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PERSONALITY CHANGE AMONG EDUCATIONALLY
DISADVANTAGED VETERANS AS A FUNCTION OF
ENROLLMENT IN A JUNIOR COLLEGE DEVELOPMENTAL
PROJECT.

The University of Oklahoma, Ph.D., 1973
Education, psychology

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THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

PERSONALITY CHANGE AMONG EDUCATIONALLY DISADVANTAGED
VETERANS AS A FUNCTION OF ENROLLMENT IN A
JUNIOR COLLEGE DEVELOPMENTAL PROJECT



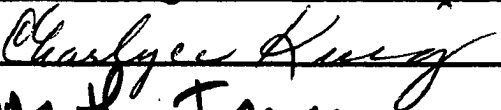

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

BY
JOAN HALL FAUBION
Norman, Oklahoma

1973

PERSONALITY CHANGE AMONG EDUCATIONALLY DISADVANTAGED
VETERANS AS A FUNCTION OF ENROLLMENT IN A
JUNIOR COLLEGE DEVELOPMENTAL PROJECT

APPROVED BY

DISSERTATION COMMITTEE

ACKNOWLEDGMENTS

Deep gratitude is expressed to Dr. O. J. Rupiper, for his expert advice and guidance in the research design and statistical procedures for this study.

Sincere appreciation is extended to the other members of my doctoral committee, for their cooperation and assistance.

Further, a special thanks is communicated to the administration, faculty, staff, and students of Rose Junior College, for making this investigation possible.

Finally, special acknowledgment is made to my family, for their early direction and for their encouragement and patient tolerance throughout this study.

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PERSONALITY CHANGE AMONG EDUCATIONALLY DISADVANTAGED
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CHAPTER I

INTRODUCTION

The dominant theme in recent literature concerning the educationally disadvantaged veteran and his entry into American institutions of higher education has been the development of innovative programs designed to increase both persistence and academic performance among these high-risk students. Available research of the results on these remedial programs was very limited. A preliminary search of the Educational Resources Information Center (ERIC) files suggested that attempts to structure experimental projects had been made in various educational settings. Designed specifically for the present generation of nearly eight million veterans, evaluations of these special programs had largely ignored the basic question, "Is there a change in the participant's self-concept or other personality variables?"

Few attempts had been made to provide assessment of

self or social development, since most special programs for veterans had been evaluated in terms of academic achievement. This was paralleled in the research literature on veterans by a paucity of investigations aimed at researching relevant personality variables of the participating students and the effect of such learning experiences on the student's self-concept. The lack of attention to personality variables may have been a function either of the lack of reputable diagnostic instruments appropriate to the population or the lack of information on the part of college administrators and instructors as to the possible importance of personality variables to academic adjustment and progress. Prior research had tended to support the proposition that the self-concept plays a significant role in determining behavior. Woolner (1966) pointed out that at an early age a positive self-concept tended to give thrust to positive behavior such as accepting one's self, making appropriate adjustments, and achieving in school; while a negative self-concept produces unacceptable behavior such as uncooperativeness, underachievement, and maladjustment. Woolner's findings have been corroborated in research with subjects of various ages (Reeder, 1965; Fink, 1962; Brookover, 1965; Williams & Cole, 1968; and Mehta, 1968).

Statement of the Problem

In discussing the importance of studying the young adult in higher education and the potential impact of the

college years, Sanford (1962) suggested: "To say just how the curriculum, or the various parts of it, may be utilized to induce developmental changes in the personality is probably the central problem of educational research." If college officials were to develop special curriculums for veteran students which bring about effective changes in self-concept, it seemed critical that data concerning the personality dimensions of students in the special programs be given at least equal attention to that given to their academic status and progress. This was especially true since Brookover (1969) and others had demonstrated that at least some aspects of the two were closely related.

While some research had recently been conducted on veterans' groups by Bates (1972), there still remained a need to develop programs which would attempt to systematically describe the characteristics of program enrollees and the subsequent change in their self-concept. Consequently, this research effort was designed to study one aspect of this problem--the factor of changes in self-concept and other personality variables precipitated by enrollment of veterans in a special developmental program conducted in a community junior college.

This study was designed to answer two primary questions: (1) Would students experience a positive change in self-concept as a result of participation in a developmental education program? (2) Would students experience a positive

change in personality as a result of participation in a developmental education program? Specific questions investigated were:

1. Are there any significant differences between the pretest and posttest scores for the veteran participants on the Sixteen Personality Factor Questionnaire?
2. Are there any significant differences between the pretest and posttest scores for the veteran participants on the Tennessee Self-Concept Scale?

Statement of Purpose

The purpose of this study can be divided into three different categories--the ultimate or long-range purpose, the intermediate or short-range purpose, and the immediate purposes. Each of these purposes, stated in its time orientation, will clarify the nature and extent of the present research effort.

Ultimate Purpose: The ultimate purpose of the study was to improve the Developmental Program being conducted by Oscar Rose Junior College.

Intermediate Purpose: The intermediate purpose of the study was to determine the way the Developmental Program affected the group of Viet Nam veteran students.

Immediate Purposes: The immediate purposes of the study were as follows:

1. To determine the amount and direction of

self-concept change for veteran students as a result of their participation in a developmental education program.

2. To determine the amount and direction of personality change for veteran students as a result of their participation in a developmental education program.

Hypotheses Tested

Two hypotheses were tested in the course of the study in order to make inferential statements about the effect of the developmental program on the subjects. The alternate hypotheses tested were as follows:

There is a statistically significant gain in mean posttest scores from mean pretest scores for veteran subjects on each variable of the Sixteen Personality Factor Questionnaire, respectively.

There is a statistically significant gain in mean posttest scores from mean pretest scores for veteran subjects on each variable of the Tennessee Self-Concept Scale, respectively.

These hypotheses will be treated further in Chapter IV. The methodology of the study with respect to sampling and instrumentation will be discussed in Chapter III.

Operational Definitions

In order to avoid multiple interpretations of certain terms, the following definitions and explanations were used in conducting the study.

Veteran Student: The 105 Viet Nam veterans who were enrolled in the Developmental Program at Oscar Rose Junior College at Midwest City, Oklahoma during the spring semester of the 1972-73 academic year.

Educationally Disadvantaged: Students who could not meet the usual entrance requirements established for Oklahoma's colleges and universities, i.e. in order for a student to enroll at most institutions of higher education, it is necessary for them to meet at least one of the following criteria: (1) Be in the top 50 per cent of their high school graduating class, (2) Have a composite ACT score of 16 or higher, (3) Standardized test scores which reflect ability comparable to either of the two criteria mentioned above, (4) High school diploma.

Self-Concept Scores: The individual participants' scores recorded on the pretest-posttest administrations of the Tennessee Self-Concept Scale.

Personality Scores/Indices: The individual participants' scores recorded on the pretest-posttest administrations of the Sixteen Personality Factor Questionnaire.

Self-Concept Change Scores: The numerical difference noted between the pretest and posttest administrations of the

Tennessee Self-Concept Scale.

Personality Change Scores: The numerical difference noted between the pretest and posttest administrations of the Sixteen Personality Factor Questionnaire.

Developmental Program: The federally-funded educational program conducted for certain Viet Nam War veterans during the spring semester of the 1972-73 academic year at Oscar Rose Junior College at Midwest City, Oklahoma.

Limitations

Attention is directed to obvious limitations in the study. These limitations were principally associated with the participants, the measuring instruments, and the developmental program. The particular limitations to be considered in the interpretation of the results are as follows:

1. The study was limited to the 105 Viet Nam veterans enrolled in a Developmental Program at a Midwestern community junior college during the spring semester of the 1972-73 academic year.
2. The study was limited to the program content established for the developmental project.
3. The study was limited to the quality of the project personnel who assisted the participants.
4. The study was limited to the factors measured by the Sixteen Personality Factor Questionnaire and the Tennessee Self-Concept Scale.

CHAPTER II

REVIEW OF RELATED LITERATURE

The work of O'Halloran (1954) and Wright (1955) has indicated that a substantial part of the variance in scholastic performance not accounted for by ability tests can now be predicted by personality source-trait measurements. Researchers have suggested that ability measures account for barely half the variance of the criterion accounted for in the normal personality range. Certain broad relationships between self-concept and academic achievement seem likely to occur in most educational situations.

Carl Rogers (1951) postulated that the self-concept or self-structure may be thought of as an organized configuration of the perceptions of the self which are admissible to awareness. English and English (1958) define the self-concept as the "fullest description of himself of which the person is capable at any given time." Dinkmeyer (1965) held that the self-structure resulted from evaluational interaction with others, becoming the consistent personal perception of "I" and "me."

These definitions indicated that an individual forms

impressions of himself as the result of perceptual feedback from others. This suggested that such feedback was accompanied by evaluative information about self, as in the concepts presented by Charles Horton Cooley and Margaret Mead (1955). David Ausubel (1957) and Harry Stack Sullivan (1947) also stressed the importance of social experience (significant others) in the formation of one's self-concept.

Self theory, then, would lead us to expect predictable self-concept differences in groups whose behavior was different. In an attempt to test this proposition, Atchison (1958) found predicted differences between delinquents and non-delinquents. In a later study, Lefebvre (1964) found significant differences between juvenile first offenders and repeated offenders. The two groups of first offenders and repeaters were, in turn, different from a control group. Gividen (1959) found a number of personality and biographical scores which differentiated soldiers who could weather the stresses of paratrooper training from those who could not. Wells and Bueno (1957) were able to distinguish between the personalities and need patterns of alcoholics and non-alcoholics. Piety (1958) was able to discriminate between hospitalized mental patients and non-patients at the .005 level.

In spite of these studies, however, Runyan (1958) investigated the differences in self-concept of different races. He found no significant self-concept differences

between white and Negro college students. There was, however, a significant negative relationship between self-concept scores and the use of ego defense mechanisms, or adaptational maneuvers as he called them, for both races.

It was logical to assume that certain experiences will influence the way in which a person perceives himself. Positive experiences would be expected to result in enhancement of the self-concept, while stress of failure would be expected to result in lowered self esteem.

Gividen (1959) sought to evaluate the effects of stress and failure on the self-concepts of army paratroop trainees. After suffering several humiliating failures, both the Pass group and Fail group showed significant decreases in their self-concept scores. Both groups also showed less certainty in self description. Ashcraft and Fitts (1964) studied changes in self-concept as a result of psychotherapy. One group of subjects underwent psychotherapy while a second group, the control group, received no special treatment. The therapy group changed significantly and in the expected direction on 18 of 22 measured variables studied, while the control group changed on only 2 variables.

Congdon (1958) sought to evaluate the effects of a tranquilizing drug on the self-concept. Several patients were given varying amounts of tranquilizing drugs and their self-concept measure taken while they were still under the influence of the drugs. The patients showed symptomatic and

behavioral improvements but no significant changes in their self-concept scores. One cannot generalize from these limited findings, but Congdon's postulation was that the self-concept was so basic that it does not readily change even though one began to feel and act differently.

Peck (1959) sought to evaluate the effects of stress and failure on the self-concepts of army paratroop trainees. After suffering several humiliating failures, both the Pass group and Fail group showed significant decreases in their self-concept scores. Both groups also showed less certainty in self description. Ashcraft and Fitts (1964) studied changes in self-concept as a result of psychotherapy. One group of subjects underwent psychotherapy while a second group, the control group, received no special treatment. The therapy group changed significantly and in the expected direction on 18 of 22 measured variables studied, while the control group changed on only 2 variables.

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even though one began to feel and act differently.

Peck (1971), in focusing on the special sociological and psychological needs of veterans, stated:

The Vietnam veteran is unique in that he has fought in a highly complex war which is interlocked with unprecedented social, educational, economic, political and cultural changes of the last twenty years that have had a profound influence on his human values, the intellectual and emotional aspect of his life style, and the personal conflicts, the group conflicts, and institutional conflicts over meaningfulness and meaninglessness of life in our society have had a shaping impact. It is the combined press of the environmental and societal forces with the personal need-press characteristics (intellectual and emotional) of the individual that makes the Vietnam veteran different from his other counterparts.

