11-1985

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A Thesis

Submitted to the Graduate Faculty

of the University of Richmond

in Candidacy

for the degree of

Master of Arts

in Psychology

November 5,1985

Richmond, Virginia

Running Head: TRAITS AS SELF-SCHEMATA

Abstract

The concept that personality traits serve as a priori self-schemata cognitive structures in memory was investigated. College students from University of Richmond were tested on recall of 160 content-specific adjectives and then administered the Personality Research Form. After being shown the list of adjectives, subjects were given a five-minute distractor task and then given fifteen minutes to recall as many adjectives as possible. A correlational analysis was performed on the scores on the personality traits of achievement, affiliation, autonomy, dominance, endurance, nurturance, order, play, sentience, and understanding and with the recall of content-specific adjectives. The correlation between the trait of endurance and the recall of endurance-specific adjectives was significant. Other significant correlations were: achievement trait with endurance recall, sentience trait with play recall, nurturance trait with understanding recall, and sentience trait with nurturance recall. An interesting finding was that six out of ten traits correlated higher with their content-specific adjectives than with any other adjectives. The correlation between recall of adjectives and their social desirability scale was also significant. The study supported previous research which showed that some of the variance in the recall of adjectives can be attributed to the social desirability of the adjectives.

Traits as Self-Schemata and Their Effect on Recall

of Content-specific Adjectives

Much interest has been shown in cognitive structures and cognitive processes involved in memory. James (1890) postulated the idea of a self that is both the "knower" and the "known". The known acts as a memory store, and the knower acts as a set of processes. Bartlett (1932) asserted that people possess a schema which was defined as an active organization of past experiences. The schema serves as a cognitive structure and is influenced by complex psychological states or processes referred to as attitudes.

Later, cognitive structures and cognitive processes were studied separately. Craik and Lockhart (1972) contended that highly meaningful stimuli are processed at a "deeper" level and are better retained than less meaningful stimuli; depth of processing implies a greater degree of semantic or cognitive analysis. Craik and Tulving (1975) examined the following three levels of encoding: structural, phonemic, and semantic. In the structural task, subjects were asked about the physical structure of the word (e.g., "Is the word in capital letters?"). In the phonemic task subjects were asked about the word's rhyming characteristics (e.g., "Does the word rhyme with train?"). In the semantic task, subjects were asked the meaning of the word (e.g., "Is the word a type of fish?"). They found the highest level of recall

in the semantic task, the next highest level in the phonemic

task, and the lowest level of recall in the structural task.

It was demonstrated that a minimal semantic analysis aids

retention better than an elaborate structural analysis. They

concluded that it was the type of operation performed on the

items that determined the level of recall or recognition and

not the intention to learn, the amount of effort involved,

the difficulty of orienting task, the amount of time spent

making the judgements, or the amount of rehearsal.

Schulman (1974) found that congruous examinations of

words (e.g., "Is a SOPRANO a singer?") yielded better retention

than incongruous examinations (e.g., "Is MUSTARD concave?").

Similarly, Craik and Tulving (1975) discovered that when a

word did not fit the sentence frame (e.g., "She cooked the

CRATE."), the word was poorly recalled. They argued that

along with semantic analysis, a principle of congruity was

necessary for a complete description of the encoding process.

They suggested that when encoded material is integrated with

past experiences, a memory trace is established which

facilitates retrieval. A spread of encoding was mentioned

as a better description than depth of processing.

Rogers (1974) asserted that responding to personality

items involves a comparison between the items and an

internalized memory store. The memory store was labeled the

"self" and consisted of a Self-Referent Decision (SRD) stage.

The "self" was referred to as "an abstraction of salient, self-related experiences" (p.135). Later, Rogers (1977) suggested that the "self" had two components. One component consisted of a person's view of him/herself, and the other component consisted of mechanisms used to organize new input related to that memory component. In three experiments, it was discovered that: (1) some subjects spontaneously used an SRD strategy; (2) when subjects were instructed to use an SRD strategy, recognition was greatly increased; and (3) SRD strategy did not affect retention for third-person items.

