

AN ABSTRACT OF THE THESIS OF

John Elliot Grenfell for the Ed. D. in Education (Guidance)  
(Name) (Degree) (Major)

Date thesis is presented April 28, 1966

Title THE EFFECT OF NATIONAL DEFENSE EDUCATION ACT  
COUNSELING INSTITUTES ON THE MEASURED INTERESTS OF  
INSTITUTE ENROLLEES

Abstract approved Redacted for Privacy  
(Major professor)

In the 1961-62 academic year there were thirteen National Defense Education Act Counseling and Guidance Training Institutes established at institutions of higher education about the country. The purpose of these institutes was to upgrade the counseling and guidance skills of personnel employed as half-time counselors in secondary schools. As a part of the evaluation process of these institutes, students were administered a number of tests at the beginning and at the end of the institute experience. One of these evaluative tools was the Strong Vocational Interest Blank for Men.

Three problems were investigated. The first was to determine the effect of the intensive Counseling and Guidance Training Institute program on the Institute enrollees' interests as measured by the Strong Vocational Interest Blank. The second was to determine if there were common interest patterns among the enrollees.

The third problem was to investigate the relationship between interest patterns and the enrollees' ratings of success in counseling by Institute staff.

In this study it was hypothesized that the intensive nature of the institute experience would cause marked shifts in interest patterns on the part of the enrollees. These shifts would be toward Group V, Welfare and Social Service, Group VIII, Administrative Detail, and Group X, Communications, and away from Group I, Biological Science, Group II, Physical Science, Group III, Technical, and Group IX, Sales. It was also expected that enrollees would have common profile patterns on admission to the institute, and that these profile patterns would be especially similar for those who had been grouped in the top, average, or low rated group of enrollees.

Using the t-test of mean differences, it was found that there were no statistically significant differences at acceptable levels of confidence between the interest patterns of enrollees from the pre-test to the post-test administration of the Strong Vocational Interest Blank. In addition, there were no common profile patterns among the enrollees on admission to the institute, nor were there any common interest patterns among those who were rated by staff as being in the top, average, or low group of enrollees. Approximately 63 percent of the enrollees had a primary interest pattern in the social service area. Thirty-six percent had primary interest

patterns in administrative detail, and all of the other primary pattern groups contained less than 30 percent of the enrollees. Likewise, 61 percent of the enrollees had reject patterns in Group II, Physical Science, while 34 percent had a reject pattern in Group VI, Musician, and Group I, Biological Science. There were no significant changes in interest pattern profiles from the pre-test to the post-test and there were no significant differences in the profile patterns of those in the top-rated, low-rated, or average groups of enrollees.

THE EFFECT OF NATIONAL DEFENSE EDUCATION ACT  
COUNSELING INSTITUTES ON THE MEASURED  
INTERESTS OF INSTITUTE ENROLLEES

by

JOHN ELLIOT GRENFELL

A THESIS

submitted to

OREGON STATE UNIVERSITY

in partial fulfillment of  
the requirements for the  
degree of

DOCTOR OF EDUCATION

June 1966

APPROVED:

*Redacted for Privacy*

---

Professor of Education  
In Charge of Major

*Redacted for Privacy*

---

Dean, School of Education

*Redacted for Privacy*

---

Dean of Graduate School

Date thesis is presented April 28, 1966

Typed by Gwendolyn Hansen

## ACKNOWLEDGEMENTS

Gratitude needs to be expressed to the many people who made it possible for me to complete my degree program. Special thanks are extended to Doctors Bernard, Fullmer, Lowe and Ten Pas, who first encouraged me to go on for the degree; to Dr. Calvin whose suggestions simplified the statistical portion of the dissertation; to Dr. Baron and Dr. Hall for many helpful suggestions on the writing of the thesis and to Dr. Zeran without whose support and encouragement none of this would have been possible. No acknowledgement would be complete without recognizing the wife who is the mainstay of every married graduate student. My wife, Charlotte, sacrificed much in order to help me through school. If this thesis were to be dedicated, it would be to Charlotte and all the graduate wives who sacrifice so much in terms of finances, hard work and emotional strain.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
The Institutes	3
Problem	5
Research Instrument	5
Expectations	6
Hypotheses	7
Significance	8
Summary	8
II. REVIEW OF THE LITERATURE	10
Institutes	10
Interests	20
Strong Vocational Interest Blank Research	23
SVIB and Ability	28
SVIB and Sex	30
Effects of Group Membership	31
Summary	34
III. THE PLAN OF STUDY	36
Strong Vocational Interest Blank	37
Pattern Analysis	41
Profile Analysis	46
Pre-Test - Post-Test Evaluation	46
Staff Ratings and SVIB Profiles	51
Summary	52
IV. RESULTS OF THE STUDY	53
Group Profile Analysis	53
Staff Ratings and SVIB Profiles	58
Summary	60
V. SUMMARY AND IMPLICATIONS	62
Findings	63
Implications	66
Suggested Additional Research	67
Summary	68
Bibliography	70
Appendix A	78

## TABLES

I. Occupations included in each group on the Strong Vocational Interest Inventory for Men	42
II. Number of Enrollees Having a Primary Pattern in Each Group on the SVIB	54
III. Percentage of Enrollees Having Primary Pattern in Each Group on the SVIB Pre-test	54
IV. Number of Enrollees Having a Reject Pattern in Each Group on the SVIB	55
V. Percentage of Enrollees Having Reject Patterns in Each Group on Pre-test	55
VI. Number of Enrollees Having a Secondary Pattern in Each Group	56
VII. Percentage of Enrollees Having Secondary Pattern in Each Group on Pre-test	56
VIII. Number of Enrollees Having a Tertiary Pattern in Each Group	57
IX. Percentage of Enrollees Having Tertiary Patterns in Each Group on the Pre-test	57
X. T-test Scores Indicating Significance of Change in SVIB Pre-test and Post-test Profile Patterns	58
XI. Number of Top Rated Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 85)	59
XII. Number of Low Rated Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 83)	59
XIII. Number of Adequate Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 141)	59

## CHAPTER I

### INTRODUCTION

In 1958, Congress passed the National Defense Education Act. The purpose of this Act was to support education in the United States through subsidizing the education of personnel in critical areas and contributing to the purchase of labor and materials in these same areas. The principal academic areas supported under the Act were science, mathematics, counseling and guidance and foreign languages. Title V of the Act (Appendix A) pertains to counseling and guidance. The intent of the counseling and guidance portion of the Act is to assist in the identification of able students and aid in the development of the mental resources and technical skills of this country's young men and women. Title V, Part A, authorized aid directly to states to establish and improve secondary school guidance programs. Title V, Part B, authorized the operation of Counseling and Guidance Training Institutes for the purpose of preparing counselors for secondary schools. This portion of the Act provided for the establishment of Counseling and Guidance Training Institutes supported by the Federal government, but operated by various Institutions of higher education.

The need for supplementing the training of school counselors was considered an essential part of the Act. In a

hearing before the Senate Committee on Labor and Public Welfare, Dr. L. G. Derthick (76 p. 231-249) indicated that only 2500 graduate degrees in counseling and guidance were granted in 1956 and he estimated that 26,000 were needed. He also stated that enrollment in schools was increasing far more rapidly than the production of new counselors. Thus, the Institute program was designed to increase the number of counselors and to improve the quality of their preparation by allowing for intensive course work and supervised counseling experiences. In the past, many teachers were assigned counseling duties when they had had little counselor preparation. Their education needed upgrading in the area of guidance and counseling. By allowing the Federal government to pay for the preparation, both in terms of providing stipends and tuition for the students and supporting qualified staff at Institutions about the country, it was felt that quality programs would be available to more persons.

Since the establishment of these Institutes little research has been forthcoming concerning their effect on counseling and guidance. Most of the reports concern themselves with statistics either about the Institutes or about the population of guidance personnel. For example, in the year 1958-1959 there were 12,000 full time equivalent counselors. By the end of the year 1960-1961 this number had increased to 21,828. The counselor-student ratio, which

in the year 1958-1959 was one counselor for each 960 students, had decreased to one counselor per 570 students in the year 1960-1961 (78). This is still far from the ratio of one counselor per 300 students recommended by Conant (9). In addition, states and school districts have increased the financial support for counseling and guidance. Much of this has been due to the fact that some matching funds were required to receive the Federal aid. Up to the school year 1960-1961, 877 enrollees had attended the short term summer Institutes (78).

#### The Institutes

In the school year 1961-1962, under the terms of the National Defense Education Act, there were 13 year-long Counseling and Guidance Training Institutes established at various Institutions of higher learning in the United States. These Institutes were established at the University of Alabama, Atlanta University, the University of Florida, Michigan State University, the University of Minnesota, the University of North Dakota, Ohio State University, Oklahoma State University, the Oregon State System of Higher Education, Purdue University, the University of Southern California, the University of Texas and Washington State University.

Each of the Institutes established its own curriculum, and while the curriculum varied somewhat in course content, the

general emphasis was the same; that is, the course content and program were intensive and were related to the field of guidance. Emphasized were courses in psychology, sociology, guidance and counseling. Receiving particular stress were the areas covering statistics, testing, and supervised counseling experience. Most of the Institutes operated on a five day week, holding lectures and laboratory experience for approximately six hours a day.

The students in the Institutes were referred to as enrollees. The 1961-1962 Institutes included 363 men and women who had to meet minimum standards for admission. All of the enrollees were college graduates possessing at least a Bachelor's degree and, with a few exceptions, had attained a raw score of 35 on the Miller Analogies test. This is a test administered to potential graduate students for the purpose of predicting probable success in graduate study. A raw score of 35 placed students at the 40th percentile on the national norm for graduate students in education (41). In addition, all of the enrollees had at least one year's classroom teaching experience in the secondary schools and had letters of intent from a school district indicating that the enrollee would be returning to the school district in at least a half-time counseling capacity.

## Problem

The major problem in this study is to determine the effect of the intensive Counseling and Guidance Training Institute program on the Institute enrollee's interests as measured by the Strong Vocational Interest Blank. Two secondary problems will also be explored. The first will be to determine by means of a profile analysis of enrollees' interests if there are common interest patterns among the enrollees. In addition, the problem of the relationship between the interest patterns and the enrollees' ratings of success in counseling by Institute staff members will be investigated.

## Research Instrument

The Strong Vocational Interest Blank (64), which is an inventory of interests, is used as the research tool in this study because it is generally regarded as being an outstanding inventory in the interest measurement field. While the Strong Vocational Interest Blank was first published in 1928, it has since undergone several revisions and is one of the most widely used and most thoroughly researched interest inventories found on the market today. The Sixth Mental Measurements Yearbook cites 614 research articles pertinent to the Strong Vocational Interest Blank (7).

## Expectations

Based on previous research, the expectation would be that, despite time, experience, education, and other variables, a person's interest profile pattern would be essentially the same from one testing to another. However, it is the basic hypothesis of this study that the intensive and concentrated nature of an Institute experience, such as that encountered in the National Defense Act Counseling and Guidance Training Institutes, will significantly affect the profile patterns of the enrollees. Not only do Institute enrollees experience nine months of similar intensive, educational and practical training in a specific field, but they are also subject to group pressures to talk, do and think counseling. These factors should cause significant changes in the Strong Vocational Interest Blank profiles. These changes would merely be a reflection of the experiences gained by the enrollees in the program and would be determined by a profile pattern analysis. The interest inventory results are reported on a profile form with approximately fifty scores reported. These scores on the profile make a pattern which may be different for each individual taking the inventory. The profile patterns for all enrollees will be compared and an analysis made to determine if a high percentage of enrollees have similar patterns.

