581**
CON3	.5913**	.6303**	1.0000	.6508**	.5226**	-.2442**
CON4	.5940**	.6266**	.6508**	1.0000	.5001**	-.1376*
CON5	.5581**	.5747**	.5226**	.5001**	1.0000	-.1424*
EXT1	-.1560**	-.2581**	-.2442**	-.1376*	-.1424*	1.0000
EXT2	.0583	.2263**	.2053**	.1106	.1064	-.5608**
EXT3	-.2981**	-.3619**	-.3578**	-.2639**	-.2043**	.6860**
EXT4	.2901**	.4467**	.4336**	.2908**	.3186**	-.5891**
EXT5	.1076	.1506**	.2117**	.0734	.0943	-.4291**
OPN1	.1079	.1386*	.1869**	.0726	.1862**	.0267
OPN2	.0076	.0864	.1128	.0922	.1236*	.0173
OPN3	.3071**	.4118**	.4102**	.2755**	.3776**	-.2317**
OPN4	.2651**	.3660**	.3428**	.2609**	.3226**	-.1117
OPN5	.1987**	.1452*	.1675**	.0448	.1781**	-.1068
OPN6	.0541	.0905	.1042	.0529	.1915**	.0558
NEU1	-.1012	.3625**	-.3164**	-.0963	-.1865**	.0774
NEU2	-.1059	.3658**	-.3415**	-.1302*	-.0554	.1559**
NEU3	.0768	.2030**	-.0809	.0654	-.1222*	.0945
NEU4	-.1053	.3166**	-.2706**	-.1058	.0115	.2141**
NEU5	-.0557	.3305**	-.2710**	-.0134	-.0896	.0410
NEU6	-.0501	.3261**	-.2364**	-.0521	-.1162	.0430
AGRE1	.4104**	-.5328**	.4159**	.3533**	.0501	-.0218
AGRE2	.1250*	-.3320**	.2559**	.1328*	.1392*	.0976
AGRE3	.3241**	-.3947**	.3717**	.1846**	.1080	.1804**
AGRE4	.2723**	-.3904**	.4068**	.2726**	.1228*	.1807**
AGRE5	-.1748**	.3862**	-.2418**	-.0580	-.0563	.0010
AGRE6	.4239**	-.5581**	.4774**	.3083**	.0957	.0353
CON1	.0583	-.2981**	.2901**	.1076	.1079	.0076
CON2	.2263**	-.3619**	.4467**	.1506**	.1386*	.0864
CON3	.2053**	-.3578**	.4336**	.2117**	.1869**	.1128
CON4	.1106	-.2639**	.2908**	.0734	.0726	.0922
CON5	.1064	-.2043**	.3186**	.0943	.1862**	.1236*
EXT1	-.5608**	.6860**	-.5891**	-.4291**	.0267	.0173
EXT2	1.0000	-.5868**	.5554**	.4973**	.0437	.1631**
EXT3	-.5868**	1.0000	-.5705**	-.6000**	.0097	.0456
EXT4	.5554**	-.5705**	1.0000	.4664**	.1562**	.2461**
EXT5	.4973**	-.6000**	.4664**	1.0000	.0479	.0291
OPN1	.0437	.0097	.1562**	.0479	1.0000	.4726**
OPN2	.1631**	.0456	.2461**	.0291	.4726**	1.0000
OPN3	.2727**	-.2546**	.4798**	.1946**	.3725**	.3133**
OPN4	.1709**	-.1005	.3668**	.0734	.5263**	.6392**
OPN5	.0561	-.0224	.1921**	-.0853	.5430**	.4311**
OPN6	.0083	.2271**	.1731**	-.0454	.5017**	.6117**
Correlations:	OPN3	OPN4	OPN5	OPN6		
NEU1	-.3186**	-.1817**	-.2168**	.0253		
NEU2	-.2419**	-.0901	-.0770	.0983		
NEU3	-.1764**	-.0862	-.1427*	.0825		
NEU4	-.1835**	-.0246	-.0740	.1725**		
NEU5	-.2603**	-.1859**	-.1877**	.0832		
NEU6	-.2041**	-.1442*	-.1536**	.0804		
AGRE1	.2713**	.1927**	.0260	-.0730		
AGRE2	.2568**	.2885**	.1736**	.0082		
AGRE3	.3339**	.3120**	.1899**	.0415		
AGRE4	.2965**	.3166**	.1896**	.1128		
AGRE5	-.1159	-.1264*	-.1220*	.0999		
AGRE6	.4211**	.2322**	.0992	-.0716		

CON1	.3071**	.2651**	.1987**	.0541
CON2	.4118**	.3660**	.1452*	.0905
CON3	.4102**	.3428**	.1675**	.1042
CON4	.2755**	.2609**	.0448	.0529
CON5	.3776**	.3226**	.1781**	.1915**
EXT1	-.2317**	-.1117	-.1068	.0558
EXT2	.2727**	.1709**	.0561	.0083
EXT3	-.2546**	-.1005	-.0224	.2271**
EXT4	.4798**	.3668**	.1921**	.1731**
EXT5	.1946**	.0734	-.0853	-.0454
OPN1	.3725**	.5263**	.5430**	.5017**
OPN2	.3133**	.6392**	.4311**	.6117**
OPN3	1.0000	.4450**	.3500**	.2859**
OPN4	.4450**	1.0000	.5425**	.6146**
OPN5	.3500**	.5425**	1.0000	.4618**
OPN6	.2859**	.6146**	.4618**	1.0000

Relationship of Sex with Composite and Item Scores

There may be a question as to whether separate norms will be required for men and women. In the present sample, about 20 per cent were females. The correlations between sex and the five composites in the present sample were computed as follows (1=male; 0=female):

<u>VARIABLE</u>	<u>CORRELATION</u>
Emotional Stability	-.02
Conscientiousness	-.13*
Agreeableness	-.17**
Extroversion	-.16**
Openness/Intellect	-.00

N of cases: 482 2-tailed Signif: * - .01 ** - .001

It appears that women claim to be more conscientious, more agreeable, and more extroverted. The relationships are small, but highly significant. The table below reports relationships with individual items which were significant at the .01 or the .001 level. Note that a negative correlation indicates that females rated the item higher than males on that item.

Relationships of Sex With Self-Rated Personality Items

CORR	ITEM#	ITEM
.17		ENVIIOUS
-.32	053	When things are not going right, I sometimes feel like crying.
-.13		KIND
-.13		FRIENDLY
-.17		CONSIDERATE
-.12		PLEASANT
-.13	211	I try to be pleasant in every situation.
-.17		WARM
-.12	213	I am always generous when it comes to helping others.
-.13		SYMPATHETIC

-.14		CHEERFUL
-.14		UNDERSTANDING
-.15	068	I like to help others, even if there is nothing in it for me.
-.12	209	I try to always be polite, even to those who are not polite to me.
.19		UNSYMPATHETIC
.15		INSENSITIVE
-.18		THOROUGH
-.14		RESPONSIBLE
-.13	157	I try to set a schedule for accomplishing tasks, and stick to it.
-.15		DEPENDABLE
-.18	136	I was willing to work hard for good grades in high school.
.16		QUIET
.13		SILENT
.16		SHY
-.15		TALKATIVE
-.19	017	Most of my friends would describe me as a "talker."
-.17		VERBAL
-.13	012	I go out of my way to meet people.
.12	026	I am uneasy when I am the center of attention.
.14		RESERVED
.13	013	I avoid meetings and social gatherings when possible.
.16	099	I am highly interested in all the fields of science.
-.19	106	I find intellectual things more interesting than football, baseball, or basketball.
-.17	096	I enjoy visiting art museums.
-.26	120	I enjoy reading poetry.

Correlations of Composite Scores with ASVAB Composites

The correlations between ASVAB composites and the personality composites are presented below. Also reported are correlations of the personality composites with the combination of Word Knowledge and Paragraph Comprehension, which is regarded as the best measure of verbal ability.:

Correlations:	EMOSTAB	CONSCI	AGREE	EXTROV	OPENINT
MECH	.1162	-.0450	-.1016	-.1111	.1916**
ADMIN	.0630	.0367	-.0358	.0340	.0120
GENERAL	.0937	-.0742	-.1026	-.0660	.2112**
ELEC	.1187*	-.0577	-.0975	-.1079	.2589**
COMBWKPC	.0494	-.1201*	-.1767**	-.0688	.1869**

N of cases: 477 2-tailed Signif: * - .01 ** - .001

With two minor exceptions, all of the significant relationships are associated with the Openness/Intellect composite. Notice however, that the relationship between this factor and the verbal factor is much lower than previously reported. At one point during this research study, the correlation between Openness/Intellect and

the combined Word Knowledge and Paragraph Comprehension scores was reported as .58. The reduction in this correlation was achieved by dropping many of the trait names related to ability (e.g. BRIGHT, SMART); by including definitions of many of the complicated words (CONTEMPLATIVE, FORESIGHTED, INTROSPECTIVE, MEDITATIVE, ETC.); by dropping some words that airmen tended not to understand (CORDIAL); and by including more behavioral statements related to openness (those related to cultured, such as listening to classical music, reading poetry, visiting museums, etc.). There has been an argument as to whether this fifth factor should be called Openness or Intellect. Goldberg, who uses trait names, prefers to call it 'Intellect.' I believe this is because of the types of trait names he uses in his surveys, and the difficulty of identifying trait names which adequately cover the openness aspect of the factor. McCrae and Costa tend to call this factor 'Openness,' but they tend to include many behavioral statements associated with culture. One thing which has been made clear by the present research stream is that the nature of the factors identified is determined by the nature of the items included in the survey. This should come as no surprise.

DEVELOPMENT OF THE AIR FORCE SELF DESCRIPTION INVENTORY (VERSION 1)

It was decided that sufficient information was now available to build the first version of the operational personality inventory which was named the “**Air Force Self Description Inventory**” (SDI). One additional behavioral statement was removed from the SD subset (item #181), bringing the total to 99 SD statements and 64 Trait names. Thus Form A of the full inventory contains 163 items, which hopefully can be administered by microcomputer in approximately 30 minutes. A request was made to collect data on a large sample using this form in order to develop norming and scoring procedures.

The remaining part of this status report is devoted to a detailed description of the final inventory and includes information for computing composite and subcomposite scores. Note that the figures and tables are numbered, so that this portion of the status report is self-contained and can be published as a separate document.

Inventory Description

The final inventory contains two sections. One of the sections contains 64 trait names, while the other contains 99 behavioral statements. These sections are administered in a random order, and the items within sections are administered in random order. The instructions for the two sections vary. In the case of trait names, the subject uses a mouse to indicate how characteristic the trait is of him/herself as compared with other individuals of the same sex and approximate age. Several forms of the rating scale were evaluated, and the one finally adopted is shown below:

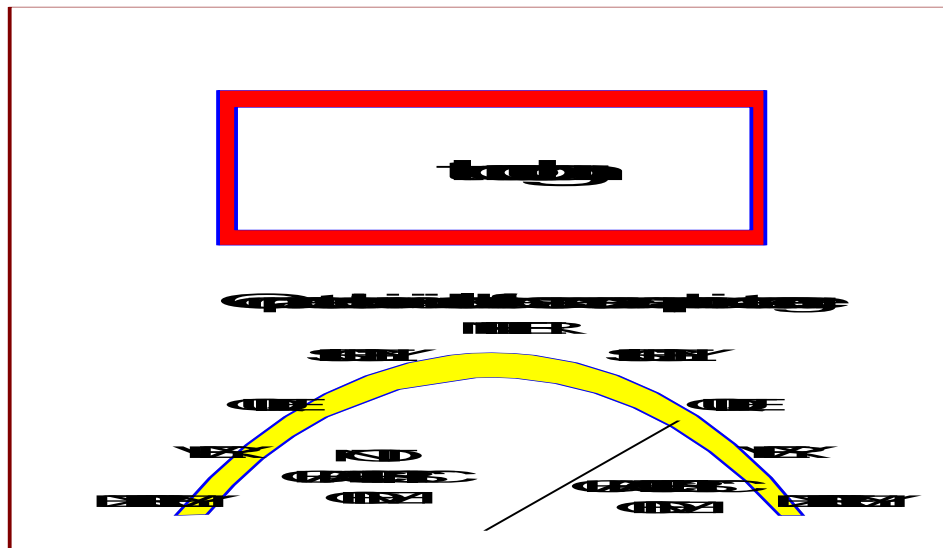


Figure 1. Rating Scale for Trait names

Note that the subject moves a mouse cursor to the appropriate position on the arched scale and presses the mouse button to record the response. The scale actually records 45 positions, rather than the 9 which are defined. A number of the trait names are defined, because it was found that some subjects did not have a clear concept of the word meaning.

In the case of the behavioral statements, subjects are asked to indicate the extent to which they agree or disagree with the statement. The scale looks like that shown below:



Figure 2: Rating Scale for Behavioral Statements

Again, the subject records his/her response by moving the mouse cursor to the appropriate position in the arch and clicking the mouse button.

The computer program which administers the inventory is designed to run on any IBM AT or compatible having an EGA or VGA video board and monitor which runs under DOS 3.2 or higher. The program requires about 1.5 meg of hard disk space and a mouse for response input. The program automatically collects information on item response, item response latency, time to complete each section and time to complete both sections. There is a short lesson on operating a mouse which is also available.

Listed below are the actual trait names and behavioral statements used in the inventory

Trait Names (N=64)

AFFECTIONATE	INTROSPECTIVE	STEADY
ASSURED	INVENTIVE	SYMPATHETIC
BASHFUL	IRRITABLE	TALKATIVE
BOLD	JEALOUS	TEMPERAMENTAL
CAREFUL	KIND	THOROUGH
CHEERFUL	MEDITATIVE	TIMID
COLD	MOODY	TOUCHY
COMPLEX	NEAT	UNDERSTANDING
CONSIDERATE	NERVOUS	UNKIND
CONSISTENT	ORDERLY	UNSOCIABLE
CONTEMPLATIVE	ORGANIZED	UNSYMPATHETIC
CREATIVE	PERFECTIONISTIC	VERBAL
DEEP	PHILOSOPHICAL	WARM
DEFENSIVE	PLEASANT	WITHDRAW
DEPENDABLE	PRECISE	
DISORGANIZED	PROMPT	
EFFICIENT	QUIET	
ENERGETIC	RESERVED	
ENVOIOUS	RESPONSIBLE	
FEARFUL	SELF PITYING	
FRIENDLY	SELFISH	
GENEROUS	SHY	
HELPFUL	SILENT	
INNOVATIVE	SLOPPY	
INSENSITIVE	SOCIABLE	

Behavioral Statements (N=99)

SDRSP002	I speak up when I feel I can make a contribution.
SDRSP004	I tend to take charge in group meetings.
SDRSP006	I am a timid person and am easily embarrassed.
SDRSP007	I like to be where there is a lot of action.
SDRSP009	I have a lot of influence over others.
SDRSP010	I am a very shy person.
SDRSP012	I go out of my way to meet people.
SDRSP013	I avoid meetings and social gatherings when possible.
SDRSP014	My friends consider me to be bashful.
SDRSP015	If things get too boring at a party, I try to get things going.
SDRSP017	Most of my friends would describe me as a "talker."
SDRSP018	I tend to be a loner.
SDRSP020	I like to strike up conversations with strangers.
SDRSP022	At social functions, I talk to as many people as possible.
SDRSP024	In meetings, I tend to let others do most of the talking.
SDRSP026	I am uneasy when I am the center of attention.
SDRSP028	I like parties, where there are a lot of people.
SDRSP031	I tend to get upset easily.

SDRSP034 Sometimes I get so upset, I get sick at my stomach.
 SDRSP035 I get very upset when I am criticized.
 SDRSP036 I am often nervous and tense.

 SDRSP037 I often feel tired and run down.
 SDRSP038 I often worry a lot about the future.
 SDRSP039 I have periods when I feel sorry for myself.
 SDRSP040 When I am under great stress, I often feel like I am about to break down.

 SDRSP041 I am often sad and depressed.
 SDRSP043 I often feel jittery and tense.
 SDRSP044 I often have headaches when things are not going well.
 SDRSP045 I get rattled when I am under time pressure.
 SDRSP046 Sometimes I feel weak and shaky in the knees.
 SDRSP048 I hardly ever feel lonely or blue.
 SDRSP052 My feelings are easily hurt.
 SDRSP053 When things are not going right, I sometimes feel like crying.
 SDRSP054 Sometimes I feel discouraged and simply want to give up.
 SDRSP055 I'm often fearful that I will fail to reach my goals.
 SDRSP057 I worry more than most people.
 SDRSP058 When I am emotionally upset, I can't think clearly.
 SDRSP059 I am jealous of others who get what I would like to have.
 SDRSP060 I often lose my temper with other people.
 SDRSP061 I am always worried about how things might go wrong.
 SDRSP064 I get a lot of pleasure in helping others with their problems.
 SDRSP066 I am considered to be easy to get along with.
 SDRSP068 I like to help others, even if there is nothing in it for me.
 SDRSP070 I don't accept criticism very well.
 SDRSP071 I like to help others when they are down on their luck.
 SDRSP073 I laugh a lot.
 SDRSP074 I am good at cheering people up.
 SDRSP079 I resent it when I don't get my way.
 SDRSP080 I always treat other people with kindness.
 SDRSP081 Some people consider me to be unfriendly.
 SDRSP084 I get along well with most everybody.
 SDRSP085 I have a lot of sympathy for others who are having problems.
 SDRSP088 I am cheerful most of the time.
 SDRSP094 I like to spend time in intellectual discussions with my friends.
 SDRSP095 I try to analyze and evaluate conditions, so that I can predict the future.

 SDRSP096 I enjoy visiting art museums.
 SDRSP099 I am highly interested in all the fields of science.
 SDRSP100 I spend a lot of time analyzing the motives behind the actions of others.

 SDRSP101 I am better than most in seeing what the future holds.
 SDRSP102 I love to find innovative solutions to difficult problems.
 SDRSP103 I often think about the wonders of nature.

SDRSP104 I spend a lot of time in meditation and deep thought.

SDRSP105 I feel that I am more intellectual than most of my friends.

SDRSP106 I find intellectual things more interesting than football, baseball, or basketball.

SDRSP108 I am often in deep thought, when others think that I am day dreaming.

SDRSP109 Philosophical discussions bore me.

SDRSP112 I prefer listening to classical music rather than popular music.

SDRSP114 I am fascinated with the theory of evolution.

SDRSP116 I have thought a lot about the origin of the universe.

SDRSP117 I spend a lot of time analyzing my internal feelings.

SDRSP118 I have a lot of intellectual curiosity.

SDRSP119 I would enjoy being a theoretical scientist.

SDRSP120 I enjoy reading poetry.

SDRSP126 If I commit myself to do something, I always carry through.

SDRSP128 I always try to do more than is expected of me.

SDRSP130 I believe that rules and regulations should always be followed.

SDRSP136 I was willing to work hard for good grades in high school.

SDRSP137 I would rate myself as being a very persistent worker.

SDRSP145 I like to have a place for everything and everything in its place.

SDRSP146 I often let down toward the end of the day for lack of energy.

SDRSP148 I like to work with people who are highly organized.

SDRSP153 I like to keep all my belongings neat and organized.

SDRSP155 When I get an assignment, I always do my best.

SDRSP157 I try to set a schedule for accomplishing tasks, and stick to it.

SDRSP159 I try to do a good job in the first place, so it doesn't have to be done again.

SDRSP162 I try to be fully prepared before I undertake any task.

SDRSP164 I tend to set higher standards for myself than others set for me.

SDRSP167 If I start something, I work until it is finished to my satisfaction.

SDRSP170 I have a habit of putting off things that I should be attending to.

SDRSP201 Some days, it is difficult for me to get going.

SDRSP207 I try to be kind to everyone I know.

SDRSP208 I am always considerate of the feelings of others.

SDRSP209 I try to always be polite, even to those who are not polite to me.

SDRSP210 Even if I don't like them, I try always to be considerate of others.

SDRSP211 I try to be pleasant in every situation.

SDRSP212 I try to respect others' points of view, even if I don't agree with them.

SDRSP213 I am always generous when it comes to helping others.

SDRSP215 I am considered by others to be a very friendly person.

SDRSP220 I try to be cheerful, even when things are not going well.

Factor Solution

Table 1 presents the results of a factor analysis of the complete inventory, based on a sample of 2853 subjects. Responses to trait names are assigned variable names which consist of the first several letters of the trait ending by the letter 'R.' For example, BOLD and DISORGANIZED are labeled BOLDR and DISORGAR.

Table 1

Factor Analysis of the Air Force Self Description Inventory (Version 1)

Variable Name	Statement	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1--NEUROTICISM						
SDRSP040	When I am under great stress, I often feel like I am about to break down.	0.65	0.03	-0.15	-0.12	-0.09
SDRSP036	I am often nervous and tense.	0.64	0.00	-0.15	-0.27	-0.03
SDRSP043	I often feel jittery and tense.	0.63	-0.03	-0.18	-0.23	-0.03
NERVOUSR	NERVOUS	0.63	0.04	-0.07	-0.26	-0.06
SDRSP031	I tend to get upset easily.	0.61	-0.26	-0.09	-0.05	-0.05
SDRSP041	I am often sad and depressed.	0.61	-0.11	-0.22	-0.26	0.05
MOODYR	MOODY	0.61	-0.28	-0.03	0.02	-0.03
SDRSP057	I worry more than most people.	0.60	0.02	-0.10	-0.18	0.09
SDRSP052	My feelings are easily hurt.	0.60	0.05	-0.12	-0.16	0.00
SDRSP039	I have periods when I feel sorry for myself.	0.60	-0.04	-0.24	-0.14	0.02
SDRSP061	I am always worried about how things might go wrong.	0.60	0.03	-0.12	-0.18	-0.01
SDRSP054	Sometimes I feel discouraged and simply want to give up.	0.57	-0.06	-0.26	-0.14	-0.07
SDRSP058	When I am emotionally upset, I can't think clearly.	0.57	0.02	-0.10	-0.11	-0.12
SDRSP045	I get rattled when I am under time pressure.	0.57	0.02	-0.17	-0.15	-0.12
SDRSP035	I get very upset when I am criticized.	0.55	-0.18	-0.04	-0.04	-0.05
SELF_PIR	SELF PITYING	0.55	-0.12	-0.16	-0.17	0.02
SDRSP046	Sometimes I feel weak and shaky in the knees.	0.55	0.02	-0.18	-0.14	-0.03
TOUCHYR	TOUCHY	0.55	-0.23	0.04	0.03	-0.06

SDRSP037	I often feel tired and run down.	0.54	-0.10	-0.20	-0.14	-0.08
SDRSP053	When things are not going right, I sometimes feel like crying.	0.54	0.15	-0.14	-0.02	-0.07
ENVIOUSR	ENVIOUS	0.54	-0.23	-0.10	0.00	-0.03
SDRSP201	Some days, it is difficult for me to get going.	0.53	-0.06	-0.18	-0.04	-0.10
SDRSP070	I don't accept criticism very well.	0.53	-0.24	-0.07	-0.01	-0.10
IRRITABR	IRRITABLE	0.53	-0.31	-0.02	0.03	-0.03
SDRSP055	I'm often fearful that I will fail to reach my goals.	0.53	0.00	-0.19	-0.11	0.01
SDRSP034	Sometimes I get so upset, I get sick at my stomach.	0.53	0.00	-0.15	-0.03	0.00
TEMPERAR	TEMPERAMENTAL	0.53	-0.27	0.04	0.11	-0.02
JEALOUSR	JEALOUS	0.53	-0.18	-0.01	0.05	-0.09
SDRSP044	I often have headaches when things are not going well.	0.52	-0.01	-0.11	-0.09	-0.01
FEARFULR	FEARFUL	0.51	0.02	-0.06	-0.22	-0.05
SDRSP146	I often let down toward the end of the day for lack of energy.	0.51	-0.05	-0.19	-0.11	-0.09
SDRSP038	I often worry a lot about the future.	0.50	0.03	-0.04	-0.07	0.05
SDRSP060	I often lose my temper with other people.	0.50	-0.35	-0.03	0.14	-0.05
SDRSP059	I am jealous of others who get what I would like to have.	0.49	-0.22	-0.14	0.04	-0.07
SDRSP079	I resent it when I don't get my way.	0.47	-0.31	-0.07	0.09	0.02
DEFENSIR	DEFENSIVE	0.47	-0.20	0.13	0.06	-0.06
SDRSP170	I have a habit of putting off things that I should be attending to.	0.43	-0.07	-0.39	-0.01	-0.03
SDRSP048	I hardly ever feel lonely or blue.	-0.36	0.04	0.19	0.18	0.01
FAC2--AGREEABLENESS						
KINDR	KIND	0.02	0.70	0.28	0.06	0.00
SDRSP208	I am always considerate of the feelings of others.	-0.04	0.67	0.23	-0.05	0.08
SDRSP207	I try to be kind to everyone I know.	-0.08	0.67	0.19	-0.02	0.05
SDRSP080	I always treat other people with kindness.	-0.09	0.66	0.25	-0.06	0.07
SDRSP213	I am always generous when it comes to helping others.	-0.06	0.64	0.25	0.05	0.12
CONSIDER	CONSIDERATE	-0.04	0.63	0.29	0.04	0.03
SDRSP068	I like to help others, even if there is nothing in it for me.	-0.10	0.62	0.21	0.06	0.14
SYMPATHR	SYMPATHETIC	0.10	0.62	0.14	0.05	0.06
SDRSP211	I try to be pleasant in every situation.	-0.11	0.60	0.26	0.03	0.07