Markus (1977) proposed that there are selective cognitive structures that are used in organizing information about the self. The structures were referred to as self-schemata. Self-schemata were defined as "cognitive generalizations about the self, derived from past experiences, that organize and guide the processing of self-related information contained in the individual's social experiences" (p.64). The concept of self-schemata was investigated by testing subjects on the traits of independence and dependence. Subjects were divided into three groups, independents, dependents and aschematics. Independents and dependents were subjects who rated themselves on the extremes of the appropiate scales and who claimed these scales as being important to them. Aschematics were subjects who rated themselves in the middle of the these scales and claimed these scales were not important to them. In the first

task, subjects were presented with adjectives associated with independence and dependence and were asked to indicate which adjectives were self descriptive. Their response time was recorded. In the second task, subjects were asked to cite instances of past behavior to support their choice of self-descriptive adjectives. In the third task, subjects were asked to predict the likelihood of future behavior with respect to independence and dependence. Finally, subjects were given a fictitious suggestability test and presented with incongruent feedback with regard to self-schema. It was shown that individuals who had a schema (either independent or dependent) chose more adjectives associated with that schema, processed those adjectives in a shorter time, were able to supply more examples of past schematic behavior, were more confident in predicting future schematic behavior, and more resistant to change when given feedback incongruent to their schema. The opposite was true for the aschematics. It was proposed that behavior was more a result of the readiness and ability to acknowledge the trait than the actual possession of the trait. Similar results were found in the domain of masculine and feminine self-schemata (Markus, Crane,& Siladi, 1978) and again in the domain of independence and dependence self-schemata (Sentis & Markus, 1979).

Cantor and Mischel (1977) investigated traits as proto-types in recognition. Subjects were presented with statements

descriptive of an extrovert, introvert, and two unextroverted and unintroverted characters. Subjects were also shown a second series of statements which included the original statements and some new items. The new items contained material that was conceptually related to the traits. When asked to indicate which items had been presented from the initial test, subjects displayed a bias to misidentify the conceptually related new items as having been original statements. It was shown that people use trait prototypes to organize anticipated schema of events.

Expanding on the idea that the self acts as a schema or prototype, Rogers, Kuiper, and Kirker (1977) investigated self-reference as an encoding device. Self-reference was compared to structual, phonemic, and semantic encoding processes. In the self-reference task, subjects were asked if the word described them. It was demonstrated that self-reference encoding tasks led to superior recall. They proposed that traits served as subschema, and that the extremity and the salience of the trait contributes to the organization of the self.

Further research has shown that self-descriptive traits enhanced superior recall and faster decision time (Kuiper & Rogers, 1979). It has also been shown that recall for trait adjectives that are descriptive of self or familiar others was better than for unfamiliar others (Bower & Gilligan, 1979;

Lord, 1980). Brenner (1973) demonstrated that self initiated

acts were better recalled than acts initiated by others.

Suin, Osborne, & Winfree (1962) discovered that adjectives

consisitent with a person's self-concept were better recalled

than adjectives inconsistent with a person's self-concept.

These findings are further support for the presence of self-

schema in memory.

Rogers, Kuiper, and Rogers (1979) further investigated

the properties of self-reference. In their first experiment,

they measured the response time in a paired comparision task.

Subjects were first asked to rate themselves on 14 personality

traits. Then Subjects were shown a pair of adjectives and

asked to decide which one best described them. The adjectives

were broken down into seven interstimulus distances referred

to as step 0 through step 6. Step 0 contained a pair of

adjectives which received identical self-rating by that

particular subject. Step 6 contained a pair of adjectives

in which one of the words was separated by six units on that

subject's self-rating from the other word. When subjects were

given step 0 adjectives, the stimuli were hard to discriminate

and the response time was high. At each step increase the

stimuli became easier to discriminate and the response time

was significantly lower. It was found that 95% of the

variance in the response time in the paired comparisons task·

was attributed to self-reference. It was concluded that self-

reference was a robust process.

In the second experiment, subjects filled out a self-rating questionaire. Three sets of adjective pairs comprised of low, middle, and high levels of self-reference were obtained from the self-rating questionaire. Subjects were tested on a paired comparision task in two different sessions. In one session they were instructed to choose the adjective that described them best. In the other session they were instructed to choose the adjective that described them least. Their response times were recorded. Since there was no significant interaction between the response times on the levels of self-reference and instructions, it was concluded that there is a fixed reference point in self-reference judgements. The fixed reference point marks self-reference as a cognitive structure. It was suggested that self-reference serves both as a process and a structure in memory, and that there is an interaction between the two.