Bates (1972), after surveying the investigations available in this field, observed that no simplistic approach in working with veterans was possible. Socially, the veteran was a product of a changed society. The rate of change had been so rapid that for many the lessons of the past no longer seemed to be relevant (Braatz, 1971). Confronted with the accelerated rate of change and the apathy of many, in addition to having fought in an undeclared war, the Viet Nam veteran returned home a "non-hero" (Harrison, 1972). No one was quite sure how to reorient him, least of all himself. Harrison further indicated that the Viet Nam veteran was greeted by average citizens disgruntled by the economy and competing for his job and unaverage protestors who both pitied and despised him. In a period in his life when identity was important, his peer identification group was working against the war he helped to fight. This alienation

from his peers contributed to feelings of interpersonal betrayal--betrayal by bewildered government officials; a few strangers; and his family, parents, wife and children. In addition, many returned to marital and family problems. Harrison concluded that these problems in social adjustment contributed to the high incidence of behavior disorders among returning veterans.

Little research was available to lend strong support to the developmental programs being conducted for veterans in institutions of higher education. Baehr (1969) reported on "Project Success" undertaken by the City Colleges of Chicago. Evaluation of the program consisted of tabular comparisons of final grade point averages of participants. He concluded that program participants were able to compete successfully with non-veterans if they were given special tutorial, financial, and vocational assistance.

Blocker and Snyder (1970) examined the "Persistence of Developmental Students Entering Harrisburg Area Community College." They noted that between 33 and 40 percent of the developmental students did not return for additional work at the end of their first year.

Monterey Peninsula College, which was investigated by Bialek (1971), established a program in cooperation with a U.S. Army Pre-discharge Education Program (PREP). Currently in its third year of operation, the program had enjoyed only limited success as far as students retention was concerned.

Smith (1971) also reported on a PREP program under operation at Staten Island Community College in New York. Like all PREP programs, it offered significant financial, vocational, and tutorial help for educationally disadvantaged servicemen, i.e. those servicemen who, because of social, economic, and educational reasons, failed to secure adequate preparation for a college program, drop-outs from high school, or those men and women who failed in their previous college experience.

More recently, Roueche and Kirk (1972) compared innovative programs for high-risk students being conducted in four different community junior colleges. Effectiveness was assessed in terms of student persistence (number of semesters of full-time enrollment) and academic performance (grade point average). The findings were that veterans competed successfully with regular students for academic grades, but the non-veteran students showed a significantly higher retention rate.

Dorothy Knoell (1972) reported on a survey of educationally disadvantaged students in California's community colleges to the American Educational Research Association. She asserted that where special support programs were in operation to help students overcome their educational handicaps, they averaged the same retention rates, grade point averages and graduation rates as other students.

Finally, at a national conference in Elizabethtown,

Kentucky, on "Intensive Care for the High-Risk Student in the Community-Junior College" (1972), three recommendations were formulated: (1) a national center for data concerning programs for the disadvantaged should be established, (2) there should be a permanent association concerned with recruiting, enrolling, and retaining high-risk students, and (3) there should be a follow-up conference.

The federal government had made some efforts to assist Viet Nam veterans who were attempting to continue their education. One such attempt was the enactment of legislation which would provide educational assistance in the form of tutorial services, special curricula, vocational counseling, and reduced costs of books, fees, tuition, and room and board. Under the particular act which contained these provisions, the Educational Professions Development Act (EDPA), several such programs had recently been funded. (Higher Educational Act, P. L. 89-329, Title V, Part E (P. L. 90-35)).

In summary, findings indicated that the few developmental programs for veterans which had been investigated had evaluated the success of the project in terms of academic achievement or student persistence. The self-concept or personality changes of participants in the developmental support programs were not pursued or evaluated.

CHAPTER III

METHODOLOGY

One of the first educational institutions funded for the establishment of a training program for Viet Nam veterans was Oscar Rose Junior College at Midwest City, Oklahoma. Oscar Rose Junior College, a community college with an enrollment of approximately 4,500 is adjacent to Tinker Air Force Base, one of the largest Air Force training and shipping facilities in the world. Tinker Field personnel make numerous requests for educational assistance. In addition to Air Force personnel, Viet Nam veterans from all branches of the service are returned to civilian life through the Tinker facilities. As a result of these educational opportunities, the college proposed an Upward Bound Developmental Project for Viet Nam veterans. Specifically, the program was designed for veterans whose (1) pre-service educational achievement would not normally be acceptable for admission into an institution of higher education, and (2) economic background has not encouraged them to seek higher education.

The curriculum of the project consisted of the following four courses:

(1) Developmental Reading	3 credit hours
(2) English Composition	3 credit hours
(3) Psychology (Personal Adjustment)	3 credit hours
(4) Basic Math	<u>3 credit hours</u>
	12 credit hours

This class load entitled the student veteran to receive his full-time G.I. Bill benefits from the Veterans Administration. The course work is described below:

Developmental Reading is designed to improve the student's reading speed and comprehension. Each student's reading level is determined through diagnostic tests and an individualized program is then designed.

English Composition concentrates on structural usage and mechanics of writing. Emphasis is placed on principles of composition, introduction to descriptive narrative, argumentative, technical, and expository writing.

Psychology (Personal Adjustment) is a beginning course which emphasizes positive problem solving models in the study of emotion, mental health, and social expectations.

Basic Math includes a treatment of the fundamental operations with whole numbers, fractions, and decimals. It also includes a study of percent, computation with approximate numbers, denominate numbers, and an introduction to elementary algebra.

In addition to classroom instruction, the student had available all of the instructional and tutorial assistance which he needed to insure his success in the program. The entire project was designed to reinforce the positive problem solving ability of the veteran student. With the foundation that the veteran student was provided within this program, it was predicted that he would be able to move either into other academic course work or special skill areas in technical education fields.

Sample

The Oscar Rose Junior College Developmental Program was one of several programs funded across the United States which began operations in September, 1972.¹ The original class of 112 veterans was given developmental training for the entire course of the first semester of the 1972-73 academic year. At the beginning of the spring semester, a second group of veterans began the second phase of the training program. This second group of 105 high-risk, educationally disadvantaged male veterans served as the participants in the present study.

The mean age of the participants was 25.5 years.

¹This study was performed pursuant to Grant OEG-6-72-0770 from the Bureau for Educational Personnel Development, U.S. Office of Education, Department of Health, Education and Welfare. The opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education and no official endorsement by the U.S. Office of Education should be inferred.

Fifty-three percent of the subjects were married while 41 percent were single, and six percent were divorced. Seventy-nine percent of the respondents were residents of Oklahoma, and 21 percent were classified as non-residents. The mean educational level attained by the fathers of this group was eleven years, while the mothers' educational attainment was eight years. Seventy-seven percent of the subjects were high school graduates as compared to 23 percent who did not graduate. The mean enrollment hours during the testing period for these respondents was 10.13 hours.

Instrumentation

Two standardized instruments were used in the study, a measure of personality and a measure of self-concept. The Sixteen Personality Factor Questionnaire (Cattell & Eber, 1957; Cattell & Eber, 1964) was used as a pre- and post-test measure of the veterans' personality factors. The Sixteen Personality Factor Questionnaire was designed to measure 16 different dimensions of the personality. The various dimensions and the behaviors characteristic of each are shown in Table 1. This personality questionnaire has reported test-retest reliability ranging from .93 on Factor C to .70 on Factor Q₁ (Buros, 1964). Most of the reliability indices were reported to be in the upper 80's or lower 90's. At the same time, most of the scales showed very little fluctuation from one testing to the next. The concept validity of the Sixteen Personality Factor Questionnaire was reported to be

Table 1

Sixteen Personality Factor Questionnaire Dimensions

Factor	Name and Capsule Description	
A.	Sizothymia (Aloof, Stiff)	vs. Affectothymia (Warm and Sociable)
B.	Less Intelligence (Lower Scholastic Mental Capacity)	vs. More Intelligence (Bright)
C.	Emotional Instability (Immature)	vs. Higher Ego Strength (Mature, Calm)
E.	Submissiveness (Obedient, Mild)	vs. Dominance or Ascendancy (Aggressive, Competi- tive)
F.	Desurgency (Glum, Sober, Serious)	vs. Surgency (Enthusiastic, Im- pulsive)
G.	Low Superego Strength (Casual, Undepend- able)	vs. Superego Strength (Conscientious)
H.	Threctia (Shy, Timid)	vs. Parmia (Adventurous)
I.	Harria (Tough, Realistic)	vs. Premsia (Sensitive, Tender)
L.	Alaxia (Accepting, Adapt- able)	vs. Protension (Suspecting, Jealous)
M.	Praxernia (Practical, Ernest)	vs. Autia (Imaginative, Absent- Minded)
N.	Naivete (Unpretentious, Forthright)	vs. Shrewdness (Sophisticated, Polished)
O.	Untroubled Adequacy (Confident, Self- Secure)	vs. Guilt Proneness (Timid, Insecure)
Q ₁	Conservatism of Temperament (Traditional, Respectful)	vs. Radicalism (Experimenting, Ana- lytical)
Q ₂	Group Dependency (a "Joiner")	vs. Self-Sufficiency (Resourceful)
Q ₃	Low Self-Sentiment Integration (Uncontrolled, Lax)	vs. High Self-Sentiment (Controlled, Will Power)
Q ₄	Low Ergic Tension (Relaxed, Composed)	vs. High Ergic Tension (Tense, Excitable)

from .73 to .92 (Buros, 1964).

The Sixteen Personality Factor Questionnaire is a multidimensional set of sixteen questionnaire scales, arranged in omnibus form. It is designed to make available, in a practical testing time, information about an individual's standing on the majority of primary personality source traits covered by existing research on the total human personality sphere, as defined by Cattell's operational concept (1964a, 1964b). By source traits, one means the main "simple structure" factors found by thirty years or more of research on unitary traits. These primaries, and the secondaries derived from them, constitute central concepts in personality theory. According to Cattell (1970) the names and descriptions of the sixteen factors measured are as follows:

Factor A

The person who scores low on Factor A tends to be stiff, cool, skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoints. He is likely to be precise and "rigid" in his way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend, at times, to be critical, obstructive, or hard.

The person who scores high on Factor A tends to be good natured, easy-going, emotionally expressive (hence naturally Affectothymia), ready to cooperate, attentive to people, softhearted, kindly, adaptable. He likes occupations dealing with people and socially impressive situations. He readily forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people.

Factor B

The person scoring low on Factor B tends to be slow to learn and grasp, dull, given to concrete and literal

interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.

The person who scores high on Factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture, and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions.

Factor C

The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily emotional and annoyed, active in dissatisfaction, having neurotic symptoms (phobias, sleep disturbances, psychosomatic complaints, etc.). Low Factor C score is common to almost all forms of neurotic and some psychotic disorders.

The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, better able to maintain solid group morale. Sometimes he may be a person making a resigned adjustment to unsolved emotional problems.

Factor E

The person who scores low on Factor E tends to give way to others, to be docile, and to conform. He is often dependent, confessing, anxious for obsessional correctness. This passivity is part of many neurotic syndromes.

The person who scores high on Factor E is assertive, self-assured, and independent-minded. He tends to be austere, a law to himself, hostile or extrapunitive, authoritarian (managing others), and disregards authority.

Factor F

The person who scores low on Factor F tends to be restrained, reticent, introspective. He is sometimes dour, pessimistic, unduly deliberate, and considered smug and primly correct by observers. He tends to be a sober, dependable person.

The person who scores high on this trait tends to be cheerful, active, talkative, frank, expressive, effervescent, carefree. He is frequently chosen as an elected leader. He may be impulsive and mercurial.

Factor G

The person who scores low on Factor G tends to be unsteady in purpose. He is often casual and lacking in effort for group undertakings and cultural demands. His freedom from group influence may lead to anti-social acts, but at times makes him more effective, while his refusal to be bound by rules causes him to have less somatic upset from stress.

The person who scores high on Factor G tends to be exacting in character, dominated by sense of duty, persevering, responsible, planful, "fills the unforgiving minute." He is usually conscientious and moralistic, and he prefers hard-working people to witty companions. The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar "social ideal self" of Q₃.

Factor H

The person who scores low on this trait tends to be shy, withdrawing, cautious, retiring, a "wallflower." He usually has inferiority feelings. He tends to be slow and impeded in speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around him.

The person who scores high on Factor H is sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. His "thick-skinnedness" enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consume much time talking. He tends to be "pushy" and actively interested in the opposite sex.