FRIENDLR	FRIENDLY	0.02	0.60	0.24	0.29	-0.04
SDRSP210	Even if I don't like them, I try always to be considerate of others.	-0.14	0.60	0.17	-0.07	0.12
PLEASANR	PLEASANT	-0.06	0.60	0.27	0.15	0.00
SDRSP215	I am considered by others to be a very friendly person.	-0.09	0.59	0.23	0.25	-0.02
WARMR	WARM	0.02	0.59	0.20	0.19	0.00
GENEROUR	GENEROUS	0.02	0.59	0.24	0.10	0.09
SDRSP071	I like to help others when they are down on their luck.	-0.03	0.58	0.19	0.08	0.13
UNDERSTR	UNDERSTANDING	-0.01	0.57	0.26	0.07	0.11
SDRSP085	I have a lot of sympathy for others who are having problems.	0.11	0.56	0.08	0.02	0.13
HELPFULR	HELPFUL	-0.03	0.56	0.41	0.12	0.08
SDRSP209	I try to always be polite, even to those who are not polite to me.	-0.09	0.56	0.15	-0.10	0.15
CHEERFUR	CHEERFUL	-0.10	0.55	0.26	0.37	-0.03
SDRSP084	I get along well with most everybody.	-0.13	0.55	0.20	0.20	0.03
UNKINDR	UNKIND	0.21	-0.54	-0.01	-0.05	0.00
SDRSP066	I am considered to be easy to get along with.	-0.11	0.53	0.17	0.19	-0.02
UNSYMPAR	UNSYMPATHETIC	0.15	-0.51	0.04	-0.03	0.02
SDRSP081	Some people consider me to be unfriendly.	0.25	-0.51	-0.07	-0.10	0.09
SDRSP064	I get a lot of pleasure in helping others with their problems.	0.01	0.50	0.14	0.14	0.21
COLDR	COLD	0.24	-0.48	0.02	-0.06	0.05
SDRSP088	I am cheerful most of the time.	-0.19	0.48	0.22	0.35	0.01
SDRSP220	I try to be cheerful, even when things are not going well.	-0.20	0.48	0.19	0.20	0.11
INSENSIR	INSENSITIVE	0.21	-0.46	0.06	-0.07	0.02
AFFECTIR	AFFECTIONATE	0.11	0.46	0.17	0.26	0.04
SDRSP212	I try to respect others' points of view, even if I don't agree with them.	-0.15	0.46	0.17	-0.01	0.19
SDRSP074	I am good at cheering people up.	-0.04	0.45	0.17	0.43	0.10
SELFISHR	SELFISH	0.39	-0.43	-0.04	0.01	0.02
FAC3--CONSCIENTIOUSNESS						
ORGANIZR	ORGANIZED	-0.10	0.14	0.75	-0.01	0.04
NEATR	NEAT	-0.09	0.14	0.72	0.01	-0.02
SDRSP153	I like to keep all my belongings neat and organized.	-0.08	0.12	0.67	-0.04	0.06

ORDERLYR	ORDERLY	-0.09	0.13	0.65	0.00	0.07
PRECISER	PRECISE	-0.13	0.10	0.65	0.09	0.18
SDRSP145	I like to have a place for everything and everything in it's place.	-0.03	0.12	0.61	-0.02	0.10
EFFICIER	EFFICIENT	-0.14	0.18	0.60	0.13	0.13
PERFECTR	PERFECTIONISTIC	-0.05	0.02	0.60	0.05	0.25
THOROUGH	THOROUGH	-0.13	0.14	0.60	0.12	0.15
RESPONSR	RESPONSIBLE	-0.12	0.23	0.59	0.09	0.01
SDRSP137	I would rate myself as being a very persistent worker.	-0.17	0.23	0.59	0.08	0.10
CONSISTR	CONSISTENT	-0.16	0.18	0.59	0.10	0.08
SDRSP167	If I start something, I work until it is finished to my satisfaction.	-0.15	0.21	0.55	0.06	0.12
SDRSP126	If I commit myself to do something, I always carry through.	-0.18	0.23	0.54	0.10	0.07
SDRSP128	I always try to do more than is expected of me.	-0.19	0.26	0.54	0.09	0.17
SDRSP162	I try to be fully prepared before I undertake any task.	-0.15	0.21	0.54	0.02	0.15
SDRSP155	When I get an assignment, I always do my best.	-0.17	0.27	0.54	0.06	0.06
STEADYR	STEADY	-0.16	0.18	0.54	0.13	0.09
CAREFULR	CAREFUL	-0.02	0.32	0.53	-0.06	0.03
SDRSP157	I try to set a schedule for accomplishing tasks, and stick to it.	-0.14	0.16	0.53	0.04	0.15
SDRSP159	I try to do a good job in the first place, so it doesn't have to be done again.	-0.14	0.21	0.52	0.08	0.10
DISORGAR	DISORGANIZED	0.34	-0.10	-0.50	0.00	0.01
PROMPTR	PROMPT	-0.11	0.18	0.49	0.02	0.02
SDRSP164	I tend to set higher standards for myself than others set for me.	-0.12	0.12	0.49	0.14	0.20
SDRSP148	I like to work with people who are highly organized.	-0.10	0.17	0.48	0.08	0.15
DEPENDAR	DEPENDABLE	-0.08	0.27	0.48	0.10	0.00
SLOPPYR	SLOPPY	0.33	-0.10	-0.45	0.01	0.02
ASSURED	ASSURED	-0.20	0.13	0.45	0.29	0.12
ENERGETR	ENERGETIC	-0.14	0.22	0.41	0.36	-0.03
SDRSP136	I was willing to work hard for good grades in high school.	-0.07	0.18	0.39	0.00	0.08
SDRSP130	I believe that rules and regulations should always be followed.	-0.12	0.33	0.38	-0.06	0.01
FAC4--EXTROVERSION						
QUIETR	QUIET	0.22	0.00	0.11	-0.70	0.05

TALKATIR	TALKATIVE	0.14	0.13	0.06	0.69	0.00
SDRSP010	I am a very shy person.	0.34	0.04	-0.04	-0.67	-0.02
SILENTR	SILENT	0.25	-0.04	0.09	-0.66	0.06
SDRSP022	At social functions, I talk to as many people as possible.	-0.03	0.24	0.09	0.65	0.05
SHYR	SHY	0.36	0.07	0.03	-0.65	0.00
SOCIABLR	SOCIABLE	-0.02	0.29	0.17	0.65	-0.03
SDRSP017	Most of my friends would describe me as a "talker."	0.12	0.11	-0.05	0.64	0.04
SDRSP014	My friends consider me to be bashful.	0.26	0.03	-0.03	-0.62	0.02
SDRSP015	If things get too boring at a party, I try to get things going.	0.00	0.09	0.08	0.62	0.06
VERBALR	VERBAL	0.03	0.04	0.16	0.60	0.11
BASHFULR	BASHFUL	0.38	0.06	0.02	-0.59	-0.01
WITHDRAR	WITHDRAWN	0.36	-0.16	-0.07	-0.55	0.06
SDRSP012	I go out of my way to meet people.	-0.03	0.30	0.12	0.54	0.11
SDRSP028	I like parties, where there are a lot of people.	0.04	0.06	0.05	0.52	-0.09
UNSOCIAR	UNSOCIABLE	0.20	-0.32	-0.02	-0.52	0.08
SDRSP020	I like to strike up conversations with strangers.	0.00	0.17	-0.04	0.52	0.20
SDRSP004	I tend to take charge in group meetings.	-0.12	-0.04	0.24	0.51	0.26
SDRSP026	I am uneasy when I am the center of attention.	0.36	0.04	-0.03	-0.49	-0.07
SDRSP007	I like to be where there is a lot of action.	0.05	0.03	0.11	0.49	-0.03
SDRSP006	I am a timid person and am easily embarrassed.	0.45	0.07	-0.05	-0.49	-0.08
SDRSP073	I laugh a lot.	-0.03	0.28	0.08	0.48	0.00
BOLDR	BOLD	-0.08	-0.02	0.27	0.47	0.10
SDRSP018	I tend to be a loner.	0.24	-0.19	-0.10	-0.47	0.16
TIMIDR	TIMID	0.41	0.08	0.01	-0.47	-0.04
SDRSP024	In meetings, I tend to let others do most of the talking.	0.23	0.06	-0.05	-0.46	-0.11
SDRSP013	I avoid meetings and social gatherings when possible.	0.24	-0.16	-0.06	-0.45	0.01
RESERVER	RESERVED	0.15	-0.04	0.15	-0.42	0.09
SDRSP009	I have a lot of influence over others.	-0.10	0.05	0.30	0.40	0.24
SDRSP002	I speak up when I feel I can make a contribution.	-0.16	0.18	0.28	0.39	0.21

FAC5--OPENNESS						
PHILOSOR	PHILOSOPHICAL	-0.09	0.07	0.13	0.04	0.68
DEEPR	DEEP	0.00	0.08	0.23	0.10	0.64
SDRSP104	I spend a lot of time in meditation and deep thought.	0.13	0.02	-0.07	-0.10	0.63
SDRSP119	I would enjoy being a theoretical scientist.	-0.12	0.00	-0.02	-0.06	0.63
SDRSP118	I have a lot of intellectual curiosity.	-0.11	0.07	0.16	0.11	0.62
SDRSP094	I like to spend time in intellectual discussions with my friends.	-0.11	0.10	0.08	0.06	0.62
SDRSP116	I have thought a lot about the origin of the universe.	-0.05	0.02	0.00	0.01	0.60
MEDITATR	MEDITATIVE	0.07	0.05	0.07	-0.06	0.58
SDRSP109	Philosophical discussions bore me.	0.21	0.01	0.05	-0.01	-0.57
CONTEMPR	CONTEMPRLATIVE	-0.06	0.13	0.29	-0.02	0.56
SDRSP106	I find intellectual things more interesting than football, baseball, or basketball.	-0.08	0.05	0.04	-0.14	0.56
SDRSP103	I often think about the wonders of nature.	-0.03	0.14	0.03	-0.02	0.55
SDRSP099	I am highly interested in all the fields of science.	-0.13	0.02	0.04	-0.05	0.54
SDRSP102	I love to find innovative solutions to difficult problems.	-0.13	0.10	0.24	0.11	0.53
SDRSP095	I try to analyze and evaluate conditions, so that I can predict the future.	0.03	-0.02	0.13	0.01	0.52
SDRSP117	I spend a lot of time analyzing my internal feelings.	0.24	0.12	0.00	-0.02	0.50
INTROSPR	INTROSPECTIVE	-0.06	0.16	0.25	0.03	0.50
SDRSP100	I spend a lot of time analyzing the motives behind the actions of others.	0.09	0.00	0.05	0.06	0.49
SDRSP096	I enjoy visiting art museums.	-0.09	0.16	0.04	0.00	0.48
SDRSP120	I enjoy reading poetry.	-0.05	0.13	-0.01	0.07	0.46
SDRSP105	I feel that I am more intellectual than most of my friends.	-0.04	-0.06	0.17	0.14	0.46
INVENTIR	INVENTIVE	-0.08	0.06	0.29	0.20	0.46
COMPLEXR	COMPLEX	0.05	-0.09	0.11	0.05	0.45
INNOVATR	INNOVATIVE	-0.12	0.08	0.37	0.23	0.44
SDRSP101	I am better than most in seeing what the future holds.	-0.06	-0.03	0.12	0.09	0.44
SDRSP108	I am often in deep thought, when others think that I am day dreaming.	0.19	0.03	-0.02	-0.02	0.44
SDRSP114	I am fascinated with the theory of evolution.	-0.06	0.00	0.05	0.02	0.42
CREATIVR	CREATIVE	-0.10	0.07	0.31	0.24	0.39
SDRSP112	I prefer listening to classical music rather than popular music.	-0.09	0.01	-0.06	-0.14	0.38

The solution shown in Table 1 includes 163 items, which represent the survivors from an original list of 205 trait names¹ and 220 behavioral statements (425 items). Principal component factors were extracted and rotated orthogonally using the VARIMAX rotation system. The defined factors are robust, having survived numerous cross-validation studies. If the items are randomly assigned to two pools, each pool will produce the same five factors which correlate in the 90's when corrected to double-length. When a sixth factor is extracted from the two pools, the correlation has been found to be in the high .20's, indicating that a stable sixth factor is not represented in the data.

Development of Composite Scores

Two samples were used to develop and cross-validate composite scores. The development sample was composed of 1644 subjects, while the cross-validation sample was composed of 1209 subjects. The composites were computed by unit weighting all variables having loadings above .40 on the relevant factor in the development sample. The actual computing expressions for the factor composite scores are listed below:

AGREEABLENESS

KINDR
+SDRSP207
+SDRSP208
+CONSIDER
+SDRSP211
+SDRSP080
+SDRSP213
+SYMPATHY
+SDRSP068
+FRIENDLR
+PLEASANR
+SDRSP210
+WARMR
+SDRSP215
+CHEERFUR
+SDRSP071
+SDRSP209
+GENEROUR
+SDRSP066
+HELPFULR
+SDRSP084
+UNDERSTR
+SDRSP085
-UNKINDR
-SDRSP081
+SDRSP064
+SDRSP088
+SDRSP220
-UNSYMPAR
-COLDR
+SDRSP212
+INSENSIR
+AFFECTIR
+SDRSP074
-SELFISHR.

CONSCIEN- TIOUSNESS

ORGANIZR
+NEATR
+EFFICIER
+ORDERLYR
+PRECISER
+SDRSP153
+RESPNSR
+SDRSP145
+PERFECTR
+CONSISTR
+THOROUGR
+SDRSP126
+SDRSP137
+SDRSP162
+SDRSP155
+SDRSP128
+SDRSP167
+STEADYR
+CAREFULR
+SDRSP159
+SDRSP164
+PROMPTR
+SDRSP157
+ASSURED
+SDRSP148
+DEPENDAR.

EXTROVERSION

TALKATIR
+SDRSP022
+SDRSP017
+SOCIABLR
+SDRSP015
+VERBALR

+SDRSP028
+SDRSP012
+SDRSP004
+SDRSP020
+SDRSP007
+BOLDR
+SDRSP073
+SDRSP002
-RESERVER
-SDRSP013
-SDRSP024
-TIMIDR
-SDRSP018
-SDRSP006
-UNSOCIAR
-SDRSP026
-WITHDRAR
-BASHFULR
-SDRSP014
-SHYR
-SDRSP010
-SILENTR
-QUIETR.

NEUROTICISM

DEFENSIR
+ENVIOUSR
+FEARFULR
+IRRITABR
+JEALOUSR
+MOODYR
+NERVOUSR
+SDRSP031
+SDRSP034
+SDRSP035
+SDRSP036

¹These 205 traits were extracted from publications by Goldberg (1982,1990,1992).

+SDRSP037	+SDRSP170	+CONTEMPR
+SDRSP038	+SDRSP201	+SDRSP106
+SDRSP039	+SELF_PIR	+SDRSP099
+SDRSP040	+TEMPERAR	+SDRSP095
+SDRSP041	+TOUCHYR.	+SDRSP102
+SDRSP043		+INTROSPR
+SDRSP044		+SDRSP117
+SDRSP045	<u>OPENNESS</u>	+SDRSP100
+SDRSP046		+SDRSP096
+SDRSP052	PHILOSOR	+SDRSP120
+SDRSP053	+SDRSP104	+INVENTIR
+SDRSP054	+DEEPR	+INNOVATR
+SDRSP055	+SDRSP118	+SDRSP105
+SDRSP057	+SDRSP094	+SDRSP114
+SDRSP058	+SDRSP119	+SDRSP101
+SDRSP059	+SDRSP116 -	+COMPLEXR
+SDRSP060	-SDRSP109	+SDRSP108
+SDRSP061		+CREATIVR
+SDRSP070		SDRSP112.
+SDRSP079	+MEDITATR	
+SDRSP146	+SDRSP103	

Cross Validation of Composite Scores

In order to cross-validate the composite scores they were computed for the 1209 subjects, using the weights developed in the 1644-case sample. Then they were correlated with factor scores computed in the 1209-case sample. The results of this analysis are presented below:

Table 2
Cross-Validation of Composite Scores

	Neuroticism Factor (1209- Case Samp.)	Conscient. Factor (1209- Case Samp.)	Agreeable. Factor (1209- Case Samp.)	Extroversion Factor (1209- Case Samp.)	Openness Factor (1209- Case Samp.)
Neuroticism Composite	.94	-.19	-.17	-.15	-.10
Conscient. Composite	-.18	.92	.23	.09	.18
Agreeable. Composite	-.18	.24	.93	.16	.08
Extroversion Composite	-.27	.07	.11	.94	.02
Openness Composite	-.11	.17	.09	.03	.96

All of the composites correlated .92 or above with the factor scores in the 1209-case sample. This is quite respectable. However, when all five composites were included in regression equations, they produced multiple correlations of .98 to .99 against the five factor scores. Thus, essentially all of the variance in the factor scores could be accounted for by the five composite scores. The final results of the cross-validation are presented in the table below:

Table 3

Summary of Cross-Validation Results

Factor Score	Validity of Relevant Composite Score	Multiple Using all Five Composite Scores
Neuroticism	.94	.98
Conscientiousness	.92	.98
Agreeableness	.93	.99
Extroversion	.94	.98
Openness	.96	.99

Development of Conversion Tables

The means and standard deviations of the composite scores are widely varied. They are presented in Table 4 for the sample of 2853 cases:

Table 4
Means and S.D.s for Composite Scores

(The means and standard deviations for each composite (personality factors) are used in the personality assessment instrument available at www.five-factor.com. These values are not reported here)

Intercorrelations Among Composite Scores

Without reference to these data, it would not be possible to compare an individual's scores for the various composites. There is a special problem with the Neuroticism composite, which correlates negatively with the other four composites. For this reason, all of the scores on the neuroticism composite were multiplied by -1.00 and the composite was relabeled as Emotional Stability. The intercorrelations among the five composites in the 2853-case sample are presented in Table 5.

Table 5
Intercorrelations Among the Composite Scores

Correlations:	AGCOMP	CONCOMP	EXTCOMP	OPCOMP	EMOSCOMP
AGCOMP	1.0000	.5501**	.3302**	.2221**	.3740**
CONCOMP	.5501**	1.0000	.2754**	.3487**	.4141**
EXTCOMP	.3302**	.2754**	1.0000	.1184**	.4153**
OPCOMP	.2221**	.3487**	.1184**	1.0000	.1756**
EMOSCOMP	.3740**	.4141**	.4153**	.1756**	1.0000
N of cases:	2853	2-tailed Signif: * - .01 ** - .001			

Note that while the original factor scores were unrelated, there is substantial correlation among some of the composite scores. For example the correlation between Agreeableness and Conscientiousness is .55. Since all of the

composites describe positive characteristics, it is reasonable that this matrix should have positive manifold.

Development of Centile Conversion Tables

Conversion tables were developed and used to convert raw scores into centiles with 5% intervals. These tables are available as Appendix 5.

SUBCOMPOSITE SCORES

An attempt was made to develop subcomposite scores within the various factors. These scores are considered to be experimental at the present time. They represent elements which define the meaning of the Big 5 factors using the particular trait names and behavioral statements in the Self Description Inventory. They may prove to be valuable in prediction studies, but this is yet to be demonstrated.

The subcomposite scores were developed by conducting five separate factor analyses in the 1644-case sample. In each instance, those variables having a loading of .40 or above on the relevant factor were included. The table on the next page shows the titles of the 22 subcomposites which were identified, together with the number of items defining each. These subcomposites were computed in the 1209-case sample and correlated with the subfactors extracted from data in the 1209-case sample. These correlations represent a type of cross-validation. Note that the last column is the multiple correlation of all subcomposites within a factor for a particular subfactor.

Table 7

Titles and Cross-Validation of Sub-Composite Scores

SUBCOMPOSITE	# ITEMS	CORRELATION	MULT. CORR.
Agreeableness			
1. Warm and Sympathetic	6	.82	.96
2. Friendly	5	.83	.96
3. Considerate	5	.82	.96
4. Cold and Insensitive	5	.90	.98
5. Helpful	4	.79	.95
Conscientiousness			
1. Efficient and Dependable	10	.86	.99
2. Hard Working	8	.89	.99
3. Organized	8	.86	.99

Extroversion			
1. Shy and Bashful	10	.87	.99
2. Talkative	5	.84	.97
3. Socially Active	5	.80	.96
4. Assertive	4	.76	.94
5. Unsociable	5	.81	.96
Openness			
1. Philosophical	10	.85	.99
2. Scientific Interest	7	.87	.99
3. Creative	4	.80	.97
4. Reflective	5	.89	.97
5. Cultured	3	.80	.89
Neuroticism			
1. Nervous and Stressed Out	16	.85	.97
2. Worrying	8	.83	.94
3. Irritable	8	.88	.97
4. Envious and Jealous	5	.80	.89

Equations for the 22 Subcomposites

The equations for computing the 22 subcomposites are as follows:

Agreeableness	+SDRSP209	1. <u>Efficient and Dependable</u>
	+SDRSP080	
	+SDRSP208	EFFICIER
	+SDRSP207.	+STEADYR
		+THOROUGH
1. <u>Warm and Sympathetic</u>	4. <u>Cold and Insensitive</u>	+CONSISTR
WARMR	UNKINDR	+RESPNSR
+SYMPATHR	+UNSYMPAR	+DEPENDAR
+AFFECTIR	+INSENSIR	+PROMPTR
+UNDERSTR	+COLDR	+ASSURED
+KINDR	+SELFISHR.	+PRECISER
+GENEROUS.		+CAREFULR .
2. <u>Friendly</u>	5. <u>Helpful</u>	2. <u>Hard Working</u>
SDRSP088	SDRSP064	SDRSP167
+SDRSP215	+SDRSP085	+SDRSP155
+SDRSP066	+SDRSP071	+SDRSP159
+SDRSP084	+SDRSP068.	+SDRSP128
+SDRSP220.		+SDRSP126
		+SDRSP164
3. <u>Considerate</u>	Conscientiousness	+SDRSP162
SDRSP210		+SDRSP137.

3. Organized

SDRSP153
+SDRSP145
+ORGANIZR
+NEATR
+ORDERLYR
+PERFECTR
+SDRSP157
+SDRSP148.

Extroversion

1. Shy and Bashful

SHYR
+BASHFULR
+SDRSP010
+SDRSP014
+TIMIDR
+QUIETR
+SILENTR
+SDRSP006
+RESERVER
+SDRSP026.

2. Talkative

TALKATIR
+SDRSP017
+VERBALR
+SDRSP020
+SDRSP073.

3. Socially Active

SDRSP007
+SDRSP028
+SDRSP015
+SDRSP022
+SDRSP012.

4. Assertive

SDRSP004
+SDRSP002
-SDRSP024

3. Irritable

TEMPERAR
+MOODYR
+TOUCHYR
+IRRITABR

+BOLDR.

5. Unsociable

UNSOCIAR
+SDRSP018
+SDRSP013
+WITHDRAR
-SOCIABLR.

Openness

1. Philosophical

DEEPR
+PHILOSOR
+CONTEMPR
+SDRSP118
+INTROSPR
-SDRSP109
+SDRSP094
+SDRSP105
+SDRSP106
+COMPLEXR.

2. Scientific Interest

SDRSP114
+SDRSP099
+SDRSP116
+SDRSP119
+SDRSP101
+SDRSP095
+SDRSP103.