In addition, the patterns will be examined to determine shifts in interest patterns from the pre-test to the post-test period.

### Hypotheses

Thus the following hypotheses are submitted:

1. The pre-test pattern analysis of the Strong Vocational Interest Blank will indicate that a majority of enrollees will have social service, communications and administration as major areas of interest.

2. The pre-test pattern analysis of the Strong Vocational Interest Blank will indicate that a majority of enrollees will exhibit little interest in the science, technical and persuasive areas.

3. The Institute experience will result in a significant change in the enrollees' interest areas. These changes will be shown on post-tests and are likely to be marked by shifts in interest toward the social service, communications and administrative areas and away from the science, technological and persuasive areas.

4. Since enrollees are rated in their counseling skills by Institute staff, it is hypothesized that the top-rated group will have significantly greater representation in the social science, communication and administrative areas as measured by the inventory than the low-rated group. Likewise, the low-rated group will have

greater representation in the science, technological and persuasive areas.

5. It is further hypothesized that the low-rated group will reject the social service area on the post-test.

### Significance

Should the research bear out the above hypotheses, interest evaluation could become a significant factor in the selection of candidates for counselor education programs. In addition, interest evaluation could play a role in the assessment of growth of candidates in a graduate program in counselor education.

### Summary

In the 1961-1962 academic year there were thirteen counseling and guidance training institutes funded under the National Defense Education Act of 1958. These counseling and guidance institutes were operated by colleges, universities and systems of higher education about the United States. Three hundred and sixty-three students completed nine months of academic preparation in this program. As a part of the evaluation procedure, these students were administered the Strong Vocational Interest Blank at the beginning and at the termination of the program. The results of the pre-institute Strong Vocational Interest Blank will be examined to determine

if there are common profile patterns among those selected to participate in the institutes. Attempts will be made to determine if the intensive nature of the institute caused marked shifts in interest areas as measured by the Strong Vocational Interest Blank. Finally, comparisons will be made between the profile patterns of those rated high, average and low in counselor proficiency to determine if there are common patterns within each group.

## CHAPTER II

## REVIEW OF THE LITERATURE

Institutes

Little research has been completed concerning either the Institutes or the enrollees. In a report on the early Institutes, Tyler (75) found that Institute directors felt the discussion of attitudes, values, interests and individual abilities between staff and enrollees was an important aspect of the Institute. Since the exploration of these qualities at a personal level was a new experience for many enrollees, the intensity of this kind of experience created some problems. Tyler found that, "The Institute experience because it is so intense is likely to stir up feelings that an enrollee may find difficult to cope with alone" (75 p. 57). Tyler also found that the Institute experience developed a strong in-group feeling and that, "the learning experience carried over from the classroom experience to after school work" (75 p. 57). She reports, "One of the interesting developments reported by most of the directors was that unplanned extracurricular activities that reinforced the learning process occurred spontaneously. There was a lively informal variety of social interaction. Enrollees spent the entire day together" (75 p. 57-58).

In a study of Institute enrollees, Mahan and Wichas (37) reported on an effort to explore several dimensions of counselor personality. They administered three instruments, the Ways of Life, a series of thirteen paragraphs describing differing philosophies of life, Self-Description, a forced-choice adjective check list, and the Structured Objective Rorschach Test, a forced-choice, group administered adaptation of the Rorschach psycho-diagnostic technique, to twenty-five eight-week summer NDEA Institute enrollees. Mahan and Wichas found a high consistency on the three instruments. They found the subjects "as highly controlled, as sensitive to the expectations of society and authority, as 'doers' rather than 'thinkers', as defenders of the established order and as rather repressed individuals not given to introspection or self-analysis" (37 p. 81). They concluded this might be due in part to "the school's emphasis on this facet of human behavior" (37 p. 81). They also found that "the counselor's tendency is to conduct an information oriented interview and to rely on persuasion and knowledge as therapeutic agencies" (37 p. 81). The authors felt that it was essential for counselors to be involved in an evaluation of self.

The counselor, as pictured here, confronted with a client's emotional behavior, is liable to find himself on one of three false paths: (a) to discover that the avenues of communication between himself and the clients are closing up; (b) to become threatened by the behavior and

and unconsciously bring to the fore his own defense and anxiety reducing mechanisms; or (c) to take vicarious pleasure in the client's behavior and become irrationally identified with him. Each of these is a major hurdle for effective counseling and, when searching self-analysis is unlikely from the counselor, it becomes an impassable barrier (37 p. 81).

The authors concluded that "if the school counselor is perceived on a superficial level as an individual who is to help others find avenues of self-expression and thus self-definition, but is beneath the surface himself avoiding expression and definition while assuming the protective mantle of the school's apparent concern with production and discipline, then there exists the real possibility that the obstacles to counseling voiced so vigorously by counselors (insufficient time; too large a case load; clerical duties; etc.) are in the last analysis self-imposed" (37 p. 82).

Kemp (29) used the Dogmatism Scale developed by Rokeach (52) to measure individual differences in the openness and closedness of belief systems of counselors. Kemp found that counselors with a high (closed-mindedness) Dogmatism Scale score respond in a counseling situation with significantly more evaluative, interpretive, probing and diagnostic responses than do open-minded counselors. Understanding and supportive responses were significantly less frequent for the closed-minded counselor. Using this as a base, Russo, Kelz and Hudson (53) used coached clients with

thirty Institute enrollees and found a high positive correlation between expert judge ratings of counselor interviews with the coached clients, and a rating scale with an open-mindedness measure. The authors felt this lent "support to the statement that open-mindedness is an important counselor quality" (53 p. 77).

More important to this study, Munger and Johnson (43) found that there were significant changes in counselor attitudes as a result of an eight-week training program. They reported that the principal changes in the attitudes of the enrollees took place within the formal course work of the first phase of training and that these changes continued and were strengthened through the second, or practicum, phase of the program. Demos and Zuwaylif (12), using the Porter tests of attitudes, also found significant changes in the attitudes of the enrollees after an intensive six-week Institute. These attitudes were classified by Porter (47) as being evaluative, interpretive, supportive, probing and understanding. Demos and Zuwaylif reported "significant differences at the .001 and .01 level of confidence for all five categories of the Porter test on the pre-test and post-test administrations" (12 p. 126). They found that, "the counselors moved from being more evaluative, supportive and probing at the beginning of the training to being more understanding and interpretive at the end" (12 p. 128). They also reported that the

superior counselors began and ended less evaluative and more understanding (on the Porter scales) than did either the average or below average counselors.

Kazienko and Neidt (28) using the Bennett Polydiagnostic Index to determine the self concept, the motive forces, the values and feelings about other people that the counselor possesses, tested 124 trainee enrollees rated as good counselors and 115 enrollees rated as poor counselors by Institute staff. They found that:

. . . the good counselor feels that he is serious and earnest, understanding, sympathetic, gentle and often wrong in his judgement, the poor counselor does not seem particularly to recognize these qualities in himself; whereas the good counselor thinks himself to be patient and soft-spoken, the poor counselor views himself as short on patience and tending to loudness of voice; whereas the good counselor is aware of his personal self-centeredness, the poor counselor does not attribute to any degree such a socially unfavorable trait to himself, and whereas the good counselor feels more domestic than social and not mechanical or industrial, the poor counselor sees himself as normal in these respects.

As to motivation, the good counselor is concerned about possessing a measure of security but rejects the need for wealth. The poor counselor seems to be neither moved nor unmoved by the prospects of security and riches.

The good counselor rejects cunningness and shrewdness as leading to personal contentment, whereas the poor counselor places an average value upon these characteristics. Whereas the good counselor believes that a person should have the right to be different,

the poor counselor feels that happiness lies in conformance to group behavior. Whereas the good counselor does not value severity and strictness, the poor counselor would tend toward stricter adherence to rules (28 p. 122).

Webb and Harris (82), using Osgood's Semantic Differential Technique on 36 Institute enrollees, found "significant concept changes in the areas of 'Actual Self' and 'Ideal Self' as well as in the concepts 'Slow Learner', 'Average Student', and 'Gifted Student'" (82 p. 263). These changes in concepts occurred over a six-week summer session Institute. The findings suggested that the enrollees were more dissatisfied with themselves after the training in realizing how far they were from their stated semantic ideal of functioning. In addition, there was a greater value placed on those classified as "slow learner" and "average student" and a significant devaluation of the term "gifted" at the end of the Institute. It appeared that the enrollees realized a greater difference between the concepts "punishment" and "discipline", and that the enrollees were able to function as a counselor more comfortably in the area of discipline, rather than in the area of punishment.

In terms of predicting success in an Institute, Callis and Prediger (8) found that the Ohio State University Psychological Test, Part III, had a +.63 correlation with Institute grade-point average. These results applied to three eight-week summer

session Institutes and applied to academic achievement rather than success in counseling skills. Blocher (6) attempted to predict success utilizing four instruments--peer rankings, the high school counselor scale on the Kuder Personal Preference form D, the N.D.E.A. Comprehensive examination, a 300 item multiple choice examination, and grades at the end of the fall quarter of the Institute. Using the four predictors Blocher obtained a positive multiple correlation of .769. Blocher found fall quarter grades and scores on the N.D.E.A. Comprehensive examination were so interrelated that the elimination of fall quarter grades merely dropped the positive correlation to .766. Thus, fall quarter grades could be dropped without significantly affecting the correlation. This suggests that the factors, peer rankings, the N.D.E.A. Comprehensive examination and the high school counselor scale on the Kuder Personal Preference form D may be utilized early in a training program to evaluate a trainee and indicate the necessity of some specialized work with the trainee who may be predicted as being inadequate.

Dilley (13) found that peers and instructors were in agreement when they attempted to identify good and poor counselor trainees. These ratings were in terms of adjustment to school setting and relative ease with students and other professionals. Dilley indicated that peers and supervisors, both on campus and in the

field, are in general agreement as to the counseling competency of the enrollees. These judgments were based on counselor-type work and professional relationship activities, and were not affected by knowledge of academic competence. Stefflre, King and Leafgren (60) found that peers and staff agreed on ratings of counselor trainees. This study consisted of evaluations in terms of general intelligence and academic achievement rather than counseling skills. McDougall and Reitan (39) also found positive correlations among peer ratings and staff ratings. Peers and supervisors had a positive correlation of .708 in ratings of general contribution to the class, +.626 in academic understanding, and +.605 in counseling potential when the peers and staff rated other enrollees. However, the rating between staff and the individual and his self-insight was +.347. McDougall and Reitan suggest that the peer rating technique may be a useful device in improving communication between instructor and student, in developing insight in terms of realistic self-appraisal on the part of students, in helping instructors examine their bias toward students, and in allowing students to evaluate themselves in the light of peer appraisal. The low correlation of +.347 between staff ratings and individual self-appraisal indicate that while trainees may have been perceptive regarding others, the trainee appears to have been unaware of his own deficiencies.