Davis (1979) investigated self-reference in clinically depressed patients, and found enhanced recall in the non-depressed group of subjects for self-referent decisions but not in the clinically depressed group. Derry and Kuiper (1981) interpreted the results of Davis (1979) in terms of adjective content. They showed three groups of subjects (clinically depressed, non-depressed psychiatric control,

and normal non-depressed), adjectives which were rated with
regard to content, i.e., depressed, non-depressed, and
imagery attributes. The results revealed that the depressed
group had superior recall only for depressed content
adjectives that were self-referent, and the non-depressed
groups had superior recall only for non-depressed content
adjectives that were self-referent. Thus clinical depressives
and non-depressives utilize a self-schema that is content-
specific. In subsequent research, Kuiper and Derry (1982)
found that mild depressives displayed enhanced self-referent
recall for both depressed and non-depressed content
adjectives. It was suggested that a self-schema model of
depression was based on the severity of symptoms. At deeper
levels of depression, subjects' self-schema emphasize more
depressed content material. Similarly, Ingram, Smith, and
Brehm (1983) examined the influence of failure and success
feedback on depressives and non-depressives by using a
depth of processing paradigm. Results indicated that neither
success nor failure feedback significantly increased recall
for more favorable self-references in depressed subjects as
it did in non-depressives. It was concluded that depressed
individuals suffer from an enduring negative self-schema.

Ferguson, Rule, and Carlson (1983) found that
desirability-rated adjectives facilitated memory relative to
all but the self-condition. They concluded that words were

organized in terms of an evaluative dimension (i.e., good versus bad, positive versus negative). It was the evaluative nature of the task that facilitated memory. They discussed the likelihood that desirability ratings may reflect judgements about the self. Since desirability ratings enhanced retention as much as self-reference, they argued against a self-schema in memory. Zajonc (1980) asserts that affective judgements always implicate the self. Thus, desirability ratings may act as an extension of self-reference. Ferguson et al. (1983) recommended that a strategy for determining schema be based on an a priori method.

If traits act as schemas or prototypes in memory, then it is to be expected that there would be a proclivity to process and remember content-specific material more than other material. Therefore if the traits are known, then a prediction could be made concerning the kind of material that would be best processed in memory. The present study sought to examine the relationship between the scores on personality scales and recall of content-specific adjectives. A positive relationship between the raw scores on the personality traits and the number of content-specific words recalled was predicted.

To further investigate Feguson et al. (1983) findings that desirability of adjectives enhance recall, the relationship

between the number of subjects recalling each adjective and the

social desirability rating of each adjective was calculated.

Method

Subjects

A total of ninety-two college students from the

University of Richmond served as voluntary participants.

Two subjects who scored four and seven on the Infrequency

validity scale of the Personality Research Form, were

removed from the study as recommended by the PRF manual.

Such scores are indicative of either response careleness,

poor comprehension, passive non-compliance or confusion.

In order to obtain equal numbers of subjects in the

counterbalanced groups, four other subjects were randomly

removed from the study. The remaining total of 86

subjects consisted of fifty female and 36 male students.

Four of the subjects were graduate students in psychology.

Forty subjects participated in the spring semester and

received research participation credit. Forty-six

subjects participated in the summer semester and these

students were elicited by the consent of the professor in

several intact classes. The subjects were treated in

accordance with the "Ethical Principles of Psychologists"

(American Psychological Association, 1981). Subjects were

given a consent form (see Appendix A) which informed them of

the nature of the study; gave them permission to decline

participation at any time; and assured them of

confidentiality.

Materials

The Personality Research Form (PRF) developed by Jackson

(1967) was used to measure personality traits. A list of 160

adjectives (16 per trait for 10 traits) was obtained from the

Trait Rating Form (TRF) developed by Jackson (1967). In

order to enhance recall, adjectives selected within these

traits had a desirability rating greater than 4.1 on a scale

from one to nine as set forth by the TRF (see Appendix B).

The adjectives were distributed randomly in the list. To

insure the randomness of the adjectives, a chi square

analysis was computed on the first third and last third of

the list. The chi square was not significant at the .05

level, for both the first third and the last third of the

list X^2 (9, N= 53) = 4.93, p>.05 and X^2 (9, N= 53)

= 7.94, p> .05, respectively. Thus, the adjectives

which reflected the personality traits were not distributed

unequally among the ten catagories. The traits and adjectives

specific to the scales of achievement, affiliation, autonomy,

dominance, endurance, nurturance, order, play, sentience and

understanding were scored.