3. Creative

CREATIVR
+INNOVATR
+INVENTIR
+SDRSP102.

4. Reflective

SDRSP117
+SDRSP104

+SDRSP060
+DEFENSIR
+SDRSP031
+SDRSP070.

+SDRSP100
+SDRSP108
+MEDITATR.

5. Cultured

SDRSP112
+SDRSP096
+SDRSP120.

Emotional Stability

1. Nervous and Stressed Out

SDRSP040
+SDRSP044
+SDRSP046
+SDRSP054
+SDRSP146
+SDRSP053
+SDRSP201
+SDRSP045
+SDRSP058
+SDRSP034
+SDRSP043
+SDRSP037
+SDRSP041
+SDRSP170
+SDRSP052
+SDRSP039.

2. Worrying

SDRSP057
+SDRSP061
+NERVOUSR
+SDRSP038
+SDRSP036
+SDRSP055
+FEARFULR
+SELF_PIR.

4. Envious and Jealous

SDRSP059
+ENVIOUSR

+JEALOUSR
+SDRSP079
+SDRSP035.

Notice in the above table that some of the subfactors are solely defined by behavioral statements, while others are defined by trait names.

Standard Scores for Subcomposites

Means and standard deviations were computed for the subcomposite scores in the 2853-case sample so that they can be used in computing T-scores. These are documented in the Table 8 below:

Table 8

Means and Standard Deviations of Sub-Composite Scores

(The means and standard deviations for each sub-composite score (personality facets) are implemented in the personality assessment instrument available at www.five-factor.com. These values are not reported here.)

OBSERVATIONS FROM SUPPORTING RESEARCH

Below are some observations made during the conduct of research supporting the development of the Self Description Inventory.

1. Use of an appropriate response recording system is important. In the early phases of this research stream, subjects were recording a large number of their responses at the midpoint (zero) level or at one of the extremes (-22 or +22). The scales described in the first part of this paper significantly reduced these tendencies.
2. Unbalanced item selection can distort the factor structure. During the early phases of the research study, only trait names were being used, and there was a large number of items describing the negative side of agreeableness. The results of a factor analysis cleanly defined four factors (conscientiousness, agreeableness, extroversion, and intellect/openness). However, trait names such as harsh, bossy, quarrelsome, argumentative, irritable, bull-headed, grumpy, stubborn, domineering, crabby, cruel, rude, selfish, greedy, demanding,

antagonistic, etc. defined the 5th factor, which was labeled as 'scrooge.' A clean-cut neuroticism factor was not identified. Several types of factor extractions and rotations were tried, but the nature of the factor remained constant. At one stage, individual scores were standardized, but still the nature of the factor remained constant. Finally a large number of the 'scrooge' traits was removed from the study and a relatively clean-cut neuroticism factor emerged.

3. The vocabulary problem is a serious one. Early in the research study it was determined that problems were being introduced by the use of trait names which many of the subjects did not understand. This was demonstrated by traits which ended up on the wrong factors and by a substantial correlation between the Intellect/openness factor and the ASVAB vocabulary and paragraph comprehension tests (.58). In a separate survey many individuals in an airmen sample admitted that they did not know the meaning of words such as cordial, inquisitive, perceptive, conscientious, contemplative, foresighted, innovative, etc. There was a tendency for such individuals to record a zero response to such items. This is probably more of a problem with the airmen sample than it is with college students, who normally participate in studies on the Big 5. At one phase, separate factor analyses of trait ratings were conducted for the upper half and the lower half of an airmen sample, based on their ASVAB vocabulary scores. In the lower ability group, the intellect/openness factor completely disappeared, with all of the terms normally defining it ending up with their highest loadings on the other factors. In the present form of the Self-Description Inventory an attempt is made to overcome this problem by providing definitions of the more difficult terms.

4. There has been a tendency for investigators using trait names to label one of the factors as 'Intellect' or 'intellectual' while investigators using behavioral statements tend to label this factor as 'openness.' The present study suggests that this is due to the nature of the items used. Behavioral statement inventories often include items which would be difficult to define with individual trait names. For example, one can include statements relating to interests in the arts, ballet, opera, reading, etc. Beyond the term 'cultured', it would be difficult to identify a series of individual terms which would cover this territory. Also, some inventories have included trait terms such as 'bright', 'smart' and 'intellectual.' Such terms produce a factor which might be called 'intellect.' In the early phases of this research program, this factor was identified and it correlated significantly with the ASVAB ability measures. Most of these terms fell by the wayside as research progressed, and the final factor identified from data collected with the Self Description Inventory is more appropriately labeled as 'openness' rather than 'intellect.'

5. In the early phases of this research there was a tendency to include trait names which were bipolar. For example the early inventory included the trait names uncreative, creative, undemanding, demanding, unemotional, emotional, unimaginative, imaginative, unsophisticated, sophisticated. In the series of

studies conducted, most of the negative terms were removed because they had low loadings on the factors. They also required longer times for responses. Tupes and Kaplan (1961) found that the same factor structure in peer ratings could be obtained using socially acceptable, socially unacceptable, or bipolar trait names. The final Self-Description inventory includes opposite terms where they are needed and where they produce substantial factor loadings (such as the terms measuring extroversion and introversion), but otherwise there was no effort made to balance negative and positive terms.

REFERENCES

- Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, **44**(1), 1-26.
- Goldberg, L. R. (1982). From ace to zombie: Some explorations in the language of personality. In C. D. Spielberger & J. N. Butcher (Eds.), *Advances in personality assessment* (Vol. 1, pp. 203-234). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Goldberg, L. R. (1990). An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology*, **59**(6), 1216-1229.
- Goldberg, L. R. (1992). The development of markers of the Big-Five factor structure. *Psychological Assessment*, **4**, 26-42.
- McHenry, J.J., Hough, L. M., Toquam, J.L., Hanson, M. A., & Ashworth, S. (1990). Project A validity results: The relationship between predictor and criterion domains. *Personnel Psychology*, **43**, 335-354.
- Norman, W. T. (1967) *2800 personality trait descriptors: Normative operating characteristics for a university population*. Ann Arbor: Department of Psychology, University of Michigan.
- Ones, D. S., Viswesvaran, C. & Schmidt, F. L. (in press). Meta-Analysis of Integrity test validities. *Journal of Applied Psychology*.
- Sackett, P. R., Burris, L. R. , & Callahan, C. (1989). Integrity testing for personnel selection: an update. *Personnel Psychology*, **42**, 491-529.

Appendix 1

Through a series of factor analyses, Dr. Goldberg came up with a list of 100 marker traits, which he felt yielded a good definition of the Big 5 structure. These marker traits are listed below.

1	Active	32	Helpful
2	Agreeable	33	High-strung
3	Anxious	34	Imaginative
4	Artistic	35	Imperceptive
5	Assertive	36	Imperturbable
6	Bashful	37	Impractical
7	Bold	38	Inconsistent
8	Bright	39	Inefficient
9	Careful	40	Inhibited
10	Careless	41	Innovative
11	Cold	42	Insecure
12	Complex	43	Intellectual
13	Conscientious	44	Introspective
14	Considerate	45	Introverted
15	Cooperative	46	Irritable
16	Creative	47	Jealous
17	Daring	48	Kind
18	Deep	49	Moody
19	Demanding	50	Neat
20	Disorganized	51	Negligent
21	Distrustful	52	Nervous
22	Efficient	53	Organized
23	Emotional	54	Philosophical
24	Energetic	55	Pleasant
25	Envious	56	Practical
26	Extroverted	57	Prompt
27	Fearful	58	Quiet
28	Fretful	59	Relaxed
29	Generous	60	Reserved
30	Haphazard	61	Rude
31	Harsh	62	Self-pitying

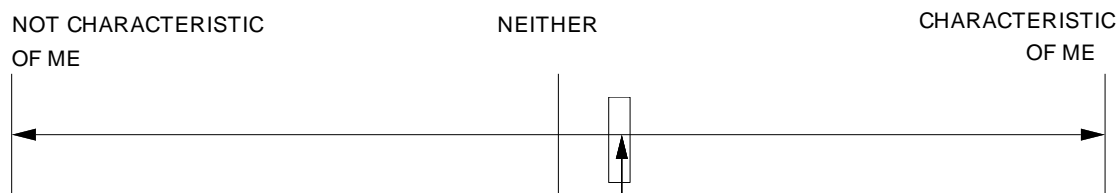
63	Selfish	92	Unrestrained
64	Shallow	93	Unsophisticated
65	Shy	94	Unsympathetic
66	Simple	95	Unsystematic
67	Sloppy	96	Untalkative
68	Steady	97	Verbal
69	Sympathetic	98	Vigorous
70	Systematic	99	Warm
71	Talkative	100	Withdrawn
72	Temperamental		
73	Thorough		
74	Timid		
75	Touchy		
76	Trustful		
77	Unadventurous		
78	Uncharitable		
79	Uncooperative		
80	Uncreative		
81	Undemanding		
82	Undependable		
83	Unemotional		
84	Unenvious		
85	Unexcitable		
86	Unimaginative		
87	Uninquisitive		
88	Unintellectual		
89	Unintelligent		
90	Unkind		
91	Unreflective		

Appendix 2

DEVELOPMENT OF RATING SCALES

From the beginning it was planned that the Big 5 inventory would be administered using a mouse for answer entry. Several mouse-entry formats were subjectively evaluated and the one selected for the first administration consisted of a simple straight horizontal line, divided in the middle and bounded on the ends with short horizontal vertical lines. One end was labeled "UNCHARACTERISTIC OF ME" while the other end was labeled "CHARACTERISTIC OF ME." The subject was instructed to record his or her entry by moving the mouse cursor to an appropriate position on the line and pressing the left mouse button.

During the administration of the Big 5 Personality Inventory using the above scale, many subjects were observed who rated most items at the extreme right or left of the centerline. Answers were entered by sliding the mouse along a horizontal line and pressing the mouse button to record the answer. When the mouse button is pressed, a narrow rectangle appears on the line, indicating the point at which the answer was recorded. The rough drawing below shows the answer line, the mouse arrow, and the rectangle indicating that the answer was recorded when the button was pressed:

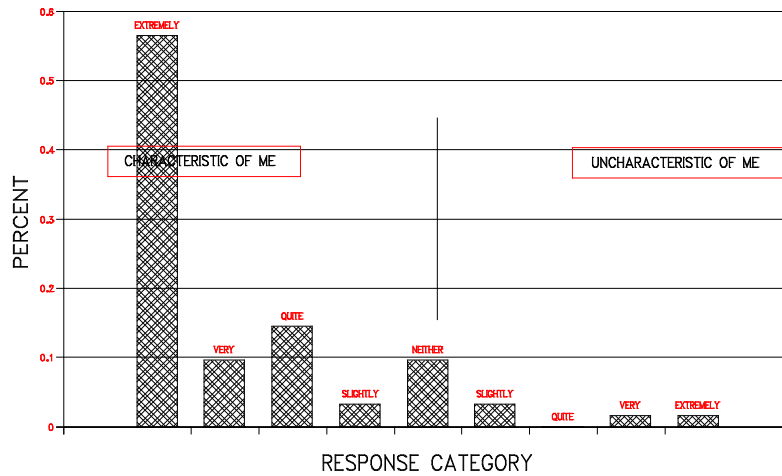


It was hypothesized that extreme ratings were obtained because only the extreme anchors were defined. For this reason, the answer bar was changed to look something like below:

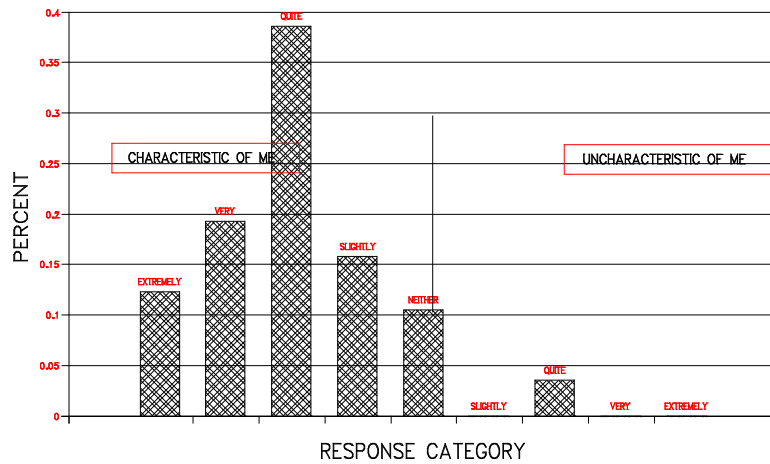


The Big 5 Inventory with the new scale was administered to a small sample of subjects to see if the tendency toward using extreme ratings would be reduced. Fortunately, the revision had the desired effect. There appears to be tendency for subject to use only the defined intervals.

RESPONSE DISTRIBUTION--OLD ITEM #6



RESPONSE DISTRIBUTION--NEW SCALE ITEM #6



The above item is typical of those found for positive trait adjectives. It was concluded that the new scale was superior in terms of obtaining more realistic and believable responses.

Development of the Final Scale.

When using the rating scale, about 38% of the subjects rated themselves at the zero point or at one of the two extremes on at least 30% of the traits. This was believed to be at least partially due to the ease of recording these particular responses. If one simply presses the button when a trait is presented, a zero response is recorded. On the other hand, if the mouse is slid hard to the right or the left, the cursor automatically stops at the extreme points of the scale, making

it easy to record these levels. It was noted that at least part of the zero responses could have been due to vocabulary deficiencies. If a subject does not know the meaning of a trait term, the safest action is simply to rate it at the zero point. The number of zero responses correlated .38 with verbal ability as measured by a combination of the Word Knowledge and the Paragraph Comprehension tests in the ASVAB. On the other hand, there was no correlation between verbal level and the number of ratings recorded at the extremes.

Two successive changes were made in the rating procedures that were designed to alleviate these problems. First, the ends of the scale were unlocked. Thus when the subject slides the mouse marker hard to the right or to the left, the marker goes off the scale and no response can be recorded until the marker is moved back onto the scale and the button pressed. The hope was that this would reduce the tendency for subjects to record extreme responses. The 205 trait list was administered to 106 airmen subjects using this new scale. Second, the matter of reducing the number of zero responses was addressed by a new type of rating scale presentation. This new scale has the following characteristics:

1. The mouse marker is in a neutral position when each item comes up. If the mouse button is pressed, there is no response recorded. The subject must move the mouse into an answer area before pressing the button.
2. The answer area is in the form of a semi-circle, such that the area for any point of the scale is approximately equi-distant from the beginning position of the mouse marker.
3. Marking any point in the answer scale (which is in the form of the semi-circle band) is as easy as marking any other point.

Figure 1.0, below provides a graphic display of the final scale:

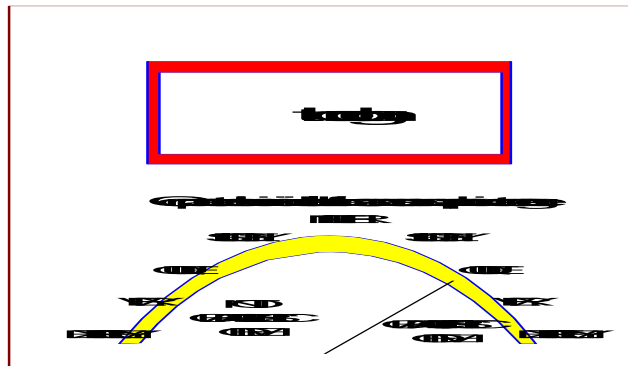


Figure 2.0 Scale for Trait Ratings

The three scales were administered to independent samples. The original scale was administered to 715 subjects, a combination of AFROTC students and airmen. The second scale, with the extremes unlocked, was administered to 106 subjects. The third scale, as described above, was administered to 156 airmen. The table below indicates the percentages of zero and extreme responses obtained with these three scales:

SAMPLE/SCALE	MEAN ZERO	S.D. ZERO	MEAN EXTR.	S.D EXTR.	MEAN TOT.	S.D. TOT.
715 CASES HORZ.SCALE--CLOSED ENDS	24.68	24.88	32.68	31.96	57.28	36.67
106 CASES HORZ. SCALE--OPEN ENDS	20.68	17.42	11.06	14.62	31.92	21.19
263 CASES ARCH SCALE-OPEN ENDS	16.68	15.26	11.97	16.05	28.65	20.71

From data in the above table, one would conclude that each of the successive scale changes reduced the number of zeros and the unlocking of extremes reduced the number of extreme responses. Note that all three scales, including the one finally selected, consisted of 45 points.

There was concern that some individuals might spend a great deal of time before responding to items in the inventory. As a method encouraging slow individuals to speed up, a message was designed to appear after every 10 items on which the individual took more than 100 seconds (an average of 10 seconds per item). It states "TOO LONG!!! ENTER YOUR FIRST IMPRESSION. WORK FASTER!!." The hope was that this would speed up answer entry so that all individuals would complete the inventory in less than 30 minutes.

Appendix 3

AIRMEN KNOWLEDGE OF TRAIT NAMES

As mentioned previously, there may have been a vocabulary problem which affected the solutions reported in the military sample, which was made up of enlisted personnel. Below is a list of traits which correlated at least negative or positive .15 with a combination of the ASVAB Vocabulary and Paragraph Comprehension tests:

CORDIAL	0.4001	UNREFLEC	-0.1654
INQUISIT	0.3939	UNFORGIV	-0.1657
PERCEPTI	0.3155	RASH	-0.1713
METICULO	0.2895	SUBMISSI	-0.1718
CONSCIEN	0.2758	SUGGESTI	-0.1726
CONTEMP	0.2564	WISHY_W	-0.1778
FORESIGH	0.2523	DEFENSIV	-0.1782
INNOVATI	0.2521	UNAMBITI	-0.1791
DECISIVE	0.2455	EGOCENTR	-0.1815
INTROSPE	0.2372	JEALOUS	-0.1936
SELF_CRI	0.2312	ANXIOUS	-0.1939
VIGOROUS	0.2249	ENVIOUS	-0.1952
PUNCTUAL	0.218	IMPRACTI	-0.196
SMART	0.213	GULLIBLE	-0.2078
INTELLIG	0.2126	NEGLIGEN	-0.2146
PURPOSEF	0.2	HAPHAZAR	-0.2178
ASSERTIV	0.1948	COMBATIV	-0.2228
INDUSTRI	0.1943	INEFFIC	-0.2229
DEEP	0.1937	SIMPLE	-0.2274
COMPLEX	0.1897	ERRATIC	-0.2436
CONCISE	0.1822	ANTAGON	-0.2442
PRACTICA	0.1773	SHALLOW	-0.2619
OPTIMIST	0.164	IMPERCEP	-0.2746
PHILOSOP	0.1618	IMPERSON	-0.275
SCATTERB	-0.1615	UNINQUIS	-0.2813
QUARRELS	-0.1637	VINDICTI	-0.3003
UNSYMPAT	-0.1637		

Notice in the above table that the word 'cordial' correlated .40 with the verbal ability measure, while the word 'conscientiousness' correlated .28 with this measure. In fact, many of the variables loaded on the 'Intellect' factor had significant correlations with the verbal composite. This is partly because some airmen did not know the exact meaning of the terms, and partly because the underlying factor is related to perceived intelligence. Overall, Factor V factor scores correlated .58 with the verbal factor score (combwkpc), as shown in the table below:

Correlations of Factors with Various ASVAB Scores

FACTOR	NAME	AFQT	GEN AI	COMBWKPC
--------	------	------	--------	----------

I	SCROOGE-			
	DISAGREEABLNESS	-.23	-.19	-.20
II	DEPENDABILITY	-.10	-.11	-.14
III	INTROVERSION	-.09	-.09	-.07
IV	AGREEABLENESS	-.08	-.10	-.08
V	INTELLECT-			
	OPENNESS	.45	.47.	.58

IMPACT OF WORD KNOWLEDGE ON FACTOR STRUCTURE

As mentioned above, one problem with obtaining self ratings on the 205 trait list is that some subjects do not know the meaning of some of the trait names used. In order to determine more precisely the magnitude of this problem, the trait list was administered to 78 subjects using a three-point scale as follows:

1. Don't know the meaning
2. Not sure I know the meaning
3. Definitely know the meaning

Below are listed the 205 traits in ascending order on the mean scale values:

EXTROVER	2.36	UNRESTRA	2.77
INTROSPE	2.46	PHILOSOP	2.78
EGOCENTR	2.53	SMUG	2.78
DOMINEER	2.6	ZESTFUL	2.78
UNINHIB	2.6	INSIGHTF	2.79
CORDIAL	2.62	LENIENT	2.81
HAPHAZAR	2.62	PESSIMIS	2.81
INTROVER	2.63	RESTRAIN	2.81
INHIBIT	2.64	VIGOROUS	2.81
MEDITATI	2.65	HIGH_ST	2.82
UNINQUIS	2.65	SCATTERB	2.82
ANTAGON	2.67	SUBMISSI	2.83
CONTEMP	2.67	TIMID	2.83
FRIVOLOU	2.67	UNOBSERV	2.83
INQUISIT	2.67	INDUSTRI	2.85
UNSYSTEM	2.68	THRIFTY	2.86
METICULO	2.69	COMBATIV	2.87
UNREFLEC	2.69	NAIVE	2.87
IMPERCEP	2.71	OPTIMIST	2.87
CONCISE	2.72	RASH	2.87
FORESIGH	2.72	UNCHARIT	2.87
VINDICTI	2.72	ABSENT_M	2.88
ERRATIC	2.74	ASSERTIV	2.88
FRETFUL	2.74	IMPERSON	2.88
INNOVATI	2.74	INVENTIV	2.88
CONSCIEN	2.76	PERCEPTI	2.88

PURPOSEF	2.88	ASSURED	2.94
SELF_CRI	2.88	BASHFUL	2.94
UNAMBITI	2.88	DISTRUST	2.94
WISHY_W	2.88	EFFICIEN	2.94
BULLHEAD	2.9	EMOTIONA	2.94
COMPLEX	2.9	ENVOIOUS	2.94
CRABBY	2.9	GREEDY	2.94
CULTURED	2.9	GRUMPY	2.94
FAULTFIN	2.9	HARSH	2.94
FORMAL	2.9	INCON SIS	2.94
HAPPY_GO	2.9	INEFFIC	2.94
NEGLIGEN	2.9	INSENSIT	2.94
PUNCTUAL	2.9	MANNERLY	2.94
QUARRELS	2.9	PASSIVE	2.94
THOROUGH	2.9	PERSIST	2.94
UNCRITIC	2.9	SNOBBISH	2.94
UNSTABLE	2.9	SOPHISTI	2.94
AGREEAB	2.91	SPIRITED	2.94
CONCEIT	2.91	STEADY	2.94
DEEP	2.91	WARM	2.94
GULLIBLE	2.91	ABUSIVE	2.95
SHALLOW	2.91	CRANKY	2.95
SUGGESTI	2.91	DECISIVE	2.95
UNDEMAND	2.91	DISORGAN	2.95
UNIMAGIN	2.91	FORCEFUL	2.95
UNSYMPAT	2.91	IMAGINAT	2.95
WORDY	2.91	INSECURE	2.95
AFFECTIO	2.92	KIND	2.95
ARGUMENT	2.92	POLITE	2.95
BOLD	2.92	PRACTICA	2.95
COURTEO	2.92	SILENT	2.95
DULL	2.92	SOCIABLE	2.95
IMPRACTI	2.92	SYMPATHE	2.95
MOODY	2.92	TOUCHY	2.95
ORDERLY	2.92	UNCREAT	2.95
PLEASANT	2.92	UNDEPEND	2.95
PRECISE	2.92	UNDERSTA	2.95
PREDICTA	2.92	UNEMOTIO	2.95
RESERVED	2.92	UNPREDIC	2.95
SELF_PIT	2.92	ANXIOUS	2.96
SLUGGISH	2.92	ARTISTIC	2.96
TEMPERAM	2.92	BOSSY	2.96
UNADVENT	2.92	CARELESS	2.96
UNEXICIT	2.92	CONSISTE	2.96
UNSOCIAB	2.92	COOPERA	2.96
UNSOPHIS	2.92	CREATIVE	2.96
VERBAL	2.92	DEPENDA	2.96

EASYGOIN	2.96	IMPOLITE	2.99
ECONOMIC	2.96	PROMPT	2.99
FEARFUL	2.96	RESPONSI	2.99
IGNORANT	2.96	SLOPPY	2.99
INTELLIG	2.96	SMART	2.99
IRRITABL	2.96	UNFORGIV	2.99
JEALOUS	2.96	UNKIND	2.99
NEAT	2.96	CHEERFUL	3.00
PATIENT	2.96	HELPFUL	3.00
PERFECTI	2.96	LAZY	3.00
RELIABLE	2.96	NERVOUS	3.00
RUDE	2.96	SELFISH	3.00
STUBBORN	2.96		
TALKATIV	2.96		
UNCOOPER	2.96		
UNRELIAB	2.96		
UNTALKAT	2.96		
CONFIDEN	2.97		
CONSIDER	2.97		
CRUEL	2.97		
DARING	2.97		
DEMANDIN	2.97		
ENERGETI	2.97		
FORGETFU	2.97		
FRIENDLY	2.97		
GENEROUS	2.97		
ORGANIZE	2.97		
PROUD	2.97		
QUIET	2.97		
REASONA	2.97		
RELAXED	2.97		
RESPECTF	2.97		
SHY	2.97		
SIMPLE	2.97		
SUSPICIO	2.97		
TRUSTFUL	2.97		
WITHDRAW	2.97		
ACTIVE	2.99		
ADVENTUR	2.99		
BRAVE	2.99		
BRIGHT	2.99		
CAREFREE	2.99		
CAREFUL	2.99		
CAUTIOUS	2.99		
COLD	2.99		
DEFENSIV	2.99		
ENTHUSIA	2.99		

Several observations can be made concerning the above list. First, one of the factors in the Big 5 is often listed as being extroversion. Since fewer individuals know the meaning of this word than any other word in the list, it is not likely to be the highest defining word on the factor. The same can be said of the word introversion. A second factor in the Big 5 is often called conscientiousness. This word is not known by a significant number of airmen, and again, it is unlikely to have a high loading on the factor. The most important observation that can be made from the above list is related to Factor V, which is often labeled as being 'Intellect'. A number of words which are designed to measure this factor are not known to a significant number of airmen. This includes words such as introspective, meditative, uninquisitive, contemplative, inquisitive, unreflective, imperceptive, foresighted, innovative, philosophical, and insightful. There are so many of the Factor V words toward the top of the above list, that it was hypothesized that the factor would be poorly defined by the total sample, and perhaps not defined at all if one were to use only those subjects who scored low on verbal ability. In order to test this hypothesis, a 952 airmen sample was divided into three subsamples based on an average of their ASVAB Word Knowledge and Paragraph Comprehension test scores, as follows:

1. upper 265 cases (approximately the upper quartile).
2. upper 494 cases (approximately the upper half).
3. lower 458 cases (approximately the lower half).