Factor I

The person who scores low on Factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of subjective, cultural elaborations. He is sometimes unmoved, hard, cynical, smug.

He tends to keep a group operating on a practical and realistic "no-nonsense" basis.

The person who scores high on Factor I tends to be tender-minded, day-dreaming, artistic, fastidious, feminine. He is sometimes demanding of attention and help, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morals by unrealistic fussiness.

Factor L

The person who scores low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, uncompetitive, concerned about other people, a good team worker.

The person who scores high on Factor L tends to be mistrusting and doubtful. He is often involved in his own ego, is self-opinionated, and interested in internal, mental life. He is usually deliberate in his actions, unconcerned about other people, a poor team member.

Factor M

The person who scores low on Factor M tends to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. He is concerned over detail, able to keep his head in emergencies, but sometimes unimaginative.

The person who scores high on Factor M tends to be unconventional, unconcerned over everyday matters, Bohemian, self-motivated, imaginatively creative, concerned with "essentials," and oblivious of particular people and physical realities. His inner-directed interests sometimes lead to unrealistic situations accompanied by expressive outbursts. His individuality tends to cause him to be rejected in group activities.

Factor N

The person who scores low on Factor N tends to be unsophisticated, sentimental, and simple. He is sometimes crude and awkward, but easily pleased and contends with what comes, and is natural and spontaneous.

The person who scores high on Factor N tends to be polished, experienced, worldly, shrewd. He is often

hardheaded and analytical. He has an intellectual, unsentimental approach to situations, an approach akin to cynicism.

Factor 0

The person who scores low on Factor 0 tends to be placid, with unshakable nerve. He has a mature, unanxious confidence in himself and his capacity to deal with things. He is resilient and secure, but to the point of being insensitive of when a group is not going along with him, so that he may evoke antipathies and distrust.

The person who scores high on Factor 0 tends to be depressed, moody, a worrier, full of foreboding, and brooding. He has a child-like tendency to anxiety in difficulties. He does not feel accepted in groups or free to participate. High Factor 0 score is very common in clinical groups of all types.

Factor Q₁

The person who scores low on Factor Q₁ is confident in what he has been taught to believe, and accepts the "tried and true," despite inconsistencies, when something else might be better. He is cautious and compromising in regard to new ideas. Thus, he tends to oppose and postpone change, is inclined to go along with tradition, is more conservative in religion and politics, and tends not to be interested in analytical "intellectual" thought.

The person who scores high on Factor Q₁ tends to be interested in intellectual matters and has doubts on fundamental issues. He is skeptical and inquiring regarding ideas, either old or new. He tends to be more well informed, less inclined to moralize, more inclined to experiment in life generally, and more tolerant of inconvenience and change.

Factor Q₂

The person who scores low on Factor Q₂ prefers to work and make decisions with other people, likes and depends on social approval and admiration. He tends to go along with the group and may be lacking in individual resolution. He is not necessarily gregarious by choice; rather he needs group support.

The person who scores high on Factor Q₂ is temperamentally independent, accustomed to going his own way,

making decisions and taking action on his own. He discounts public opinion, but is not necessarily dominant in his relations with others. He does not dislike people but simply does not need their agreement or support.

Factor Q₃

The person who scores low on Factor Q₃ will not be bothered with will control and regard for social demands. He is not overly considerate, careful, or painstaking. He may feel maladjusted, and many maladjustments (especially the affective, but not the paranoid) show Q₃-.

The person who scores high on Factor Q₃ tends to have strong control of his emotions and general behavior, is inclined to be socially aware and careful, and evidences what is commonly termed "self-respect" and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders, and some paranoids, are high on Q₃.

Factor Q₄

The person who scores low on Factor Q₄ tends to be sedate, relaxed, composed, and satisfied (not frustrated). In some situations, his oversatisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error. Conversely, high tension level may disrupt school and work performance.

The person who scores high on Factor Q₄ tends to be tense, excitable, restless, fretful, impatient. He is often fatigued, but unable to remain inactive. In groups he takes a poor view of the degree of unity, orderliness, and leadership. His frustration represents an excess of stimulated, but undischarged, drive.

The Tennessee Self-Concept Scale (Fitts, 1965) was used to determine the amount of self-concept change occurring between pretest-posttest administrations. The Tennessee Self-Concept Scale was utilized to identify ten different dimensions: (1) Self-Criticism, (2) Self-Esteem, (3) Identity, (4) Self-Satisfaction, (5) Behavior, (6) Physical Self,

(7) Moral/Ethical Self, (8) Personal Self, (9) Family Self, and (10) Social Self. These are shown in Table 2. The test-retest reliability of the Tennessee Self-Concept Scale was reported as $r = .86$ to $.88$. The content validity was reported as $r = .76$ to $.84$ for the various scales.

The scale consisted of 100 self descriptive statements which the respondent used to portray his own picture of himself. According to Fitts (1965), the names and capsule descriptions of the ten self-concept areas measured are as follows:

Self-Criticism--High scores generally indicate a normal, healthy openness and capacity for self-criticism. Extremely high scores (above the 99th percentile) indicate that the individual may be lacking in defenses and may in fact be pathologically undefended. Low scores indicate defensiveness, and suggest that the Positive Scores are probably artificially elevated by this defensiveness.

Self-Esteem--Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith or confidence in themselves.

Identity--These are the "what I am" items. Here the individual is describing his basic identity--what he is as he sees himself.

Self-Satisfaction--This score comes from those items where the individual describes how he feels about the self he perceives. In general this score reflects the level of self satisfaction or self-acceptance.

Behavior--This score comes from those items that say "this is what I do, or this is the way I act." Thus this score measures the individual's perception of his own behavior or the way he functions.

Physical Self--Here the individual is presenting his

Table 2

Tennessee Self-Concept Scale Dimensions

Factor	Self-Concept Dimensions
1	Self Criticism
2	Self Esteem
3	Identity
4	Self Satisfaction
5	Behavior
6	Physical Self
7	Moral/Ethical Self
8	Personal Self
9	Family Self
10	Social Self

view of his body, his state of health, his physical appearance, skills, and sexuality.

Moral/Ethical Self--This score describes the self from a moral/ethical frame of reference--moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.

Personal Self--This score reflects the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others.

Family Self--This score reflects one's feelings of adequacy, worth, and value as a family member. It refers to the individual's perception of self in reference to his closest and most immediate circle of associates.

Social Self--This is another "self as perceived in relation to others" category but pertains to "others" in a more general way. It reflects the person's sense of adequacy and worth in his social interaction with other people in general.

In summary, the Sixteen Factor Personality Questionnaire and the Tennessee Self-Concept Scale were chosen for use in this study because of the level of the material and the satisfactory reliability and validity coefficients reported. In addition, administration and scoring factors were considered when these group instruments were selected. It should be noted, however, that the ten dimensions of the Tennessee Self-Concept Scale being used in the present study are only part of the available data produced by the instrument. None of the other measures were applicable to the types of comparisons needed for this study.

Procedure

The eighteen-week developmental program served as the

experimental treatment. The researcher made the necessary assessment of participants starting with the pretest measure of personality and self-concept during the third week of the program and terminating the study with a posttest measure of personality and self-concept using the same instruments at the end of the tenth week.

The Tennessee Self-Concept Scale was administered to the participants during the third week of classes. Conflicting schedules made it impossible to assemble all veterans at one time. For this reason, the tests were administered in the Psychology of Personal Adjustment classes in which each veteran was enrolled. There were six such classes. During the first testing session, the pretest measure of the Tennessee Self-Concept Scale was recorded for all participants.

The Sixteen Personality Factor Questionnaire (16 P.F. Test) was administered during the same setting as the administration of the Tennessee Self-Concept Scale. The time needed to complete these two instruments normally runs between 30-45 minutes for the Sixteen Personality Factor Questionnaire and 10-20 minutes for the Tennessee Self-Concept Scale.

At the end of the tenth (10th) week of the developmental program, (after seven weeks had lapsed since the pretest measure), a second testing session was scheduled and the posttest measure of personality was recorded for each

participant. As in the case of the pretest measure, the Sixteen Personality Factor Questionnaire and the Tennessee Self-Concept Scale were given during the same testing session.

The pretest and posttest measures of personality were compared to determine the amount and direction of changes noted on the individual dimensions of the personality questionnaire at the end of the tenth (10th) week of the developmental program. After veteran participants had completed the self-concept and personality instruments, responses were entered on IBM cards for further processing since the type of statistical calculations desired made hand-calculation impractical. The scoring of the Sixteen Personality Factor Questionnaire and the Tennessee Self-Concept Scale was performed through the Evaluation and Testing Department; School Services Division of Research and Public Services at the University of Oklahoma. The Evaluation and Testing Office returned the computed scores for both instruments to the researcher and they were submitted to the computer center for processing. The raw data of test scores is presented in Appendices A and B.

After the collection of raw scores the researcher processed the data as preparation for the testing of the hypotheses. The primary tests were one-tailed t-tests for correlated measures (Winer, 1962). The data analysis also consisted of certain descriptive statistics such as the mean

(\bar{X}), Mean Difference (Mean Diff), and Standard Error of the Difference (S.E. Diff). All hypotheses were tested at the .05 level of significance with 104 degrees of freedom. Due to the nature of the instruments used in this study and the measures they produced, the .05 level of significance seemed to be appropriate. The t-test was selected as the appropriate statistic to test the stated hypotheses due to the nature of the questions to be answered and the type of data generated from the instruments.

Choice of Design

The research design chosen for the present study was a Pretest-Posttest experimental design supplemented by additional biographical data. Specifically, the research design attempted to accommodate three functions: (1) to measure subjects' self-concept and personality dimensions before participation in a special supportive project; (2) to involve subjects in a developmental education program especially designed for veterans; (3) to measure subjects' self-concept and personality dimensions after participation in a special supportive project.

CHAPTER IV

RESULTS

One-hundred and five Viet Nam veterans who were enrolled in a developmental education project at Oscar Rose Junior College in Midwest City, Oklahoma served as subjects to determine the overall effects of the developmental program on the self-concept and personality of the veteran respondents after ten weeks of participation. Two hypotheses were tested by using the data collected from a pretest-posttest administration of the Sixteen Personality Factor Questionnaire and the Tennessee Self-Concept Scale. The sixteen pre- and posttest dimensions of the Sixteen Personality Questionnaire were compared by subject. In addition, ten of the pre- and posttest areas of the Tennessee Self-Concept Scale were also compared for the participants. The Student's t-test (Winer, 1962) was used to make comparisons required for testing the hypotheses. Both hypotheses were tested at the .05 level of significance.

The results of testing the hypotheses stated in Chapter I are presented in this Chapter of the study. Each of the alternate hypotheses is stated again immediately prior

to the statistical results of the hypothesis testing. Each table is, in turn, followed by a brief non-statistical interpretation of the results. The most complete and detailed interpretation of the findings is presented in the Conclusions section of the final Chapter. The data presented in the results are not intended to give a complete picture of the scores reported for each individual. A complete listing of the raw data for each subject is presented in the Appendices.

The alternate proposition tested in hypothesis number one was as follows:

H₁ There is a statistically significant gain in mean posttest scores from mean pretest scores for veteran subjects on each variable of the Sixteen Personality Factor Questionnaire, respectively.

Hypothesis number one was tested by performing a t-test between the mean raw scores on each of the sixteen dimensions of the Sixteen Personality Factor Questionnaire. The results of these comparisons and the data used in applying the test are shown in Table 3. An analysis of the t-values for each factor on the Questionnaire did indicate statistically significant pretest-posttest changes on three of the sixteen personality variables.