Procedure

Subjects were tested in groups ranging in size of five

to 25. Each subject was presented a packet of material

which was placed face down on the desk. Subjects were asked

to open the packet and remove the consent form. After they

had read the consent form and understood it, they were asked

to sign it and place it under their desks. Forty-six of the

subjects were asked to remove the form titled "word list"

(see Appendix C) and were given the following instructions:

The word list contains 160 adjectives. You are asked

to look at each word carefully. After you have seen the

word you are asked to underline it, and move to the

next word. You are to look at the words in the

numerical order in which they are presented. After

you have seen and underlined each word then you are

asked to place the list under your desk and wait for

further instructions. You will be given eight minutes

to look at the words. Do not look at any other

material in your packet. Are there any questions?

As a distractor task, subjects were given a list of

anagrams (see Appendix D) and the following instructions:

Take out the form that reads "anagram list" . On this

sheet of paper are words in which the letters have been

scrambled. You are asked to rearrange the letters to

form the appropiate word. You may solve the anagrams

in any order, and you will be given five minutes to

complete as many as possible. Are there any questions?

Next, the subjects were asked to write down as many

adjectives as they could recall. They were given fifteen

minutes to recall the adjectives in any order, and spelling

was not counted against them. Next, the PRF was administered.

The remaining 46 subjects received the PRF first, then

they were shown the list of adjectives, then they were shown

the anagram list, and then asked to recall the adjectives.

This procedure was used to counterbalance effect of order.

After the subjects completed the experiment they were

debriefed (see Appendix E) and dismissed.

Results

Pearson product-moment correlations were computed between

the raw score on each personality trait and the number of

content-specific adjectives recalled. A ten-by-ten matrix

of first-order coefficients was generated, and all

coefficients were tested for significance at the .05 level

(see Table 1).

Insert Table 1 about here

The correlations on the diagonal provide a test of the

main hypothesis. The correlation between the personality

trait of endurance and the recall of content-specific

adjectives was significant at the .05 level. The correlation

for the endurance trait and recall was the only one out of

the ten correlations on the diagonal that was significant.

A test of significance between the proportion of the one

significant correlation on the diagonal (1/10 =.10) and the

proportion of the other significant correlations (4/10 =.044)

was calculated, and the z score of .788 was not

significant with an alpha level of .05. Other significant

correlations were: achievement trait with endurance recall,

the sentience trait with play recall, the nurturance trait

with understanding recall, and the sentience trait with

nurturance recall. Six out of the ten (autonomy, dominace,

endurance, order, play, and understanding) personality traits

correlated higher in a positive direction with their content-

specific adjectives than any other adjectives.

Pearson product-moment correlation was computed between

the recall of adjectives and their social desirability

rating. The correlation of .24 was significant at the .05

level. Means and standard deviations were computed for the

personality scales and the recall of content-specific

adjectives (see Table 2).

Insert Table 2 about here

Discussion

Research has shown that both cognitive processes and

cognitive structures are involved in memory. Rogers et al.

(1979) suggested that there may be an interaction between

the processes and structures in memory. While alluding to a
self-schema structure, past research in self-reference has
used the self-reference decision stage as a way to process
information. One way to determine the existence of a self-
schema is to point to the schema a priori and predict better
retention due to it. If personality traits are indicators
of self-schema, then they would act as cognitive structures
and could be used to predict retention. Noting that only one
correlation of the main hypothesis was statistically
significant, the present study failed to provide any clear
evidence that personality traits serve as self-schemata in
memory.

Since six out of the ten personality traits correlated
higher in a positive direction with their perspective content-
specific adjectives than with any other group of adjectives,
this study provides an interesting finding that could be
pursued in future research. The relationship between the
personality traits and the content-specific adjectives might
be more complicated than predicted, in that different
personality traits might load on each other and obscure the
effect. If this is the case, then a multivariate approach
is suggested for further research.

During the experiment it was discovered that subjects
varied on the time taken to look at and underline the
adjectives. Although given eight minutes, approximately

one-third of the subjects finished the task in two minutes.

The discrepancy among the times taken by the subjects to look

and underline the adjectives more than likely affected recall.

Subjects taking shorter time probably recalled less number of

adjectives. There are procedures available to pace and

regulate word presentation, and the inclusion of such methods

are strongly recomended for further research.