Three factor analyses were computed, one each using the above samples. The results of the first one, using those individuals in the upper quartile, are presented below:

Factor Analysis of Upper Quartile

265 CASES WITH HIGHEST COMBWKPC SCORES

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
IRRITABL	.68281	-.12032	.11394	-.13185	-.07441
QUARRELS	.67677	-.12613	-.00018	-.05175	-.07806
HARSH	.67546	.01565	-.09796	-.18809	-.06732
BOSSY	.65377	.04939	-.19733	-.09965	.01568
CRABBY	.65334	-.18547	.22130	-.16978	-.05595
GRUMPY	.63718	-.17651	.21564	-.15322	-.05229
ARGUMENT	.59332	-.09746	-.08712	.01735	.03703
CRANKY	.59055	-.20460	.21943	-.21086	-.07060
MOODY	.57200	-.06642	.26220	-.05349	-.07693
SELFISH	.56781	-.21312	.13066	-.21363	.06937
CRUEL	.56742	-.15455	.04026	-.32138	-.02032
ANTAGON	.56540	-.12445	.01284	.04389	-.15521
JEALOUS	.55841	-.07744	.05962	.01557	-.09742
ERRATIC	.55305	-.28937	.08673	.12186	-.05937
STUBBORN	.54801	-.04438	.09871	-.04146	.15689
TOUCHY	.54496	-.10935	.13996	-.02902	-.04356
VINDICTI	.53938	-.13545	-.06374	-.01565	-.05900
RASH	.53393	-.13441	-.03277	-.05582	.00020
BULLHEAD	.52585	-.00374	-.01207	-.02721	.13411
TEMPERAM	.51656	-.03614	.10647	-.05771	-.13111
UNFORGIV	.51456	-.08851	.04332	-.11388	-.06169

DOMINEER	.51261	.13343	-.27465	.03870	.12291
RUDE	.51077	-.22328	-.01447	-.10827	-.17187
HIGH ST	.50589	-.00181	.01620	.02505	.08536
GREEDY	.50411	-.20988	.07935	-.13274	.03426
EGOCENTR	.50010	.02036	-.17642	-.13358	.10621
DEMANDIN	.49995	.31301	-.12438	-.04399	.06063
COLD	.49744	-.13280	.13054	-.33734	.01912
ABUSIVE	.49666	-.22729	.00436	-.14154	-.13627
ENVOIOUS	.49187	-.18591	.22185	.00146	-.10034
DEFENSIV	.48286	-.03042	.21614	.05991	.12531
UNKIND	.48211	-.15574	.05765	-.38144	-.18643
FAULTFIN	.48145	.05318	.01670	-.03844	.01301
FORCEFUL	.47687	.13537	-.13561	-.07706	.14090
COMBATIV	.47655	.09760	-.09838	-.12650	-.04715
SELF PIT	.45801	-.35186	.28367	-.02416	-.07121
IMPOLITE	.44623	-.28367	.14905	-.30613	-.17479
ABSENT M	.44128	-.42764	.24034	.12716	.03617
UNCOOPER	.43667	-.34681	.06529	-.20174	.00315
SMUG	.43632	-.15996	.10036	-.14856	.00597
IGNORANT	.43082	-.33139	.11752	-.00143	-.14822
SNOBBISH	.42851	-.13059	-.07196	-.23698	.10253
CONCEIT	.42823	-.03153	-.09163	-.09708	.21433
FRETFUL	.41948	-.23110	.37666	-.01739	-.06233
INSENSIT	.41745	-.16009	.13823	-.40621	-.17115
SUSPICIO	.41320	.00118	.11560	-.01831	-.01633
PATIENT	-.41308	.14207	.09373	.32953	.15077
HAPHAZAR	.40952	-.30780	.18375	-.00001	-.14265
UNPREDIC	.39917	-.18865	-.00942	.00476	.14246
ANXIOUS	.37342	.02431	.10509	.20332	.01823
UNSTABLE	.36532	-.33091	.31000	-.19325	-.08789
UNSYMPAT	.36250	-.03320	.04656	-.32382	-.06503
SHALLOW	.35913	-.19289	.13484	-.08628	-.31766
PESSIMIS	.35486	-.16278	.32826	-.16875	-.02164
IMPERSON	.34083	-.12318	.26876	-.24860	-.09950
UNOBSERV	.32614	-.28863	.26864	-.01838	-.21664
FRIVOLOU	.32038	-.24375	.05973	.14134	.01180
UNCHARIT	.31729	-.07955	.24973	-.24199	-.02941
UNCRITIC	-.23646	-.21778	.08327	.11131	-.08242
UNREFLEC	.23121	-.11694	.09692	-.14791	-.22119
UNINHIB	.18820	-.04781	-.15955	.06388	.02481
NEAT	-.12891	.67321	.04615	.18286	-.06238
ORGANIZE	-.16794	.67132	.00355	.10785	-.01945
CONSISTE	-.16428	.66037	-.12587	.14004	.10115
EFFICIEN	-.06709	.65977	-.15246	.07966	.10353
DEPENDA	-.12730	.65346	-.04661	.23363	.16853
PRECISE	.00828	.62529	-.05084	.12485	.23473
RESPONSI	-.04069	.62059	-.09629	.20548	.12255
SLOPPY	.37125	-.60063	.12134	-.00600	.12149
DISORGAN	.33116	-.57670	.03402	.06517	.06150
ORDERLY	-.23949	.57507	.02267	.06086	.12939
CAREFUL	-.25835	.57396	.11348	.21219	-.00399
PUNCTUAL	-.00007	.57203	-.09712	.00198	.16550
LAZY	.36187	-.56798	.18095	.04847	.05607
STEADY	-.27145	.53719	-.12168	.13107	.08902
CONCISE	-.08436	.53242	-.02400	.16099	.23972
THOROUGH	-.06837	.52982	-.13512	.16588	.24497
INCONSIS	.30565	-.52496	.16163	-.04792	-.08388
RELIABLE	-.13793	.51853	-.05748	.15260	.09266
PROMPT	.01854	.51637	-.16115	.06545	.09356
PRACTICA	-.14001	.51325	.08622	.20640	.19483
CARELESS	.42235	-.49972	.07391	.02883	-.12789
ENERGETI	-.05070	.49247	-.32080	.36112	-.03481
SLUGGISH	.33200	-.48762	.36718	.06046	-.04800
FORGETFU	.39849	-.47886	.28389	.09700	-.03798
INDUSTRI	.05933	.47198	-.02341	.16560	.16465
UNSYSTEM	.25143	-.46786	.12140	.03909	-.08827
METICULO	.01028	.46779	.01826	.06246	.16364
NEGLIGEN	.35670	-.46688	.11302	.03418	-.13379
UNRELIAB	.36787	-.45839	.14769	-.08844	-.10991
DECISIVE	-.13967	.45580	-.25650	.10872	.29781
RESPECTF	-.15712	.45457	.05523	.38533	.20802
INEFFIC	.36611	-.45424	.21173	-.04880	-.06369
PURPOSEF	-.17943	.45170	-.21617	.16393	.26851
IMPRACTI	.33714	-.44998	.07171	-.00325	-.15181
PERFECTI	.05025	.44400	-.01517	.19623	.25087
ACTIVE	-.07268	.44156	-.34163	.32595	-.07733

ECONOMIC	.04655	.42830	.02922	.10388	.06831
VIGOROUS	-.01516	.42395	-.24803	.19143	.08274
PERSIST	.08053	.42186	-.18386	.09763	.34399
SCATTERB	.38238	-.42074	.21679	.03986	.01023
FORMAL	-.03526	.40757	-.08597	.19617	.15524
WISHY_W	.26277	-.39974	.31075	.14114	-.10116
BRAVE	-.01595	.39275	-.32860	.19957	.02559
PROUD	.04474	.39157	-.21621	.23761	.08438
PERCEPTI	-.10711	.38810	-.19142	.14176	.32109
COOPERA	-.21345	.38668	.00291	.26086	.02452
UNDEPEND	.32449	-.38658	.21886	.03276	-.02857
GULLIBLE	.24707	-.36980	.33474	.14247	-.13310
THRIFTY	.01499	.31349	.00388	.04861	-.02566
UNDEMAND	-.20796	-.29669	.24107	.10563	-.08083
CAUTIOUS	-.03276	.28962	.26495	.16896	.12554
CONSCIEN	-.21178	.26530	.08228	.17939	.25038
TIMID	.14197	-.10716	.70516	.03458	-.18101
SHY	.06518	-.08375	.69189	.01892	-.06167
WITHDRAW	.23641	-.13648	.67667	-.20483	.00647
SILENT	-.03235	-.03440	.67366	-.12172	.00173
QUIET	-.04586	.08875	.65373	-.07508	-.02288
BASHFUL	.07014	-.17609	.63129	.06160	-.11605
UNSOCIAB	.21092	-.13763	.61580	-.23981	.01880
SOCIABLE	-.06156	.16925	-.60125	.43310	.10547
UNTALKAT	.01686	-.09218	.57316	-.26289	-.07079
INTROVER	.08944	-.03394	.55771	-.10449	.00428
INSECURE	.37279	-.27859	.55619	-.01357	-.00732
RESERVED	-.04115	.08585	.54033	.04745	.10409
NERVOUS	.35699	-.18056	.53773	.10517	-.09899
CONFIDEN	-.13456	.39612	-.53009	.23795	.03206
BOLD	.20676	.26582	-.52826	.12529	.17851
EXTROVER	.10663	-.09836	-.51792	.16234	.05087
SUBMISSI	.27679	-.12277	.49825	.15638	-.13146
TALKATIV	.19850	.03881	-.46978	.31003	.16954
VERBAL	.33601	.04758	-.46454	.07402	.31049
ASSURED	-.19581	.37760	-.45629	.08519	.13797
DULL	.23495	-.25158	.45584	-.17477	-.09918
UNAMBITI	.19028	-.29835	.45040	-.04598	-.15775
PASSIVE	.09460	-.22310	.44963	.16647	-.06676
FEARFUL	.27681	-.19230	.44823	.12301	-.08646
ASSERTIV	.01098	.42447	-.43349	.18990	.18704
ZESTFUL	.01429	.22797	-.39284	.24446	.25721
DARING	.23451	.22250	-.38833	.26497	.14910
RESTRAIN	-.05152	.06661	.36316	-.03407	.04857
NAIVE	.22702	-.35087	.36256	.14330	-.08248
UNADVENT	.13763	-.19675	.32628	-.20274	-.09245
OPTIMIST	-.21386	.23593	-.32217	.26761	.21378
UNEXICIT	.02842	-.15362	.30329	-.26585	.08070
INHIBIT	.11889	-.06091	.29206	.06107	-.09213
UNRESTRA	.21900	-.18063	-.26440	.02381	-.03546
PREDICTA	-.09429	.05561	.25853	.01617	-.19165
FRIENDLY	-.21170	.23333	-.19322	.66541	.21930
SYMPATHE	-.22458	.14612	.06238	.57674	.17246
UNDERSTA	-.21205	.34547	-.03530	.56398	.08192
CONSIDER	-.31023	.40392	-.02868	.56012	.20162
HELFUL	-.23527	.30772	-.10080	.55291	.06019
COURTEO	-.21417	.35675	-.04675	.55081	.24130
AFFECTIO	-.06135	.12337	-.11220	.54779	.20308
WARM	-.16947	.16670	-.10415	.54595	.21048
CHEERFUL	-.09129	.27371	-.40411	.54505	.12553
PLEASANT	-.30140	.29038	-.12463	.52472	.22556
HAPPY_GO	.00749	-.07332	-.16752	.51100	.02463
EASYGOIN	-.11273	.02393	.02817	.48319	-.05834
ENTHUSIA	-.06543	.39241	-.46444	.48209	.14119
SPIRITED	.01681	.23625	-.31710	.47231	.23852
KIND	-.30827	.23279	.01663	.46483	.12828
AGREEAB	-.28776	.08045	-.00134	.45582	.03849
POLITE	-.28863	.28535	-.08797	.44979	.21966
GENEROUS	-.20270	.15530	-.19936	.42015	.17797
REASONA	-.16859	.20406	-.06246	.39251	.26721
RELAXED	-.20853	.10967	-.29264	.37248	.11155
EMOTIONA	.18354	.02041	.10825	.36663	.03995
MANNERLY	-.19565	.30619	-.10880	.35305	.22892
CAREFREE	.13745	-.17031	-.14488	.34172	.01957
LENIENT	.09477	-.07349	.09988	.32424	-.06596
TRUSTFUL	-.11188	.23516	.01020	.31677	-.08076

UNEMOTIO	.10090	-.01958	.16954	-.31072	-.00955
DISTRUST	.27187	-.22379	.11588	-.29183	.21061
ADVENTUR	.10123	.24210	-.27452	.29078	.13917
SUGGESTI	.09915	.03139	.03527	.23614	-.07513
PHILOSOP	.06306	.01642	-.04308	.06219	.55032
CREATIVE	-.07358	.21937	-.12340	.19914	.53937
INTROSPE	.06766	.03178	.12337	-.06933	.53712
DEEP	.06178	.13547	-.02686	.09843	.52887
BRIGHT	-.05969	.33796	-.21325	.23472	.50579
INQUISIT	-.06916	.15458	-.14201	.05516	.49652
IMAGINAT	-.01857	.16966	-.03206	.10912	.47982
INTELLIG	.01381	.28678	-.13446	.09422	.46884
UNIMAGIN	.24586	-.11910	.09413	-.08128	-.44052
INNOVATI	.02294	.35139	-.15479	.21926	.44025
CULTURED	.06329	.19673	-.17247	.13599	.42708
UNCREAT	.28615	-.17786	.12221	-.12346	-.42494
FORESIGH	.03067	.29431	-.05284	.08146	.42327
COMPLEX	.23418	-.10007	-.06399	-.10519	.42321
CONTEMP	-.05564	.00674	.17666	.00406	.41934
INVENTIV	.06079	.33883	-.05589	.07154	.41466
SMART	-.00554	.24504	-.24523	.04514	.40763
MEDITATI	.00521	-.09442	.13274	-.01736	.38316
WORDY	.33887	-.10783	-.17701	.07735	.35092
UNINQUIS	.13925	-.08605	.15299	-.02246	-.35010
SOPHISTI	.00538	.27934	-.24982	.09640	.34872
INSIGHTF	.03380	.15256	-.01235	.07386	.34557
ARTISTIC	-.03699	-.01770	-.08166	.07348	.34287
SIMPLE	-.05302	-.03921	.27800	.10547	-.32324
SELF_CRI	.25061	.14562	.09828	-.07015	.27770
UNSOPHIS	.23840	-.20056	.25176	-.01237	-.27571
IMPERCEP	.23663	-.17983	.21453	.01941	-.25418
CORDIAL	-.09689	.20679	-.11078	.11201	.22011

This appears to be a very clear solution, with a well defined 'Intellect-Creative-Openness' factor defined by traits such as philosophical, creative, introspective, deep, bright, inquisitive, imaginative, intelligent, innovative and cultured.

The second solution is using the upper 494 subjects, which is approximately the upper half of the distribution. These results are presented below.

Factor Analysis of Upper Half

494 CASES WITH HIGHEST COMBWKPC SCORES

Varimax Rotation 1, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 11 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
QUARRELS	.63697	-.10897	-.08115	-.01732	-.05982
GRUMPY	.63551	-.19688	-.11246	.15945	.05462
CRANKY	.61278	-.20465	-.07999	.15502	.05815
HARSH	.61005	.05810	-.24424	-.02616	.06010
IRRITABL	.59790	-.12889	-.10687	.07148	.09734
CRUEL	.59347	-.04259	-.26200	.05318	-.08057
CRABBY	.59235	-.19541	-.15568	.15367	.10303
RUDE	.59109	-.12307	-.20233	.02568	-.07716
ARGUMENT	.57378	-.09678	-.04395	-.12660	.07500
MOODY	.55996	-.15990	-.05905	.17423	.08853
BOSSY	.55725	.07730	-.11332	-.22692	.08940
GREEDY	.54694	-.11764	-.17534	.06178	-.00788
SELFISH	.54568	-.17478	-.26904	.08407	.08815
TEMPERAM	.54501	-.10490	-.04914	.04792	.07392
TOUCHY	.53436	-.09650	-.00945	.12079	.04421
ANTAGON	.52689	-.00816	-.01574	.03505	-.19325
JEALOUS	.51027	-.13463	.03941	.08652	-.09663

ABUSIVE	.50918	-.06577	-.21162	.09105	-.08549
BULLHEAD	.50338	-.12480	-.10866	-.09803	.23749
UNKIND	.50334	-.07015	-.35786	.07164	-.11908
SCATTERB	.49972	-.33193	.05772	.17520	-.07613
COLD	.49960	.05454	-.32850	.08894	-.07699
SNOBBISH	.49636	-.05158	-.21029	.02714	-.02166
UNCOOPER	.49516	-.26733	-.20994	.15656	-.04912
STUBBORN	.49350	-.14337	-.09938	-.04336	.25905
NEGLIGEN	.48904	-.28380	-.00014	.12560	-.22238
SELF PIT	.47737	-.26531	.03513	.25223	-.07186
VINDICTI	.47623	.00046	-.03269	.01825	-.17105
SLUGGISH	.47235	-.36331	-.02538	.28144	-.05147
CARELESS	.46976	-.39274	-.00328	.08436	-.03952
SHALLOW	.46850	-.09565	-.09863	.26287	-.29899
RASH	.46749	-.11243	-.02771	-.03398	-.06613
ENVOIOUS	.46718	-.13723	.03379	.15032	-.10594
ERRATIC	.46098	-.13324	.19263	.02995	-.18787
SMUG	.46026	-.11189	-.11467	.05742	-.09478
UNSTABLE	.45320	-.33772	-.10463	.21064	-.12155
DEFENSIV	.45238	.00536	.02743	.09777	.00944
IGNORANT	.44709	-.23206	-.09330	.16444	-.10930
HAPHAZAR	.44623	-.20588	.08046	.13443	-.21040
IMPRACTI	.44557	-.29781	.00561	.09371	-.20996
ABSENT M	.43508	-.42656	.05258	.12887	.08913
INCONSIS	.43367	-.37077	-.00431	.22515	-.08969
IMPOLITE	.43315	-.11081	-.27192	.15459	-.11034
UNCHARIT	.43187	-.07064	-.17290	.18082	-.17811
HIGH ST	.42769	.03912	.06815	-.05206	.03518
SUSPICIO	.42533	.01692	-.02244	.10763	.03133
DOMINEER	.42489	.17561	-.01854	-.23009	.02643
INSENSIT	.41902	-.06120	-.29647	.13057	-.20884
FORCEFUL	.41786	.12084	-.16044	-.15224	.19581
INEFFIC	.40805	-.38048	.00306	.18184	-.18130
FORGETFU	.40762	-.39591	.13549	.18595	.00055
CONCEIT	.40606	.01977	-.11670	-.09706	.02006
INSECURE	.40523	-.34044	.00943	.36523	.07463
UNFORGIV	.40438	-.01037	-.20142	.07294	-.12227
WISHY W	.39996	-.30434	.06106	.24707	-.15735
PESSIMIS	.39654	-.10175	-.05089	.24179	-.15856
FAULTFIN	.39214	.12282	-.09423	.03479	.11258
IMPERSON	.39151	-.00252	-.14016	.23514	-.25893
GULLIBLE	.38651	-.26790	.09954	.26036	-.10019
UNSYMPAT	.38555	.03962	-.37924	.06417	-.16081
UNRELIAB	.38277	-.28394	-.09998	.17638	-.12438
UNPREDIC	.38173	-.09433	.10104	-.06962	.02769
FRETFUL	.37984	-.15391	.08204	.26059	-.11042
EGOCENTR	.37960	.11017	-.07642	-.11000	-.07393
COMBATIV	.37251	.24123	-.02932	-.11887	-.13167
UNDEPEND	.36496	-.25379	-.09949	.19209	-.13211
UNOBSERV	.36266	-.25681	-.03300	.17219	-.20247
NAIVE	.35419	-.22596	.05466	.26347	-.09447
UNSYSTEM	.34853	-.26564	.03111	.08886	-.11083
DISTRUST	.33162	-.15373	-.21565	.14360	.13526
FRIVOLOU	.32983	-.08689	.11486	.05638	-.10260
DEMANDIN	.31671	.27997	-.05861	-.19587	.20316
UNREFLEC	.31611	-.12880	-.07516	.15921	-.25970
UNSOPHIS	.31391	-.22579	-.07123	.18443	-.17715
PATIENT	-.29140	.28567	.28091	.18991	.05542
UNCREAT	.28701	-.17427	-.17964	.21764	-.20651
UNAMBITI	.27733	-.16159	-.03916	.26891	-.27232
UNIMAGIN	.26956	-.11619	-.16867	.19876	-.23479
WORDY	.26229	.04469	.14441	-.19575	.15857
UNRESTRA	.23258	-.08500	.03819	-.15054	-.04346
UNINHIB	.20576	-.07574	-.02888	-.12588	.19049
ORGANIZE	-.15021	.66136	.09436	.04825	.03431
NEAT	-.14430	.66118	.18491	.09112	-.02703
EFFICIEN	-.15540	.64466	.15435	-.03367	.16458
PRECISE	-.15827	.61022	.08256	-.00974	.23419
CONSISTE	-.15178	.55521	.16555	-.08801	.17660
RESPONSI	-.12960	.55271	.22089	-.08749	.16858
CAREFUL	-.15634	.54532	.28448	.10745	-.02078
CONFIDEN	-.08335	.52724	.23962	-.30036	.04058
ORDERLY	-.14104	.52613	.08415	.05429	.17513
PROMPT	-.12352	.51084	.10755	-.07327	.17120
SLOPPY	.41648	-.51010	.02730	.06600	-.01794
THOROUGH	-.14301	.50966	.10763	-.10763	.30554