Wasson (81) used the Wisconsin Relationship Orientation Scale, which purports to measure psychological closeness, as a predictor of success in an eight-week Institute. Using the "t" test of mean difference, Wasson found low, but significant correlations between the Wisconsin Relationship Orientation Scale, peer ratings of enrollees and staff ratings of enrollees. In addition, Wasson found low, but significant correlations between the Wisconsin Relationship Orientation Scale and the N. D. E. A. pre-test, the nurturance and heterosexuality keys on the Edwards Personal Preference Scale, and the artist, city school superintendent and interest maturity keys of the Strong Vocational Interest Blank. While Wasson did not divide the Strong Vocational Interest Blank into occupational groups, he did state that the most significant correlations of the tests used "were all from Group V - Social Welfare - on the SVIB with the "t" ratio positive" (81 p. 91).

Kaczkowski (26), using a single summer Institute, explored the relationship between guidance and education and found a basic issue centering on operational matters. Students who had completed an Institute program were found to be more counseling-oriented rather than guidance-oriented. Kaczkowski did not offer suggestions as to how the issue may be resolved but merely stated that while all were in agreement that counseling was necessary,

school administrators tended to feel that counseling in the school setting was impractical.

Foley and Proff (19) used the "t" test of mean difference on the Miller Analogies Test, the Edwards Personal Preference Schedule, the Minnesota Personality Inventory and the Strong Vocational Interest Blank to compare trainees in nineteen Vocational Rehabilitation Counselor programs and seventeen National Defense Education Act Counseling and Guidance Institutes. The authors found no significant differences in any of the test comparisons except for the Strong Vocational Interest Blank. On the Strong Blank, they found Vocational Rehabilitation Counselor Trainees to "reflect an interest orientation toward individual behavior deviations in a clinical setting while the N. D. E. A. enrollees scored higher on the scales that reflected more concern with use of and organization of more normative characteristics in a social setting" (19 p. 158). Foley and Proff concluded, "Of the three areas described, cognitive, affective, and interest, the interest area offered the best discrimination between the two groups" (19 p. 158).

Most other reports of research on Counseling Institutes were reports of activities within a single Institute, such as that of Schulz (54) who reported on a group counseling project with high school under-achievers, Musselman (44) who reported on role

playing as an in-service training technique, and Riccio (49) who found that on-campus practicum volunteers were primarily those students who were college oriented. Riccio questioned the practicality of this type of counseling experience for enrollees who may be returning to schools with relatively small percentages of college-bound students, and suggested a greater emphasis on off-campus practicum involving non-college-bound students.

### Interests

English and English state that the word interest is "a term of elusive meanings" (16 p. 271). They follow this statement with seven definitions which indicate that interest is a noun meaning an attitude, feeling or liking of an object or event. In general, interest is necessary for learning to occur.

In 1931, Fryer (20) published a text which not only reviewed the research on interests up until that time, but also provided a number of conclusions, which, based on what has been described as rather poorly designed research, have stood up remarkably well. Much of the productive and meaningful research on interests conducted subsequent to Fryer's book has supported many of Fryer's conclusions. He felt that interests were neither genetically determined nor were they a part of motivational theory.

According to Fryer, interests are definitely learned and, while they are developed over a period of years, tend to be permanent.

Fryer found that there appeared to be little relationship between interests and personality theory, ability, or achievement. He indicated that there was a probable relationship between interests and job satisfaction, and believed that much of the industrial unrest of the time indicated a clear relationship between interest and general satisfaction or lack of such satisfaction with job tasks.

In 1943 Strong (63) not only reviewed the literature of the 1930's, but also set forth much of the research relating to the Strong Vocational Interest Blank. Research from 1943 to 1954 was reviewed by Darley and Hagenah (11). Most of the research supports Fryer's early conclusions, particularly those relating to the permanence of interests and the lack of relationship between interests and personality, ability or achievement.

Many students of interest theory have, through a process of factor analysis, developed groupings of occupations. A comparison of the reports of these factor analysts indicates that there is considerable overlap from one report to another. Usually the differences are accounted for by one factor analyst sub-dividing a group such as science into either physical or biological science.

Much of the research on interests has dealt with the measurement of interests present in the individual. As a result

of these studies, Roe and Siegelman conclude, "Interests are a major factor in vocational choice. There is considerable evidence that persons in the same occupational groups manifest congruent interests, which are often different from the major interests of persons in other occupational groups" (51, p. 3).

Tyler (74) found that individual differences occur as early as the first grade. She found that different interests occur not only between individuals, but also between sexes. Tyler suggested that this difference in interests between the sexes is probably due to the different roles assigned to boys and girls at very early ages.

In one of the latest research findings on interests, Roe and Siegelman (51) attempt to determine the psychological basis for the origin of interests. They feel that occupational choice is not the result of one or two decisions, but instead, is built upon a history of developmental experiences. They hypothesize,

. . . that one of the earliest and greatest differentiations in interests develops from the degree to which attention is focused on persons and that this difference in focus of attention develops very early in life and primarily as a result of early experiences. Further differentiation follows throughout life. The person-oriented individual may be nurturant, exploitative, succorant, demanding, submissive, etc. with regard to others, or his attention may be primarily directed toward himself. The non-person-oriented individual may be oriented toward

objects, toward living things other than persons, toward ideas (51 p. 4).

Roe and her students have completed research which indicates that there is some validity to the above hypothesis. She goes on to categorize occupational choices based on the above premise. For example, an individual who had experienced warm relations with his parents, had an emotional concentration on him as a youngster, had parents who were over-protective and whose major orientation was toward himself, is quite likely to end up in either a service, arts or entertainment occupation. On the other hand, a youngster who perceived his parents as being cold, avoiding him, and neglecting him and who developed a major orientation not involving people is likely to end up in either outdoor or scientific occupations.

#### Strong Vocational Interest Blank Research

In 1927 Strong (66) administered his test to 287 seniors at Stanford University. Two hundred and twenty-eight of these individuals were again administered the Strong in 1932, 1937, and 1949. The median test-retest correlations are  $+ .84$  for five years;  $+ .82$  for ten years; and  $+ .75$  for twenty-two years (63, 65, 66). As a result of the twenty-two year follow-up study, Strong (66) reached the following conclusions:

1. There is surprisingly high agreement between the Strong Vocational Interest Blank scores of college men and the occupations in which these men engaged twenty years later.

2. Continuous employment for twenty years in an occupation is accompanied by only a slight increase in score on a corresponding occupational scale on the Institute Blank.

3. Change in employment is accompanied by changes in interest scores. Test scores agreed somewhat better with the occupation engaged in at the time of taking the test than with occupations engaged in at an earlier time.

4. Men who have changed their occupations do not have as high mean scores either before or after the change as do men who do not change their occupations.

5. In comparing freshmen with seniors in the twenty year follow-up, it appears that freshmen, on the average, score lower on the occupational scales than do seniors; but the differences are not statistically significant.

As a result of the work by Strong and his associates, Strong postulated that his test had predictive value. Strong listed the following propositions:

1. Men continuing in occupation A obtain a higher interest score in A than in any other occupation.

2. Men continuing in occupation A obtain a higher interest score in A than other men entering occupation A.
3. Men continuing in occupation A obtain higher scores in A than men who change from A to another occupation.
4. Men changing from occupation A to occupation B score higher in B prior to the change than in any other occupation, including A (67 p. 388).

These propositions are supported not only by Strong's own follow-up study, but also by a ten-year follow-up of 101 cases by Dyer (15); and by two studies of successful life insurance salesmen by Bills (4, 5).

Morgan (42) administered the Strong Vocational Interest Blank to 132 achieving and non-achieving college students of high ability at the University of Minnesota. He found no differences between achievers and non-achievers in the total number of primary, secondary or tertiary patterns. Morgan did find that 40 percent of the achievers had primary or secondary patterns in Group V, while only eleven percent of the non-achievers had such patterns. Considering primary, secondary and tertiary patterns, more achievers than non-achievers had interest patterns in Group V (60% versus 26%). More non-achievers than achievers had patterns in Group VIII (59% versus 38%) and Group IX (59% versus 35%).

Powers (48) located 109 individuals who had been tested in 1931 at an average age of thirty-four at the University of Minnesota Employment Stabilization Research Institute. These 109 were again administered the Strong Vocational Interest Blank ten years later. Test-retest correlations showed a mean product-moment correlation of +.69. According to Powers, the interest scores were remarkably stable for the overwhelming majority of subjects over a period of ten years including an economic depression. There were few individuals who exhibited very little or no permanence of measured vocational interests. There were also few differences in the patterns of the eleven interest groups after the ten year interval. Powers also found "no relationship between the degree of permanence of vocational interests, level of employment, stability of employment, age and congruence of interests and occupation" (48 p. 72). Those individuals exhibiting the greatest permanence of vocational interests had significantly more primary patterns than did those individuals whose vocational interests were less permanent. Employment stability was positively related to the number of primary, secondary, tertiary and reject patterns.

In an effort to compare the stability of test scores of high school youngsters, Stordahl (62) administered the SVIB to 111 metropolitan and 70 non-metropolitan males in Minnesota in their

senior year at the University of Minnesota, and again two years later. For the metropolitan sample, Stordahl found a median correlation of  $+ .72$ . For the non-metropolitan the median correlation was  $+ .67$ . Trinkaus, (73) testing 212 Yale freshmen in 1935 and 1936, and again in 1950, found that the extreme letter grades were the most stable. In fact the C grades, or the reject area, were even more stable than the A grades.

There have been a number of reports on the Strong Vocational Interest Blank using a single scoring key to determine if individuals in an occupation score high in this occupation. This has been done in the area of police work by DeBois and Watson (14) and by Kates (27), in psychology by Kriedt (32), in journalism by Stone (61), for YMCA secretaries by Verburg (79), in medicine by Strong and Tucker (68), for industrial relations personnel by Kriedt, Stone and Paterson (33), for Air Force officers in accounting and personnel by Englund and Patersen (17), in teaching by Traphagen (72), and in engineering by Melville and Frederiksen (40). In all cases a significantly high number of individuals in each sample scored higher than men in general on their portion of the test.

### SVIB and Ability

The research indicates that there is little relation between measured interests and measured ability. Nor can the interest tests be used to predict academic success. A study by Long and Perry (35), using the SVIB to predict success for engineering students, as well as another by Berdie (3), who attempted to do the same, found no significant correlation between interests and grades. Hannum and Thrall (22), working with veterinary students, found no substantial inter-relations between measured interests, veterinary achievement and scholastic ability. DuBois and Watson (14) attempted to predict success in selecting candidates for police academies without success. Hilgard (23) and Navran (45), in two separate studies involving nursing students, reported no relationship between the nurses scoring key of the SVIB and grades in nursing school. In this area, Strong states, "The reported correlations between our occupational interests and scholarship in general or in the related field are all low, the highest being .34 with engineering" (67 p. 521). To carry this further, Strong concludes:

1. Occupational interest scales measure traits which are not primarily associated with intelligence. . . it is accordingly impossible to appraise with any accuracy a person's intelligence from his interest scores, or vice versa.
2. The relationship between intelligence and interest is apparently affected

by sex, age, amount of education, occupation and a form of intelligence test. 3. On the whole, intelligence is positively correlated with occupational interests in Groups I, II, VII, and X; negatively correlated with Groups V, VIII, and IX, and unrelated to Groups III, IV, VI, and XI. . . This means that men of high intelligence are more likely to have interests of scientists, public accountants, lawyers and writers, and less likely to have interests of men dealing with office procedures and with people-selling and serving them, but as previously pointed out the differences are too slight to be usable in prediction of individual cases (67 p. 333-334).