Another explanation for the findings is that there was a

limited range in the scores for the recall of content-specific

adjectives as shown by the means and standard deviations in

Table 2. One way to increase the range is by recoding the

recall variable as a percentage of total recall instead of

the number of content-specific adjectives recalled. Recoding

the recall variable as a percentage of total recall would

better reflect the impact of the hypothesized effect. For

example, if two subjects recalled three achievement content-

specific adjectives each, but subject A recalled a total

of five adjectives and subject B recalled a total of 30

adjectives, the three content-specific adjectives in the

present study are treated the same. Actually, the three

content-specific adjectives represent different percentages

of total recall. Sixty percent of the adjectives that

subject A recalled, were related to achievement; whereas,

only ten percent of the adjectives that subject B recalled

were related to achievement.

Another way of increasing the range of recall is by limiting the number of words and the number of traits being investigated at a given time. Given the number of adjectives (160) and the possibility of remembering several words related to several personality scales, it is highly probable that the task was too complicated for the subjects. It is suggested for further research that the relationship between a few personality traits and their content-specific adjectives be investigated.

The correlation between recall of adjectives and their social desirability scale helps to support previous research. Ferguson et al. (1983) discovered that high desirable words were better retained. This study shows that there is a correlation between the recall of an adjective and its social desirability rating. The correlation was small, perhaps due to the fact that only adjectives with a rating above 4.1 on a nine point scale were used. The selection of such adjectives limited the range of the desirability scale. The correlation shows that some of the variance accounted for in the recall of adjectives can be attributed to the social desirability of the adjectives.

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Table 1

A Matrix of Correlation Coefficients Between Ten Personality

Traits and Ten Categories of Content-specific Adjectives

Recall of Content-specific Adjectives

	Achievement recall	Affiliation recall	Autonomy recall	Dominance recall	Endurance recall	Nurturance recall	Order recall	Play recall	Sentience recall	Understanding recall
Traits										
Achievement	.1503	.0227	.0601	.0883	.3036*	.1074	.0541	-.0047	.1014	-.0434
Affiliation	-.0957	-.0585	.0146	.0508	-.0502	-.0639	-.0047	.1562	.0417	.0036
Autonomy	-.1107	-.0728	.1198	.0016	-.0230	-.0178	-.1375	-.0300	.0143	.0036
Dominance	.0397	-.1054	-.0266	.1413	-.0729	-.1492	-.1124	-.0753	-.0044	-.1029
Endurance	.1189	-.1310	.1086	-.0085	.2446*	-.0362	-.1292	.0515	.0592	-.1193
Nurturance	.0321	-.0657	-.0198	.0540	.0903	-.0961	.0986	.1601	.0713	-.1983*
Order	.0768	-.0913	-.1083	.0465	-.0804	-.0793	.0901	-.0641	.0383	-.1111
Play	-.0994	-.0372	-.0360	.0760	-.0579	-.1668	.0525	.1267	-.0054	.1115
Sentience	.0137	-.1593	-.1176	-.0537	.0612	-.1884*	-.0398	.2405*	.0750	.1117
Understanding	.0402	-.0629	-.0321	-.1348	.1079	-.0914	-.1119	.0063	.0972	.1479

Correlations underlined are evidence of the main hypothesis

* significant at the .05 level

Table 2

Means And Standard Deviations of the Scores on Ten

Personality Traits and Scores on Ten Categories of Content-

Specific Adjectives.

Variable	Cases	Mean	Standard Deviation
Achievement trait	86	8.954	3.501
Affiliation trait	86	11.047	3.371
Autonomy	86	7.547	3.086
Dominance trait	86	10.454	3.803
Endurance trait	86	8.965	3.506
Nurturance trait	86	11.105	3.033
Order trait	86	7.047	4.743
Play trait	86	10.686	2.940
Sentience trait	86	10.314	3.741
Understanding trait	86	7.709	3.741
Achievement recall	86	.593	.925
Affiliation recall	86	1.442	1.298
Autonomy recall	86	1.326	1.359
Dominance recall	86	.523	.955
Endurance recall	86	.546	.777
Nurturance recall	86	1.116	1.172
Order recall	86	.954	1.354
Play recall	86	1.930	1.615
Sentience recall	86	.697	.855
Understanding recall	86	.349	.590

Appendix A

CONSENT FORM

I,_____,voluntarily agree
                print name

to participate in this experiment. I understand that I will be

taking a series of tests that will pose no physical or

psychological risk to me. Also, I understand that I may decline

participation at any time and that all information concerning my

performance on the tests will be kept confidential.