PERFECTI	-.03093	.48754	.05780	.00685	.23628
STEADY	-.17356	.48429	.20735	-.02740	.17165
DISORGAN	.35330	-.48230	.04057	.05322	-.01813
RELIABLE	-.13533	.47184	.20372	-.10554	.14846
DEPENDA	-.14347	.47069	.24446	-.06802	.20184
BRAVE	-.00151	.46387	.25106	-.23100	.07888
ENERGETI	-.04041	.45583	.33744	-.25719	.01921
ACTIVE	-.04892	.45395	.28311	-.25109	.02097
FORMAL	-.04750	.45050	.24360	.03803	-.01158
LAZY	.41222	-.43914	.03384	.15040	.00271
ECONOMIC	-.06439	.43306	.12709	.06243	.07663
ASSURED	-.14470	.43299	.15943	-.22684	.14254
BRIGHT	-.11977	.42934	.25678	-.17913	.34693
PROUD	.02012	.41699	.27556	-.17577	-.04946
SMART	-.13550	.41166	.14810	-.13732	.40093
COOPERA	-.22693	.40919	.40397	.02018	.04530
PERSIST	.00592	.39839	.12672	-.19289	.31437
CONCISE	-.11699	.39832	.06965	-.00773	.30903
INDUSTRI	-.10410	.39352	.05333	-.07241	.33328
ASSERTIV	-.10038	.38891	.08673	-.26519	.32529
CAUTIOUS	-.03719	.38511	.26425	.24230	-.01504
PUNCTUAL	-.09593	.38477	-.03045	-.03520	.32969
ENTHUSIA	-.04521	.38050	.36183	-.28685	.10164
PRACTICA	-.12800	.37440	.13933	.06600	.32636
ADVENTUR	.06118	.35613	.32445	-.24536	.10560
CREATIVE	-.05927	.35509	.27894	-.10295	.22473
SOPHISTI	-.03427	.35121	.17504	-.10303	.22975
INVENTIV	-.04828	.33579	.10236	-.07161	.28175
ZESTFUL	-.06797	.28396	.24414	-.28168	.26726
THRIFTY	-.02204	.22007	.06634	.02842	.11406
ARTISTIC	-.02041	.16426	.15586	-.01078	.15887
FRIENDLY	-.16218	.27263	.62905	-.13672	.03323
KIND	-.23097	.27016	.58152	.07773	.06937
CONSIDER	-.20241	.30762	.56850	.03552	.15337
CHEERFUL	-.12448	.29831	.55937	-.26220	.01459
PLEASANT	-.23172	.31788	.55272	-.05231	.07510
WARM	-.10986	.13317	.54713	-.02009	.14246
AFFECTIO	-.05461	.11838	.53265	-.10061	.15738
POLITE	-.14960	.27637	.52807	.04505	.10572
SYMPATHE	-.14510	.04299	.52107	.09827	.26350
COURTEO	-.17841	.35051	.51523	-.02512	.13648
UNDERSTA	-.15510	.26998	.51216	.04378	.10383
GENEROUS	-.13777	.27506	.50244	-.03243	.02794
HELFUL	-.13380	.41290	.47881	-.02253	.06299
HAPPY_GO	.05722	.06834	.46901	-.14833	-.09583
SOCIABLE	-.05266	.25635	.46645	-.41114	.00996
RESPECTF	-.14855	.33338	.43477	.00981	.15133
EASYGOIN	-.07582	.09143	.42658	.03739	-.03284
SPIRITED	-.04236	.36235	.41282	-.32636	.12033
AGREEAB	-.16292	.27125	.40127	.07175	.00386
EMOTIONA	.18587	-.03792	.39345	.06902	.05194
REASONA	-.18144	.33416	.37383	-.00274	.18412
UNEMOTIO	.15285	.06223	-.35443	.14310	-.02483
MANNERLY	-.11437	.29889	.33860	-.06577	.16486
TRUSTFUL	-.09257	.32712	.33087	.00748	-.02509
RELAXED	-.10810	.19457	.32187	-.10169	-.01938
SUGGESTI	.13830	.23509	.30946	-.00628	-.12614
ANXIOUS	.28415	.09314	.29964	.04011	-.08412
IMAGINAT	-.07068	.25863	.29099	-.07741	.26946
LENIENT	.02051	-.03343	.26944	.14842	.02619
CAREFREE	.18424	-.08574	.24751	-.07391	.01013
SILENT	.08187	.02176	-.07172	.65010	.01487
SHY	.14400	-.04903	-.02454	.64184	-.03377
BASHFUL	.17830	-.12912	.01723	.63843	-.06822
QUIET	.03117	.00885	-.03463	.61677	.03763
TIMID	.25134	-.08451	.04265	.58414	-.15895
UNTALKAT	.07930	-.04263	-.21022	.57618	.02615
WITHDRAW	.32504	-.16513	-.13603	.52992	-.00087
RESERVED	.04412	.09560	.01968	.50364	.01905
UNSOCIAB	.26881	-.15339	-.25435	.48735	.03299
TALKATIV	.20692	.05409	.30841	-.46463	.02372
DULL	.32164	-.24932	-.19138	.41844	-.05553
NERVOUS	.38017	-.25212	.09116	.41589	-.02934
INTROVER	.17884	-.01316	-.01033	.41173	-.08725
VERBAL	.21069	.18415	.15655	-.38831	.20129
PASSIVE	.15338	-.04257	.17430	.37538	-.18864

BOLD	.13534	.33509	.12013	-.37221	.20226
SUBMISSI	.24654	-.07884	.16155	.36228	-.24232
EXTROVER	.09649	-.04525	.09189	-.35011	.18782
FEARFUL	.32948	-.20811	.05402	.34547	-.03038
UNEXICIT	.15178	-.12221	-.31030	.33832	.04001
DARING	.14173	.30087	.19821	-.33393	.13745
SIMPLE	.09986	.01894	.17982	.28998	-.26220
UNADVENT	.23173	-.19525	-.11736	.28044	-.09561
INHIBIT	.20474	-.01945	.07489	.25639	-.07265
PREDICTA	.00888	.04147	.03734	.25439	-.10488
RESTRAIN	.02834	-.00770	-.07817	.24992	.19114
UNDEMAND	-.02718	-.20535	.08967	.21266	-.15186
UNCRITIC	-.04837	-.11917	.12461	.17598	-.10687
INQUISIT	-.08836	.07668	.02322	-.10808	.56520
CORDIAL	-.17351	.10382	.06684	-.09132	.51339
CONTEMP	.01381	-.01425	.00455	.05083	.51046
FORESIGH	-.01394	.21653	.01564	-.08088	.48843
INSIGHTF	-.05483	.09416	.04431	-.03228	.48358
INTROSPE	.01369	.03272	-.01619	.04806	.47719
DEEP	.02556	.04857	.20352	-.07156	.47633
PERCEPTI	-.14583	.28068	.13811	-.11123	.47121
SELF_CRI	.12739	.04975	-.01687	.00982	.45662
INNOVATI	-.09294	.26541	.07554	-.11672	.44750
CONSCIEN	-.12259	.18589	.10088	-.00537	.44690
PHILOSOP	.02558	.12791	.12596	-.06163	.42804
COMPLEX	.18652	.09821	-.03705	-.07191	.40936
INTELLIG	-.10241	.39563	.13686	-.11979	.40458
UNINQUIS	.28638	-.09192	.01221	.19209	-.39688
PURPOSEF	-.16679	.35615	.14639	-.09443	.39305
METICULO	-.02767	.23613	-.05118	.01365	.39269
DECISIVE	-.10643	.36257	.04651	-.21100	.37429
IMPERCEP	.32108	-.04704	.03794	.21771	-.35230
VIGOROUS	-.02670	.25384	.05081	-.14789	.34981
MEDITATI	.04224	.06816	.06503	.08854	.33479
OPTIMIST	-.17057	.19008	.16913	-.18134	.30830
CULTURED	-.01933	.29654	.22150	-.06819	.30068

The above solution is still fairly clear. However, Factor V is beginning to show some contamination. For example, we now find that the traits 'cordial' and 'conscientious' are loaded on this factor, neither of which belong there. However, it should be remembered that these are two words which a significant number of airmen do not know. The trait 'creative', which had the second highest loading in the upper-verbal group, is no longer on the factor when individuals in the second quartile are added to the sample. In general, Factor V is identifiable, but less well defined.

When the upper half of the distribution on verbal ability is discarded, and only those in the lower half are used in the solution, Factor V is no longer identifiable, and the solution as a whole shows signs of significant deterioration. The results from analysis of the lower half of the verbal distribution is presented below.

Factor Analysis of Lower Half

458 CASES WITH LOWEST COMBWKPC SCORES

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
EFFICIEN	.59870	-.16069	-.17044	.22885	-.08551
NEAT	.58507	-.12241	-.23615	.23596	-.02119
PRECISE	.58439	-.12956	-.23740	.10068	.01415
ORGANIZE	.55854	-.04552	-.27659	.12436	.00046
SMART	.55599	-.10807	-.10363	.16926	-.07602
CREATIVE	.55024	-.08973	-.10367	.14047	-.14664

INTELLIG	.52982	-.11583	-.05943	.18009	-.07760
PERFECTI	.52500	-.04241	-.10812	.05324	.04139
ORDERLY	.50067	-.09318	-.04907	.09304	.01227
BRIGHT	.49879	-.14163	-.13200	.33430	-.15242
CONSISTE	.48763	-.10937	-.12177	.27656	-.12254
STEADY	.48130	-.12799	-.14201	.27841	-.02808
INDUSTRI	.47622	-.11551	-.05893	.07586	-.02630
SOPHISTI	.47355	-.09261	.00968	.11162	-.06744
PHILOSOP	.46780	-.01914	.12169	.01814	-.06138
CONCISE	.46291	-.10468	-.07033	.05550	.03101
INVENTIV	.46052	-.05677	-.02233	.02657	-.07124
IMAGINAT	.45821	-.16619	-.01684	.14090	-.08160
ECONOMIC	.45707	-.03850	-.15466	.14696	.05642
THOROUGH	.45177	-.17397	-.13481	.19838	-.09657
ASSERTIV	.44570	-.18877	-.08647	.07062	-.01502
BRAVE	.44390	-.07788	-.08506	.25060	-.27710
RESPONSI	.44000	-.17974	-.14557	.35363	-.09067
PERSIST	.43433	-.07252	.03713	.14045	-.14321
PUNCTUAL	.43429	-.11060	-.00432	-.03589	.00433
PROMPT	.43002	-.20543	-.15010	.19127	-.07775
ZESTFUL	.42252	-.08935	-.10733	.18427	-.12758
PURPOSEF	.42113	-.15533	-.02172	.15285	.03267
CULTURED	.41981	-.11143	.04669	.21254	-.03997
INNOVATI	.41378	-.08972	.01375	-.09160	-.01988
PERCEPTI	.41278	-.18426	.02108	.14825	-.03421
DECISIVE	.41268	-.11424	.02086	-.00857	-.12826
ADVENTUR	.41169	-.09050	.01247	.32641	-.25412
SLOPPY	-.40816	.36461	.33082	-.01121	.07653
ARTISTIC	.39827	-.01231	-.08848	.03746	-.05159
FORMAL	.39479	-.07466	-.12638	.27848	-.01585
FORESIGH	.39262	-.03307	.12875	.01668	-.00783
ASSURED	.39214	-.08472	-.19795	.26326	-.09384
CONFIDEN	.39046	-.02510	-.15875	.32394	-.25270
CAUTIOUS	.38396	-.09537	-.08093	.22588	.14098
CAREFUL	.37815	-.11651	-.15754	.36793	-.00511
PRACTICA	.37454	-.09829	.05065	.18744	.05567
ENERGETI	.37142	-.04634	-.10106	.36363	-.26455
SPIRITED	.36901	-.11772	-.12181	.33244	-.25401
DISORGAN	-.36305	.33863	.21138	.02150	.07380
REASONA	.36278	-.20086	-.11505	.35610	-.02218
BOLD	.34858	.07034	.08522	.10755	-.30395
ACTIVE	.34512	-.07843	-.04981	.29808	-.22717
COMPLEX	.34387	.09296	.28315	.01183	-.11101
RELIABLE	.33680	-.28464	-.04797	.28271	-.12358
CONSCIEN	.33632	-.12388	.12832	.10893	.00279
PATIENT	.32530	-.03374	-.30117	.32510	.14542
INQUISIT	.32352	-.05343	.13418	.01402	.03947
PROUD	.32206	-.10485	-.09587	.29604	-.22498
OPTIMIST	.31822	-.18098	.02052	.08981	.03209
CORDIAL	.31215	-.15536	.06504	.00960	.09406
MEDITATI	.31172	-.01144	.07875	.09789	.06011
SUGGESTI	.30294	.01127	.08731	.27637	-.16402
MANNERLY	.29806	-.13264	-.00371	.26257	-.08216
DEEP	.28315	-.06246	.24014	.12259	-.07711
VIGOROUS	.28267	-.03494	.10115	.05383	-.10573
THRIFTY	.27311	-.07820	.04782	.07761	.03479
FAULTFIN	.25347	.17249	.24401	-.09167	.07090
INSIGHTF	.24858	.01524	.04434	.02752	.06943
INTROSPE	.23562	.14285	.02418	.04195	.10553
METICULO	.22713	.04538	.12423	-.02408	.10311
COMBATIV	.17224	.08919	.15693	.03879	-.13403
UNKIND	-.05362	.55941	.19418	-.29820	-.07907
UNCOOPER	-.17271	.55803	.21363	-.17689	.14499
UNSYMPAT	-.06177	.54922	.00779	-.26747	-.04617
CRUEL	.01722	.53960	.35579	-.25526	-.07481
IGNORANT	-.18225	.53724	.17604	-.16512	.10626
SHALLOW	-.17392	.53473	.16535	-.10775	.18004
UNDEPEND	-.16972	.52778	.06890	-.19744	.10455
RUDE	-.05490	.52531	.37816	-.24144	-.05304
UNRELIAB	-.18357	.52117	.02748	-.14373	.08208
IMPOLITE	-.07863	.52099	.09797	-.21302	.05951
INSENSIT	-.17986	.51290	.08653	-.11832	-.00784
COLD	.02245	.51052	.26007	-.16852	-.08376
NEGLIGEN	-.23245	.50721	.25120	-.09781	.02889
UNSTABLE	-.24971	.50154	.22201	-.16732	.15945
SNOBBISH	-.06720	.49973	.25690	-.16678	-.00791

SCATTERB	-.25382	.49019	.34961	-.00620	.13136
CARELESS	-.24547	.48529	.28072	-.06761	.11166
DULL	-.23858	.47840	.11326	-.13945	.35369
INEFFIC	-.33552	.46539	.15189	-.01027	.14015
INCONSIS	-.20664	.46453	.25993	-.00816	.19760
DISTRUST	-.06423	.45189	.12624	-.16044	.12607
UNOBSERV	-.24323	.45015	.08848	.02142	.08390
ABUSIVE	-.00094	.44637	.23280	-.23858	.07091
UNCHARIT	-.09007	.43894	.26301	-.09950	.05557
UNEXICIT	-.16107	.43868	.00896	-.21937	.31027
SELFISH	-.09759	.43624	.40347	-.22780	.13186
UNIMAGIN	-.22688	.43520	-.02087	-.10597	.12123
IMPRACTI	-.29641	.43430	.20172	.00452	.02225
ABSENT_M	-.25716	.43203	.28350	-.03055	.15608
UNEMOTIO	-.02870	.42494	-.10934	-.17849	-.03122
NAIVE	-.13721	.42152	.17144	.04300	.17243
WITHDRAW	-.13871	.41960	.28180	.04174	.31718
UNSYSTEM	-.12783	.41233	.20959	-.11326	.02666
UNSOCIAB	-.04094	.40451	.09130	-.23837	.37934
WISHY_W	-.20956	.39217	.29900	.00857	.13494
UNSOPHIS	-.29876	.38148	.12652	.03237	.11573
HAPHAZAR	-.11328	.38025	.25003	-.01294	.04350
CONCEIT	.01389	.37430	.14726	-.11102	-.07599
UNCREAT	-.25321	.37331	.05246	-.12648	.22042
UNADVENT	-.14256	.37247	.03244	-.07177	.16186
GULLIBLE	-.18952	.36998	.31897	.12145	.19928
SMUG	-.20741	.36916	.27380	-.13848	.02101
UNINQUIS	-.28486	.36825	.04136	.03483	.06928
IMPERSON	-.08513	.36685	.12261	-.01306	-.01681
UNAMBITI	-.18793	.36613	.02066	-.03993	.09933
UNREFLEC	-.20379	.34820	.15735	-.05502	.10804
ANTAGON	-.02496	.34553	.34483	.00476	-.07624
UNFORGIV	-.04094	.34160	.15007	-.12313	.01822
PESSIMIS	-.08859	.32138	.19438	-.03759	.01809
VINDICTI	.01321	.31423	.22620	-.13100	-.04741
IMPERCEP	-.05784	.30265	.11161	-.01500	-.00982
INTROVER	.01832	.30173	.14645	-.02210	.12571
ERRATIC	-.10255	.27628	.26988	.11675	-.13147
EGOCENTR	.06739	.27036	.09253	-.07021	-.02313
FRETFUL	-.06906	.24961	.24046	.00511	.07518
SUBMISSI	-.11416	.23710	.12955	.15098	.09862
UNDEMAND	-.23145	.23253	-.05524	.04933	.12255
FRIVOLOU	.00442	.21966	.18514	-.00380	.03600
INHIBIT	.10034	.21935	.18753	.07946	.02221
UNRESTRA	-.09702	.21593	.06267	-.03946	-.02018
PASSIVE	.06344	.18379	.09585	.09229	.09998
UNCRITIC	-.05365	.16529	-.02544	.08544	.15240
EXTROVER	.01374	.11484	.02665	.01606	.01331
CRANKY	-.12285	.30307	.65671	-.05966	.07413
GRUMPY	-.14193	.30791	.65322	-.11790	.10688
MOODY	-.04800	.17273	.64315	-.16673	.13445
STUBBORN	-.09470	.19163	.61097	-.11327	.01699
ARGUMENT	-.10038	.24539	.58517	-.11398	-.12503
BULLHEAD	-.04941	.24339	.58396	-.11870	-.08879
TEMPERAM	-.08618	.20005	.54553	-.09390	.09063
CRABBY	-.09917	.31469	.54410	-.20940	.14983
TOUCHY	-.05507	.27046	.53095	-.03850	.13203
QUARRELS	-.08507	.37884	.50925	-.14977	-.07513
IRRITABL	-.02659	.30481	.50027	-.08964	.09232
HARSH	.12991	.37521	.47115	-.28677	-.03561
JEALOUS	-.13400	.18719	.46088	.00603	.12360
BOSSY	.15600	.28351	.43165	-.14416	-.21415
SLUGGISH	-.24322	.40362	.43096	-.07406	.19952
DEFENSIV	.01540	.17960	.42231	-.01669	-.00342
SELF_PIT	-.14521	.32560	.39549	-.03246	.23109
GREEDY	-.03965	.38088	.38719	-.22993	.04562
INSECURE	-.18456	.29535	.38421	-.09502	.31266
LAZY	-.27760	.32284	.37112	.00104	.13700
FORCEFUL	.10464	.22306	.36555	-.10868	-.06654
SELF_CRI	.21901	-.07502	.34746	.02486	.09130
FORGETFU	-.30455	.29430	.34528	.15092	.22974
UNPREDIC	.00903	.18425	.34510	-.01820	-.08723
ENVIOUS	-.09183	.27309	.32378	.01154	.10977
SUSPICIO	.07081	.25376	.31817	-.04968	.02668
HIGH_ST	.08951	.25374	.30480	.06459	-.07278
DEMANDIN	.28838	.06086	.29264	-.07598	-.18696

EMOTIONA	.06602	-.05859	.29066	.26869	.19412
RASH	-.12980	.27196	.27578	-.05730	-.09804
ANXIOUS	.20183	-.06424	.25892	.18137	-.04212
DOMINEER	.14369	.20644	.24967	-.06291	-.14824
UNINHIB	-.04187	.19519	.23015	-.05718	.05571
CONTEMP	.19949	.02253	.20851	.01985	.13444
RESTRAIN	.05212	.07122	.20370	-.04476	.11107
FRIENDLY	.19552	-.19600	-.10424	.62819	-.09934
CHEERFUL	.22140	-.07341	-.18132	.56277	-.20818
KIND	.22580	-.21991	-.15508	.55888	.08011
PLEASANT	.24806	-.20966	-.18108	.54734	-.03438
CONSIDER	.32430	-.24212	-.00961	.53325	.03805
POLITE	.26146	-.16995	-.03016	.52096	.02193
COURTEO	.35119	-.18881	-.11752	.50629	-.04726
GENEROUS	.23698	-.16838	-.18095	.50259	.00663
AGREEAB	.28769	-.05661	-.16212	.48702	-.00039
SOCIABLE	.22393	-.15918	-.01596	.47009	-.37222
UNDERSTA	.24321	-.12968	-.03686	.46409	.00398
HELFUL	.37406	-.19313	-.08562	.46118	.01870
WARM	.20511	-.12451	.01466	.45309	.04154
EASYGOIN	.05225	-.05241	-.01524	.44724	.03173
HAPPY_GO	.09974	-.00609	-.00313	.44476	-.16833
AFFECTIO	.16963	-.26425	.21946	.42172	.00147
RESPECTF	.27183	-.14048	-.04013	.41938	-.01440
COOPERA	.35754	-.21853	-.23297	.39765	-.05814
RELAXED	.11777	.02710	-.10498	.37777	-.19630
SYMPATHE	.19736	-.27398	.14284	.37188	.17595
TRUSTFUL	.27296	-.21736	-.10884	.35813	.02336
ENTHUSIA	.30461	-.06669	-.14783	.32109	-.15187
DEPENDA	.30821	-.26280	.01938	.31909	-.07618
SIMPLE	-.10579	.13567	-.01129	.28635	.23304
PREDICTA	-.06109	.14560	-.07708	.26281	.23223
CAREFREE	-.09998	.15213	.13410	.21857	-.01430
LENIENT	.06680	-.00445	.02274	.21527	.15875
SHY	-.01254	.12209	.15333	-.00722	.64387
QUIET	-.00968	.12206	-.00838	-.01413	.62343
BASHFUL	-.07597	.15695	.17148	.00813	.62333
SILENT	.07550	.16649	.06308	-.01237	.57150
UNTALKAT	.04304	.26456	-.03878	-.19896	.52076
TALKATIV	.04754	.02958	.16011	.23652	-.46842
NERVOUS	-.18786	.20591	.37824	.02267	.43067
TIMID	.01339	.27378	.24478	.03072	.41233
VERBAL	.32260	.02419	.17476	.03675	-.35001
DARING	.32708	-.01349	.09648	.15928	-.33556
RESERVED	.07311	.10384	.13777	.08919	.31351
FEARFUL	-.05549	.25596	.25625	-.03420	.26637
WORDY	.10232	.13154	.21003	.03032	-.22041

In the above solution, those traits which are normally associated with factor V are loaded on factor 1, which is the dependability-conscientiousness factor. Traits with top loadings on factor 1 are efficient, neat, precise, and organized. However the traits of creative, intelligent, bright, sophisticated, philosophical, inventive, imaginative, cultured, and innovative also have high loadings on this factor. This may be due in part to the subjects who are low on verbal ability not having a clear understanding of the meaning of such words. It also may be that low verbal subjects have a more simplistic personality theory than the high-verbal subjects. In any event, it is suggested that the lower half of the airmen population is unlikely to produce results identical to that which is normally obtained from college-level populations.

Appendix 4

PEER RATING STUDY

Plan for Collecting Peer Ratings.

There was an important question concerning whether individuals could be trusted to provide an honest and accurate report of their personality characteristics. Untrustworthy results could be either from a purposeful distortion, or from an inaccurate self-image. It was decided that self ratings should be compared with peer ratings to provide information bearing on the question. Such information would reveal the level of inter-rater agreement concerning a subject's personality characteristics, and would indicate the correspondence between self report and peer reports. The study outlined below was designed to provide such information.

Selection of Rating Variables

As previously discussed, the full 205 variable trait list produced a distorted map of the Big 5 factor structure. There was an over-representation of negative traits associated with Agreeableness and this resulted in the identification of a 'Scrooge' factor which was defined by these negative traits. At the same time, a clean-cut Neuroticism factor was not clearly defined when all 205 traits were entered into an analysis.