Melville and Frederiksen (40) attempted to use the Strong to predict grades for engineering students. They found a positive correlation of .10 with average grades in the freshman year. Next, they divided the group into two parts, one of which had above average accountant scores on the Strong, while the other had accountant scores below average. These results had more meaning. For those students with high accountant scores a correlation coefficient of  $-.01$  between the engineering scale and average grades was found, however, for those students with low accountant scores a correlation coefficient of  $+.25$  was found. Frederiksen and Melville suggested that the accountant scale indicated a more compulsive type of person who was likely to study hard for all courses, thereby attaining higher average grades. They reasoned that those with the lower accountant scores were less compulsive and

therefore likely to work harder on those subjects which they enjoyed most and obtain higher grades in these subjects. In an effort to check this measure of compulsiveness, Frederiksen and Melville used the vocabulary and speed reading scores on the Cooperative Reading Comprehension Test. They felt that those whose speed score was low in relation to their vocabulary score could also be considered the more compulsive. Using this criteria, the hypothesis was again confirmed, thus college grades of the non-compulsives were found to be more predictable in a specific area from the Strong Vocational Interest Blank than were the grades of the compulsives.

#### SVIB and Sex

Strong (64) developed a separate blank for women which contains many female oriented occupations such as housewife, secretary, nurse, home economics teacher and other typically female related occupations. Strong (67) and others were interested in how women score on the men's test in areas in which both men and women may be actively employed. He found high agreement on the scales for physician, mathematics, science teacher and artist, but found that the scales for YMCA secretary, life insurance salesman and lawyer differed appreciably. This finding is not entirely supported in a study by Seder (55), in which she administered both

female and male tests to 101 women physicians and 100 life insurance saleswomen. She concluded that, for the sample of women, at least, the men's or women's scales might be used with equal meaning. Darley and Hagenah (11) found that for women who show high degrees of career motivation, maturity and ability, it is often helpful to use the men's blank, since it covers a wider range of families of occupations and deals with a greater number of specific occupations.

#### Effects of Group Membership

It is generally agreed that whenever individuals congregate and have a common goal, a group is formed. For some groups, such as churches, political parties, schools and other formally organized institutions, it is accepted that codes of behavior are formally organized and members are expected to conform to same. In addition to these formal groups, there are a number of informal groups which exert a great deal of influence over their members. Neighborhoods, classrooms, places of work and play are a few of the informal groups. While formal groups control behavior by written codes, informal groups control behavior by subtle means such as gossip, applause, imitation, ridicule, scorn and ostracism.

According to Bales (2), an individual derives security by being able to count on a stable social environment. Bales feels

that all members of a group share a common need for being able to predict how other members will behave toward them. Out of this need for predictability come strong pressures for each member to behave in a certain manner toward other members.

Asch (1) and Sherif and Sherif (58) demonstrated the effect of the group on the individual in a laboratory setting whereby cued group members were prompted to give the wrong answer to determine the effect on an individual who was not cued. In a majority of cases the individual modified his opinion to conform to that of the group. Sherif (57) carried the study of groups out of the laboratory and into a summer camp for boys where he demonstrated the growth of strong in-group feelings within competitive groups. Sherif not only demonstrated the growth of in-group feeling, but also the growth of hostility toward a competing group, and finally he demonstrated ways to reduce friction and prejudice between groups. In non-laboratory settings, Sherif and Sherif (59) described the structure of groups, Whyte (83), Thrasher (70) and Shaw (56) described group behavior among delinquent gangs. Hollingshead (24), Warner (80), the Lynds (36) and others have described the effects of various kinds of group living in communities about the United States. All indicated that the group pressures the individual to conform to some type of standards.

An example of the above is Newcomb (46) who studied the changes in political beliefs of students on the Bennington College campus. These changes resulted from pressures upon students to conform to the standards of the campus community. Newcomb found that entering freshman girls tended to be as conservative as the homes from which they came. However, in the liberal atmosphere of the college community, the girls developed more politically liberal points of view. The longer the girls were at the college, the more liberal their views became. Seniors were found to be much more liberal than entering freshmen. Newcomb continued to follow the Bennington girls and found that after graduation, as they returned to the community, they tended to adopt the more politically conservative views of their neighbors and friends.

Festinger (18) feels that individuals are attracted to groups containing persons similar to themselves and that within these groups pressures arise among the members to keep all participants similar in ability. As a consequence, members of groups tend to increase in similarity and dependence on one another. Roe (50) found that there are a number of occupations that have personality characteristics. These are not actually characteristics of an occupation but rather, the characteristics of a majority of the individuals in that field.

In Tyler's (75) report on the first fifty Institutes, she reports that Institute directors report a strong in-group feeling among Institute enrollees. It is this very kind of subtle group pressure and commonality of goals which should cause Institute enrollee's interests to be similar. Indeed, these interests may already be similar at the beginning of the Institute since the enrollees came from a similar environment, the middle class teaching profession. Those who are different will either learn to conform, become uncomfortable and leave or become uncomfortable and learn to cope with the situation and still function effectively.

### Summary

The environment of the counseling Institute is such that it places the enrollees in close proximity with each other and staff over a long period of time. In addition, the enrollees go through an intensive structured experience in human relations. The combination of these factors has been shown to have an effect on the attitudes and values of the enrollees.

Research in the field of interests and on the Strong Vocational Interest Blank has shown that interests are learned and developed over a period of time, particularly through the first twenty years of an individual's life. Once interests are formed,

they appear to be stable and little affected by such things as education, employment, age and experience. There appears to be little or no relation between interests and ability, personality and extent of one's education.

Research into group activities indicates that membership in a group influences values, attitudes and behavior. In addition, some significant research, particularly by Anne Roe, indicates that individuals with certain kinds of personality characteristics are drawn into certain kinds of occupational fields. In a sense this supports a basic contention that there is a great deal of similarity among individuals working in the same field. It is this similarity which gives rise to tests such as the Strong Vocational Interest Blank which allow for the classification of people working within a specific field of endeavor.

## CHAPTER III

### THE PLAN OF THE STUDY

This study had three facets. The first involved a profile analysis of the pre-test scores of the Strong Vocational Interest Blank. The second phase of the study was to determine by the use of the t-test if the changes which occurred in the pre-test and the post-test administrations of the Strong Vocational Interest Blank were statistically significant. The third phase was designed to determine if there are significant differences in measured interests between the enrollees who were rated as being in the top third of each Institute and those who were placed in the lower third of each Institute.

At the beginning of the Institute academic year, each of the enrollees was administered a number of tests, including the Strong Vocational Interest Blank. At the end of the Institute, at the writer's request, the Strong Vocational Interest Blank was again administered. Participating in this post-test were eleven Institutes. One group felt it had to refuse to participate due to the pressures of time and curriculum on staff and enrollees, while the other neglected to participate merely as an oversight. When the omission was discovered the Institute director offered to administer the test to the enrollees. However, a considerable amount of time had

elapsed and the enrollees were engaged in on-the-job counseling in school districts. Since this would have introduced a time and experience variable which the other enrollees had not had at the time of their test, it was decided not to include this group in the study.

The majority of enrollees in the Institute program were males, hence the Strong Vocational Interest Blank for Men was administered to all enrollees. This is not an unusual procedure and research cited in Chapter II by Strong and others indicated that in most professional occupations in which both men and women are engaged, there appears to be little difference as to whether the Strong for Men or Women is used when testing women.

#### Strong Vocational Interest Blank

The Strong Vocational Interest Blank (64) is an interest inventory consisting of 400 items which are grouped according to content. Categories included in the inventory are occupations, school subjects, amusements, activities, peculiarities of people, personal preference for activities and important or well known persons, and a self rating scale of personal abilities and personality. Most of the items require a "like-indifferent-dislike" response. The examinees' responses are compared in a complicated scoring process, with the known responses of persons who have been rated

successful in various occupations. Scoring keys have been available for forty-five occupations and for four special scales which include measures of masculinity-femininity, occupational level, interest maturity and specialization level.

The Strong Vocational Interest Blank was standardized by establishing a "men-in-general" group which consisted of "4746 adult cases" (67 p. 713). These represent the general population. The occupational scales were obtained by asking a number of successful men in a profession to respond to the Interest Blank. Success in the profession was determined by having been named by other professionals as a leader in the field, being listed in Who's Who, by professional certification and by being active in the field more than three years. The average age of those in these occupational scale or norm groups was 40 and the size of the groups ranged from a low of 113 individuals to a high of 1,048. Each of the examinees' responses are compared with the responses on each scoring key and where appropriate the response is weighed, ranging from -2 to +2. The numbers are added and a score obtained. The scores are marked on a profile sheet and the results presented to the examinee.

The Strong Vocational Interest Blank is ordinarily used with adults age twenty and above for purposes of counseling

and guidance in the areas of educational and occupational choice. The examinees' answers are compared with the answers of people who have been rated successful in each of 45 occupations. If the examinee answers test questions in a manner similar to the responses of a group of successful individuals, it is said that his interests are similar to those of people who have been successful in this occupation. The inference, based on research by Strong and others, is that if an individual has the ability and the training, the similarity of interests between the examinee and successful people in a specific field is apt to indicate a potential for success for the testee in that field; in other words, the interests of doctors tend to be similar to doctors, lawyers to lawyers, and physical scientists to other physical scientists.

While the Strong Vocational Interest Blank can be scored for forty-five occupations, the Dictionary of Occupational Titles (77) lists almost twenty-two thousand job descriptions. In order to make the test more meaningful for counseling, Strong decided to place the occupations into groups or families. Partially responsible for this action were the results of Thurstone's (71) early research on factor analysis of the Strong. This factor analysis was based on inter-correlations available on the original eighteen scoring keys. In the original test, Thurstone found four general factors: interest in

science; interest in language; interest in people; and interest in commercial activities.

When Strong revised the Blank in 1938, he also did a factor analysis of the intercorrelations among the various occupations. This made it possible to classify occupations in groups according to their intercorrelation. This was done in a manner "to obtain the maximum average correlation with all members of a group. It appeared to us that unless an occupation correlated on the average of  $+ .60$  with the other members of the group, it should not be included" (67 p. 134). Based on this process of inter-correlation, Strong found eleven groupings for his thirty-six occupation scoring keys. These thirty-six occupational scoring keys have since been increased to forty-five, but the additional nine had correlations which placed them in one of Strong's original groupings. Strong was reluctant to name the interest groups, but he characterized the second group as being "mathematics and physical sciences", the fourth as "handling people for their presumed good", the fifth as "office", the sixth as "sales", and the seventh as "linguistic" (67 p. 160).

While Strong did not label the eleven groups, Darley and Hagenah developed the following commonly accepted grouping (11 p. 32):

- I. Biological sciences
- II. Engineering and physical sciences
- III. Production manager
- IV. Technical skills
- V. Social Service or welfare
- VI. Musician
- VII. Certified public accountant
- VIII. Business detail - administrative occupation in business
- IX. Sales or business contact
- X. Communication, verbal or linguistic
- XI. President - manufacturing concern

Using the groups for interpretation of the Strong profile allowed a more general application of the test results to core fields of occupations rather than the specific forty-five which are reported on the test (Table I). According to Darley and Hagenah, this grouping into families made the Blank more effective for use by counselors, since the groups then covered "a great variety of titles, tasks, and functions to be assessed in counseling programs and there are many different ways to consider successful and satisfying work performance" (11 p. 31).