_____   _____
        date   signature

Appendix B

Traits	Adjectives	Social Desirability
achievement	striving	6.932
achievement	accomplishing	6.992
achievement	capable	7.992
achievement	purposeful	6.820
achievement	attaining	6.348
achievement	industrious	7.058
achievement	acheiving	6.842
achievement	aspiring	6.772
achievement	excelling	7.506
achievement	self-improving	7.090
acheivement	productive	6.970
achievement	driving	5.696
achievement	ambitious	6.432
achievement	resourceful	7.368
achievement	competitive	6.038
achievement	talented	7.292
affiliation	neighborly	6.948
affiliation	loyal	8.150
affiliation	warm	7.234
affiliation	amiable	7.302
affiliation	good-natured	7.638
affiliation	friendly	7.768
affiliation	genial	7.010
affiliation	affable	6.232
affiliation	cooperative	6.936
affiliation	gregarious	6.040
affiliation	hospitable	6.916
affiliation	sociable	6.770
affiliation	good-willed	7.458
affiliation	affectionate	7.024
affiliation	cordial	6.834
affiliation	chummy	5.800
autonomy	liberated	5.900
autonomy	free	7.106
autonomy	self-reliant	7.228
autonomy	independent	7.188
autonomy	autonomous	5.946
autonomy	emancipated	5.744
autonomy	individualistic	7.266
autonomy	unshackled	5.706
autonomy	self-determined	7.022
autonomy	non-conforming	5.634
autonomy	unenslaved	6.060
autonomy	unhampered	5.822
autonomy	freedom-loving	7.226
autonomy	self-governing	6.644
autonomy	undominated	6.288
autonomy	sovereign	4.734

dominance	governing	5.440
dominance	controlling	4.900
dominance	enforcing	5.166
dominance	masterful	6.146
dominance	influential	5.972
dominance	persuasive	5.594
dominance	forceful	5.356
dominance	assertive	4.852
dominance	leading	6.332
dominance	directing	5.688
dominance	regulating	5.082
dominance	predominant	5.138
dominance	judging	5.404
dominance	powerful	5.856
dominance	supervising	4.954
dominance	willful	5.736
endurance	enduring	6.432
endurance	unfaltering	6.092
endurance	persevering	6.426
endurance	unyielding	4.170
endurance	relentless	5.026
endurance	tireless	6.334
endurance	constant	5.600
endurance	energetic	7.066
endurance	sturdy	6.210
endurance	zealous	5.798
endurance	durable	6.388
endurance	lasting	6.122
endurance	dependable	7.920
endurance	vigorous	6.772
endurance	persistent	6.632
endurance	steadfast	6.296
nurturance	sympathetic	6.872
nurturance	compassionate	6.974
nurturance	helpful	7.172
nurturance	benevolent	6.404
nurturance	encouraging	6.546
nurturance	caring	7.142
nurturance	protective	5.302
nurturance	comforting	6.820
nurturance	supporting	5.984
nurturance	aiding	6.354
nurturance	ministering	5.252
nurturance	consoling	5.864
nurturance	charitable	6.242
nurturance	assiting	6.524
nurturance	thoughtful	7.620
nurturance	kindhearted	7.230

order	neat	6.828
order	organized	6.790
order	tidy	6.512
order	systematic	6.080
order	well-ordered	6.464
order	disciplined	6.272
order	prompt	7.028
order	consistent	6.400
order	orderly	6.250
order	clean	7.374
order	methodical	5.470
order	scheduled	5.286
order	planful	5.890
order	specific	5.848
order	deliberate	5.884
order	immaculate	5.396
play	playful	6.250
play	jovial	6.630
play	cheerful	7.152
play	merry	6.714
play	joyful	6.792
play	joking	6.156
play	jolly	6.502
play	prankish	5.004
play	sportive	5.478
play	lighthearted	6.230
play	funloving	6.666
play	gleeful	5.890
play	carefree	5.776
play	blithe	5.628
play	easy-going	7.070
play	adventurous	6.998
sentience	aesthetic	6.790
sentience	observant	7.336
sentience	discerning	7.008
sentience	discovering	7.020
sentience	aware	7.666
sentience	feeling	7.174
sentience	sensitive	7.280
sentience	sensuous	5.498
sentience	susceptive	5.050
sentience	keen	6.270
sentience	intense	5.596
sentience	cognizant	6.458
sentience	perceptive	7.914
sentience	responsive	7.036
sentience	noticing	6.596
sentience	discriminative	5.340