Reference to Factor G, Low Superego Strength vs. Superego Strength, on Table 3 indicated that the resulting t-test of 2.27 was greater than the tabled value for a

Table 3

Comparison of Pre- and Posttest Mean Raw Scores by Variable
on the Sixteen Personality Factor Questionnaire
(N = 105)

Personality Factors	Mean Raw Score		Mean Diff	S.E. Diff	t
	Pretest	Posttest			
A	9.06	8.82	-0.24	2.63	-0.93
B	7.03	7.19	0.16	1.77	0.94
C	15.97	16.08	0.10	3.04	0.35
E	12.95	13.22	0.27	3.27	0.84
F	14.93	14.92	-0.01	3.23	0.03
G	12.80	13.47	0.67	3.02	2.27*
H	13.78	14.35	0.57	3.53	1.66*
I	9.10	9.26	0.16	2.81	0.59
L	8.10	8.23	0.12	2.56	0.50
M	11.43	11.52	0.10	3.40	0.29
N	8.65	9.01	0.36	2.84	1.31
O	10.83	10.67	-0.16	3.03	-0.55
Q ₁	9.67	9.37	-0.30	2.73	-1.11
Q ₂	9.66	9.68	0.02	2.66	0.07
Q ₃	12.88	13.39	0.51	2.03	2.60*
Q ₄	12.90	12.54	0.35	3.40	1.06

*Significant at .05 level or beyond

$t \geq 1.66$; $df = 104$: $p < .05$

one-tailed test (1.66), hence significant at the .05 level. Interpretation of this finding suggested that the veteran participants became significantly more persevering and determined, more responsible, more emotionally disciplined, more consistently ordered, more conscientious and more concerned about rules and standards after their participation in the developmental program.

In addition, positive change was observed on Factor H, Threctia vs. Parmia, ($t = 1.66$) denoting a significant move by subjects toward liking other people, being responsive and congenial and being friendly. Finally, significant change was recorded for respondents on Factor Q_3 , Low Self-Sentiment vs. High Self-Sentiment, ($t = 2.60$) suggesting that subjects became more controlled, more capable of exercising will power, more persistent in completing tasks and more concerned with self-images.

The alternate proposition tested in hypothesis number two was as follows:

H₂ There is a statistically significant gain in mean posttest scores from mean pretest scores for veteran subjects on each area of the Tennessee Self-Concept Scale, respectively.

Like hypothesis number one, the second proposition was tested by performing a t-test between the mean raw scores on each of the ten areas of the Tennessee Self-Concept Scale. The results of these comparisons and the data used in applying the

test are shown in Table 4. An analysis of the t-values for each subtest on the Scale indicated statistically significant pretest-posttest change on seven of the ten self-concept variables.

Reference to area one, Self-Criticism ($t = -2.45$) indicated that respondents became significantly more critical of themselves, thus supporting the previously discussed finding of a significant move toward superego strength, concern about standards, and exercise of will power. Subjects made positive gains in area two, Self-Esteem, ($t = 2.89$) which suggested that participants made significant gains in self-confidence. Area four, Self-Satisfaction, ($t = 3.19$) reflected significant increase in self-acceptance. Positive change was also observed in area five, Behavior, ($t = 2.22$) which denoted significantly strengthened ability in the subjects to perceive behavior more accurately.

Further reference to Table 4 indicated that participants positively changed in area eight, Personal Self, ($t = 3.11$) which suggested significantly heightened feelings of personal worth and adequacy. Closely related to the previous finding, area nine, Family Self, produced significant positive change in the subjects' feelings of worth and value as family members. Finally, respondents made significant gains in the area of sense of adequacy and worth related to social interactions, Social Self, ($t = 2.34$).

Table 4

Comparison of Pre- and Posttest Mean Raw Scores by Variable
on the Tennessee Self-Concept Scale
(N = 105)

Self-Concept Areas	Mean Raw Score		Mean Diff	S.E. Diff	t
	Pretest	Posttest			
1. Self-Criticism	50.69	49.29	-1.40	5.86	-2.45*
2. Self-Esteem	46.50	48.15	1.66	5.87	2.89*
3. Identity	47.10	47.55	0.45	7.40	0.62
4. Self-Satisfaction	48.13	50.17	2.04	6.55	3.19*
5. Behavior	45.02	46.49	1.47	6.78	2.22*
6. Physical Self	47.58	48.13	0.55	8.16	0.70
7. Moral/Ethical Self	44.49	45.28	0.79	6.24	1.30
8. Personal Self	48.36	50.57	2.21	7.28	3.11*
9. Family Self	47.24	48.83	1.59	7.72	2.11*
10. Social Self	47.92	49.43	1.50	6.59	2.34*

*Significant at .05 level or beyond

$t \geq 1.66$; $df = 104$: $p < .05$

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

The research reported in this study was directed primarily to an investigation of changes between self-concept and personality variables as measured by the Sixteen Personality Factor Questionnaire and the Tennessee Self-Concept Scale for Viet Nam veterans who participated in a developmental education project located at Oscar Rose Junior College, Midwest City, Oklahoma. The study was conducted during the spring semester of 1972-73.

A survey of theoretical positions revealed some support among researchers concerning supportive treatment and subsequent change in self-concept and personality dimensions. An analysis of relevant studies, however, suggested the need for additional evidence to determine whether veteran response to a supportive program would produce a statistically significant change in self-concept and personality. Consequently, the research aspects of this study were designed to accommodate three functions: (1) to measure subjects' self-concept and personality dimensions before participation in

the special supportive project; (2) to involve subjects in the specially designed developmental education program for veterans; and (3) to measure subjects' self-concept and personality dimensions after participation in the special supportive project.

One-hundred and five ($N = 105$) participating veteran students completed pretest-posttest administrations of the Sixteen Personality Factor Questionnaire (personality measure) and the Tennessee Self-Concept Scale (self-concept measure). A Student's t-test was used to test the stated hypotheses.

An analysis of the t-values for each factor on the Sixteen Personality Factor Questionnaire indicated statistically significant pretest-posttest change on three of the sixteen personality variables, that is, Factors G, H, and Q_3 . In order to synthesize the personality findings, it might be summarized that subjects moved toward self-controlled behavior and a "drive to do one's best," i.e., persistence according to performance as indicated on Factor G. It is important to note here that according to Cattell (1970) Factor G correlates negatively with delinquency, sociopathic behavior and homosexuality and positively with school and general achievement. In group dynamics experiments, Factor G significantly distinguishes leaders from followers, and is associated in group members generally, with a higher percentage of group-task-oriented participation of

all kinds. Further, subjects increased in Factor H, ability to face grueling emotional situations and exhibited greater strength in ability to face threat. Finally, the third personality factor to show statistically significant change, Factor Q₃, had in previous studies shown significant relationship to success in school. Hypothetically, it represented the extent to which the subject had crystallized for himself a clear, consistent, admired pattern of socially approved behavior, to which he made definite efforts to conform.

An analysis of the t-values for each area of the Tennessee Self-Concept Scale indicated statistically significant pretest-posttest changes on seven of the ten self-concept factors. Changes were observed on Self-Criticism, Self-Esteem, Self-Satisfaction, Behavior, Personal Self, Family Self, and Social Self. As was expected, no significant change was observed in the factors of Identity, Physical Self, and Moral-Ethical Self. For the purpose of synthesizing the self-concept findings, it might be summarized that subjects decreased in Self-Criticism, i.e., became significantly more critical of themselves. This was to be expected since respondents also significantly showed increased concern about standards and exercise of will power. Participants made significantly positive gains in self-confidence, self-acceptance, and ability to accurately perceive behavior. Further, the subjects made statistically significantly

positive change in the areas of personal worth, value as family members, and adequacy in social interactions.

Conclusions

The findings presented in Chapter IV and summarized in the first portion of this Chapter indicated the appropriateness of the following conclusions:

(1) Harrison (1972) discussed the importance of peer identity and the resulting alienation a veteran may feel after his enrollment in a higher education institution. It might be concluded that the establishment of a special program for veterans had reduced the interpersonal alienation, as well as the intrapersonal alienation, which normally could occur during this initial period in college. Involvement in the program seemed to have encouraged identification, both with other veterans experiencing similar problems and, importantly, with the school structure and its faculty and counselors.

(2) Ausubel (1957) and Sullivan (1947) stressed the importance of social experiences in the formation of self-concept. From this one could conclude, perhaps, that social experiences were an important factor in improving self-concept. If this assumption is valid then it might be concluded that the establishment of a developmental program, in addition to reducing veteran alienation, also had been instrumental in strengthening perception of self-value.

(3) Finally, from an analysis of self-concept and

personality change reported herein, it seemed appropriate that a statistically significant change on the majority of self-concept areas studied represented what Peck (1971) had called a decrease in cognitive dissonance resulting from less self-system alpha and beta press conflict. In other words, conflict between social expectations (objective reality) and personal desires (subjective reality) appeared to have significantly diminished.

Implications

This study was designed to be useful for those persons in higher education institutions who are presently involved in or planning to initiate programs for veterans. The investigator was aware that the results were based on data only from one group of men in one program. Because of the sampling restrictions and limitations of the study caution should be taken in making interpretations, formulating conclusions and generalizing therefrom.

The most obvious implication is that the adjustment characteristics of this population naturally differed from many studies conducted on those veterans who had been seen in a hospital setting or special counseling program. The men in this study had been sophisticated enough to apply for and take advantage of a special education program and to make the initial life-adjustments related to that decision. By this very process, these men had exhibited a "skimming-off effect" from those veterans who were not goal oriented and were still looking for a career objective. By their very

nature, therefore, they may be considered different from certain other returning servicemen. Further investigations might be conducted on those veterans who required extensive recruitment before enrolling in a developmental program.

Additional studies could be done using the same data collection instruments as those used in the present study, but utilizing the data obtained from additional instruments. Furthermore, research should be structured to introduce control into the design. For example, veterans not enrolled in any developmental program could be studied. Also, an increase in observations would permit comparisons among similar junior colleges who are operating developmental programs for veterans. A study conducted over a longer period of time, perhaps a year or two, could add more significant results.

The challenges for this potential population of approximately eight million veterans were personal, social, economic, and educational all interwoven. Continued and expanded research must be initiated to identify areas of the program which are not contributing to the facilitation of students' attainment of the proposed educational objectives of the various institutions.

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APPENDIX A

Table 5

Pretest-Posttest Raw Scores for the Sixteen
Personality Factor Questionnaire
(N = 105)

1 PRE-TEST	14.	7.	24.	11.	13.	12.	16.	13.	6.	11.	13.	6.	6.	7.	18.	3.
POST-TEST	13.	5.	20.	11.	18.	16.	21.	14.	3.	12.	10.	7.	8.	5.	19.	7.
2 PRE-TEST	10.	6.	18.	12.	16.	18.	16.	6.	8.	12.	12.	6.	8.	10.	16.	6.
POST-TEST	11.	7.	18.	12.	21.	14.	16.	6.	6.	12.	9.	5.	9.	9.	15.	6.
3 PRE-TEST	13.	9.	19.	15.	24.	20.	24.	9.	6.	14.	8.	5.	6.	6.	16.	4.
POST-TEST	18.	8.	18.	16.	22.	20.	26.	15.	6.	11.	11.	6.	12.	6.	13.	5.
4 PRE-TEST	12.	4.	14.	12.	19.	15.	15.	15.	7.	14.	8.	11.	9.	14.	12.	12.
POST-TEST	13.	6.	18.	12.	13.	11.	13.	12.	7.	15.	9.	10.	9.	11.	13.	14.
5 PRE-TEST	7.	8.	19.	14.	12.	16.	13.	10.	6.	17.	12.	2.	10.	12.	17.	4.
POST-TEST	10.	8.	20.	11.	10.	16.	11.	11.	4.	12.	7.	1.	7.	14.	20.	2.
6 PRE-TEST	9.	6.	11.	13.	18.	11.	16.	13.	12.	9.	11.	16.	12.	6.	12.	11.
POST-TEST	9.	6.	8.	12.	11.	16.	17.	10.	9.	12.	11.	8.	9.	12.	11.	16.
7 PRE-TEST	10.	8.	20.	17.	16.	12.	18.	7.	5.	13.	8.	6.	2.	4.	11.	13.
POST-TEST	10.	10.	16.	17.	18.	17.	21.	13.	0.	14.	11.	10.	7.	7.	11.	11.
8 PRE-TEST	14.	7.	18.	14.	13.	12.	21.	13.	7.	10.	9.	8.	10.	9.	14.	15.
POST-TEST	10.	7.	13.	14.	12.	13.	12.	8.	6.	12.	7.	13.	10.	6.	11.	13.
9 PRE-TEST	11.	4.	16.	12.	14.	0.	15.	10.	9.	11.	7.	11.	13.	9.	13.	13.
POST-TEST	15.	3.	14.	13.	16.	11.	14.	10.	10.	11.	10.	13.	14.	8.	16.	12.
10 PRE-TEST	16.	5.	19.	8.	15.	17.	17.	11.	1.	15.	9.	9.	5.	7.	18.	5.
POST-TEST	13.	7.	19.	8.	14.	18.	21.	10.	0.	15.	12.	3.	6.	5.	15.	4.
11 PRE-TEST	18.	7.	14.	11.	19.	15.	22.	14.	8.	16.	9.	14.	13.	7.	15.	8.
POST-TEST	10.	5.	16.	14.	17.	11.	16.	15.	8.	14.	8.	10.	12.	13.	13.	7.
12 PRE-TEST	7.	7.	18.	7.	9.	7.	12.	6.	6.	15.	7.	10.	10.	13.	9.	8.
POST-TEST	10.	9.	16.	15.	14.	15.	17.	10.	6.	6.	4.	10.	8.	10.	10.	12.
13 PRE-TEST	11.	9.	12.	20.	19.	15.	20.	9.	9.	4.	8.	18.	12.	7.	17.	20.
POST-TEST	14.	8.	13.	18.	17.	16.	17.	9.	13.	6.	8.	13.	10.	8.	16.	23.
14 PRE-TEST	11.	8.	11.	13.	20.	15.	16.	16.	10.	8.	5.	11.	11.	5.	13.	16.
POST-TEST	13.	6.	13.	15.	20.	17.	15.	15.	11.	8.	13.	10.	11.	4.	13.	16.
15 PRE-TEST	8.	5.	13.	11.	11.	14.	10.	10.	7.	15.	10.	13.	10.	9.	14.	13.
POST-TEST	5.	4.	11.	15.	11.	13.	9.	13.	8.	11.	6.	15.	7.	12.	10.	14.
16 PRE-TEST	13.	5.	19.	16.	18.	14.	21.	10.	14.	9.	9.	6.	9.	4.	16.	10.
POST-TEST	5.	5.	18.	16.	20.	12.	24.	8.	12.	15.	10.	5.	14.	8.	13.	8.
17 PRE-TEST	9.	9.	13.	17.	15.	12.	15.	11.	9.	12.	8.	15.	11.	8.	12.	17.
POST-TEST	12.	7.	15.	17.	16.	12.	15.	11.	10.	15.	5.	12.	10.	10.	12.	15.