### Pattern Analyses

Most of the analyses of the Strong Vocational Interest Blank relied on the pattern analysis procedure introduced by Darley (10). For the purpose of this study it was felt that his description of the pattern analysis tended to be a little vague and did not meet the need for exactness of definition as required for use in computers.

Table 1. Occupations Included in Each Group on the Strong Vocational Interest Inventory for Men

<p>Group I. Biological Sciences</p> <ul style="list-style-type: none"> <li>Artist</li> <li>Psychologist (Rev.)</li> <li>Architect</li> <li>Physician</li> <li>Osteopath</li> <li>Dentist</li> <li>Veterinarian</li> </ul>	<p>Group VI. Musician</p> <ul style="list-style-type: none"> <li>Musician (performer)</li> </ul>
<p>Group II. Engineering and Physical Science</p> <ul style="list-style-type: none"> <li>Mathematician</li> <li>Physicist</li> <li>Engineer</li> <li>Chemist</li> </ul>	<p>Group VII. Certified Public Accountant</p> <ul style="list-style-type: none"> <li>Certified public accountant</li> </ul>
<p>Group III. Production Manager</p> <ul style="list-style-type: none"> <li>Production manager</li> </ul>	<p>Group VIII. Business Details</p> <ul style="list-style-type: none"> <li>Administrative Occupations in Business</li> <li>Senior certified public accountant</li> <li>Accountant</li> <li>Office man</li> <li>Purchasing agent</li> <li>Banker</li> <li>Mortician</li> <li>Pharmacist</li> </ul>
<p>Group IV. Technical Skills</p> <ul style="list-style-type: none"> <li>Farmer</li> <li>Aviator</li> <li>Carpenter</li> <li>Printer</li> <li>Mathematics, Physics, Science teacher</li> <li>Industrial Arts teacher</li> <li>Vocational Agriculture teacher</li> <li>Policeman</li> <li>Forest service man</li> </ul>	<p>Group IX. Sales or Business Contact</p> <ul style="list-style-type: none"> <li>Sales manager</li> <li>Real estate salesman</li> <li>Life insurance salesman</li> </ul>
<p>Group V. Social Service</p> <ul style="list-style-type: none"> <li>Y. M. C. A. physical director</li> <li>Personnel director</li> <li>Public Administrator</li> <li>Y. M. C. A. secretary</li> <li>Social Science high school teacher</li> <li>City school superintendent</li> <li>Social worker</li> <li>Minister</li> </ul>	<p>Group X. Communication</p> <ul style="list-style-type: none"> <li>Advertising man</li> <li>Lawyer</li> <li>Author-journalist</li> </ul>
	<p>Group XI. President Manufacturing Concern</p> <ul style="list-style-type: none"> <li>President manufacturing concern</li> </ul>

For example, the definition of primary and secondary patterns as Darley stated them was as follows:

. . . The primary pattern is the interest type within which he (the examinee) shows a preponderance (plurality or majority) of A and B+ scores on the specific occupation keys; the secondary pattern is the interest type within which he shows a preponderance of B+ and B scores (10 p. 10).

Darley's original work does not cover reject patterns. These were later defined by Darley and Hagenah. ". . . A reject interest pattern being recorded whenever the majority or plurality of the score in any one family group lay to the left of the chance or shaded area of the profile" (11 p. 79).

For the purposes of this study, a much more concise definition was required, not only for secondary patterns, but also for the primary and reject patterns. This conciseness was necessary in order to eliminate the possibility of differing opinions on the part of different reviewers. It was also necessary to be extremely specific and concise if this data were to be handled by a computer. The need to be more specific in defining a pattern was recognized by Darley and Hagenah as they reported, ". . . A lower percentage of agreement among judges for the presence of secondary patterns as compared with the agreement for primary patterns" (11 p. 87).

To overcome the criticism that the earlier descriptions of primary, secondary, tertiary, and reject patterns were vague,

it was decided to use a system previously used by Powers (48). In designing her system, Powers found that she was able to get high agreement among experts as to exactly what would be included in a primary, secondary, tertiary or reject group. Powers accomplished this by prescribing a specific number score for each occupation which fell into either the primary, secondary, tertiary or reject area and by being specific as to the number of occupations which fall into an area before the entire family could be labeled primary, secondary, tertiary, or reject. This same exactness would be required for the data to be handled by the computer since a computer must have exact numbers before it can classify occupations into the various groupings on the Strong Vocation Interest Blank. Thus, in groups where the families represent five or more occupations, the primary pattern will be said to exist when there are three or more scores falling in the B+ and A range (40 or more). The secondary pattern will be said to exist when the families representing five or more occupations in a group have three or more scores falling in the B, B+ and A range (35 or more) and when the pattern does not qualify as a primary pattern. A reject pattern will be said to exist when three or more scores fall in the C range (under 25). The tertiary pattern will be said to exist when three or more scores fall within the C+ or B- range (between 25 and 35),

or when the scores are so scattered as to prevent the group from being classified as either a primary, secondary or reject pattern.

Since there are three families which consist of either two or three occupations, a separate rule of procedure should be followed for them. In this case, a primary pattern will be said to exist if two or more scores fall within the B+ or the A range. A secondary pattern will be said to exist if two or more scores fall within the B, B+ or A range, provided the pattern does not qualify as a primary pattern. The reject pattern will be said to exist when two or more scores fall within the C range. The tertiary pattern will be said to exist when two or more scores fall within the C+ or B range or when the scores are so scattered as to prevent the group from being classified as either a primary, secondary or reject pattern. It is felt that by using these rules of procedure reviewers of test scores or profiles will be able to identify a pattern as being either primary, secondary, tertiary, or reject. With this classification, it will then be possible to determine the percentage of enrollees having primary, secondary, tertiary, or reject patterns in each of the eleven groupings on the Strong Vocational Interest Blank profile.

### Profile Analysis

The first phase of this study will consist of a profile analysis of the pre-test scores of the Strong Vocational Interest Blank which were administered to the enrollees of the thirteen year-long N. D. E. A. Guidance and Counseling Training Institutes. This will be accomplished by determining the percentage and number of enrollees having primary, secondary, tertiary, and reject patterns in each group of occupations on the Strong Vocational Interest Blank to determine which, if any, group has a preponderance of enrollees.

### Pre-Test - Post-Test Evaluation

The second phase of the study will consist of comparing the pre-test scores of the interest test with the post-test scores. Unfortunately, the post-test scores of two and a half Institutes are missing. One Institute felt that their final two weeks of training were so crowded that they would be unable to place the Strong Vocational Blank in their program. Another Institute had agreed to participate in the program, but did not do so. At the time this was brought to their attention, the enrollees were already counseling in the schools. This would have introduced an experience variable not afforded other enrollees, so this Institute was not included.

All of the scores from the pre-test and post-test Strong Blank were placed on IBM cards to be programmed for a computer. According to the definition of patterns accepted for this study, it was decided that primary patterns would be determined in Groups I, IV, V and VIII when there were three or more scores greater than 40; Groups II, IX and X with two or more scores greater than 40; Groups III, VI, VII and XI with the only score being greater than 40. The secondary pattern was described for Groups I, IV, V and VIII as occurring when three or more scores exceeded a raw score of 35 and did not qualify as a primary pattern; Groups II, IX and X when two or more scores exceeded 35 and did not qualify as a primary pattern; and Groups III, VI, VII and XI when the only score exceeded 35 and did not qualify as a primary pattern. The reject pattern was described for Groups I, IV, V and VIII as occurring when three or more scores were less than 25; for Groups II, IX and X when two or more scores were below 25 and for Groups III, VI, VII and XI when the only score was less than 25. Any area which did not fall into one of these three patterns was then placed into a tertiary pattern.

The patterns have been analyzed to determine the number of enrollees having primary, secondary, tertiary, or reject patterns in each of the eleven areas of the Strong test. The

post-test scores for each group of occupations were compared with the pre-test scores in an effort to determine the amount of change in scores. The t-test was used to determine the statistical significance of any changes which may have occurred between the pre-test and post-test.

Continuing to follow the procedure originally designed by Powers, each primary pattern was assigned a value of four points. Each secondary pattern, three points, each tertiary pattern, two points, and a reject pattern, one point. Thus, if a score in one group on the pre-test fell within the secondary range, it was assigned a value of three points. If the score on the same group fell within the primary range on the post-test, it was assigned a value of four points. The pre-test score was subtracted from the post-test score leaving a difference of one point. These differences were totaled for each group. In order to find the mean of the differences for a single group, the scores were added and then divided by the number of scores. Since there are 309 enrollees,  $N$ , the number of scores, would equal 309.

The mean of the differences between the enrollee's pre-test and post-test scores was compared with the mean of the pre-test and post-test scores of the general population. The research cited in Chapter II indicated that for the general population, as well

as for many special groups, variables including time, experience and education do not affect the Strong profile patterns. Hence, the difference between the means of the pre-test and the post-test for the general population would be zero. Theoretically, there should be no difference between the pre-test and post-test mean of the enrollees in the institutes.

In order to determine the significance of any difference which may occur between the means of the enrollees and the means of the general population, the following formulas were used:

Step Number One. The mean must first be calculated. The formula for the mean is as follows:

$$M = \frac{\Sigma X}{N}$$

where

M = the mean

and

$\Sigma$  = the sum of

X = the score of measure

N = the number of scores (309) (21 p. 29)

Step Number Two. Next the standard deviation is calculated. The formula for finding the standard deviation is as follows:

$$s = \sqrt{\frac{\Sigma x^2}{N}}$$

where

$s$  = the standard deviation

and

$x$  = each deviation from the mean

$N$  = the number of scores

$\sqrt{\quad}$  = the symbol indicating the square root must be extracted

$^2$  = the symbol indicating the number must be squared (21 p. 50)

Step Number Three. It will next be necessary to find the standard error of the difference between the means. In order to do so, the following formula is used:

$$^sM = \frac{s}{\sqrt{N}}$$

where

$^sM$  = the standard error of the difference between the means

and

$s$  = the standard deviation

$N$  = the number of scores (309) (21 p. 191)

Step Number Four. Finally, the formula for the t-test is used:

$$t = \frac{(M - M_{pop})}{^sM}$$

where

$t$  = test for significance

and

$M$  = the mean of the sample

$M_{pop}$  = the mean of the population

$^sM$  = the standard error of the difference between the means (21 p. 191)

M is found by using the formula cited in Step Number One.  $s_M$  is determined by the formula cited in Step Number Three.  $M_{pop}$  equals 0 and is based on research by Strong and others indicating that test scores do not change over a period of time.

The value of "t" is then compared with the Table from any standard statistics text. In order for "t" to be significant at the .05 level of confidence, the value of "t" must exceed 1.96. In order for it to be significant at the .01 level of confidence, it must exceed a value of 2.58.