After several iterations, a list of 106 traits was developed which did produce a clean-cut Big 5 factor structure. However, 106 traits are too many to use in a peer rating study. A series of analyses finally led to the selection of only 30 traits which produced a clearly-defined Big 5 structure with exactly 6 traits loaded on each factor. A solution using these 30 traits and based on over 1300 subjects is presented below.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
ORGANIZE	.79401	.14468	.00049	-.09104	.01967
NEAT	.77065	.20977	.02293	-.07001	-.04228
EFFICIENT	.71528	.24943	-.03772	-.15685	.13857
PRECISE	.70877	.17115	-.04498	-.09951	.21802
RESPONSIVE	.64763	.35530	-.03264	-.11395	.13448
CONSIDERATE	.64151	.22444	-.08145	-.12169	.18860
WARM	.17711	.72799	-.01675	-.08490	.13803
AFFECTIVE	.19012	.71279	-.11387	.02127	.11315
KIND	.32755	.70949	.06582	-.20679	.04796
FRIENDLY	.33016	.68467	-.10966	-.07988	.01186
SYMPATHETIC	.09851	.68227	.00741	-.04937	.16643
CONSIDER	.37291	.65884	.03399	-.15662	.12183
SHY	-.02721	-.02553	.79453	.15818	-.05009
SILENT	.01874	-.00206	.76600	.05898	.02274
QUIET	.04858	.03964	.75118	.03841	.04724
BASHFUL	-.08418	.01782	.74705	.21388	-.05397
TIMID	-.08781	-.01825	.56732	.31293	-.12843
TALKATIVE	.05452	.27425	-.53244	.23560	.02913
MOODY	-.09071	-.10552	.12017	.70978	.04024
JEALOUS	-.06133	.02530	.04064	.70400	-.11366

TOUCHY	-.06014	-.05616	.06665	.69665	.04307
IRRITABL	-.08126	-.16664	.04364	.67103	.07186
ENVOIOUS	-.06873	-.04604	.06439	.63774	-.09062
SELF_PIT	-.29592	-.05960	.20657	.55862	-.01902
INTROSPE	.03271	-.03605	.02860	-.02294	.66431
INQUISIT	.13713	.09407	-.10420	-.11190	.62888
CONTEMP	.04228	.04626	.08419	.04392	.60762
DEEP	.00704	.32316	-.05697	.03435	.60351
INSIGHTF	.09800	.05533	-.04091	-.04527	.59140
PHILOSOP	.11720	.12909	-.06742	.02675	.58645

The thirty traits in the above solution were evenly divided into two groups of 15 each which were labeled 'Set 1' and 'Set 2'. Each of these two sets were designed to contain three defining traits on each of the Big 5 factors. The Set 1 and Set 2 traits were separately factor analyzed to confirm that the Big 5 structure was maintained. These solutions, again using over 1300 subjects, are presented below:

Set 1 for Peer Rating Study

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
ORGANIZE	.81394	.11922	-.07133	-.01841	.03019
EFFICIEN	.77905	.23472	-.11855	-.04956	.12098
RESPONSI	.72064	.31740	-.08425	-.04116	.14361
WARM	.15021	.80433	-.07727	-.04635	.10962
KIND	.36393	.73568	-.17626	.05016	.07119
CONSIDER	.43743	.65207	-.10114	.01665	.13749
TOUCHY	-.03987	-.07811	.79785	.02828	.03888
MOODY	-.06392	-.16058	.76863	.11005	.00943
ENVOIOUS	-.12746	-.01734	.63759	.03279	-.06980
SILENT	.02913	.06122	.11876	.81639	-.01190
BASHFUL	-.16594	.15641	.27860	.71747	-.06220
TALKATIV	-.02280	.34472	.23261	-.69284	.02195
CONTEMP	.08040	-.03939	.07763	.11386	.75844
PHILOSOP	.05014	.15755	.01986	-.07025	.69300
INQUISIT	.11149	.11349	-.13846	-.12023	.67344

Set 2 for Peer Rating Study

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
NEAT	.77956	.19724	.05701	-.08745	-.07756
PRECISE	.77489	.15459	-.05338	-.09737	.18355
CONSISTE	.72189	.18308	-.05968	-.10146	.16719
SYMPATHE	.07271	.79212	.05296	-.10739	.13189
AFFECTIO	.24786	.75951	-.08770	.01135	.05489
FRIENDLY	.39873	.64608	-.07299	-.10224	-.03847
SHY	-.02196	-.09067	.82148	.11017	-.01345
QUIET	.06168	.01393	.81291	-.03059	.04708
TIMID	-.11995	-.02069	.67026	.24873	-.10282
JEALOUS	.01068	.01957	.07074	.79116	-.12406
IRRITABL	-.08953	-.15485	.04430	.73250	.09893
SELF_PIT	-.31786	-.01097	.25250	.63106	-.00560
INTROSPE	.02759	-.02449	.05468	-.06763	.77347
INSIGHTF	.15123	.03727	-.05235	-.00325	.73418
DEEP	.03316	.40864	-.09104	.07352	.56598

The two sets of 15 traits above were selected for use in the peer-rating study. While they do not include the full richness of the Big 5 factors defined by the 106 traits, they were considered to be adequate for a first-cut evaluation.

Additional 10 'Warm Up' Traits for Self Ratings.

While the 30 traits listed above were designed for use in the peer rating study, 10 additional traits (2 from each factor) were selected to be used as 'warm up' traits in the self-rating part of the study. These could be used in computing self-rating factors, but were not be used at the trait level for determining relationships between peer and trait ratings.

Problem of Vocabulary Difficulty Level for Factor 5 Traits.

Previous studies conducted under this work task revealed that a significant number of airmen do not have a clear concept of the meaning of some of the trait terms, especially for those traits which are primary definers of Factor 5. In order to reduce the impact of this shortcoming, it is was decided that synonyms and short phrases would be included to help define the most difficult trait names. These are shown below:

INQUISITIVE

(curious, inquiring, asks questions, wants to know
about people, objects, and ideas)

INTROSPECTIVE

(looks within self for answers, reflects on inner thoughts and
feelings, reflective, is very aware of the inner-self.

ENVIOUS

(jealous of what others have, discontented with one's share)

PHILOSOPHICAL

(profound, learned, reflective, meditative, wise--
one who is very rational and calm, likes to theorize)

CONTEMPLATIVE

(an intense thinker, absorbed in thought, thinks
through before acting, given to careful study)

PRECISE

(exact, accurate, correct, very careful,
pays attention to every detail)

SYMPATHETIC

(has compassion for others, understanding, supportive, kindly,
caring, shares another's pain or sorrow)

SELF-PITYING

(feels sorry for one's self, has a 'poor me' attitude)

DEEP

(a deep thinker, has penetrating ideas, intelligent,
has profound thoughts)

INSIGHTFUL

(perceptive, sees solutions to problems, intuitive,
clear-sighted)

INSECURE

(lacks self confidence, uncertain of one's abilities)

WITHDRAWN

(retiring, quiet, does not enter into things)

PERCEPTIVE

(quick to catch on, sensitive to underlying cues, intuitive)

INNOVATIVE

(creative, thinks up new ideas and solutions)

It was decided that the 45-level 'Arch' scale would be used for collecting data in the peer rating study. However, a short phrase was added to the instructions, asking the subject to rate 'how descriptive the trait is of you compared to other individuals of the same sex and approximate age. It was hoped that this additional phrase would reduce the number of extreme ratings given by some of the raters.

Method for Developing Peer Rating Groups

Experimental testing occurs on the 21st day of basic training. By this time, the individuals in a flight have lived, marched, studied, attended class, and performed work details together. Interviews with airmen on their 21st day indicated that they thought they knew each other fairly well by this point. However, a number of individuals stated that they were most familiar with other airmen who slept in the same bay as they did. Individuals within bays tended to associate with each other after duty hours. For this reason, it was felt that the most reliable peer rating information could be obtained if individuals were asked to rate only individuals sleeping in their bay.

Unfortunately, an investigation indicated that information indicating bay assignments could not be obtained prior to experimental testing. The only information which was routinely provided was a list of the airmen originally assigned to a flight on the day it was first formed. Normally, around 50 individuals are assigned to a flight when it is formed. Because of attrition and transfers, only about 40 individuals are normally still in a flight on the 21st day of training, when experimental testing takes place. The only hope of forming individuals into rating groups was to find a way for the airmen to provide the necessary information about bay assignments during the actual experimental testing session.

A method was developed and tested for developing peer rating groups. A subject was presented with the names one at a time of all individuals originally

assigned to his/her flight. As each name appeared, the subject was asked to rate that individual on a five-point rating scale, as follows:

1. Currently not in my flight.
2. Currently in my flight and sleeps in my bay.
3. Currently in my flight, but does not sleep in my bay.
4. Currently in my flight, but I don't know where he/she sleeps.
5. I don't know whether this individual is currently in my flight.

Use of the above scale in two flights indicated that airmen could provide reasonably good information. The average subject selected 19.2 subjects as being in their flight and sleeping in their bay. If an individual was no longer in a flight, usually more than 35 raters indicated this by giving him/her a number 1 rating on the scale. All in all, this information was very encouraging. In the peer rating experiment it was decided that the above method would be used to develop the rating groups, and that any particular subject would be asked to rate only those individuals that he/she rated number 2 on the scale.

Method for Data Collection.

The experiment involved the collection of both self and peer ratings (nominations). The first step was to have each subject rate him/herself on the 40 traits using the revised 'Arch' scale. Ten of these traits (2 from each factor) were included as a 'warm up' set to get the subjects used to the rating scale. The remaining 30 were the same traits as were used in peer rating study.

The second step involved each subject rating all of the individuals originally assigned to his/her flight, using the 5-point scale above. These names were presented in a randomized order to each subject. The subject was then asked to provide peer ratings (nominations) for each individual that he/she rated number 2 using this scale. The subject's name was included in this list, so that he/she was required to provide peer rating (nomination) for him/herself.

Each of the testing stations had previously been designated as being either a 'Set 1' or 'Set 2' station. Subjects at Set 1 stations provided ratings using the 15 Set 1 traits, while subjects at Set 2 stations provided ratings using the 15 Set 2 traits.

A nomination system was used to collect the peer ratings. All of the 19 or so names with a number 2 rating appeared on the screen, along with the rater's name (randomly ordered). The subject was asked to select the name of the individual who was highest on the first trait. That name was removed from the screen, and the subject was asked to select a remaining individual who was next highest on the trait. This procedure was continued until the six individuals who were highest on the trait had been selected. Then a warning screen appeared, calling attention to the fact that the next six individuals to be selected were to be

those who were lowest on the trait. The remaining names appeared on the screen and the subject was asked to select the individual who was lowest on the trait. That name was removed from the list, and the subject selected from the remaining individuals the one who was next lowest on the trait. This procedure was continued until the six individuals who were lowest on the trait had been selected.

The names of all individuals in the rating group were then randomized and presented on the screen, ready for the second trait to be rated. This nomination procedure continued until all 15 traits had been applied.

It is recognized that use of the nomination procedure to collect peer ratings and of the rating procedure to collect self ratings might attenuate the computed relationship between peer and self ratings because of the procedural and scale differences. However, this difference was believed not to be serious, and the recommended procedures were designed to provide useful information at the least cost.

The collection of self and peer ratings was executed first during the testing session. A strong warning was given that anyone caught peeking at ratings being given in an adjacent station would be reported to the Technical Instructor. Subjects were told no one would ever know how they rated their flight mates and that their ratings would have not impact on the careers of their flight mates.

Scoring and Preliminary Analyses

Data collection in this probe study was designed to minimize testing time. This complicated the scoring and analyses procedures, since each subject rated only a subset of his peers, and rated them using only one-half of the traits. The first problem was how to score the individual peer nominations. If the subject selection scheme were perfect, then every subject would rate 20 subjects, including him/herself. However, preliminary data indicated that some subjects identified more than 20 individuals as being in their bay, while others identified only 16 or 17. There were alternative ways of dealing with this problem, including that of standardizing the ratings given by each rater. However, any method would have shortcomings, and it was decided that at this stage of the program a simple approach would be taken. It was decided that, regardless of how many subjects were in a subject's rating pool, the ratings would be scored as follows:

selection order high	score value
1	19
2	18
3	17
4	16
5	15
6	14

selection order low	
1	1
2	2
3	3
4	4
5	5
6	6
All cases not selected	10

The only feasible way to simplify the analysis design was to deal with mean peer ratings. Below is a list of the variables which were generated, along with their definitions:

Generation of Analysis Variables

Variables 1-40 are self ratings using the 45 point scale:

<u>var #</u>	<u>Label</u>		
1	ORGANIZE	20	JEALOUS
2	NEAT	21	TOUCHY
3	PRECISE	22	IRRITABLE
4	EFFICIENT	23	ENVOIOUS
5	RESPONSIBLE	24	SELF_PITYING
6	CONSISTENT	25	INQUISITIVE
7	KIND	26	INTROSPECTIVE
8	WARM	27	INSIGHTFUL
9	FRIENDLY	28	DEEP
10	AFFECTIONATE	29	PHILOSOPHICAL
11	CONSIDERATE	30	CONTEMPLATIVE
12	POLITE	31	PROMPT
13	SHY	32	DEPENDABLE
14	SILENT	33	SYMPATHETIC
15	QUIET	34	COURTEOUS
16	BASHFUL	35	WITHDRAWN
17	TIMID	36	UNSOCIABLE
18	TALKATIVE	37	NERVOUS
19	MOODY	38	INSECURE
		39	INNOVATIVE
		40	PERCEPTIVE

Note that the first 30 variables were those which were used for peer ratings. Variables 31-40 were the 'warm-up' variables described above. The next set of variables were based on mean peer ratings, with the self rating (nominations) of the subject left out. Note that the Ns involved in computing these means varied according to how many peers rated (nominated) a subject on a particular trait.

The variables are numbered in the same order as above, except that no ratings were available for the 'warm-up' variables.

<u>VAR#</u>	<u>LABEL</u>
41	MP1
42	MP2
43	MP3
.	.
.	.
.	.
70	MP30

Note: The N's in computing each cell values were maintained. These N's were reported as values in variables 101 to 130 below. The next 30 variables are the ratings which individuals give themselves during the nomination process. Note that half of the values on these variables are coded as 'Missing Values', since an individual rated him/herself on only half of the traits.

<u>VAR#</u>	<u>LABEL</u>
71	SN1
72	SN2
73	SN3
.	.
.	.
.	.
100	SN30

The fourth group of variables was defined by the N's involved in computing the mean scores for variables 41 through 70, as follows:

<u>VAR#</u>	<u>LABEL</u>
101	N used in computing variable MP1
102	N used in computing variable MP2
.	.
.	.
.	.
130	N used in computing variable MP3

File for Computing Split-Half Reliability Coefficients for Peer Ratings.

For this file, the sample was randomly split into two equal halves, hereafter referred to as Sample 1 and Sample 2. The first 30 variables are mean peer rating scores for the 30 traits, based on Sample 1, with self ratings omitted. The second 30 variables are mean peer ratings for the 30 traits, based on Sample 2, with self ratings omitted.

Consistency of Factors Based on 30 Trait Set.

In order to determine the consistency of factor loadings derived from self ratings of the 30-trait set, two independent samples of subjects in previous studies were identified, each containing approximately 600 subjects. This was accomplished by selecting the first 600 cases from the available 1400 case sample after all cases were in *ascending order* on social security number. The remaining 800 cases were reordered in *descending order* on social security number, and again the first 600 subjects were selected. Five factors were extracted and rotated in each of these two samples and the factor loadings on the variables were intercorrelated. The results are provided on the next two pages:

FACTOR LOADINGS FROM SAMPLE 1 AND SAMPLE 2

trait	fac1-a	fac1-b	fac2-a	fac2-b	fac3-a	fac3-b	fac4-a	fac4-b	fac5-a	fac5-b
AFFECTIO	0.19851	0.20078	0.67049	0.75632	-0.15406	-0.05699	0.06606	-0.01592	0.09666	0.10093
BASHFUL	-0.03375	-0.10591	0.04683	-0.04889	0.7617	0.7449	0.2529	0.21087	-0.02991	-0.04095
CONSIDER	0.37675	0.39717	0.59614	0.6818	0.06713	0.01311	-0.18267	-0.17353	0.05676	0.1273
CONSISTE	0.6485	0.6482	0.18943	0.23331	-0.06629	-0.09969	-0.11678	-0.12826	0.17909	0.17433
CONTEMP	-0.05205	0.05385	0.05403	0.12193	0.1012	0.06587	-0.00307	0.10029	0.62301	0.59089
DEEP	0.05741	-0.0651	0.22041	0.40546	-0.07963	-0.04707	0.04172	0.06022	0.68898	0.5081
EFFICIEN	0.7286	0.72098	0.2278	0.26566	-0.01874	-0.10387	-0.14627	-0.13087	0.15223	0.118
ENVOIOUS	-0.12128	-0.06395	-0.01947	-0.06125	0.05181	0.10102	0.61411	0.63804	-0.17624	-0.02035
FRIENDLY	0.30535	0.38138	0.67345	0.63267	-0.07481	-0.11794	-0.13929	-0.04746	-0.02206	0.01038
INQUISIT	0.13605	0.1494	0.17573	0.09168	-0.09012	-0.1548	-0.09058	-0.10769	0.59514	0.66847
INSIGHTF	0.1936	0.08291	-0.0254	0.07002	-0.06527	0.01902	-0.00948	-0.07943	0.53225	0.64167
INTROSPE	-0.03482	0.09016	0.02009	-0.09632	0.02918	0.05544	-0.06058	0.01171	0.68546	0.63637
IRRITABL	-0.01942	-0.12845	-0.16022	-0.2116	0.06873	-0.00936	0.67278	0.68549	0.07722	0.09172
JEALOUS	-0.0958	-0.02039	0.00951	0.03303	0.0193	0.07982	0.70255	0.70391	-0.11172	-0.12751
KIND	0.3193	0.37404	0.65902	0.71882	0.05857	0.10128	-0.27404	-0.16489	0.00708	0.05335
MOODY	-0.07649	-0.10134	-0.17414	-0.05831	0.11412	0.1625	0.67086	0.71839	0.03269	0.061
NEAT	0.73609	0.80014	0.17559	0.19148	0.042	0.02453	-0.02411	-0.10779	-0.05311	-0.07237
ORGANIZE	0.75985	0.81058	0.15111	0.13008	-0.01074	0.00686	-0.07734	-0.09177	-0.02393	0.0313
PHILOSOP	0.12253	0.06973	0.00079	0.25598	0.00506	-0.1189	-0.03527	0.1136	0.59263	0.53418
PRECISE	0.66779	0.73191	0.17511	0.17414	-0.04806	-0.02737	-0.1043	-0.11222	0.20578	0.23138
QUIET	0.02504	0.00633	0.0635	0.00366	0.75707	0.75127	0.02732	0.05609	0.02052	0.08705
RESPONSI	0.62878	0.7109	0.32676	0.33508	0.00027	-0.05945	-0.15184	-0.05882	0.1145	0.11715
SELF_PIT	-0.27529	-0.32531	-0.07255	-0.0233	0.1527	0.27286	0.61701	0.51371	-0.08516	0.00469
SHY	0.01723	-0.02734	-0.05175	-0.0338	0.78418	0.80633	0.18416	0.14176	-0.05407	-0.04238
SILENT	0.07472	-0.01456	-0.02821	0.04141	0.79119	0.75465	0.05154	0.06705	0.06246	0.00857
SYMPATHE	0.13825	0.09804	0.67573	0.6684	-0.02105	0.02111	-0.03923	-0.09102	0.15487	0.1786
TALKATIV	0.06574	0.04878	0.13746	0.35517	-0.54931	-0.48379	0.18155	0.31387	0.01896	0.00924
TIMID	-0.14482	-0.04598	-0.04765	0.02862	0.5282	0.5939	0.32599	0.27092	-0.09093	-0.15384
TOUCHY	-0.01744	-0.10142	-0.0641	-0.05784	0.05616	0.10196	0.66629	0.69911	0.05851	0.07728
WARM	0.10965	0.24098	0.74897	0.71468	-0.00117	-0.03232	-0.10464	-0.05271	0.14486	0.13766

INTERCORRELATIONS OF FACTOR LOADINGS

	<i>fac1-a</i>	<i>fac1-b</i>	<i>fac2-a</i>	<i>fac2-b</i>	<i>fac3-a</i>	<i>fac3-b</i>	<i>fac4-a</i>	<i>fac4-b</i>	<i>fac5-a</i>	<i>fac5-b</i>
fac1-a	1									
fac1-b	0.974525	1								
fac2-a	0.384641	0.435088	1							
fac2-b	0.362077	0.38964	0.952363	1						
fac3-a	-0.30294	-0.32229	-0.33779	-0.41655	1					
fac3-b	-0.37419	-0.38998	-0.35401	-0.42617	0.981507	1				
fac4-a	-0.65293	-0.66961	-0.62774	-0.61377	0.142555	0.220632	1			
fac4-b	-0.6702	-0.67458	-0.61901	-0.58821	0.086835	0.148849	0.976001	1		
fac5-a	-0.02017	-0.03992	-0.03819	0.021564	-0.2803	-0.33051	-0.39269	-0.34192	1	
fac5-b	-0.02185	-0.03922	-0.03384	0.000534	-0.31142	-0.35425	-0.3806	-0.33765	0.970359	1

The correlations of loadings for particular factors are as follows:

FACTOR	FACTOR NAME	CORRELATION
factor 1a&1b	Conscientiousness	.975
factor 2a&b	Agreeableness	.952
factor 3a&b	Introversion	.982
factor 4a&b	Neuroticism	.976
factor 5a&b	Intellect, Openness	.970

It is interesting to note the rather high negative correlations of the Neuroticism factor with the Agreeableness and Conscientiousness factors . In all cases, the correlations were above -.60.

A series of analyses were conducted based on 465 cases, as follows:

Reliability of Peer Nominations

The first analysis was concerned with the inter-rater agreement of peer raters for the various individual traits and trait factors. The table below reports the split-half (random) correlations for each trait and those values corrected to double-length (e.g. to obtain estimates of reliabilities for the full sample). Also reported is the mean corrected reliability across the sets of six traits which were selected to measure each of the five factors. Note that a small number of raters was discarded from the study because they were observed recording random ratings, or because there were no significant relationships among their ratings of highly similar traits (e.g. Silent and Quiet, Kind and Considerate, etc.). This number was less than two percent.

A cursory review of the reliabilities reveals that the higher values are associated with those traits which are easiest to observe. For example, the reliability of the traits associated with Introversion/Extroversion generally ran in the mid .80's, with the highest values associated with Quiet, Silent, Shy and Talkative. The next highest reliability's were associated with the traits defining the Conscientiousness factor, with traits such as Organized, Neat, Precise, Responsible, and Efficient having values in the upper 70's to lower 80's. Some of the traits in the Agreeableness factor reached the 70's, such as Kind and Considerate, and two of the traits in the Neuroticism factor reached the lower 70's (Irritable and Self-Pitying). The only other traits above .70 were Insightful, Deep, and Contemplative, all of which load on the Intellect factor.

Overall, the interrater agreement concerning the nominations of peers was only modest, and appears to be related to the opportunity for observing various types of behaviors in the Basic Military Training course. The most surprising finding was the low inter-rater coefficient associated with the trait called Inquisitive.

Split-Half and Corrected Reliabilities for Peer Nominations

N=465

VARIABLE	S-HALF	CORRECTED
FAC 1-CONSCIENTIOUSNESS- MEAN=.79		
Organized	.70	.82
Neat	.65	.79
Precise	.63	.77
Efficient	.62	.77
Responsible	.72	.84
Consistent	.58	.73

FAC 2-AGREEABLENESS -MEAN=.69

Kind	.60	.75
Warm	.48	.65
Friendly	.46	.63
Affectionate	.47	.64
considerate	.61	.76
Sympathetic	.56	.72

FAC 3--INTROVERTED--MEAN=.82

Shy	.72	.84
Silent	.74	.85
Quiet	.76	.86
Bashful	.69	.82
Timid	.57	.73
Talkative	.72	.84

FAC 4--NEUROTICISM--MEAN=.65

Moody	.53	.69
Jealous	.39	.56
Touchy	.44	.61
Irritable	.56	.72
Envious	.45	.62
Self-Pitying	.56	.72

FAC 5--INTELLECT--MEAN=.66

Inquisitive	.27	.43
Introspective	.48	.65
Insightful	.68	.81
Deep	.55	.71
Philosophical	.46	.63
Contemplative	.60	.75

Ratings on the six traits in each factor were averaged, and the corrected reliabilities for these six clusters were computed, as follows:

Corrected Reliabilities for Trait Clusters

<u>Cluster</u>	<u>Reliability</u>
Introversion	.910
Conscientiousness	.870
Agreeableness	.778
Intellect	.773
Neuroticism	.744

Without looking at self ratings, it would be possible to discard nominations given by particular raters which had non-significant relationships with the means of nominations given by all other raters. It could be that only close associates are in a position to observe and report on certain traits, and a procedure which discarded nominations from deviant raters would improve the quality of the data. This will be discussed later.