18	PRE-TEST	13.	3.	12.	7.	14.	9.	11.	10.	6.	12.	10.	14.	13.	10.	11.	15.
	POST-TEST	13.	6.	17.	12.	15.	8.	10.	11.	8.	8.	7.	9.	8.	9.	15.	10.
19	PRE-TEST	8.	7.	13.	15.	17.	13.	18.	2.	10.	11.	11.	12.	9.	9.	12.	17.
	POST-TEST	10.	7.	12.	14.	16.	8.	17.	5.	10.	9.	6.	13.	6.	6.	12.	15.
20	PRE-TEST	8.	7.	8.	12.	16.	6.	12.	8.	14.	10.	7.	19.	11.	13.	8.	19.
	POST-TEST	7.	7.	8.	12.	15.	9.	13.	7.	14.	13.	8.	16.	14.	13.	10.	16.
21	PRE-TEST	5.	4.	15.	16.	13.	10.	16.	8.	7.	12.	7.	11.	11.	10.	12.	11.
	POST-TEST	7.	9.	17.	16.	13.	13.	20.	9.	10.	14.	4.	12.	6.	6.	16.	18.
22	PRE-TEST	11.	9.	22.	14.	17.	6.	21.	11.	6.	15.	7.	5.	8.	9.	12.	11.
	POST-TEST	13.	10.	20.	11.	10.	10.	21.	15.	5.	8.	9.	6.	11.	7.	14.	13.
23	PRE-TEST	12.	7.	15.	13.	18.	11.	16.	11.	9.	10.	9.	16.	8.	6.	11.	14.
	POST-TEST	8.	7.	21.	18.	9.	13.	12.	8.	16.	12.	8.	14.	10.	8.	13.	17.
24	PRE-TEST	9.	5.	11.	18.	17.	11.	10.	13.	12.	7.	7.	14.	12.	9.	7.	20.
	POST-TEST	10.	4.	10.	17.	15.	11.	11.	13.	12.	9.	7.	14.	9.	8.	6.	20.
25	PRE-TEST	10.	8.	19.	12.	18.	15.	20.	7.	8.	14.	11.	9.	11.	3.	16.	4.
	POST-TEST	13.	6.	18.	15.	19.	17.	21.	7.	10.	8.	10.	7.	6.	6.	16.	5.
26	PRE-TEST	11.	5.	19.	13.	14.	9.	9.	8.	10.	15.	9.	13.	8.	9.	12.	10.
	POST-TEST	14.	4.	15.	16.	21.	11.	18.	7.	11.	13.	9.	13.	13.	10.	11.	14.
27	PRE-TEST	8.	7.	15.	10.	13.	13.	12.	9.	7.	9.	10.	10.	8.	7.	13.	10.
	POST-TEST	11.	7.	12.	14.	11.	15.	15.	6.	9.	8.	12.	10.	10.	6.	14.	11.
28	PRE-TEST	9.	6.	12.	17.	15.	11.	8.	13.	13.	11.	11.	16.	11.	12.	9.	17.
	POST-TEST	10.	8.	12.	13.	18.	14.	13.	9.	9.	9.	11.	15.	11.	13.	12.	20.
29	PRE-TEST	14.	8.	12.	13.	19.	14.	18.	6.	10.	9.	4.	12.	10.	4.	14.	15.
	POST-TEST	15.	7.	15.	12.	19.	16.	22.	10.	8.	11.	4.	10.	7.	2.	18.	13.
30	PRE-TEST	8.	8.	11.	12.	12.	8.	9.	7.	10.	12.	5.	13.	7.	10.	7.	17.
	POST-TEST	8.	6.	12.	9.	15.	10.	8.	5.	13.	9.	7.	18.	7.	14.	4.	17.
31	PRE-TEST	12.	5.	12.	11.	11.	13.	9.	11.	8.	5.	6.	15.	8.	9.	10.	12.
	POST-TEST	10.	7.	14.	10.	16.	14.	14.	8.	7.	8.	12.	11.	9.	9.	11.	10.
32	PRE-TEST	11.	4.	12.	14.	12.	16.	14.	7.	10.	8.	12.	14.	11.	11.	15.	17.
	POST-TEST	13.	6.	18.	16.	12.	17.	15.	9.	9.	10.	11.	11.	7.	10.	15.	10.
33	PRE-TEST	12.	3.	18.	8.	18.	17.	17.	12.	11.	10.	9.	6.	7.	8.	15.	8.
	POST-TEST	9.	5.	24.	14.	16.	14.	24.	17.	6.	11.	5.	6.	9.	5.	17.	2.
34	PRE-TEST	5.	8.	16.	10.	11.	12.	5.	2.	10.	14.	7.	15.	13.	13.	14.	16.
	POST-TEST	6.	10.	13.	12.	12.	14.	7.	8.	10.	11.	5.	14.	13.	13.	12.	18.
35	PRE-TEST	8.	10.	25.	16.	9.	18.	19.	14.	3.	16.	9.	4.	5.	12.	16.	2.
	POST-TEST	12.	9.	23.	13.	11.	18.	14.	14.	4.	18.	11.	6.	9.	8.	16.	4.

36	PRE-TEST	9.	8.	17.	12.	10.	6.	10.	7.	10.	11.	6.	10.	13.	12.	12.	13.
	POST-TEST	9.	9.	17.	9.	8.	6.	7.	9.	10.	9.	8.	13.	13.	11.	8.	13.
37	PRE-TEST	6.	7.	14.	16.	2.	14.	0.	2.	8.	10.	7.	16.	13.	13.	10.	19.
	POST-TEST	6.	7.	17.	17.	8.	8.	1.	8.	9.	10.	9.	20.	11.	11.	7.	19.
38	PRE-TEST	9.	5.	14.	12.	15.	11.	6.	10.	13.	14.	7.	16.	9.	14.	13.	9.
	POST-TEST	8.	8.	12.	11.	14.	10.	4.	7.	10.	16.	8.	16.	8.	17.	12.	17.
39	PRE-TEST	6.	8.	22.	18.	14.	19.	7.	5.	9.	10.	8.	11.	11.	18.	14.	17.
	POST-TEST	7.	6.	16.	21.	18.	19.	13.	7.	14.	7.	8.	11.	9.	13.	16.	17.
40	PRE-TEST	11.	8.	23.	12.	17.	14.	22.	9.	9.	6.	12.	7.	12.	3.	16.	17.
	POST-TEST	9.	5.	20.	13.	21.	14.	23.	8.	5.	5.	8.	11.	9.	3.	16.	19.
41	PRE-TEST	5.	10.	15.	14.	10.	13.	3.	13.	5.	13.	8.	8.	16.	15.	7.	12.
	POST-TEST	6.	9.	19.	15.	7.	16.	7.	13.	7.	12.	8.	6.	15.	15.	12.	12.
42	PRE-TEST	7.	8.	21.	12.	17.	14.	16.	5.	3.	14.	10.	5.	9.	11.	18.	5.
	POST-TEST	5.	8.	25.	15.	16.	15.	19.	3.	1.	18.	8.	2.	9.	12.	19.	1.
43	PRE-TEST	9.	9.	11.	17.	16.	14.	14.	5.	8.	9.	9.	12.	7.	15.	14.	19.
	POST-TEST	8.	9.	16.	13.	13.	11.	11.	6.	7.	11.	10.	11.	9.	19.	13.	12.
44	PRE-TEST	10.	9.	19.	13.	16.	14.	17.	5.	4.	18.	7.	4.	10.	2.	14.	9.
	POST-TEST	12.	6.	21.	14.	21.	14.	18.	7.	0.	13.	8.	3.	11.	3.	16.	6.
45	PRE-TEST	10.	6.	14.	18.	10.	17.	14.	9.	8.	16.	5.	13.	13.	10.	9.	12.
	POST-TEST	4.	9.	12.	9.	14.	14.	11.	7.	11.	13.	7.	18.	12.	11.	12.	17.
46	PRE-TEST	6.	9.	19.	9.	3.	16.	2.	8.	3.	17.	15.	15.	9.	16.	14.	16.
	POST-TEST	4.	7.	19.	13.	5.	13.	2.	6.	5.	16.	13.	13.	9.	20.	17.	14.
47	PRE-TEST	6.	6.	14.	13.	18.	10.	10.	7.	15.	9.	4.	17.	16.	9.	12.	16.
	POST-TEST	7.	7.	16.	10.	18.	16.	10.	7.	16.	9.	8.	11.	13.	10.	11.	13.
48	PRE-TEST	6.	9.	16.	15.	14.	15.	10.	6.	7.	10.	6.	8.	12.	10.	13.	19.
	POST-TEST	5.	9.	15.	16.	14.	17.	9.	3.	7.	7.	9.	10.	9.	10.	14.	19.
49	PRE-TEST	8.	6.	16.	10.	12.	12.	12.	11.	8.	11.	11.	10.	9.	9.	14.	11.
	POST-TEST	6.	7.	17.	9.	12.	13.	12.	7.	9.	11.	10.	8.	6.	9.	14.	11.
50	PRE-TEST	4.	6.	15.	8.	10.	17.	2.	2.	10.	10.	10.	15.	6.	13.	14.	13.
	POST-TEST	3.	8.	14.	9.	12.	17.	4.	2.	12.	12.	8.	16.	13.	17.	16.	21.
51	PRE-TEST	6.	9.	20.	16.	11.	11.	17.	13.	12.	14.	7.	8.	16.	10.	8.	10.
	POST-TEST	7.	10.	16.	17.	9.	14.	12.	12.	12.	9.	8.	16.	12.	6.	13.	12.
52	PRE-TEST	8.	5.	16.	20.	22.	11.	19.	12.	10.	11.	5.	12.	14.	12.	12.	12.
	POST-TEST	7.	3.	17.	19.	22.	17.	17.	13.	9.	11.	10.	12.	11.	14.	14.	13.
53	PRE-TEST	13.	8.	10.	20.	21.	6.	16.	9.	13.	9.	10.	15.	10.	9.	7.	20.
	POST-TEST	9.	7.	16.	21.	18.	10.	16.	13.	15.	13.	11.	10.	8.	13.	11.	16.