#### Staff Ratings and SVIB Profiles

At the end of the Institute program, enrollees were divided into three groups. These groups were determined by levels of counselor proficiency. These levels of counselor proficiency were determined by the Institute staff. The criteria for counselor proficiency included academic ability and formal course work and demonstrated ability in counseling practicum. The groups were classified as the high, low and adequate groups. The top-rated group performed slightly better on the N.D.E.A. comprehensive examination than the other two groups. However, the difference between the groups in terms of academic potential as measured by the Miller Analogies Test is negligible. The major difference

between the groups appears to be in their academic ability and counseling proficiency. Since there are negligible differences in so far as the Miller Analogies Test is concerned, there is a strong possibility that the observable differences are due to lack of interest in the field. As a consequence, a profile analysis will be performed to determine if differences exist in the profiles of those enrollees falling in each of the rated groups. This was accomplished by comparing the number of primary and reject patterns which occurred in the "top-rated", "low-rated" and "adequate" groups of enrollees.

### Summary

Three separate but related items were explored. First the enrollees interest test scores were compared to determine if a preponderance of scores fell in any one area. Next, the pre-test scores of the interest test were compared with the post-test scores to determine if any changes did take place in the enrollees measured interests. The t-test was used to determine the significance of any changes which were observed. Finally, comparisons were made between the "top-rated", "low-rated" and "average" groups of enrollees to determine if any group had a common profile which seemed to extend through that group.

## CHAPTER IV

## RESULTS OF THE STUDY

Group Profile Analysis

A profile analysis of the pre-test scores was performed on the entire group of enrollees. Interests were divided into eleven areas as follows:

- I. Biological sciences
- II. Engineering and physical sciences
- III. Production manager
- IV. Technical skills
- V. Social service or welfare
- VI. Musician
- VII. Certified public accountant
- VIII. Business detail - administrative occupations  
in business
- IX. Sales or business contact
- X. Communication -- verbal or linguistic
- XI. President -- manufacturing concern

Table II indicates that on the pre-test, Group V, social service and IX, sales and business contact, contain the largest number of enrollees. On the post-test, approximately ten percent of the enrollees added primary patterns in Groups I, biological sciences, V, social service, VI, musician, VII, certified public accountant, and X, the communications group. There was a decrease of approximately ten percent in the primary pattern in Group XI, president--manufacturing concern. Table II also shows that the number of primary interest

patterns increased from 835 to 965 from pre-test to the post-test administration. This is an increase of from 2.7 to 3.1 in the average number of primary interest patterns for each enrollee.

Table II. Number of Enrollees Having a Primary Pattern in Each Group on the SVIB

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Pre-test	23	33	5	87	77	196	71	29	86	113	59	79	835
Post-test	8	63	20	66	72	222	118	53	93	116	87	55	965

Table III indicates that on the pre-test 63 percent of the enrollees had a primary interest pattern in Group V, social service while 36 percent had primary patterns in Group IX, the sales group.

Table III. Percentage of Enrollees Having Primary Pattern in Each Group on the SVIB Pre-test  
(To the nearest whole number)

	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Pre-test	7	10	2	28	25	63	23	9	28	36	19	26

Listed in Table IV are the number of enrollees having reject patterns on both the pre-test and post-test administrations. The highest number of reject patterns occurs in Group II, the physical sciences and engineering group. Comparing the post-test reject patterns with the pre-test reject patterns indicates a decrease of approximately ten percent in the number of enrollees in Group I, biological sciences, and a 20 percent decrease in Group VI, musician. There was an increase in reject patterns of at least ten percent in

Group III, production manager, and Group XI, president--manufacturing concern.

Table IV. Number of Enrollees Having a Reject Pattern in Each Group on the SVIB

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Pre-test	30	95	188	57	46	7	104	83	5	12	19	37	653
Post-test	32	56	193	83	64	5	48	83	24	19	31	75	681

Table V indicates that on the pre-test, 61 percent of the enrollees had reject patterns in Group II, engineering and physical science, while 34 percent had reject patterns in Group VI, musician, and 31 percent in Group I, biological sciences. However, on the post-test this 34 percent in Group VI, musician, decreased to 18 percent and the 31 percent in Group I, biological sciences, fell to 18 percent, while the 61 percent in Group II, engineering and physical science, remained at approximately the same level on the post-test administration.

Table V. Percentage of Enrollees Having Reject Patterns in Each Group on Pre-test  
(To the Nearest Whole Number)

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Pre-test	10	31	61	18	15	2	34	27	2	4	6	12

Table VI shows the number of enrollees having a secondary pattern in each of the 11 groups. There are large numbers of

enrollees in each of these groups, the one exception being Group V, social service. This group had a very high representation, 63 percent of the enrollees (Table III), in the primary pattern. This would account for the low number of enrollees represented in the secondary pattern in the social service group.

Table VI. Number of Enrollees Having a Secondary Pattern in Each Group

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Pre-test	0	136	107	110	123	43	92	147	112	106	144	134	1254
Post-test	2	130	73	107	107	31	82	132	132	94	117	124	1131

As can be seen from Table VII, approximately 40 percent of the enrollees had secondary patterns in each of the groups with the exception of the social service group.

Table VII. Percentage of Enrollees Having Secondary Pattern in Each Group on Pre-test (To the Nearest Whole Number)

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
Pre-test	0	44	34	35	39	13	31	47	36	34	47	43

Table VIII shows the number of enrollees having tertiary patterns in each group. According to Strong (67) little significance is given tertiary patterns since chance plays too great a role in scores falling in the tertiary area. Since chance also plays a role, although a lesser one, in secondary patterns, primary and reject patterns

are emphasized in the use of the Strong for counseling and research purposes.

Table VIII. Number of Enrollees Having a Tertiary Pattern in Each Group

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Pre-test	24	45	9	55	63	63	42	50	106	78	87	59	681
Post-test	33	60	23	53	66	51	61	41	60	80	74	55	657

Table IX indicates that the percentage of enrollees having tertiary patterns is low. Since chance usually plays a significant role in the tertiary pattern area, this may indicate that the enrollees in the institutes have fairly specific ideas regarding their likes, dislikes and interest, thus causing most of the choices to fall into the primary, secondary or reject area.

Table IX. Percentage of Enrollees Having Tertiary Patterns in Each Group on the Pre-test  
(To the Nearest Whole Number)

Group	None	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Pre-test	7	15	3	17	20	20	13	16	35	26	28	19	219

Table X shows the result of the t-test comparing changes in primary, secondary, tertiary and reject patterns. This table indicates that, while some of the changes which appeared on Table II on primary patterns and Table IV on reject patterns appeared to be great, the results of the t-test, as shown in Table X, indicate that

the changes are not statistically significant at an acceptable level of confidence. The highest t-test score occurred in Group VI, musician,  $+ .575$  and Group I, biological science,  $+ .421$ . However, to be significant at the  $.05$  level of confidence, the t-test score would have to exceed  $\pm 1.960$ , and to be significant at the  $.01$  level of confidence the t-test would have to exceed  $\pm 2.576$  (35). As can be seen in Table X none of the values approach this level. Thus, the amount of change in profile patterns from pre-test to post-test administration is not statistically significant.

Table X. T-test Scores Indicating Significance of Change in SVIB Pre-test and Post-test Profile Patterns

Group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
T-Scores	.421	.188	-.251	-.089	.155	.575	.141	-.206	.003	.122	-.261

### Staff Ratings and SVIB Profiles

Since enrollees in the Institute were divided into three groups by staff ratings of counselor proficiency, it was felt that there would be significant differences in the numbers of primary and reject patterns occurring in the various interest groups among the top, low and adequate rated groups of enrollees. The number of enrollees in the top-rated group having a primary pattern and a reject pattern in each of the interest groups is shown in Table XI. The number

of low-rated enrollees having primary and reject patterns in each of the eleven interest groups is shown in Table XII. The same information is indicated for the adequate group in Table XIII.

Table XI. Number of Top Rated Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 85)

Group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Primary	11	0	22	15	58	20	13	22	27	21	23	232
Reject	19	48	15	14	0	25	17	2	4	4	10	158

Table XII. Number of Low Rated Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 83)

Group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Primary	9	2	17	20	48	22	7	18	30	16	20	209
Reject	22	50	21	13	2	27	29	1	4	3	7	179

Table XIII. Number of Adequate Enrollees Having Primary and Reject Patterns in Each Group on the Pre-test (N = 141)

Group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Total
Primary	13	3	48	42	89	29	8	45	54	21	33	305
Reject	50	85	21	12	5	52	38	2	4	13	20	302

On the pre-test there is little difference in terms of measured interest profile patterns between the three groups. Not shown in the Table is the fact that only four of the top-rated students had no primary patterns while ten of the low-rated students had no primary patterns. Everyone in both groups had at least one reject pattern.

According to Tables VII and VIII there is a tendency for the top-rated group to have more primary patterns and fewer reject patterns than the low-rated groups. However, this tendency is not great enough to be statistically significant.

This analysis was carried further to determine whether there were differences in the high, low or adequate groups in terms of age, academic achievement, academic potential as determined by the Miller Analogies test and whether there were significant differences in terms of the non-occupational scales of the Strong Vocational Interest Blank. These scales are titled specialization level, interest maturity, occupation level and masculinity-femininity.

It was found that there were negligible differences in the means of all three groups in terms of age, academic potential as determined by the Miller Analogies test, and grade point average. There were no significant differences or changes between the groups insofar as the non-occupational scales on the Strong Vocational Interest Blank are concerned.

### Summary

The profile analysis of the pre-test scores indicated that 63 percent of the enrollees had a primary interest pattern falling in the social service area and 61 percent had a reject pattern in the engineering and physical science area. Enrollee representation in the

other groups ranged from 2 to 36 percent of the enrollees.

Pre-test and post-test patterns were compared to assess the changes which might have occurred due to the intensive nature of the institute. The change which was found was tested for significance and the results were below acceptable limits. Hence, the changes which occurred between the pre-test and the post-test were negligible or could have been due to chance.

Enrollees were placed in one of three groups based on staff ratings of counseling proficiency. Interest profile patterns were studied to determine commonness of interest within each group and significant differences between groups. There were no distinguishing differences between the groups in terms of interest profiles, age, academic potential or grade point average.

## CHAPTER V

### SUMMARY AND IMPLICATIONS

The purposes of this study were threefold. The first was to determine if there were a significant number of common interest patterns which occurred among the Institute enrollees. The second was to determine if the intensive academic year Counseling and Guidance Training Institute had the effect of changing the measured interests of the enrollees. The third, was to perform an analysis of interest patterns to determine if there were common patterns occurring among the three groups identified as high, average and low in counselor proficiency in the Institutes.

The subjects were 309 men and women who were selected to participate in thirteen National Defense Education Act Counseling and Guidance training Institutes operated by colleges and universities about the United States. All of the students, called enrollees, had previous teaching experience, were college graduates, and were committed to at least a half-time counseling position on returning to their school districts.

The vehicle used to measure interests was the Strong Vocational Interest Blank, which was administered to each enrollee during the first week of the Institute. The test was administered

again nine months later at the termination of the Institute. The forty-five occupational interest scales were scored. In addition, the interest maturity, occupational level, masculinity-femininity and specialization scales were also scored. The profiles were examined to determine the presence and number of primary, secondary, tertiary and reject patterns in each of the eleven occupational interest groups. Attempts were made to determine if there were patterns present among the 309 enrollees. By use of the t-test, the pre-test and post-test results of the administration of the Strong Vocational Interest Blank were compared and determination made as to the significance of changes. Finally, the enrollees were divided into three groups to determine if there were common patterns between those who were rated by staff as being high, average or low in counselor proficiency.