Factor Analysis of Self Ratings.

Below are the results of a factor analysis of the 30 traits using the full 465-case sample:

Factor Analysis of Self Ratings on the 30-Trait Set

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
ORGANIZE	.76974	.07332	.04474	-.07340	.11721
NEAT	.76674	.15090	.06844	-.09291	.06639
RESPONSI	.72819	.19574	-.00147	-.11503	.01790
CONSISTE	.66008	.15377	-.12308	-.09217	.18274
EFFICIEN	.64227	.16080	-.17635	.02443	.06613
PRECISE	.61014	.12365	-.05376	-.09168	.44059
WARM	.06221	.78990	-.04763	-.00387	.16344
FRIENDLY	.17104	.71325	-.10239	-.12730	-.01767
SYMPATHE	.06033	.69174	.01672	.00744	.19614
KIND	.26325	.67879	.15923	-.11120	.06381
AFFECTIO	.09207	.66548	-.07857	.07497	.07220
CONSIDER	.33819	.59230	.12618	-.16824	.19824
QUIET	.00722	-.04593	.83126	.02317	.01242
SHY	-.04084	.05129	.80426	.22174	-.08728
SILENT	.02963	-.14429	.80416	.00135	.02777
BASHFUL	-.07439	.11108	.69892	.29377	-.07292
TIMID	-.06603	.12058	.56397	.35011	-.07901
TALKATIV	.19605	.38827	-.47243	.26642	.02720
MOODY	-.06669	-.01992	.08956	.72510	-.01663
ENVIOUS	-.06638	-.04758	-.00938	.72255	-.07116
IRRITABL	-.01483	-.12320	.06162	.69947	-.00337
TOUCHY	.07445	-.02134	.13013	.69153	-.12391
JEALOUS	-.16425	-.00651	.07005	.68332	.01279
SELF_PIT	-.23016	.05224	.25685	.56418	-.11612
DEEP	.05136	.16948	.04621	-.01004	.77054
PHILOSOP	-.01520	-.02559	-.02250	-.11386	.74881
INTROSPE	.06150	.16825	.06107	-.09428	.67396
INSIGHTF	.34030	.10653	-.22444	-.04136	.61356
CONTEMPL	.36497	.07256	-.04036	-.07987	.54807
INQUISIT	.19724	.23363	-.19989	.07366	.38899

With two exceptions, all of the primary factor loadings are above .50. The exceptions are for Talkative, which was -.47, and Inquisitive, which was only .39. There is a question concerning whether all of the subjects understood the meaning of the trait 'inquisitive.' Note that this trait had by far the lowest reliability coefficient in the peer rating data.

Factor Analysis of Peer Nomination Data

A five factor solution was computed for the peer nomination data. However, only one variable loaded on the fifth factor and that was "Inquisitiveness". It has already been pointed out that this variable has many meanings and had the lowest reliability among the 30 being utilized. After careful consideration, it was

decided to drop this variable from the peer-nomination data and to compute a 4-factor solution. With this variable omitted, the Eigenvalue dropped below 1.0 for the fifth factor, and the first four factors accounted for 78% of the covariance.

Four-Factor Solution of Peer Nominations

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
PRECISEX	.89433	-.05342	.03973	.19164
ORGANIZX	.88577	.00556	.21723	.03867
NEATX	.86857	.05935	.08597	.12817
RESPONX	.86814	-.03872	.24663	.10083
EFFICIX	.85909	-.05271	.26389	.07304
CONSISX	.84456	-.03704	.08583	.20642
INSIGHTX	.83134	-.23948	.02304	.29447
CONTEMPX	.80462	.17357	.27326	.10287
DEEPX	.74481	-.00628	-.03834	.46067
INTROSPX	.74268	.08033	.03656	.45508
PHILOSX	.69409	.10591	.25350	.25730
SELF_PX	-.68091	.26224	-.27793	-.12139
ENVIÖUSX	-.58635	-.03708	-.57544	-.14990
JEALOUSX	-.54198	-.12904	-.38524	-.33584
SHYX	-.12795	.92150	.15486	.04509
QUIETX	.06306	.90701	.21679	.08917
BASHFULX	-.11002	.90058	.13064	.10481
TALKATX	-.15004	-.89335	-.16765	.04420
SILENTX	.08127	.88805	.27839	.05648
TIMIDX	-.25212	.85010	.06013	.11408
MOODYX	-.10253	-.37089	-.78292	-.17061
TOUCHYX	-.18701	-.34451	-.76710	-.12287
KINDX	.35191	.34004	.63409	.40870
IRRITAX	-.16733	-.39267	-.56199	-.47257
WARMX	.35216	.25275	.55814	.45617
CONSIDX	.47354	.31305	.55281	.40641
AFFECTX	.29373	.08392	.19948	.81762
SYMPAX	.36280	.18657	.21969	.77073
FRIENDX	.26689	-.09277	.42841	.72692

Factor 1 appears to be an 'Achiever' or 'Efficient Worker' factor. It describes individuals who are conscientious, intellectual, and emotionally stable, and who probably were doing well in all observable activities in Basic Training. Factor 2 is the Introversion factor, which is very strong. All six of the traits selected to measure introversion have loadings of .85 or above on it. Note that these traits are the easiest ones to observe. Factor 3 is best described as an Emotional Stability factor, with negative loadings on Envious, Jealous, Moody, Touchy, and Irritable and with positive loadings on Kind, Warm, and Considerate. Factor 4 can be labeled as Agreeableness. Affectionate, Sympathetic, Friendly, Kind, Warm, and Considerate all load on this factor. There is no factor 5, and the traits which normally be expected to define it have their loadings on factor 1.

Analyses of Composite Scores

Peer Nominations and Self Ratings.

Ratings or nominations on single trait terms were expected to be somewhat unreliable. Those judgments were normally made in a matter of seconds. However, there were six trait terms included in the study for each of the five factor areas, so it was possible to compute five composite scores, each based upon an average across the six relevant trait terms. In the case of self ratings, each rater rated him/herself on all 30 traits, and the information being averaged all came from the same source. In the case of peer nominations, the score for each trait represented an average of scores given by several peers, and the information being averaged was those mean rating scores. In the correlation matrix provided below, the variables which have names ending with the letter 'x' are based on peer nomination scores, while the remaining ones were based on self ratings. Note that the factor labeled as 'Dependability' is the same as the one often labeled as 'Conscientiousness'.

Correlations:	DEPENDX	AGREEX	INTROVX	NEUROX	INTELLX	DEPEND
DEPENDX	1.0000	.5824**	-.0075	-.6122**	.8698**	.2557**
AGREEX	.5824**	1.0000	.3379**	-.7757**	.6729**	.0797
INTROVX	-.0075	.3379**	1.0000	-.3709**	-.0278	-.0630
NEUROX	-.6122**	-.7757**	-.3709**	1.0000	-.5986**	-.0850
INTELLX	.8698**	.6729**	-.0278	-.5986**	1.0000	.2314**
DEPEND	.2557**	.0797	-.0630	-.0850	.2314**	1.0000
AGREE	.0795	.1566**	-.0577	-.0408	.1361*	.4170**
INTROV	-.0460	.0233	.3663**	-.0944	-.1173	-.1477*
NEURO	-.2025**	-.2690**	-.1047	.2946**	-.2464**	-.2266**
INTELL	.1302*	.0684	-.1127	-.0534	.2195**	.4450**
Correlations:	AGREE	INTROV	NEURO	INTELL		
DEPENDX	.0795	-.0460	-.2025**	.1302*		
AGREEX	.1566**	.0233	-.2690**	.0684		
INTROVX	-.0577	.3663**	-.1047	-.1127		
NEUROX	-.0408	-.0944	.2946**	-.0534		
INTELLX	.1361*	-.1173	-.2464**	.2195**		
DEPEND	.4170**	-.1477*	-.2266**	.4450**		
AGREE	1.0000	-.0768	-.1105	.3491**		
INTROV	-.0768	1.0000	.2882**	-.1532**		
NEURO	-.1105	.2882**	1.0000	-.1904**		
INTELL	.3491**	-.1532**	-.1904**	1.0000		
N of cases:	465					
		2-tailed Signif:	* - .01	** - .001		

It will be observed in the above table that the intercorrelations among the composite scores based on peer nominations were extremely high. For example, the correlation between the Dependability (Conscientiousness) composite and the Intellect composite was .8698. This indicates that airmen in the peer rating group could not discriminate between these two factor areas when they made their nominations. If a fellow airmen was rated high on dependability, he/she was also rated high on intellect, and in all likelihood low on Neuroticism (correlations -.61 and -.60). It appears that after 21 days in basic training, airmen had only a fuzzy concept concerning the personality traits of their peers. By contrast, only two composite scores based on self ratings intercorrelated above .40.

It is interesting to note that, based on 465 observations, the correlation between Introversion and Neuroticism is $-.37$ for peer nomination scores, while it is $+.29$ for self rating scores. An individual who rates himself as being introverted tends to also rate himself as being neurotic, while individuals who are viewed by peers as being introverted tend to be viewed as being emotionally stable.

Correlations Between Peer Nominations and Self Rating Composites

The correlations between the peer nomination and self rating composites for the same factors are disappointingly low, as follows:

Dependability	.26
Agreeableness	.16
Introversion	.37
Neuroticism	.29
Intellect	.22

A factor analysis of the peer nomination and peer rating composite scores was accomplished, the results of which are presented below:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
INTELLX	.92124	.15932	-.15236	-.06031
DEPENDX	.91310	.11426	-.13874	.01139
AGREEX	.80486	.05035	.34324	-.15045
NEUROX	-.79156	.00706	-.39980	.15640
DEPEND	.12386	.78347	-.06117	-.11897
AGREE	.03270	.77627	.05148	.02950
INTELL	.06799	.74255	-.10173	-.12253
INTROVX	.08294	-.07685	.90505	-.05571
NEURO	-.18006	-.15948	-.16814	.85710
INTROV	-.00405	-.05783	.57652	.66079

Factor 1 is very strong and is solely defined by peer nomination composites. It is essentially the same as factor 1 obtained in the factor analysis of the individual trait scores. Airmen tend to view their peers as being at some level on a global factor which is defined positively by intellect, dependability, agreeableness and negatively by neuroticism. Factor 3 is interesting in that it is the only one that has high loadings from both peer and self rating scores. Individuals who rate themselves as being introverted are rated as being introverted by their peers. Factor 3 is defined by positive loadings of Neuroticism and Introversion from the self rating scores.

Correlations Between Peer Nominations and Self Nominations

Since individuals during the peer nominations sessions dealt with only half of the trait names (either set 1 or set 2 traits), only 3 traits enter into computation of the self nomination composites. The results below are reported separately for the two trait sets. Variable labels with a last letter of 'y' are for self nomination scores.

Set 1 Composite Intercorrelations:

Correlations:	DEP1X	AGREE1X	INTRO1X	NEURO1X	INTELL1X	DEP1Y
DEP1X	1.0000	.5330**	.1051	-.4689**	.6411**	.3748**
AGREE1X	.5330**	1.0000	.5201**	-.7854**	.5359**	.0572
INTRO1X	.1051	.5201**	1.0000	-.5037**	.0217	-.0090
NEURO1X	-.4689**	-.7854**	-.5037**	1.0000	-.3611**	-.0667
INTELL1X	.6411**	.5359**	.0217	-.3611**	1.0000	.2045*
DEP1Y	.3748**	.0572	-.0090	-.0667	.2045*	1.0000
AGREE1Y	.1025	.2087*	.1906*	-.1818*	.0507	.2318**
INTRO1Y	.0203	.2827**	.6182**	-.3173**	-.0636	-.0513
NEURO1Y	-.1803*	-.2717**	-.2113*	.3552**	-.0749	-.2637**
INTELL1Y	.0801	-.0788	-.0740	.0240	.1811*	.2622**

Correlations:	AGREE1Y	INTRO1Y	NEURO1Y	INTELL1Y
DEP1X	.1025	.0203	-.1803*	.0801
AGREE1X	.2087*	.2827**	-.2717**	-.0788
INTRO1X	.1906*	.6182**	-.2113*	-.0740
NEURO1X	-.1818*	-.3173**	.3552**	.0240
INTELL1X	.0507	-.0636	-.0749	.1811*
DEP1Y	.2318**	-.0513	-.2637**	.2622**
AGREE1Y	1.0000	.1259	-.3044**	.1499
INTRO1Y	.1259	1.0000	.0259	-.1546
NEURO1Y	-.3044**	.0259	1.0000	-.0880
INTELL1Y	.1499	-.1546	-.0880	1.0000

N of cases: 227 2-tailed Signif: * - .01 ** - .001

In general, the correlations between the self nomination and peer nomination ratings are higher than those reported between the self rating and peer nomination scores. These are summarized below:

Dependability	.37
Agreeableness	.21
Introversion	.62
Neuroticism	.36
Intellect	.18

The correlation of .62 between the self nomination and peer nomination scores on the Introversion composites is extremely high, especially which it is remembered that these two composites were based on averages of only three traits.

Factor Analysis of Set 1 Composite Scores

The results of a factor analysis of the Set 1 composites are reported below. Again we find that the only factor with substantial loadings from both the self nominations and peer nominations is the Introversion factor.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
INTELL1X	.86973	-.11098	.05904
DEP1X	.84945	.00589	.18422
AGREE1X	.71854	.56499	.06630
INTRO1X	.09049	.85843	.10210
INTRO1Y	-.06441	.78322	-.06800
NEURO1X	-.60146	-.60692	-.13679

AGREE1Y	-.05701	.27781	.68763
DEP1Y	.23824	-.18335	.66897
NEURO1Y	-.11486	-.24645	-.63746
INTELL1Y	.07460	-.31012	.54031

Set 2 Composite Intercorrelations

Correlations:	DEP2X	AGREE2X	INTRO2X	NEURO2X	INTELL2X	DEP2Y
DEP2X	1.0000	.5014**	-.0350	-.5609**	.8450**	.4420**
AGREE2X	.5014**	1.0000	.0760	-.6830**	.6302**	.0367
INTRO2X	-.0350	.0760	1.0000	-.3253**	-.1229	-.1853*
NEURO2X	-.5609**	-.6830**	-.3253**	1.0000	-.6141**	-.0893
INTELL2X	.8450**	.6302**	-.1229	-.6141**	1.0000	.3335**
DEP2Y	.4420**	.0367	-.1853*	-.0893	.3335**	1.0000
AGREE2Y	.0253	.1592	-.0727	-.0829	.1078	.0935
INTRO2Y	-.1164	-.0094	.6380**	-.1730	-.1946*	-.2038*
NEURO2Y	-.0993	-.0190	-.0600	.1216	-.0722	-.2534**
INTELL2Y	.3111**	.1133	-.0761	-.1644	.3431**	.4579**

Correlations:	AGREE2Y	INTRO2Y	NEURO2Y	INTELL2Y
DEP2X	.0253	-.1164	-.0993	.3111**
AGREE2X	.1592	-.0094	-.0190	.1133
INTRO2X	-.0727	.6380**	-.0600	-.0761
NEURO2X	-.0829	-.1730	.1216	-.1644
INTELL2X	.1078	-.1946*	-.0722	.3431**
DEP2Y	.0935	-.2038*	-.2534**	.4579**
AGREE2Y	1.0000	-.0244	-.1672	.1065
INTRO2Y	-.0244	1.0000	.0094	-.0645
NEURO2Y	-.1672	.0094	1.0000	-.3770**
INTELL2Y	.1065	-.0645	-.3770**	1.0000

N of cases: 220 2-tailed Signif: * - .01 ** - .001

The correlations between the self nomination and peer nomination scores are as follows:

Dependability	.44
Agreeableness	.16
Introversion	.64
Neuroticism	.12
Intellect	.38

Factor Analysis of Set 2 Composite Scores

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
INTELL2X	.88660	-.19060	.23607	-.02692
AGREE2X	.84095	.06388	-.10570	.21370
NEURO2X	-.82189	-.34618	-.05290	-.08582
DEP2X	.81816	-.10906	.32892	-.16713
INTRO1X	.11443	.90447	-.02928	-.05935
INTRO2Y	-.06225	.87704	-.05759	-.00966
INTELL2Y	.16839	-.03068	.79350	.02370
DEP2Y	.18755	-.24906	.73727	-.12845
NEURO2Y	.06239	-.17271	-.69432	-.32535
AGREE2Y	.08705	-.08184	.08745	.92592

It seems clear from the data presented above that self nomination scores are superior to self rating scores in predicting peer nominations. This is partially due to method differences, but in the judgment of the present writer, the main advantage of the self nomination procedure is that it provides a well-defined context for the evaluations.

Correlations Among Self Ratings, Self Nominations, and Peer Nominations for Traits

The table on the next page presents for the 30 traits the correlations between self ratings and self nomination scores; between self ratings and peer nomination scores; and between self nomination scores and peer nomination scores. It is rich with information concerning questions addressed by the study. The correlations between self ratings and self nomination scores in the first column are only moderate. But they are attenuated by the use of different methods, and it should be remembered that they are for single trait terms. The correlations between self ratings and peer nominations, which are presented in the second column are low to moderate. Again, these scores were obtained by different methods. The correlations between self nominations and peer nominations are higher than the correlations between self ratings and peer nominations. This is probably entirely due to the use of common methods in one case, but not in the other.

CORRELATIONS AMONG SELF RATINGS, SELF NOMINATIONS AND PEER NOMINATIONS

Trait Names	Self Ratings vs.	Self Ratings vs.	Self
	Self	Peer	Nominations vs.
	Nominations	Nominations	Peer
			Nominations.
Organized	.35	.17	.33
Neat	.35	.19	.36
Precise	.50	.20	.41
Efficient	.42	.15	.28
Responsible	.41	.24	.25
Consistent	.32	.17	.33
Kind	.14	.09	.14
Warm	.38	.14	.17
Friendly	.34	.07	.10
Affectionate	.34	.08	.15
Considerate	.19	.19	.14
Sympathetic	.38	.07	.10
Shy	.51	.29	.57
Silent	.53	.33	.51
Quiet	.38	.31	.52

Bashful	.50	.24	.45
Timid	.44	.14	.37
Talkative	.47	.26	.50
Moody	.50	.22	.29
Jealous	.48	.15	.01
Touchy	.42	.17	.27
Irritable	.39	.22	.13
Envious	.43	.17	.13
Self-Pitying	.41	.23	.34
Inquisitive	.32	.12	.02
Introspective	.47	.11	.32
Insightful	.29	.19	.26
Deep	.56	.14	.21
Philosophical	.44	.19	.23
Contemplative	.37	.17	.16

It is important to note that the highest correlations in all instances were obtained on those traits which are most easily observed. For example, previous studies have noted that the factor which is observed most quickly is Extroversion-Introversion, and it should be noted that the correlations between self nomination scores and peer nominations scores for traits on this factor are all fairly high, averaging above .50. The self and peer nominations scores are also moderately high for those traits which define the Dependability (or Conscientiousness) factor. Observability in the basic training environment would seem to be the primary factor distinguishing those traits with moderate to high correlations from those with low correlations, as seen below:

Traits for Which Self and Peer Nomination Correlations are above .25	Traits for Which Self and Peer Nomination Correlations are below .20
Shy	Kind
Silent	Warm
Quiet	Friendly
Bashful	Affectionate
Timid	Considerate
Talkative	Sympathetic
Organized	Jealous
Neat	Irritable
Precise	Envious
Efficient	Inquisitive
Responsible	Contemplative
Consistent	
Moody	
Touchy	
Self-Pitying	

Introspective
Insightful

Ordinarily, one would think that those traits associated with Agreeableness should be easy to observe. However, in basic training, individuals have very little time with one another outside of drills and classrooms. There are essentially no social activities during the first 21 days of training in which individuals interact. There is always fear by many individuals that they may not successfully complete the training program. Therefore there is a tendency for many to play a role during this short but important interval in their lives. It is hypothesized that this attitude, coupled with the basic training environment, dampened the display of behaviors which otherwise might have been observed had the situation been less structured.

EFFORTS TO IMPROVE THE QUALITY OF PEER NOMINATION DATA

It was decided that two steps would be taken which might improve the quality of the peer-rating data. The first was an attempt to identify and discard observations from individuals who did not take the experiment seriously, or who had a different concept of the meaning of a trait name than other individuals. The second involved identifying individuals for whom there was little agreement concerning trait descriptives. These would be individuals which others did not get to know well during the short and restricted 21-day period. Note that in neither of these two steps were self-nomination scores viewed or utilized. The results of the two steps should improve the quality of the peer-nomination data, but it could lead to either an increase or decrease in the self-peer nomination correlations.

Step 1--Elimination of Individual Trait Nomination Scores for Outlying Raters.

An example is given to indicate the rationale and nature of this approach. Suppose that I, as a rater, provided ratings (nomination scores) for 20 individuals on the trait 'Timid'. Those 20 individuals also received nomination scores on the trait 'Timid' from other peers. One could correlate my nominations of the 20 individuals on this trait with the mean nomination scores given by their other peers. Suppose that this correlation is .00. This would mean that there is no agreement between my nominations of individuals on this trait and the nomination scores given to them by their other peers. One could justify throwing my ratings out of the pool. While the new means (with my nominations out) would be based on smaller Ns, the inter-rater agreement coefficient would go up and not down.

One could continue with this process by comparing my nominations for each of the 15 traits, one at a time, and throw out my nominations on each trait for which I had no agreement with other raters. Conceivably, all of my nomination scores

could be thrown out. This would happen if I assigned random nomination scores during the experiment.

This procedure must be accomplished in an iterative fashion. The problem is that a second rater is compared with a mean which includes my nomination scores, even though I have been declared to be contributing bad data. Because of this the following steps were taken.

Round 1

Throw out all nomination scores for an individual on those traits where his correlation with the mean of other raters was negative, or below .15.

Compute uncorrected split-halves reliability coefficients (uncorrected) for each trait. If reliabilities go up, then the first step is justified.

Round 2

Recompute the correlations of each rater on each trait with the mean rating given by the other raters.

Throw out all nomination scores for an individual on those traits where his correlation with the mean of the other raters is .30 or below (note: .30 is not significant at the .05 level).

Compute uncorrected split-halves reliability coefficients (uncorrected) for each trait. If a reliability for a trait goes up, then leave the nomination scores out. If a reliability for a trait goes down, then back up to the .15 correlation for that trait (e.g., put back the nomination scores which have been removed on that trait during this iteration).

Actually, in round 2, about half of the reliabilities went up, and about half went down. The nomination scores were put back in where the reliabilities went down. The table on the next page pretty well tells the final story. In the first column is the uncorrected reliability coefficients for traits before any observations were discarded. The second column shows the reliabilities after the 'bad' nomination scores had been discarded. In a four instances, the reliabilities went down a little, but in most cases they went up substantially, particularly for those traits associated with the neuroticism and intellect factors. Because this procedure was expensive from a computation point of view, no further action was taken and the 'cleaned-up' data were accepted.

Split-Half Uncorrected Reliabilities for Peer Nominatiions Before and After Clean-Up

Trait Name	Before Clean-up	After Clean-up
Organized	.70	.67
Neat	.65	.65
Precise	.63	.64
Efficient	.62	.72
Responsible	.72	.69
Consistent	.58	.63
Kind	.60	.64
Warm	.48	.59
Friendly	.46	.47
Affectionate	.47	.54
Considerate	.61	.63
Sympathetic	.56	.51
Shy	.72	.77
Silent	.74	.73
Quiet	.76	.78
Bashful	.69	.72
Timid	.57	.72
Talkative	.72	.72
Moody	.53	.58
Jealous	.39	.52
Touchy	.44	.52
Irritable	.56	.57
Envious	.45	.51
Self-Pitying	.56	.60
Inquisitive	.27	.46
Introspective	.48	.54
Insightful	.68	.70
Deep	.55	.57
Philosophical	.46	.57
Contemplative	.60	.65

The basic question was whether the cleaned-up data produced lower or higher correlations between self nomination and peer nomination scores. The table below reports these correlations for the original and the cleaned-up data

Correlations Between Self Nomination and Peer Nomination Scores Before and After Clean-Up

Trait Name	Before Clean-up	After Clean-up
Organized	.33	.33
Neat	.36	.39

Precise	.41	.48
Efficient	.28	.35
Responsible	.25	.27
Consistent	.33	.34
Kind	.14	.22
Warm	.17	.40
Friendly	.10	.23
Affectionate	.15	.30
Considerate	.14	.26
Sympathetic	.10	.24
Shy	.57	.59
Silent	.51	.53
Quiet	.52	.55
Bashful	.45	.50
Timid	.37	.58
Talkative	.50	.50
Moody	.29	.48
Jealous	.01	.26
Touchy	.27	.40
Irritable	.13	.34
Envious	.13	.34
Self-Pitying	.34	.56
Inquisitive	.02	.42
Introspective	.32	.47
Insightful	.26	.26
Deep	.21	.27
Philosophical	.23	.31
Contemplative	.16	.40

The table above reveals a significant improvement in the correlations between self nominations and peer nominations using the cleaned-up data.