54	PRE-TEST	5.	7.	21.	23.	23.	15.	23.	1.	12.	7.	8.	9.	12.	13.	13.	13.
	POST-TEST	6.	7.	21.	18.	23.	15.	25.	3.	13.	10.	8.	12.	8.	10.	10.	12.
55	PRE-TEST	4.	6.	21.	11.	6.	14.	4.	9.	1.	16.	14.	7.	8.	15.	18.	7.
	POST-TEST	6.	6.	19.	10.	6.	13.	3.	10.	3.	12.	12.	9.	9.	16.	17.	6.
56	PRE-TEST	6.	9.	18.	17.	13.	14.	23.	11.	8.	12.	14.	12.	6.	8.	11.	6.
	POST-TEST	8.	9.	15.	11.	18.	13.	14.	7.	7.	10.	14.	8.	7.	7.	10.	11.
57	PRE-TEST	11.	6.	15.	17.	13.	15.	18.	10.	7.	17.	7.	7.	11.	10.	13.	13.
	POST-TEST	8.	6.	14.	12.	10.	15.	16.	10.	7.	11.	12.	9.	9.	11.	13.	12.
58	PRE-TEST	8.	6.	19.	13.	14.	12.	19.	9.	7.	7.	8.	13.	6.	15.	12.	14.
	POST-TEST	9.	8.	12.	12.	14.	15.	18.	8.	8.	8.	10.	16.	10.	10.	9.	13.
59	PRE-TEST	10.	8.	16.	9.	8.	11.	4.	8.	13.	10.	7.	11.	9.	12.	9.	18.
	POST-TEST	9.	6.	17.	8.	9.	14.	11.	9.	13.	9.	12.	10.	13.	14.	11.	18.
60	PRE-TEST	10.	7.	16.	17.	19.	19.	18.	6.	10.	11.	6.	12.	7.	9.	14.	16.
	POST-TEST	8.	6.	14.	11.	14.	14.	12.	11.	11.	13.	12.	15.	5.	11.	14.	10.
61	PRE-TEST	12.	9.	21.	16.	20.	12.	15.	10.	4.	6.	6.	5.	9.	8.	12.	6.
	POST-TEST	12.	5.	19.	14.	21.	12.	12.	6.	4.	12.	12.	2.	8.	9.	16.	5.
62	PRE-TEST	6.	8.	10.	11.	19.	7.	9.	8.	10.	9.	7.	10.	13.	5.	12.	23.
	POST-TEST	8.	7.	18.	13.	14.	13.	7.	11.	12.	14.	12.	16.	12.	7.	9.	17.
63	PRE-TEST	11.	10.	13.	13.	19.	17.	26.	14.	6.	6.	10.	15.	9.	16.	17.	13.
	POST-TEST	9.	9.	15.	11.	21.	19.	24.	12.	9.	13.	12.	12.	8.	8.	18.	16.
64	PRE-TEST	8.	8.	19.	8.	13.	10.	4.	10.	7.	11.	7.	11.	7.	10.	13.	14.
	POST-TEST	10.	10.	14.	13.	14.	14.	10.	9.	9.	13.	11.	12.	8.	11.	15.	14.
65	PRE-TEST	10.	11.	17.	15.	18.	12.	18.	9.	7.	7.	14.	15.	5.	14.	14.	13.
	POST-TEST	9.	9.	19.	11.	15.	14.	16.	9.	10.	11.	8.	13.	9.	11.	16.	12.
66	PRE-TEST	12.	6.	20.	10.	8.	13.	5.	8.	7.	6.	10.	10.	11.	13.	16.	16.
	POST-TEST	7.	9.	18.	11.	12.	15.	10.	13.	1.	12.	10.	11.	11.	11.	17.	13.
67	PRE-TEST	10.	7.	8.	13.	14.	16.	11.	2.	12.	10.	10.	19.	11.	13.	9.	22.
	POST-TEST	9.	7.	10.	17.	18.	14.	13.	4.	14.	8.	10.	17.	5.	16.	11.	22.
68	PRE-TEST	13.	7.	16.	13.	16.	15.	16.	11.	7.	12.	8.	6.	11.	10.	15.	6.
	POST-TEST	11.	6.	17.	11.	10.	13.	16.	12.	9.	8.	11.	7.	9.	11.	17.	7.
69	PRE-TEST	7.	3.	11.	8.	15.	11.	11.	9.	12.	8.	9.	16.	11.	13.	10.	14.
	POST-TEST	8.	6.	10.	13.	12.	13.	11.	5.	12.	9.	8.	15.	11.	13.	11.	12.
70	PRE-TEST	10.	9.	18.	8.	16.	17.	14.	5.	4.	12.	8.	9.	4.	3.	13.	10.
	POST-TEST	10.	9.	13.	12.	17.	17.	18.	4.	8.	11.	6.	13.	6.	2.	15.	11.
71	PRE-TEST	2.	6.	16.	16.	11.	14.	14.	8.	9.	11.	9.	15.	9.	14.	13.	9.
	POST-TEST	7.	4.	16.	14.	14.	14.	12.	9.	11.	15.	14.	10.	11.	11.	14.	17.

72	PRE-TEST	8.	5.	17.	17.	14.	16.	18.	13.	6.	14.	7.	10.	9.	10.	15.	8.
	POST-TEST	7.	8.	21.	16.	13.	15.	15.	11.	8.	18.	10.	9.	9.	8.	16.	9.
73	PRE-TEST	11.	4.	16.	16.	21.	15.	25.	9.	13.	18.	6.	11.	11.	11.	14.	22.
	POST-TEST	6.	7.	13.	12.	19.	8.	19.	8.	9.	17.	5.	9.	7.	13.	12.	20.
74	PRE-TEST	8.	9.	15.	14.	16.	8.	15.	15.	14.	9.	10.	12.	11.	10.	9.	16.
	POST-TEST	8.	9.	19.	21.	19.	10.	10.	11.	15.	11.	9.	13.	10.	9.	10.	13.
75	PRE-TEST	14.	5.	24.	14.	19.	15.	25.	2.	8.	12.	5.	5.	11.	5.	16.	12.
	POST-TEST	16.	5.	19.	14.	20.	15.	24.	4.	8.	11.	5.	7.	10.	5.	17.	8.
76	PRE-TEST	2.	10.	22.	17.	12.	14.	8.	9.	8.	16.	9.	12.	12.	16.	14.	10.
	POST-TEST	2.	10.	18.	12.	10.	11.	6.	12.	8.	12.	8.	12.	14.	18.	13.	14.
77	PRE-TEST	8.	7.	19.	8.	4.	8.	16.	9.	0.	10.	8.	6.	3.	12.	13.	7.
	POST-TEST	6.	7.	24.	14.	7.	9.	17.	9.	1.	12.	10.	3.	4.	13.	15.	8.
78	PRE-TEST	9.	8.	19.	15.	18.	17.	17.	6.	9.	9.	4.	3.	10.	5.	14.	7.
	POST-TEST	9.	6.	17.	9.	17.	15.	21.	9.	8.	9.	6.	6.	9.	4.	15.	8.
79	PRE-TEST	10.	5.	9.	20.	22.	9.	17.	15.	12.	11.	7.	17.	9.	4.	9.	21.
	POST-TEST	11.	4.	13.	17.	20.	14.	18.	14.	12.	10.	7.	18.	9.	4.	12.	23.
80	PRE-TEST	8.	7.	11.	11.	13.	10.	11.	9.	4.	12.	7.	10.	13.	11.	12.	14.
	POST-TEST	9.	8.	12.	6.	17.	12.	11.	16.	7.	10.	7.	13.	8.	12.	14.	16.
81	PRE-TEST	8.	3.	6.	8.	8.	18.	6.	14.	6.	12.	7.	16.	7.	9.	11.	22.
	POST-TEST	1.	7.	11.	9.	9.	16.	2.	7.	6.	9.	10.	14.	8.	13.	11.	23.
82	PRE-TEST	3.	10.	20.	14.	15.	13.	17.	8.	4.	9.	12.	12.	11.	9.	16.	5.
	POST-TEST	4.	10.	22.	13.	23.	18.	25.	9.	3.	16.	12.	7.	11.	6.	15.	7.
83	PRE-TEST	10.	8.	21.	9.	21.	15.	18.	10.	5.	15.	10.	6.	7.	11.	15.	13.
	POST-TEST	5.	10.	20.	15.	20.	15.	20.	10.	2.	6.	8.	6.	10.	13.	15.	7.
84	PRE-TEST	10.	7.	16.	15.	15.	15.	10.	4.	4.	14.	14.	9.	11.	9.	14.	9.
	POST-TEST	9.	8.	18.	13.	13.	13.	12.	6.	6.	16.	14.	7.	11.	10.	15.	6.
85	PRE-TEST	11.	8.	16.	3.	12.	12.	13.	16.	5.	16.	13.	9.	8.	10.	17.	11.
	POST-TEST	6.	9.	15.	2.	9.	12.	14.	14.	0.	16.	9.	11.	6.	7.	15.	12.
86	PRE-TEST	7.	6.	13.	8.	11.	10.	3.	6.	7.	6.	9.	15.	10.	6.	9.	17.
	POST-TEST	6.	9.	15.	11.	16.	10.	8.	7.	8.	12.	9.	9.	6.	7.	12.	14.
87	PRE-TEST	3.	6.	16.	10.	10.	14.	13.	8.	8.	5.	10.	16.	3.	10.	11.	14.
	POST-TEST	5.	6.	11.	14.	8.	15.	14.	8.	10.	8.	10.	13.	3.	10.	14.	16.
88	PRE-TEST	8.	5.	18.	3.	11.	17.	16.	10.	7.	11.	10.	8.	8.	4.	17.	4.
	POST-TEST	9.	7.	19.	6.	11.	15.	18.	8.	5.	15.	12.	10.	8.	3.	17.	4.
89	PRE-TEST	11.	4.	8.	10.	18.	17.	11.	12.	11.	9.	15.	18.	8.	13.	12.	15.
	POST-TEST	13.	6.	8.	12.	17.	18.	15.	8.	11.	5.	11.	12.	1.	8.	14.	17.