### Findings

As a result of the profile pattern and statistical analysis, the findings as related to the original hypotheses are as follows:

Hypothesis Number 1. The pre-test pattern analysis of the Strong Vocational Interest Blank will indicate that a majority of enrollees will have social service, communications and administration as major areas of interest.

Finding. The pre-test pattern analysis did indicate that a majority of the enrollees (196) had primary interest patterns in the social service area. However, less than forty percent of the enrollees had primary interest patterns in administrative detail and less than twenty percent had primary interest patterns in the communications area. Thus hypothesis number one is only partially supported.

Hypothesis Number 2. The pre-test pattern analysis of the Strong Vocational Interest Blank will indicate that a majority of enrollees will exhibit little interest in science, technical and persuasive areas.

Finding. The pre-test pattern analysis did indicate that a majority of the enrollees (188) had reject patterns in the physical science area. However, less than twenty percent had reject patterns in the technical area and less than thirty-five percent had reject patterns in the sales area. Thus hypothesis number two is only partially supported.

Hypothesis Number 3. The Institute experience will result in a significant change in the enrollees' interest areas. These changes will be shown on post-tests and are likely to be marked by shifts in interest toward the social service, communications and administrative areas and away from the science, technological and persuasive areas.

Finding. The intensive nature of the Institute did not result in a significant change in the enrollees' interest areas. As a consequence, hypothesis number three is not supported.

Hypothesis Number 4. Since enrollees are rated in their counseling skills by Institute staff, it is hypothesized that the top-rated group will have significantly greater representation in the social science, communication and administrative areas as measured by the test than the low-rated group. Likewise, the low-rated group will have greater representation in the science, technological and persuasive areas.

Finding. There were no significant differences between the top, average or low rated groups of counselor enrollees in the areas of interest, age, academic achievement, or academic potential. Thus, hypothesis number four is not supported by the data.

Hypothesis Number 5. It is further hypothesized that the low-rated group will reject the social service area on the post-test.

Finding. There were no significant changes in interest pattern profiles from the pre-test to the post-test. Thus, hypothesis number five is not supported.

### Implications

While there is considerable evidence in the studies of group behavior to indicate that the group exerts considerable pressure and influence on individual members in the group to conform to a group norm, it would appear from this study that this influence does not extend to the area of interests. One reason for this lack of influence in the area of interests may be due to inadequate tests which fail to measure the area effectively. Another reason may be that the group itself is composed of many individuals diverse interests and there are few, if any, interests which most of the group members hold in common. Thus, this study implies that there may not be common interest profiles for secondary school counselors, and if this be the case caution should be used when considering the use of interests as one of the criteria for employment as a counselor or admission to an institute.

In addition, this study indicates that interests do not appear to play a significant role in an enrollee's success or failure in a counseling institute. This statement is supported by the finding which determines no significant difference in interest profiles is apparent between the "top," "average" and "low" rated groups of enrollees.

This study also adds additional support to the many previous studies which indicate that interests tend to be stable and little affected by outside influences.

### Suggested Additional Research

A follow-up study should take place two to three years after this study to determine if two or three years of on-the-job counseling experience has an effect on the enrollees' interest. In particular, a follow-up along the three group lines should be performed to determine if there is a success ratio equated with staff ratings. This success ratio may be equated in terms of job satisfaction, employer ratings, student appraisal, as well as job description. It might be interesting to see if the top-rated enrollees are attempting to become clinicians and the low-rated students "paper shufflers."

A second area of research might be to refine existing instruments or devise a new instrument which might effectively measure the common interests of successful school counselors. Since this is a rapidly growing field, such an instrument might be useful in selection for training and employment.

A third area for study might be to examine the effects of group pressure and influence on the development and growth of interests in individual members. The needs of the individual to be different while still a group member and how these needs can be fulfilled in terms of interest activities is an area which should receive some intensive study. This is especially true at this time

of shorter work weeks, increased income and much talk about greater use of leisure time.

Finally, the evidence pointing to the stability of interests tends to be overwhelming. It appears that interests are formed at a very early age and are slightly modified with education and experience. Thus, further study should be undertaken to explore the early formation and development of interests.

### Summary

This study indicates that the intensive Counseling Institute experience had little effect on the measured interests of the enrollees. Thus, research cited in Chapter II, which indicated that interests appear to be little affected by such variables as education, training, employment, age or economic conditions, is further supported by this study.

In addition, it was found that interest areas among the enrollees were so widely scattered that a pattern which could be called typical of Institute enrollees could not be found. Slightly more than sixty percent of the enrollees had social service as a primary interest area and slightly more than sixty percent of the enrollees rejected the physical science interest area. However, this is insufficient information on which to base conclusions regarding common interest patterns.

Finally, all of the enrollees were placed in one of three groups; high, low, or average, as determined by staff ratings of counseling proficiency. There was no apparent common interest pattern in any one group which could distinguish it from another group.

It can be said that institute enrollees represent a group brought together for a common goal, learning counseling skills. This group comes to the institutes with a variety of background experiences and interests. The nine month intensive institute experience is not sufficient to cause the enrollees to develop a common interest profile pattern.

## BIBLIOGRAPHY

1. Asch, S. E. Effects of group pressure upon the modification and distortion of judgements. In: Readings in social psychology, ed. by E. E. Maccoby, T. M. Newcomb and E. L. Hartley. New York, Holt, Rinehart and Winston, 1958. p. 174-183.
2. Bales, R. F. Interaction process analysis: a method for the study of small groups. Cambridge, Addison-Wesley, 1950. 203 p.
3. Berdie, R. F. Prediction of college achievement and satisfaction. *Journal of Applied Psychology* 28:239-245. 1944.
4. Bills, M. A. Relation of Strong's interest blank to success in selling casualty insurance. *Journal of Applied Psychology* 22:97-104.
5. Bills, Mirian A. Selection of casualty and life insurance agents. *Journal of Applied Psychology* 25:6-10. 1941.
6. Blocher, Donald H. A multiple regression approach to predicting success in a counselor education program. *Counselor Education and Supervision* 3:19-22. 1963.
7. Buros, O. K. (ed.) The sixth mental measurements yearbook. 6th Ed. Highland Park, Gryphon Press, 1965. 1714 p.
8. Callis, Robert and Dale J. Prediger. Predictors of achievement in counseling and guidance graduate study. *Counselor Education and Supervision* 3:63-69. 1964.
9. Conant, James B. The American high school today. New York, McGraw-Hill, 1959. 140 p.
10. Darley, John G. Clinical aspects and interpretation of the Strong vocational interest blank. New York, The Psychological Corporation, 1941. 34 p.
11. Darley, John G. and Theda Hagenah. Vocational interest measurement: Theory and practice. Minneapolis, The University of Minnesota Press, 1955. 279 p.

12. Demos, George D. and Fadil H. Zuwaylif. Counselor movement as a result of an intensive six-week training program in counseling. *The Personnel and Guidance Journal* 42: 125-128. 1963.
13. Dilley, Josiah S. Supervisory ratings of counselor trainees in a simulated work setting as compared with peer and instructor ratings of the same trainees in an academic setting. *Counselor Education and Supervision* 3:70-73. 1964.
14. DuBois, P. H. and R. I. Watson. The selection of patrolmen. *Journal of Applied Psychology* 34:90-94. 1950.
15. Dyer, Dorothy T. Relation between vocational interests of men in college and their subsequent occupational histories for ten years. *Journal of Applied Psychology* 23:280-288. 1939.
16. English, Horance B. and Ava C. English. A comprehensive dictionary of psychological and psychoanalytical terms. New York, Longmans, Green and Co., 1958. 594 p.
17. Englund, G. W. and D. G. Paterson. Relationship between measured interest patterns and satisfactory vocational adjustment for air force officers. *Journal of Applied Psychology* 42:85-88. 1958.
18. Festinger, L. Social psychology and group process. *Annual Review of Psychology* 6:187-216. 1955.
19. Foley, Walter J. and Fred C. Proff. NDEA institute trainees and vocational rehabilitation counselors: A comparison of characteristics. *Counselor Education and Supervision* 4:154-159. 1965.
20. Fryer, D. Measurement of interests. New York, Henry Holt and Company, 1931. 488 p.
21. Garrett, Henry E. Statistics in psychology and education. New York, David McKay Company, 1958. 478 p.

22. Hannum, T. E. and J. B. Thrall. Use of the Strong vocational interest blank for prediction in veterinary medicine. *Journal of Applied Psychology* 39:249-252. 1955.
23. Hilgard, V. R. Strong vocational interest scores and completion of training in a school of nursing. *Psychological Bulletin* 36:646. 1939.
24. Hollingshead, A. B. *Elmtown's youth*. New York, John Wiley and Sons, 1949. 480 p.
25. Hoyt, D. P. Measurement and prediction of the permanence of interests. In: *The Strong vocational interest blank: research and uses: Conference held at the University of Minnesota, 1955*. Minneapolis, University of Minnesota Press, 1960. p. 93-104.
26. Kaczkowski, Henry. Perceptions of guidance. *Counselor Education and Supervision* 3:37-39. 1963.
27. Kates, S. L. Rorschach responses, Strong blank scales and job satisfaction among policemen. *Journal of Applied Psychology* 34:249-254. 1950.
28. Kazienko, Louis W. and Charles O. Neidt. Self descriptions of good and poor counselor trainees. *Counselor Education and Supervision* 1:106-123. 1962.
29. Kemp, C. Gratton. Influence of dogmatism on the training of counselors. *Journal of Counseling Psychology* 9:155-157. 1962.
30. King, L. A. Stability measures of SVIB profiles. *Journal of Applied Psychology* 41:143-147. 1957.
31. Kirk, Barbara A., Leonard B. Goodstein and Roger W. Cummings. The Strong vocational interest blank and collegiate nursing education. *The Personnel and Guidance Journal* 40:160-163. 1961.
32. Kreidt, P. H. Vocational interests of psychologists. *Journal of Applied Psychology* 33:482-488. 1949.

33. Kreidt, P. H., C. H. Stone and D. H. Paterson. Vocational interests of industrial relations personnel. *Journal of Applied Psychology* 36:174-179. 1952.
34. Li, Jerome, C. R. Introduction to statistical inference. Ann Arbor, Jerome C. R. Li, 1957. 553 p.
35. Long, L. and J. D. Perry. Academic achievement in engineering related to selection procedure and interests. *Journal of Applied Psychology* 37:468-471. 1953.
36. Lynd R. and H. Lynd. *Middletown in transition: A study in cultural conflicts*. New York, Harcourt Brace, 1937. 604 p.
37. Mahan, Thomas W. and Edward A. Wicas. Counselor personality characteristics: A preliminary exploration. *Counselor Education and Supervision* 3:78-83. 1964.
38. McArthur, C. and Lucia B. Stevens. The validation of expressed interests as compared with inventoried interests: A fourteen-year follow-up. *Journal of Applied Psychology* 39:184-189. 1955.
39. McDougall, William and Henry M. Reitan. The use of a peer rating in appraising selected attributes of counselor trainees. *Counselor Education and Supervision* 1:72-77. 1961.
40. Melville, S. C. and N. Frederiksen. Achievement of Freshmen engineering students and Strong vocational interest blank. *Journal of Applied Psychology* 36:169-173. 1952.
41. Miller, W. S. *Manual: Miller analogies test*. New York, The Psychological Corporation, 1960. 23 p.
42. Morgan, H. H. A psychometric comparison of achieving and nonachieving college students of high ability. *Journal of Consulting Psychology* 16:292-298. 1952.
43. Munger, Paul F. and C. H. Johnson. Changes in attitudes associated with an NDEA counseling and guidance institute. *The Personnel and Guidance Journal* 38:751-758. 1960.