The information obtained in the process of cleaning up the data is useful in identifying those trait names on which there was agreement or lack of agreement in application of the rating task. If very few observations were removed for a trait, this indicates that there was general agreement concerning application of that trait in the rating process. On the other hand, if a large number of observations were thrown out, this indicates a general lack of agreement in terms of application of that trait in the rating process. This lack of agreement could be due to the fact that the trait is not very observable in the basic training environment, or that there were differences of opinion in terms of the trait meaning. In any event, the table below indicates the number of ratings retained in the clean-up process. Before clean-up there were 227 ratings available for the traits in set 1, and 220 ratings available in set 2. Those traits listed at the top of the table are those on which there was general agreement concerning application. Those at the bottom of the list are those on which there as a general

lack of agreement concerning application. Those on which there was high agreement included responsible, talkative, silent, bashful, organized, quiet, efficient, shy, and neat. Those on which there was low agreement included inquisitive, affectionate, jealous, envious, warm, self-pitying and introspective.

Number of Trait Ratings Remaining After the Clean-Up Process

<u>Trait Name</u>	<u># Ratings Remaining</u>
RESPONSIBLE	223
TALKATIVE	223
SILENT	220
BASHFUL	219
ORGANIZED	217
QUIET	214
EFFICIENT	211
SHY	210
NEAT	207
INSIGHTFUL	207
PRECISE	206
DEEP	193
KIND	192
CONSISTENT	190
PHILOSOPHICAL	182
IRRITATIVE	178
TIMID	172
TOUCHY	172
SYMPATHETIC	170
FRIENDLY	168
CONSIDERATE	166
MOODY	166
INTROSPECTIVE	165
SELF-PITYING	165
WARM	154
ENVIOUS	145
JEALOUS	132
AFFECTIONATE	117
INQUISITIVE	83

Step 2 of the Clean-up Process

One additional step was taken to improve the quality of the rating information. This involved computing the split-half correlations of the nomination scores given to each ratee by his peers. It was assumed that if the correlation for a particular ratee was non-significant, then it is likely that ratee was not well observed during

the 21-day training period. The results of this exercise yielded correlations ranging from -.33 to .96.

A correlation of .4327 is just significant at the .05 level. For purposes of evaluation, subjects for which the correlation was less than that value were temporarily removed from the sample in step 2 of the clean-up process. This resulted in approximately 29%, or 134 out of the 467 subjects being discarded. The impact of this step on the correlations between self nominations and peer nominations is presented in the table below. To facilitate comparisons, values are provided for the correlations before any clean-up, after step 1 clean-up and after step 2 clean-up.

Correlations of Self Nominations with Peer Nominations Before and After Clean-Up

Trait Name	Before Clean-up	After Clean-up #1	After Clean-up #1 & #2
Organized	.33	.33	.40
Neat	.36	.39	.43
Precise	.41	.48	.50
Efficient	.28	.35	.37
Responsible	.25	.27	.31
Consistent	.33	.34	.37
Kind	.14	.22	.30
Warm	.17	.40	.50
Friendly	.10	.23	.25
Affectionate	.15	.30	.30
Considerate	.14	.26	.32
Sympathetic	.10	.24	.30
Shy	.57	.59	.62
Silent	.51	.53	.58
Quiet	.52	.55	.57
Bashful	.45	.50	.58
Timid	.37	.58	.60
Talkative	.50	.50	.56
Moody	.29	.48	.53
Jealous	.01	.26	.27
Touchy	.27	.40	.50
Irritable	.13	.34	.37
Envious	.13	.34	.42
Self-Pitying	.34	.56	.57
Inquisitive	.02	.42	.42
Introspective	.32	.47	.52
Insightful	.26	.26	.30

Deep	.21	.27	.27
Philosophical	.23	.31	.44
Contemplative	.16	.40	.45

The correlations between self and peer nominations are quite respectable after the corrections. The question then, is "were the corrections justified?" I would argue that they were. In no instances were the self nomination scores considered in discarding observations or subjects. In the case of the first correction, observations were discarded when an individual's nomination scores across subjects on a trait were not significantly related to the nomination scores given by other raters to those same subjects. This could be due to a lack of serious consideration by the rater; to the fact that he did not fully understand the meaning of the trait term; or to the fact that he was not perceptive enough to view other subjects in terms of the trait. In any event, observations were not discarded unless this process led to an increase in the inter-rater agreement coefficient. In the second correction, an individual was discarded if there was no agreement in the nomination scores assigned him by his peers. This could be due a lack of observable behaviors on his part which enabled other raters to properly evaluate him.

The goal in both corrections was to obtain the most reliable and agreed upon information from peers. It is concluded that some of these behaviors were not elicited in the short 21 days in the highly restricted basic training environment. Nevertheless, correlations in the .30's .40's .50's and .60's are quite respectable for single trait names.

Comparison of Self-Ratings and Self-Nominations

The chart below presents a comparison of the correlations of self ratings and self nomination correlations with peer nominations before and after the corrections to peer nominations were introduced. In every instance, the correlations of self nominations with peer nominations are substantially higher than are the correlations of self ratings with peer nominations. It should be observed that in the case of self ratings, different methods were used, while in the case of self nominations, common methods were used. It is hypothesized that the self nomination scores were superior because they provided a well- defined context for the rater, who is asked on each trait to place him/herself in a position relative to other individuals in his or her sleeping bay

Correlations of Self Ratings and Self Nominations with Peer Nominations Before and After Clean-up

Trait Name	Self Ratings- Before Clean-up	Self Ratings After Clean-up	Self Nomin. Before Clean-up	Self Nomin. After Clean-up
------------	--	--------------------------------------	--------------------------------------	-------------------------------------

Organized	.17	.17	.33	.40
Neat	.19	.21	.36	.43
Precise	.20	.22	.41	.50
Efficient	.15	.13	.28	.37
Responsible	.24	.29	.25	.31
Consistent	.17	.18	.33	.37
Kind	.09	.06	.14	.30
Warm	.14	.11	.17	.50
Friendly	.07	.06	.10	.25
Affectionate	.08	.05	.15	.30
Considerate	.19	.19	.14	.32
Sympathetic	.07	.07	.10	.30
Shy	.29	.35	.57	.62
Silent	.33	.36	.51	.58
Quiet	.31	.33	.52	.57
Bashful	.24	.26	.45	.58
Timid	.14	.18	.37	.60
Talkative	.26	.28	.50	.56
Moody	.22	.26	.29	.53
Jealous	.15	.13	.01	.27
Touchy	.17	.23	.27	.50
Irritable	.22	.29	.13	.37
Envious	.17	.18	.13	.42
Self-Pitying	.23	.30	.34	.57
Inquisitive	.12	.15	.02	.42
Introspective	.11	.14	.32	.52
Insightful	.19	.22	.26	.30
Deep	.14	.14	.21	.27
Philosophical	.19	.18	.23	.44
Contemplative	.17	.17	.16	.45

Several things should be kept in mind concerning the above table. The N's for the first column were approximately 465, with all cases represented. The N's for column 2 were approximately 333, with 164 cases omitted because of a lack of peer agreement. The N's for column 3 were 220 or 227, according to whether set 1 or set 2 traits were being considered. The N's for column 4 were highly varied, because of the elimination of subjects and of nomination scores on various traits. For example, the N's for the Conscientiousness' traits varied from 135 to 162, and for the Introversion traits from 133 to 165. There were five traits for which the N's were less than 100: Warm, Affectionate, Jealous, Envious, and Inquisitive. Evidently these were traits which were not easy for the peers to evaluate. The N's for these correlations were 92,88,95,87, and 55, respectively.

All of the correlations in the above table were for individual traits. The correlations of composites would be significantly higher. In the case of self

ratings vs. peer nominations after corrections, the correlations for composites of the six terms in each factor area were as follows:

FactorArea	Correlation
Conscientiousness	.258
Agreeableness	.116
Introversion	.405
Neuroticism	.350
Intellect	.273

Only three-term composites could be computed for the self-nomination scores, since each subject dealt only with set 1 or set 2 traits. However the validities of these composites for the corrected peer nominations are presented below. Note that the N's for these composites were highly restricted, since a common N for all traits and the criterion was used.

Correlations of Self Nomination 3-Trait Composites with Peer Nominations Before and After Cleanup

CONSCIENTIOUSNESS

Trait Composites	Correlation	N
ORGANIZE	.443	131
EFFICIENT		
RESPONSIBILITY		
NEAT	.507	137
PRECISE		
CONSISTENT		

AGREEABLENESS

KIND	.511	74
WARM		
CONSIDERATE		
FRIENDLY	.205	67
AFFECTIONATE		
SYMPATHETIC		

INTROVERSION

SILENT	.667	138
BASHFUL		
TALKATIVE		

SHY	.733	127
QUIET		
TIMID		

NEUROTICISM

MOODY	.487	53
TOUCHY		
ENVIOUS		
JEALOUS	.406	69
IRRITABLE		
SELF-PITY		

INTELLECT

INQUISITIVE	.513	36
PHILOSOPHIC		
CONTEMPLATIVE		
INTROSPECTIVE	.471	114
INSIGHTFUL		
DEEP		

SUMMARY OF FINDINGS FROM PEER RATING (NOMINATION) STUDY

The decision was made to conduct a study which involved validating self ratings against peer nomination scores. For this study, six traits were selected to define each of the five factors, making a total of 30 trait terms. Each subject rated him/herself on the 30 traits.

For the peer rating portion of the study, each subject was first asked to identify all other airmen in his/her flight, who also slept in the same bay. Ratings were obtained using a nomination procedure. Each subject dealt with only 15 of the 30 traits (3 on each of the 5 factors). For the first trait, the rater identified the six peers (one at a time) who were considered to be highest on the trait. Then he identified the six peers (one at a time) who were judged to be lowest on the trait. Those who were neither nominated as being in the upper or lower 6 were assigned middle values. This procedure was repeated until ratings (nominations) were obtained for each of the 15 traits under consideration. The rater's name was included in the rating list, and he was asked to nominate himself/herself when appropriate.

The above procedures yielded three sets of scores:

1. Self ratings.
2. Self nominations (as part of the peer rating exercise)
3. Peer nominations (an average of nominations from several peers).

Results of the validation study were mixed. Except for those traits which loaded on the Extroversion-Introversion factor, the validities of self ratings for peer nomination scores were relatively low. The validities of self nomination scores for peer nomination scores were significantly higher. This was undoubtedly partially due to the use of common methods, but of more consequence may have been the fact that self nominations provided a context in which the individual nested him/herself.

A comprehensive analysis of the peer nominations indicated that they left much to be desired. For many of the traits, the correlations between the nomination scores given by any one peer and those from the remaining peers were uncorrelated. For 29% of the subjects, the split-half correlation of the nomination scores that he/she received from peers across 15 traits was non-significant.

It was concluded that many of the rated behaviors simply were not observed well enough during the first 21 days of basic training to yield good information. An attempt was made to 'clean up' the rating (nomination) data by discarding subjects for which there was no agreement, and by discarding specific trait nomination scores which reduced interrater agreement. The validities of self rating and self nomination scores were quite satisfactory against these purified criteria, but in some instances, the N's were low.

It was finally concluded that peer ratings from airmen in their 21st day of basic training did not constitute a good criterion for validating information provided by individuals on themselves. Other alternative validation methods should be considered. These include the following:

1. Administration of personality tests and collection of peer ratings from 3rd or 4th year students at the Air Force Academy.
2. Administration of personality tests to airmen in the field by Air Force Test Control Officers, and collection of performance criteria from supervisors.
3. Use of OTS or AFROTC students for collection of self and peer rating information.

Appendix 5

Development of Centile Conversion Tables

Conversion tables were developed and used to convert raw scores into centiles with 5% intervals. However, a significant amount predictive efficiency is lost when the distributions are modified from near-normal to rectangular. Additional precision is lost as one moves from hundreds of intervals to only 20. The amount of this loss is indicated in Table 6 below. Note that the r 's are for individual composites and centile scores predicting the corresponding factor scores. The R 's are multiple correlations using all composite or centile scores in predicting each factor score in the full 2853-case sample.

Table 6

Validities of Centile and Composite Scores for Factor Scores

FACTOR	r--USING COMPOSITE	r--USING CENTILES	R--USING COMPOSITE S	R--USING CENTILES
Agreeable.	.92	.85	.98	.91
Conscien.	.91	.87	.97	.93
Extrovert.	.93	.91	.98	.95
Openness	.97	.97	.99	.97
Emo. Stab.	.95	.93	.98	.96

Development of T-Score Equations

Although centile scores were judged to be the easiest to interpret by subjects, it was felt that too much validity was lost in using these scores; therefore, it was decided to use standard scores. First, z scores were computed, with a mean of 0 and a standard deviation of 1. However, it was decided that the negative scores would lead to problems, so as a final approach, T-Scores were calculated. T-Scores have a mean of 50 and a standard deviation of 10. A negative T-Score is a rare event.

In order to compute T-Scores in future samples, there is need to estimate population means and standard deviations for each of the composites. For the time being, the means and standard deviations in the 2853-case sample are used as population estimates. As more cases are collected, it is recommended that new means and standard deviations be computed and used as revised population estimates. Below are listed the equations used to compute T-Scores in the present sample. Note that the T-Scores have the same validity as the original composite scores, but they are directly interpretable in terms of the

standardization population. The variable labels in the composites have been arbitrarily.

Agreeableness

$$=(((agcomp-446.48)/161.13)*10)+50.$$

Conscientiousness

$$=(((concomp-315.48)/125.45)*10)+50.$$

Extroversion

$$=(((extcomp-180.85)/191.95)*10)+50.$$

Openness

$$=(((opcomp-149.12)/172.02)*10)+50.$$

Emotional Stability

$$=(((emoscomp-177.07)/246.12)*10)+50.$$

The use of centile scores is not recommended because of their loss in accounting for the variance in factor scores. However, the computing expressions for producing centile scores are provided below in case there is a need for them. The variable labels have been arbitrarily assigned. Note that GE and LE stand for “greater than or equal to” and “less than or equal to.”

Centile Conversion Tables

Conversion Table 1--Agreeableness

IF (AGCOMP LE 72) AGVERT=1.
IF (AGCOMP GE 73 AND AGCOMP LE 205) AGVERT=5.
IF (AGCOMP GE 206 AND AGCOMP LE 268) AGVERT=10.
IF (AGCOMP GE 269 AND AGCOMP LE 308) AGVERT=15.
IF (AGCOMP GE 309 AND AGCOMP LE 338) AGVERT=20.
IF (AGCOMP GE 339 AND AGCOMP LE 368) AGVERT=25.
IF (AGCOMP GE 369 AND AGCOMP LE 395) AGVERT=30.
IF (AGCOMP GE 396 AND AGCOMP LE 418) AGVERT=35.
IF (AGCOMP GE 419 AND AGCOMP LE 437) AGVERT=40.
IF (AGCOMP GE 438 AND AGCOMP LE 460) AGVERT=45.
IF (AGCOMP GE 461 AND AGCOMP LE 475) AGVERT=50.
IF (AGCOMP GE 476 AND AGCOMP LE 494) AGVERT=55.
IF (AGCOMP GE 495 AND AGCOMP LE 513) AGVERT=60.
IF (AGCOMP GE 514 AND AGCOMP LE 530) AGVERT=65.
IF (AGCOMP GE 531 AND AGCOMP LE 548) AGVERT=70.
IF (AGCOMP GE 549 AND AGCOMP LE 569) AGVERT=75.

IF (AGCOMP GE 570 AND AGCOMP LE 592) AGVERT=80.
 IF (AGCOMP GE 593 AND AGCOMP LE 618) AGVERT=85.
 IF (AGCOMP GE 619 AND AGCOMP LE 648) AGVERT=90.
 IF (AGCOMP GE 649 AND AGCOMP LE 699) AGVERT=95.
 IF (AGCOMP GE 700) AGVERT=99.

Conversion Table 2--Conscientiousness

IF (CONCOMP LE 19) CONVERT=1.
 IF (CONCOMP GE 20 AND CONCOMP LE 122) CONVERT=5.
 IF (CONCOMP GE 123 AND CONCOMP LE 169) CONVERT=10.
 IF (CONCOMP GE 170 AND CONCOMP LE 198) CONVERT=15.
 IF (CONCOMP GE 199 AND CONCOMP LE 228) CONVERT=20.
 IF (CONCOMP GE 229 AND CONCOMP LE 253) CONVERT=25.
 IF (CONCOMP GE 254 AND CONCOMP LE 272) CONVERT=30.
 IF (CONCOMP GE 273 AND CONCOMP LE 291) CONVERT=35.
 IF (CONCOMP GE 292 AND CONCOMP LE 310) CONVERT=40.
 IF (CONCOMP GE 311 AND CONCOMP LE 325) CONVERT=45.
 IF (CONCOMP GE 326 AND CONCOMP LE 338) CONVERT=50.
 IF (CONCOMP GE 339 AND CONCOMP LE 352) CONVERT=55.
 IF (CONCOMP GE 353 AND CONCOMP LE 367) CONVERT=60.
 IF (CONCOMP GE 368 AND CONCOMP LE 382) CONVERT=65.
 IF (CONCOMP GE 383 AND CONCOMP LE 398) CONVERT=70.
 IF (CONCOMP GE 399 AND CONCOMP LE 414) CONVERT=75.
 IF (CONCOMP GE 415 AND CONCOMP LE 430) CONVERT=80.
 IF (CONCOMP GE 431 AND CONCOMP LE 451) CONVERT=85.
 IF (CONCOMP GE 452 AND CONCOMP LE 480) CONVERT=90.
 IF (CONCOMP GE 481 AND CONCOMP LE 512) CONVERT=95.
 IF (CONCOMP GE 513) CONVERT=99.

Conversion Table 3--Extroversion

IF (EXTCOMP LE -216) EXTVERT=1.
 IF (EXTCOMP GE -215 AND EXTCOMP LE -101) EXTVERT=5.
 IF (EXTCOMP GE -100 AND EXTCOMP LE -42) EXTVERT=10.
 IF (EXTCOMP GE -41 AND EXTCOMP LE -1) EXTVERT=15.
 IF (EXTCOMP GE 0 AND EXTCOMP LE 34) EXTVERT=20.
 IF (EXTCOMP GE 35 AND EXTCOMP LE 67) EXTVERT=25.
 IF (EXTCOMP GE 68 AND EXTCOMP LE 99) EXTVERT=30.
 IF (EXTCOMP GE 100 AND EXTCOMP LE 126) EXTVERT=35.
 IF (EXTCOMP GE 127 AND EXTCOMP LE 152) EXTVERT=40.
 IF (EXTCOMP GE 153 AND EXTCOMP LE 172) EXTVERT=45.
 IF (EXTCOMP GE 173 AND EXTCOMP LE 198) EXTVERT=50.
 IF (EXTCOMP GE 199 AND EXTCOMP LE 222) EXTVERT=55.
 IF (EXTCOMP GE 223 AND EXTCOMP LE 240) EXTVERT=60.
 IF (EXTCOMP GE 241 AND EXTCOMP LE 274) EXTVERT=65.
 IF (EXTCOMP GE 275 AND EXTCOMP LE 302) EXTVERT=70.
 IF (EXTCOMP GE 303 AND EXTCOMP LE 340) EXTVERT=75.
 IF (EXTCOMP GE 341 AND EXTCOMP LE 370) EXTVERT=80.
 IF (EXTCOMP GE 371 AND EXTCOMP LE 405) EXTVERT=85.
 IF (EXTCOMP GE 406 AND EXTCOMP LE 452) EXTVERT=90.
 IF (EXTCOMP GE 453 AND EXTCOMP LE 526) EXTVERT=95.
 IF (EXTCOMP GE 527) EXTVERT=99.

Conversion Table 4-- Openness

IF (OPCOMP LE -193) OPVERT=1.
IF (OPCOMP GE -192 AND OPCOMP LE -94) OPVERT=5.
IF (OPCOMP GE -93 AND OPCOMP LE -46) OPVERT=10.
IF (OPCOMP GE -45 AND OPCOMP LE -12) OPVERT=15.
IF (OPCOMP GE -11 AND OPCOMP LE 17) OPVERT=20.
IF (OPCOMP GE 18 AND OPCOMP LE 44) OPVERT=25.
IF (OPCOMP GE 45 AND OPCOMP LE 70) OPVERT=30.
IF (OPCOMP GE 71 AND OPCOMP LE 92) OPVERT=35.
IF (OPCOMP GE 93 AND OPCOMP LE 114) OPVERT=40.
IF (OPCOMP GE 115 AND OPCOMP LE 138) OPVERT=45.
IF (OPCOMP GE 139 AND OPCOMP LE 161) OPVERT=50.
IF (OPCOMP GE 162 AND OPCOMP LE 185) OPVERT=55.
IF (OPCOMP GE 186 AND OPCOMP LE 206) OPVERT=60.
IF (OPCOMP GE 207 AND OPCOMP LE 230) OPVERT=65.
IF (OPCOMP GE 231 AND OPCOMP LE 256) OPVERT=70.
IF (OPCOMP GE 257 AND OPCOMP LE 285) OPVERT=75.
IF (OPCOMP GE 286 AND OPCOMP LE 314) OPVERT=80.
IF (OPCOMP GE 315 AND OPCOMP LE 355) OPVERT=85.
IF (OPCOMP GE 356 AND OPCOMP LE 397) OPVERT=90.
IF (OPCOMP GE 398 AND OPCOMP LE 469) OPVERT=95.
IF (OPCOMP GE 470) OPVERT=99.

Conversion Table 5--Emotional Stability (Note: =Neuroticism * -1.00)

IF (EMOSCOMP LE -309) EMOSVERT=1.
IF (EMOSCOMP GE -308 AND EMOSCOMP LE -198) EMOSVERT=5.
IF (EMOSCOMP GE -197 AND EMOSCOMP LE -116) EMOSVERT=10.
IF (EMOSCOMP GE -115 AND EMOSCOMP LE -68) EMOSVERT=15.
IF (EMOSCOMP GE -67 AND EMOSCOMP LE -23) EMOSVERT=20.
IF (EMOSCOMP GE -22 AND EMOSCOMP LE 25) EMOSVERT=25.
IF (EMOSCOMP GE 26 AND EMOSCOMP LE 69) EMOSVERT=30.
IF (EMOSCOMP GE 70 AND EMOSCOMP LE 102) EMOSVERT=35.
IF (EMOSCOMP GE 103 AND EMOSCOMP LE 138) EMOSVERT=40.
IF (EMOSCOMP GE 139 AND EMOSCOMP LE 169) EMOSVERT=45.
IF (EMOSCOMP GE 170 AND EMOSCOMP LE 202) EMOSVERT=50.
IF (EMOSCOMP GE 203 AND EMOSCOMP LE 242) EMOSVERT=55.
IF (EMOSCOMP GE 243 AND EMOSCOMP LE 276) EMOSVERT=60.
IF (EMOSCOMP GE 277 AND EMOSCOMP LE 306) EMOSVERT=65.
IF (EMOSCOMP GE 307 AND EMOSCOMP LE 340) EMOSVERT=70.
IF (EMOSCOMP GE 341 AND EMOSCOMP LE 373) EMOSVERT=75.
IF (EMOSCOMP GE 374 AND EMOSCOMP LE 411) EMOSVERT=80.
IF (EMOSCOMP GE 412 AND EMOSCOMP LE 459) EMOSVERT=85.
IF (EMOSCOMP GE 460 AND EMOSCOMP LE 524) EMOSVERT=90.
IF (EMOSCOMP GE 525 AND EMOSCOMP LE 624) EMOSVERT=95.
IF (EMOSCOMP GE 625) EMOSVERT=99.