90	PRE-TEST	7.	8.	13.	19.	20.	13.	11.	2.	13.	14.	8.	12.	10.	9.	11.	16.
	POST-TEST	8.	8.	10.	15.	20.	12.	12.	6.	13.	12.	7.	16.	7.	10.	12.	16.
91	PRE-TEST	9.	8.	16.	15.	12.	16.	14.	8.	13.	12.	12.	7.	11.	7.	15.	11.
	POST-TEST	8.	4.	17.	15.	11.	14.	13.	8.	3.	9.	7.	12.	12.	10.	17.	8.
92	PRE-TEST	10.	8.	15.	11.	16.	15.	18.	3.	9.	10.	6.	10.	6.	5.	13.	11.
	POST-TEST	11.	7.	15.	15.	19.	16.	23.	6.	6.	15.	10.	8.	6.	3.	14.	12.
93	PRE-TEST	6.	7.	12.	17.	15.	10.	10.	8.	12.	11.	10.	8.	10.	8.	10.	17.
	POST-TEST	8.	7.	16.	14.	17.	8.	12.	7.	8.	12.	8.	14.	11.	13.	13.	12.
94	PRE-TEST	18.	7.	8.	16.	24.	9.	17.	10.	7.	16.	9.	12.	8.	8.	13.	15.
	POST-TEST	14.	6.	10.	20.	14.	12.	19.	9.	11.	13.	7.	12.	11.	10.	12.	17.
95	PRE-TEST	7.	6.	17.	11.	16.	10.	10.	7.	7.	14.	12.	11.	10.	12.	11.	14.
	POST-TEST	8.	6.	17.	14.	15.	10.	14.	7.	10.	16.	11.	8.	10.	9.	12.	12.
96	PRE-TEST	5.	9.	14.	12.	9.	15.	13.	7.	14.	10.	10.	10.	7.	11.	12.	17.
	POST-TEST	4.	8.	15.	11.	7.	17.	10.	6.	11.	13.	12.	10.	6.	11.	11.	16.
97	PRE-TEST	8.	6.	19.	11.	19.	13.	10.	12.	2.	10.	4.	9.	5.	10.	12.	13.
	POST-TEST	7.	9.	17.	6.	18.	11.	16.	13.	7.	16.	6.	9.	6.	9.	12.	14.
98	PRE-TEST	11.	7.	11.	13.	22.	14.	14.	7.	8.	6.	7.	18.	12.	12.	11.	18.
	POST-TEST	8.	9.	8.	15.	20.	13.	10.	7.	9.	5.	9.	19.	8.	9.	10.	15.
99	PRE-TEST	10.	8.	22.	17.	15.	8.	22.	13.	9.	11.	4.	6.	13.	11.	12.	12.
	POST-TEST	7.	6.	20.	22.	14.	13.	22.	13.	9.	10.	3.	10.	17.	13.	14.	14.
100	PRE-TEST	7.	9.	9.	15.	14.	10.	3.	8.	7.	11.	12.	9.	7.	15.	6.	16.
	POST-TEST	7.	7.	14.	15.	12.	10.	5.	6.	9.	14.	8.	10.	12.	9.	6.	12.
101	PRE-TEST	5.	7.	23.	9.	19.	4.	10.	14.	4.	18.	6.	3.	16.	15.	17.	12.
	POST-TEST	4.	8.	21.	12.	15.	6.	13.	15.	8.	14.	11.	1.	14.	14.	15.	11.
102	PRE-TEST	10.	11.	21.	8.	19.	18.	13.	18.	4.	14.	9.	8.	10.	9.	15.	18.
	POST-TEST	15.	9.	21.	8.	20.	12.	21.	11.	5.	11.	13.	7.	10.	9.	15.	5.
103	PRE-TEST	7.	7.	16.	9.	9.	3.	9.	12.	8.	10.	5.	11.	14.	9.	12.	17.
	POST-TEST	8.	9.	18.	13.	12.	10.	9.	10.	8.	15.	6.	10.	14.	10.	13.	13.
104	PRE-TEST	11.	7.	19.	11.	21.	12.	11.	10.	6.	15.	6.	14.	12.	3.	14.	12.
	POST-TEST	11.	8.	20.	14.	22.	14.	14.	11.	5.	13.	8.	17.	13.	2.	12.	13.
105	PRE-TEST	10.	9.	20.	7.	20.	16.	23.	13.	5.	15.	12.	5.	10.	2.	18.	11.
	POST-TEST	10.	9.	21.	10.	18.	14.	21.	18.	5.	18.	8.	6.	9.	8.	19.	4.

APPENDIX B

Table 6

Pretest-Posttest Raw Scores for the
Tennessee Self-Concept Scale
(N = 105)

1	PRE-TEST	44.	51.	53.	46.	55.	53.	43.	49.	50.	57.
	POST-TEST	33.	63.	61.	54.	67.	57.	61.	52.	58.	64.
2	PRE-TEST	48.	49.	53.	48.	46.	45.	39.	51.	52.	57.
	POST-TEST	44.	47.	50.	47.	45.	43.	37.	51.	54.	52.
3	PRE-TEST	54.	71.	66.	69.	71.	79.	51.	67.	72.	74.
	POST-TEST	54.	71.	68.	66.	74.	79.	53.	63.	82.	73.
4	PRE-TEST	43.	45.	53.	46.	39.	62.	41.	38.	36.	55.
	POST-TEST	43.	47.	49.	52.	41.	55.	47.	58.	35.	46.
5	PRE-TEST	44.	55.	51.	49.	64.	68.	58.	46.	42.	57.
	POST-TEST	46.	63.	66.	51.	69.	71.	60.	52.	54.	59.
6	PRE-TEST	39.	36.	36.	33.	46.	37.	34.	46.	37.	39.
	POST-TEST	33.	32.	24.	43.	30.	33.	31.	41.	31.	35.
7	PRE-TEST	54.	44.	44.	37.	56.	42.	48.	54.	39.	44.
	POST-TEST	64.	46.	39.	43.	59.	39.	45.	66.	37.	49.
8	PRE-TEST	51.	56.	55.	60.	49.	68.	37.	60.	57.	53.
	POST-TEST	53.	46.	52.	49.	38.	52.	34.	50.	53.	45.
9	PRE-TEST	49.	51.	58.	46.	48.	61.	43.	56.	43.	46.
	POST-TEST	44.	60.	58.	58.	59.	64.	54.	58.	52.	61.
10	PRE-TEST	45.	50.	51.	54.	41.	36.	61.	52.	46.	52.
	POST-TEST	48.	52.	46.	53.	57.	33.	61.	60.	57.	49.
11	PRE-TEST	54.	51.	50.	44.	60.	62.	39.	47.	58.	46.
	POST-TEST	32.	43.	46.	44.	42.	55.	31.	46.	52.	39.
12	PRE-TEST	43.	44.	48.	47.	38.	46.	41.	42.	42.	51.
	POST-TEST	52.	48.	56.	40.	52.	53.	41.	50.	45.	52.
13	PRE-TEST	64.	50.	48.	48.	53.	40.	61.	49.	58.	38.
	POST-TEST	60.	53.	52.	53.	53.	39.	60.	54.	61.	49.
14	PRE-TEST	52.	54.	57.	48.	57.	58.	47.	58.	52.	52.
	POST-TEST	54.	54.	58.	52.	52.	52.	48.	58.	54.	55.
15	PRE-TEST	49.	39.	50.	32.	42.	49.	41.	49.	32.	35.
	POST-TEST	43.	42.	55.	41.	34.	51.	43.	44.	39.	41.
16	PRE-TEST	45.	48.	52.	50.	42.	69.	39.	52.	35.	46.
	POST-TEST	48.	44.	48.	46.	39.	58.	34.	47.	42.	45.
17	PRE-TEST	62.	33.	40.	31.	35.	33.	32.	33.	36.	45.
	POST-TEST	62.	32.	35.	31.	33.	30.	27.	41.	35.	37.

18	PRE-TEST	43.	55.	57.	48.	61.	66.	41.	51.	57.	58.
	POST-TEST	51.	66.	66.	68.	59.	90.	51.	55.	74.	61.
19	PRE-TEST	60.	43.	42.	48.	39.	57.	37.	41.	39.	47.
	POST-TEST	48.	40.	36.	46.	39.	44.	37.	44.	40.	44.
20	PRE-TEST	48.	28.	19.	42.	22.	31.	32.	30.	24.	31.
	POST-TEST	52.	25.	16.	38.	20.	28.	32.	28.	21.	26.
21	PRE-TEST	53.	39.	37.	42.	41.	52.	37.	37.	37.	44.
	POST-TEST	46.	43.	43.	48.	40.	46.	37.	49.	43.	47.
22	PRE-TEST	44.	56.	46.	63.	59.	51.	60.	66.	57.	47.
	POST-TEST	44.	56.	54.	57.	54.	57.	41.	72.	63.	42.
23	PRE-TEST	51.	50.	48.	54.	44.	62.	37.	50.	43.	55.
	POST-TEST	53.	43.	52.	43.	39.	49.	41.	39.	43.	47.
24	PRE-TEST	53.	34.	28.	43.	32.	37.	28.	37.	35.	44.
	POST-TEST	45.	31.	29.	38.	29.	31.	28.	38.	33.	35.
25	PRE-TEST	45.	65.	57.	67.	60.	58.	57.	66.	70.	58.
	POST-TEST	48.	55.	59.	54.	51.	52.	54.	55.	52.	58.
26	PRE-TEST	45.	35.	32.	42.	33.	31.	33.	42.	40.	39.
	POST-TEST	44.	41.	43.	46.	35.	37.	28.	49.	49.	53.
27	PRE-TEST	43.	58.	55.	55.	62.	61.	54.	55.	57.	57.
	POST-TEST	43.	59.	63.	54.	61.	61.	60.	58.	53.	55.
28	PRE-TEST	64.	33.	33.	33.	36.	37.	34.	44.	34.	29.
	POST-TEST	48.	35.	37.	38.	34.	37.	33.	39.	43.	34.
29	PRE-TEST	52.	49.	51.	51.	45.	53.	41.	42.	51.	57.
	POST-TEST	52.	44.	47.	44.	44.	45.	37.	49.	46.	49.
30	PRE-TEST	52.	33.	31.	38.	34.	30.	38.	35.	33.	42.
	POST-TEST	48.	35.	33.	41.	34.	28.	33.	46.	36.	46.
31	PRE-TEST	59.	38.	50.	40.	29.	40.	34.	50.	41.	37.
	POST-TEST	68.	45.	57.	44.	38.	57.	43.	46.	39.	46.
32	PRE-TEST	49.	50.	51.	51.	48.	51.	43.	56.	43.	57.
	POST-TEST	46.	51.	51.	47.	55.	54.	45.	52.	49.	55.
33	PRE-TEST	53.	39.	32.	43.	47.	44.	36.	44.	45.	38.
	POST-TEST	51.	40.	40.	50.	44.	42.	37.	51.	49.	49.
34	PRE-TEST	57.	38.	50.	38.	33.	30.	53.	47.	34.	39.
	POST-TEST	60.	39.	35.	43.	40.	43.	37.	41.	52.	30.
35	PRE-TEST	44.	52.	55.	46.	54.	45.	41.	58.	45.	64.
	POST-TEST	45.	48.	48.	46.	50.	41.	41.	58.	41.	60.

36	PRE-TEST	57.	40.	41.	45.	35.	39.	45.	54.	29.	45.
	POST-TEST	62.	34.	31.	46.	29.	43.	34.	37.	32.	38.
37	PRE-TEST	53.	39.	42.	40.	39.	43.	41.	46.	42.	33.
	POST-TEST	53.	36.	41.	36.	37.	43.	34.	50.	39.	30.
38	PRE-TEST	49.	36.	36.	42.	35.	39.	37.	36.	45.	38.
	POST-TEST	53.	39.	41.	43.	36.	43.	39.	46.	40.	37.
39	PRE-TEST	57.	53.	54.	55.	49.	55.	48.	54.	59.	46.
	POST-TEST	53.	59.	58.	60.	55.	62.	51.	66.	61.	49.
40	PRE-TEST	55.	56.	49.	61.	59.	90.	45.	52.	68.	42.
	POST-TEST	59.	64.	61.	61.	61.	74.	41.	51.	70.	66.
41	PRE-TEST	51.	42.	42.	51.	34.	37.	43.	60.	41.	38.
	POST-TEST	45.	45.	38.	54.	40.	42.	49.	50.	41.	47.
42	PRE-TEST	43.	64.	54.	70.	56.	59.	64.	60.	58.	58.
	POST-TEST	44.	76.	61.	81.	72.	71.	71.	69.	92.	62.
43	PRE-TEST	53.	32.	33.	33.	31.	44.	47.	26.	34.	24.
	POST-TEST	53.	32.	31.	38.	29.	30.	37.	36.	37.	31.
44	PRE-TEST	41.	51.	52.	51.	48.	37.	53.	55.	53.	52.
	POST-TEST	38.	48.	41.	52.	51.	42.	48.	56.	46.	51.
45	PRE-TEST	49.	39.	38.	46.	33.	46.	37.	38.	40.	41.
	POST-TEST	49.	40.	51.	41.	34.	43.	37.	46.	45.	39.
46	PRE-TEST	54.	36.	36.	43.	32.	36.	38.	38.	39.	41.
	POST-TEST	52.	44.	48.	49.	36.	39.	43.	51.	49.	44.
47	PRE-TEST	46.	39.	32.	50.	37.	41.	43.	42.	37.	39.
	POST-TEST	43.	42.	40.	44.	45.	53.	41.	52.	34.	39.
48	PRE-TEST	51.	48.	56.	47.	42.	46.	41.	56.	49.	47.
	POST-TEST	45.	51.	59.	51.	42.	52.	48.	52.	51.	51.
49	PRE-TEST	44.	35.	33.	41.	35.	40.	32.	42.	37.	38.
	POST-TEST	46.	36.	33.	44.	33.	37.	32.	42.	40.	41.
50	PRE-TEST	51.	39.	40.	41.	39.	49.	45.	29.	49.	34.
	POST-TEST	51.	42.	42.	43.	42.	46.	48.	37.	49.	35.
51	PRE-TEST	64.	61.	61.	62.	54.	51.	60.	56.	58.	64.
	POST-TEST	60.	54.	49.	55.	55.	45.	57.	49.	57.	58.
52	PRE-TEST	60.	40.	47.	42.	35.	53.	36.	52.	36.	34.
	POST-TEST	54.	48.	53.	50.	42.	62.	41.	50.	42.	47.
53	PRE-TEST	60.	42.	49.	50.	29.	39.	43.	44.	45.	46.
	POST-TEST	64.	40.	41.	46.	34.	34.	38.	47.	46.	44.