understanding	inquiring	7.322
understanding	analytical	6.238
understanding	exploring	7.054
understanding	curious	7.358
understanding	reflective	6.956
understanding	incisive	5.476
understanding	investigative	6.272
understanding	probing	6.340
understanding	scrutinizing	5.468
understanding	examining	6.320
understanding	astute	6.806
understanding	rational	7.250
understanding	inquisitive	6.902
understanding	quizzical	5.436
understanding	comtemplative	6.392
understanding	philosophical	5.974

Appendix C

1.unenslaved	28.feeling	55.benevolent
2.carefree	29.lasting	56.prankish
3.deliberate	30.tireless	57.incisive
4.easy-going	31.competitive	58.caring
5.persevering	32.exploring	59.purposeful
6.durable	33.gleeful	60.self-improving
7.chummy	34.hospitable	61.loyal
8.individualistic	35.undominated	62.compassionate
9.ambitious	36.enduring	63.directing
10.kindhearted	37.adventurous	64.affectionate
11.affable	38.inquiring	65.disciplined
12.systematic	39.organized	66.good-willed
13.predominant	40.playful	67.assisting
14.susceptive	41.warm	68.sociable
15.planful	42.powerful	69.reflective
16.resourceful	43.leading	70.enforcing
17.friendly	44.free	71.scheduled
18.controlling	45.freedom-loving	72.immaculate
19.unhampered	46.comforting	73.charitable
20.prompt	47.striving	74.keen
21.jovial	48.cordial	75.persistent
22.cooperative	49.philosophical	76.ministering
23.sovereign	50.funloving	77.consoling
24.merry	51.regulating	78.masterful
25.thoughtful	52.vigorous	79.self-governing
26.supporting	53.dependable	80.unyielding
27.discriminative	54.neat	81.observant

82. specific
83. gregarious
84. curious
85. constant
86. blithe
87. supervising
88. qyizzical
89. jolly
90. aiding
91. self-reliant
92. perceptive
93. non-conforming
94. sportive
95. responsive
96. industrious
97. methodical
98. joking
99. energetic
100. driving
101. helpful
102. neighborly
103. achieving
104. governing
105. autonomous
106. scrutinizing
107. unshackled
108. aspiring
109. forceful

110. sturdy
111. persuasive
112. amiable
113. orderly
114. sympathetic
115. analytical
116. zealous
117. genial
118. protective
119. inquisitive
120. aesthetic
121. good-natured
122. acute
123. rational
124. clean
125. willful
126. joyful
127. excelling
128. sensuous
129. contemplative
130. assertive
131. lighthearted
132. independent
133. noticing
134. steadfast
135. productive
136. relentless
137. cheerful

138. discovering
139. self-determined
140. intense
141. judging
142. examining
143. unfaltering
144. accomplishing
145. emancipated
146. cognizant
147. encouraging
148. talented
149. discerning
150. capable
151. astute
152. influential
153. well-ordered
154. liberated
155. investigative
156. attaining
157. consistent
158. probing
159. aware
160. tidy

Appendix D

Anagram list

Rearrange the letters of each anagram to form a word.

1.tpudiate _____   12.tigf _____

2.nbet _____   13.rygol _____

3.arahrctce _____   14.ronoh _____

4.nocosnitiutt _____   15.dilidinyutavi _____

5.nistodpisoi _____   16.kacnk _____

6.tacle _____   17.domo _____

7.teesme _____   18.ralosanpyte _____

8.cytlafu _____   19.letnat _____

9.mefa _____   20.rempet _____

10.tefro _____   21.manetrempet _____

11.seguni _____   22.ranute _____

Appendix E

Debriefing Procedure

The following areas were covered in the debriefing of the subjects at the completion of the experiment:

1.) The hypothesis of the study, and the variables that were being tested were revealed.

2.) The anagram list was used as a distractor task and was not a part of the variables studied.

3.) The experimenter's name and phone number was given in case of any need for further information.

4.) Appreciation was extended to subjects for their participation in the experiment.