44. Musselman, Dayton L. Role playing as an in-service training technique for secondary school counselors. *Counselor Education and Supervision* 1:78-83.
45. Navran, L. Validity of the Strong vocational interest blank nursing key. *Journal of Applied Psychology* 37:31-32. 1953.
46. Newcomb, T. M. Attitude development as a function of reference groups: The Bennington study. In: *Readings in social psychology*, ed. by Eleanor E. Maccoby, T. M. Newcomb and E. L. Hartley. 3d ed. New York, Holt, Rinehart and Winston, 1958. p. 265-275.
47. Porter, E. H. *An introduction to therapeutic counseling*. Boston, Houghton Mifflin, 1950. 223 p.
48. Powers, Mabel K. Permanence of measured vocational interests of adult males. *Journal of Applied Psychology* 40:69-72. 1956.
49. Riccio, Anthony C. Who volunteers for the on-campus practicum? *Counselor Education and Supervision* 2:144-148. 1963.
50. Roe, Ann. *The psychology of occupations*. New York, John Wiley and Sons, 1956. 340 p.
51. Roe, Ann and Marvin Siegelman. *The origin of interests*. Washington, D. C., American Personnel and Guidance Association, 1964. 98 p.
52. Rokeach, Milton. *The open and closed mind*. New York, Basic Books, 1960. 477 p.
53. Russo, J. Robert, James W. Kelz and George R. Hudson. Are good counselors open-minded? *Counselor Education and Supervision* 3:74-77. 1964.
54. Schulz, John A. A project in group counseling with high school underachievers. *Counselor Education and Supervision* 3:24-28. 1963.

55. Seder, M. A. The vocational interests of professional women. *Journal of Applied Psychology* 24:130-143; 265-272. 1940.
56. Shaw, C. The jack roller. Chicago, University of Chicago Press, 1930. 205 p.
57. Sherif, M. Experiments in group conflict. *Scientific American* 195:54-58. Nov. 1956.
58. Sherif, M. and C. Sherif. An outline of social psychology (Rev. ed.) New York, Harper and Row, 1956. 792 p.
59. \_\_\_\_\_ Reference groups. New York, Harper and Row, 1964. 370 p.
60. Steffle, Buford, Paul King and Frederich A. Leafgren. Characteristics of counselors judged effective by their peers. *Journal of Counseling Psychology* 9:335-338. 1962.
61. Stone, C. H. An objective personnel study of metropolitan newspapermen. *Journalism Quarterly* 30:448-467. 1953.
62. Stordahl, K. E. Permanence of Strong vocational interest blank scores. *Journal of Applied Psychology* 38:423-427. 1954.
63. Strong, E. K. Jr. Interest scores while in college of occupations engaged in 20 years later. *Educational and Psychological Measurement* 11:335-348. 1951.
64. \_\_\_\_\_ Manual for Strong vocational interest blanks for men and women. Palo Alto, Consulting Psychologists Press, 1959. 40 p.
65. \_\_\_\_\_ Nineteen-year follow-up of engineer interests. *Journal of Applied Psychology* 36:65-74. 1952.
66. \_\_\_\_\_ Permanence of interest scores of 22 years. *Journal of Applied Psychology* 35:89-91. 1951.
67. \_\_\_\_\_ Vocational interests of men and women. Stanford, Stanford University Press, 1943. 746 p.

68. Strong, E. K. Jr. and A. C. Tucker. The use of vocational interest scales in planning a medical career. *Psychological Monographs* 66:1-61. 1952.
69. Super, Donald E. and John O. Crites. *Appraising vocational fitness*. 2d. ed. New York, Harper and Brothers, 1962. 688 p.
70. Thrasher, F. *The gang*. Chicago, University of Chicago Press, 1927. 605 p.
71. Thurstone, L. L. A multiple-factor study of vocational interests. *Personnel Journal* 10:198-205. 1939.
72. Traphagen, A. L. Interest patterns and retention and rejection of vocational choice. *Journal of Applied Psychology* 36:182-185. 1952.
73. Trinkaus, W. K. The permanence of vocational interests of college freshmen. *Educational and Psychological Measurement* 14:641-646. 1954.
74. Tyler, Leona E. The relationship of interest to abilities and reputation among first-grade children. *Educational and Psychological Measurement* 11:255-264. 1951.
75. \_\_\_\_\_ The national defense counseling and guidance training institutes program: A report of the first 50 institutes. Washington, D. C., 1960. 93 p. (U. S. Department of Health, Education and Welfare Bulletin No. 31).
76. U. S. Congress. Senate. Labor and Public Welfare Committee. *Science and education for national defense. Hearings, 85th Congress, 2d session, January 21 - March 13, 1958*. Washington, D. C., Government Printing Office, 1958. 1602 p.
77. U. S. Department of Labor. *Dictionary of occupational titles*. Vol. 1. 3d ed. Washington, D. C., Government Printing Office, 1965. 809 p.
78. U. S. Office of Education. *Commitment to youth*. Washington, D. C., Government Printing Office, 1964. 44 p. (DE-25039)

79. Verburg, W. A. Vocational interests of retired YMCA secretaries. *Journal of Applied Psychology* 36:254-256. 1952.
80. Warner, W. Lloyd. *American life, dream and reality*. Chicago, University of Chicago Press, 1953. 292 p.
81. Wasson, Robert M. The Wisconsin relationship orientation scale as a unique variable in the assessment of applicants for counselor education. *Counselor Education and Supervision* 4:89-93. 1965.
82. Webb, Allen P. and John T. A. Harris. Semantic differential study of counselors in an NDEA institute. *The Personnel and Guidance Journal* 42:260-264. 1963.
83. Whyte, W. F. *Street corner society*. Chicago, University of Chicago Press, 1943. 366 p.

## APPENDIX

## APPENDIX A

Pertinent Portions of the National Defense Education Act of 1958 to  
the Counseling and Guidance Training Institutes ProgramTITLE I--GENERAL PROVISIONS

## FINDINGS AND DECLARATION OF POLICY

Sec. 101. The Congress hereby finds and declares that the security of the Nation requires the fullest development of the mental resources and technical skills of its young men and women. The present emergency demands that additional and more adequate educational opportunities be made available. The defense of this Nation depends upon the mastery of modern techniques developed from complex scientific principles. It depends as well upon the discovery and development of new principles, new techniques, and new knowledge.

We must increase our efforts to identify and educate more of the talent of our Nation. This requires programs that will give assurance that no student of ability will be denied an opportunity for higher education because of financial need; will correct as rapidly as possible the existing imbalances in our educational programs which have led to an insufficient proportion of our

population educated in science, mathematics, and modern foreign languages and trained in technology.

The Congress reaffirms the principle and declares that the States and local communities have and must retain control over and primary responsibility for public education. The national interest requires, however, that the Federal Government give assistance to education for programs which are important to our defense.

To meet the present educational emergency requires additional effort at all levels of government. It is therefore the purpose of this Act to provide substantial assistance in various forms to individuals, and to States and their subdivisions, in order to insure trained manpower of sufficient quality and quantity to meet the national defense needs of the United States.

TITLE V -- GUIDANCE, COUNSELING, AND TESTING:  
IDENTIFICATION AND ENCOURAGEMENT  
OF ABLE STUDENTS

Part A--STATE PROGRAMS

APPROPRIATIONS AUTHORIZED

Sec. 501. There are hereby authorized to be appropriated \$15,000,000 for the fiscal year ending June 30, 1959, and for each of the three succeeding fiscal years, for making grants to State

educational agencies under this part to assist them to establish and maintain programs of testing and guidance and counseling.

#### ALLOTMENTS TO STATES

Sec. 502. From the sums appropriated pursuant to section 501 for any fiscal year the Commissioner shall reserve such amount, but not in excess of 2 per centum thereof, as he may determine for allotment as provided in section 1008. From the remainder of such sums the Commissioner shall allot to each State an amount which bears the same ratio to the amount of such remainder as the school-age population of such State bears to the total of the school-age populations of the States. The amount allotted to any State under the preceding sentence for any fiscal year which is less than \$20,000 shall be increased to \$20,000, the total of increases thereby required being derived by proportionately reducing the amount allotted to each of the remaining States under the preceding sentence, but with such adjustments as may be necessary to prevent the allotment of any such remaining States from being thereby reduced to less than \$20,000.

#### STATE PLANS

Sec. 503. (a) Any State which desires to receive payments under this part shall submit to the Commission, through its State

educational agency, a State plan which meets the requirements of section 1004 (a) and sets forth --

(1) a program for testing students in the public secondary schools, and if authorized by law in other secondary schools, of such State to identify students with outstanding aptitudes and ability, and the means of testing which will be utilized in carrying out such programs; and

(2) a program of guidance and counseling in the public secondary schools of such State (A) to advise students of courses of study best suited to their ability, aptitudes, and skills, and (B) to encourage students with outstanding aptitudes and ability to complete their secondary school education, take the necessary courses for admission to institutions of higher education, and enter such institutions.

(b) The Commissioner shall approve any State plan and any modification thereof which complies with the provisions of subsection (a).

#### PAYMENTS TO STATES

Sec. 504. (a) Payment under this part shall be made to those States educational agencies which administer plans approved under

section 503. For the fiscal year ending June 30, 1959, such payments shall equal the amount expended by the State in carrying out its State plan, and for the fiscal year ending June 30, 1960, and for each of the two succeeding fiscal years, such payments shall equal one-half of the amount so expended; except that no State educational agency shall receive payment under this part for any fiscal year in excess of that State's allotment for that fiscal year as determined under section 502.

(b) In any State which has a State plan approved under section 503 and in which the State educational agency is not authorized by law to make payments to cover the cost of testing students in any one or more secondary schools in such State to determine student abilities and aptitudes, the Commissioner shall arrange for any of the three succeeding fiscal years out of such State's allotment. Testing of students pursuant to this subsection shall, so far as practicable, be comparable to, and be done at the same grade levels and under the same conditions as in the case of, testing of students in public schools under the State plan.

## PART B -- COUNSELING AND GUIDANCE TRAINING INSTITUTES

## AUTHORIZATION

Sec. 511. There are hereby authorized to be appropriated \$6,250,000 for the fiscal year ending June 30, 1959, and \$7,250,000 for each of the three succeeding fiscal years, to enable the Commissioner to arrange, by contracts with institutions of higher education, for the operation by them of short-term or regular session institutes for the provision of training to improve the qualifications of personnel engaged in counseling and guidance of students in secondary schools, or teachers in such schools preparing to engage in such counseling and guidance. Each individual engaged or preparing to engage in counseling and guidance in a public secondary school, who attends an institute operated under the provisions of this part, shall be eligible (after application therefor) to receive a stipend at the rate of \$75 per week for the period of his attendance at such institute, and each such individual with one or more dependents shall receive an additional stipend at the rate of \$15 per week for each such dependent for the period of such attendance.