54	PRE-TEST	53.	48.	55.	44.	48.	59.	41.	51.	40.	51.
	POST-TEST	46.	42.	61.	35.	39.	49.	38.	46.	41.	46.
55	PRE-TEST	52.	42.	40.	52.	36.	37.	60.	42.	50.	32.
	POST-TEST	41.	42.	34.	52.	40.	40.	52.	44.	42.	39.
56	PRE-TEST	43.	38.	36.	42.	38.	45.	37.	41.	37.	38.
	POST-TEST	41.	47.	43.	50.	49.	51.	37.	55.	43.	53.
57	PRE-TEST	39.	44.	35.	50.	48.	52.	37.	42.	43.	51.
	POST-TEST	43.	52.	46.	55.	52.	46.	43.	58.	51.	58.
58	PRE-TEST	53.	42.	50.	44.	36.	55.	37.	44.	41.	42.
	POST-TEST	49.	45.	39.	52.	45.	42.	43.	52.	41.	53.
59	PRE-TEST	51.	44.	35.	53.	44.	45.	52.	46.	49.	35.
	POST-TEST	51.	44.	29.	59.	43.	42.	53.	51.	50.	32.
60	PRE-TEST	52.	55.	54.	58.	49.	55.	48.	66.	48.	57.
	POST-TEST	48.	53.	47.	58.	50.	55.	45.	66.	45.	52.
61	PRE-TEST	51.	48.	46.	47.	51.	51.	41.	54.	46.	52.
	POST-TEST	45.	53.	52.	48.	59.	57.	45.	51.	54.	55.
62	PRE-TEST	49.	45.	42.	54.	39.	52.	39.	44.	50.	46.
	POST-TEST	57.	38.	33.	46.	36.	49.	36.	37.	40.	38.
63	PRE-TEST	46.	51.	53.	50.	48.	49.	57.	42.	50.	52.
	POST-TEST	49.	65.	67.	58.	66.	66.	68.	60.	57.	58.
64	PRE-TEST	45.	36.	44.	42.	29.	37.	41.	46.	34.	38.
	POST-TEST	45.	42.	48.	45.	36.	43.	41.	47.	40.	45.
65	PRE-TEST	54.	53.	61.	57.	39.	64.	43.	52.	43.	59.
	POST-TEST	55.	51.	58.	53.	41.	62.	39.	51.	46.	57.
66	PRE-TEST	36.	55.	52.	60.	51.	43.	59.	63.	53.	55.
	POST-TEST	39.	62.	54.	59.	65.	43.	57.	60.	70.	66.
67	PRE-TEST	60.	44.	52.	41.	43.	44.	37.	42.	50.	52.
	POST-TEST	54.	46.	48.	47.	46.	45.	45.	50.	45.	51.
68	PRE-TEST	34.	65.	64.	60.	65.	64.	71.	63.	50.	61.
	POST-TEST	31.	64.	59.	63.	61.	62.	68.	63.	54.	55.
69	PRE-TEST	57.	34.	37.	34.	36.	34.	28.	44.	42.	37.
	POST-TEST	55.	34.	37.	34.	33.	34.	24.	46.	40.	38.
70	PRE-TEST	53.	55.	59.	53.	54.	54.	48.	50.	64.	58.
	POST-TEST	53.	61.	67.	54.	60.	57.	53.	54.	64.	63.
71	PRE-TEST	52.	52.	49.	63.	40.	53.	38.	54.	63.	52.
	POST-TEST	54.	35.	33.	44.	31.	42.	34.	32.	40.	42.

72	PRE-TEST	43.	56.	56.	53.	59.	57.	52.	55.	52.	59.
	POST-TEST	32.	67.	61.	66.	66.	59.	64.	68.	58.	63.
73	PRE-TEST	44.	45.	47.	44.	47.	46.	36.	38.	53.	57.
	POST-TEST	48.	40.	36.	44.	43.	44.	36.	35.	45.	52.
74	PRE-TEST	51.	49.	46.	49.	52.	52.	54.	51.	36.	52.
	POST-TEST	53.	48.	41.	51.	51.	46.	56.	54.	31.	57.
75	PRE-TEST	52.	51.	48.	50.	52.	40.	49.	56.	48.	59.
	POST-TEST	46.	52.	50.	51.	53.	43.	53.	58.	48.	57.
76	PRE-TEST	59.	53.	50.	54.	54.	36.	59.	51.	61.	58.
	POST-TEST	62.	48.	39.	53.	51.	28.	56.	55.	58.	46.
77	PRE-TEST	44.	53.	54.	54.	50.	39.	57.	47.	68.	55.
	POST-TEST	54.	67.	59.	73.	59.	64.	61.	60.	74.	59.
78	PRE-TEST	55.	56.	53.	56.	60.	59.	39.	54.	58.	68.
	POST-TEST	45.	58.	54.	61.	55.	53.	52.	51.	57.	71.
79	PRE-TEST	57.	39.	52.	32.	42.	37.	37.	37.	46.	47.
	POST-TEST	53.	41.	54.	37.	39.	37.	41.	35.	40.	61.
80	PRE-TEST	48.	56.	56.	56.	55.	45.	51.	62.	61.	59.
	POST-TEST	53.	55.	61.	55.	50.	51.	53.	54.	53.	62.
81	PRE-TEST	66.	34.	53.	24.	39.	44.	37.	35.	45.	24.
	POST-TEST	62.	38.	52.	31.	40.	51.	41.	36.	40.	33.
82	PRE-TEST	48.	68.	59.	74.	62.	51.	62.	64.	72.	74.
	POST-TEST	34.	78.	71.	80.	71.	74.	68.	71.	77.	73.
83	PRE-TEST	45.	50.	54.	51.	43.	54.	41.	49.	53.	51.
	POST-TEST	49.	51.	53.	54.	44.	54.	37.	54.	58.	52.
84	PRE-TEST	45.	45.	44.	50.	41.	51.	39.	41.	49.	49.
	POST-TEST	43.	54.	52.	58.	48.	52.	52.	54.	51.	59.
85	PRE-TEST	54.	55.	50.	57.	56.	36.	62.	58.	63.	53.
	POST-TEST	54.	48.	34.	54.	54.	31.	53.	50.	54.	55.
86	PRE-TEST	51.	32.	32.	35.	32.	37.	29.	33.	40.	35.
	POST-TEST	48.	35.	36.	40.	33.	44.	31.	38.	43.	32.
87	PRE-TEST	51.	41.	34.	52.	39.	39.	41.	47.	45.	44.
	POST-TEST	53.	49.	48.	51.	47.	44.	49.	51.	51.	47.
88	PRE-TEST	60.	53.	50.	56.	50.	44.	57.	62.	49.	51.
	POST-TEST	48.	56.	43.	69.	52.	45.	54.	63.	58.	58.
89	PRE-TEST	54.	55.	54.	51.	60.	43.	48.	46.	66.	68.
	POST-TEST	64.	46.	51.	41.	50.	36.	39.	37.	58.	63.

90	PRE-TEST	54.	38.	47.	34.	39.	36.	36.	42.	46.	41.
	POST-TEST	48.	36.	39.	41.	30.	37.	31.	39.	42.	41.
91	PRE-TEST	46.	43.	50.	40.	43.	44.	37.	49.	43.	49.
	POST-TEST	45.	41.	42.	40.	47.	49.	36.	45.	41.	45.
92	PRE-TEST	41.	49.	46.	53.	47.	40.	48.	54.	48.	57.
	POST-TEST	43.	50.	47.	56.	44.	42.	47.	58.	49.	53.
93	PRE-TEST	46.	37.	36.	43.	36.	53.	25.	37.	53.	32.
	POST-TEST	48.	33.	34.	36.	31.	46.	26.	42.	33.	30.
94	PRE-TEST	57.	38.	42.	40.	38.	25.	59.	37.	33.	49.
	POST-TEST	57.	40.	35.	46.	41.	19.	58.	47.	40.	47.
95	PRE-TEST	46.	53.	50.	56.	50.	49.	53.	52.	54.	52.
	POST-TEST	45.	50.	44.	52.	51.	42.	47.	51.	54.	52.
96	PRE-TEST	55.	42.	48.	41.	41.	37.	41.	51.	42.	45.
	POST-TEST	59.	48.	48.	50.	47.	44.	47.	50.	50.	52.
97	PRE-TEST	55.	56.	50.	56.	61.	42.	57.	55.	63.	60.
	POST-TEST	53.	69.	66.	70.	66.	57.	66.	67.	68.	69.
98	PRE-TEST	39.	53.	55.	54.	49.	58.	48.	54.	50.	53.
	POST-TEST	43.	52.	48.	57.	48.	52.	49.	52.	52.	51.
99	PRE-TEST	72.	33.	54.	30.	28.	37.	26.	42.	39.	35.
	POST-TEST	54.	37.	48.	39.	30.	37.	37.	50.	35.	38.
100	PRE-TEST	62.	53.	44.	60.	50.	53.	58.	55.	45.	51.
	POST-TEST	57.	62.	53.	74.	49.	52.	64.	58.	61.	58.
101	PRE-TEST	48.	63.	58.	59.	62.	61.	62.	51.	64.	57.
	POST-TEST	51.	64.	58.	65.	59.	58.	58.	60.	68.	59.
102	PRE-TEST	59.	37.	41.	40.	34.	43.	45.	41.	35.	33.
	POST-TEST	48.	51.	52.	46.	52.	62.	60.	44.	39.	45.
103	PRE-TEST	38.	47.	47.	58.	34.	45.	48.	52.	40.	52.
	POST-TEST	38.	59.	54.	64.	53.	62.	54.	58.	54.	58.
104	PRE-TEST	51.	42.	42.	40.	47.	37.	37.	47.	47.	47.
	POST-TEST	46.	48.	46.	47.	50.	46.	47.	50.	43.	55.
105	PRE-TEST	53.	42.	46.	46.	38.	45.	38.	47.	49.	38.
	POST-TEST	54.	40.	38.	42.	42.	41.	39.	44.	43.	39.

APPENDIX C

Table 7

Pretest-Posttest Means and Standard Deviations for
the Sixteen Personality Factor Questionnaire
(N = 105)

Personality Variables	Pretest		Posttest	
	\bar{X}^a	SD ^b	\bar{X}^a	SD ^b
1. A	9.06	3.05	8.82	3.18
2. B	7.03	1.82	7.19	1.70
3. C	15.97	4.12	16.08	3.74
4. E	12.95	3.73	13.22	3.42
5. F	14.93	4.44	14.92	4.31
6. G	12.80	3.67	13.47	2.89
7. H	13.78	5.72	14.35	5.61
8. I	9.10	3.56	9.26	3.32
9. L	8.10	3.21	8.23	3.65
10. M	11.43	3.24	11.52	3.07
11. N	8.65	2.60	9.01	2.43
12. O	10.83	4.04	10.67	4.10
13. Q ₁	9.67	2.84	9.37	2.74
14. Q ₂	9.66	3.53	9.68	3.78
15. Q ₃	12.88	2.79	13.39	2.93
16. Q ₄	12.90	4.78	12.54	4.96

^aMean

^bStandard Deviation

APPENDIX D

Table 8

Pretest-Posttest Means and Standard Deviations
for the Tennessee Self-Concept Scale
(N = 105)

Self-Concept Areas	Pretest		Posttest	
	\bar{X}^a	SD ^b	\bar{X}^a	SD ^b
1. Self Criticism	50.69	6.90	49.29	7.42
2. Self Esteem	46.50	9.02	48.15	10.60
3. Identity	47.10	8.74	47.55	10.78
4. Self Satisfaction	48.13	9.29	50.17	9.95
5. Behavior	45.02	10.11	46.49	11.23
6. Physical Self	47.58	11.03	48.13	11.85
7. Moral/Ethical Self	44.49	9.72	45.28	10.77
8. Personal Self	48.36	8.78	50.57	8.90
9. Family Self	47.24	10.16	48.83	11.63
10. Social Self	47.92	10.21	49.43	10.39

^aMean

^bStandard Deviation