




**A STUDY OF THE INTEREST PATTERNS OF PRE-MEDICAL STUDENTS  
AS REVEALED BY THE KUDER PREFERENCE RECORD AND  
THE STRONG VOCATIONAL INTEREST INVENTORY**

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## CHAPTER I

### INTRODUCTION TO THE STUDY

#### Statement of the Problem

The study of interests as an aid in counseling individuals in school and industry was rarely done until relatively few years ago. Emphasis was placed upon the measurement of ability and achievement in counseling with individuals as to their occupational choice. Through the study of occupational interests in the past decade it has become apparent that the factor of interest plays an important role not only in the selection of an occupation but also in the success and happiness of an individual in his work. The present day trend is the psychological study of the interests of individuals engaged in the same occupations or in related occupational fields. It is thought that individuals successfully engaged in a particular occupation or profession show similar interests in their work and in other activities in which they participate. It is thought that these interest patterns which are formed for a particular occupational group are not typical of the patterns found in other unrelated occupational groups.

The problem of this study is to determine the interest patterns of students engaged in the study of a pre-medical

curriculum at North Texas State College during the Fall semester of 1949 and 1950.

### The Need for the Study

Medical schools select their trainees mostly on the basis of intelligence and the record of their achievement in pre-medical work, yet many students fail or drop out of school before they have completed their training. There are a number of variables that might be the cause for these failures and drop-outs. In the first place, most medical schools require that a two or three year pre-medical study be completed before application for medical training can be accepted. If an applicant is accepted by a medical school, his period of training is four years plus from one to three years of internship, depending upon the field of medicine that he plans to enter. Secondly, the financial burden placed upon an individual through seven or eight years of school is enormous. And, thirdly, the academic achievement required to remain in medical school is quite rigid. In the light of the above statements it is obvious that the incentive of the medical student must be great to overcome the obstacles in his way and that in order to have this incentive he must have a strong interest in his field. Also, the fact that it is so difficult to get into medical school gives further basis to the need for this study. "There

are from twelve to thirteen thousand applicants for medical schools each year, and only six thousand are admitted."<sup>1</sup>

#### Purpose of the Study

The purposes of this study are as follows:

1. To analyze the interests of pre-medical students for the purpose of using the results as an aid in counseling beginning students choosing the pre-medical curriculum as a major at North Texas State College.

2. To investigate the similarity of the interests shown by a group of pre-medical students to the percentile norms for the general population through use of the Kuder Preference Record and the similarity of interests shown by this same group when compared to the mean scores of the base group of physicians on the Strong Vocational Interest Blank.

#### Source of the Data

In the present study the data for the problem were secured through the administration of the Kuder Preference Record, Form CM and the Strong Vocational Interest Blank for Men (Revised) to a group of pre-medical students at North Texas State College. All parts of both interest tests were scored. The data are as follows: The test scores are those made by the pre-medical students on the above named interest inventories, and

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<sup>1</sup> Science Research Associates, "Physicians and Surgeons," Occupational Briefs, No. 36 (1944), p. 2.

the ages and educational classifications were taken from the information blanks on the Strong Vocational Interest Blank. All other data used in the present study are from selected references.

#### Limitations of the Data

The treatment of data in this study is limited to the study of the interests of thirty-four pre-medical students enrolled at North Texas State College for the Fall semester, 1949. All of the subjects included in the group are male students since the number of women pre-medical students enrolled was not sufficient for statistical treatment. Freshmen, sophomore, junior, senior, and graduate students are included in the group concerned with in the present study.

#### Definitions of Terms and Abbreviations

Throughout this study, a composite profile of the mean group scores on the occupational interest areas of the Kuder Preference Record and the mean group scores on all of the occupational group scales of the Strong Vocational Interest Blank will be referred to as the "interest pattern" of the group of pre-medical students.

Hereafter the Kuder Preference Record, Vocational, Form CM will be called the Kuder and the Strong Vocational Interest Blank for Men (Revised) will be called the Strong.

For the purpose of analyzing the interest patterns of the



group on the Strong test Darley's method will be used. He defines as primary interest patterns those occupational groups in which the letter ratings received are largely A's and B+'s, as secondary patterns those occupational groups which are predominantly B+ and B, and as tertiary those in which letter grades tend to be B's and B-'s.<sup>2</sup>

For this study the interest patterns on the Kuder will be interpreted in the following manner. The primary interest pattern will be those interest areas in which a mean group score of the seventy-fifth percentile or higher is received. Kuder advises consideration of the percentile scores between the sixty-fifth and seventy-fifth percentile when interpreting test results in the absence of a score above the seventy-fifth percentile.<sup>3</sup> The secondary interest pattern will consist of those interest areas in which a mean group score is received between the sixty-fifth and the seventy-fifth percentile. The tertiary interest pattern will be those areas in which a mean group percentile from the twenty-fifth to the sixty-fifth percentile is scored.

The individuals referred to in this study as pre-medical students were those students majoring in a pre-medical curriculum, and those majoring in Chemistry or Biology at North Texas

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<sup>2</sup>J. G. Darley, Clinical Aspects and Interpretation of the Strong Vocational Interest Blank, p. 17.

<sup>3</sup>G. Frederick Kuder, Examiner Manual for the Kuder Preference Record, Vocational (1940), p. 5.

State College during the Fall semester of 1949 who planned to attend a medical school upon their graduation from college.

#### Description of the Group Studied

The students included in the group studied were thirty-four in number. Their ages ranged from sixteen to thirty years. The average age of the group was 21.18 years with a standard deviation of 3.16 years. Two-thirds of them were from eighteen to twenty-four years of age. About one-fifth of them were over twenty-four and less than one-sixth of the group were below the age of nineteen. However, according to Strong, interest patterns are surprisingly stable from fifteen years of age on.<sup>4</sup>

All of the students in the group taking the interest tests were college freshmen and above. There were six freshmen, three sophomores, five juniors, eighteen seniors, and two graduate students. All of them had a C average or higher in their college work.

#### Related Studies

Due to the increase in the general understanding of the role played by interests in occupational selection there is a compilation of available findings related to the present study.

A study made by Peters indicated that there was some agreement between the Kuder and Strong measures, but that the

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<sup>4</sup>Edward K. Strong, Jr., Vocational Interests of Men and Women, p. 357.

independence of the two tests was more impressive than their agreement and that the Strong test was in some ways superior to the Kuder. It was suggested that both tests be used together in counseling with individuals.<sup>5</sup>

Reports on an earlier edition of the Kuder of the median scores obtained by groups of students who had entered various college curricula were given by the University of Chicago Board of Examinations Staff. These profiles were consistent with the choice of curricula. Students choosing the medical course were high on the scientific scale; those choosing the physical sciences were high on both the scientific and computational scales; those taking the business course were high on the persuasive and computational scales; those selecting the humanities curriculum were high in the artistic, literary, and musical scales.<sup>6</sup>

A study made by Perry and Shuttleworth on the interests of college freshmen at City College of New York in 1948 according to degree objectives indicated significant differences in the interest patterns of various majors. The science and engineering candidates had median scores in the scientific area of the Kuder of ninety-three and eighty-three, the corresponding percentiles being ninety-four and eighty. On this

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<sup>5</sup>Edwin F. Peters, "Vocational Interests as Measured by the Strong and Kuder Inventories," School and Society, IV (1942), 453-455.

<sup>6</sup>Board of Examinations Staff, Report of Examinations Given by the Board of Examinations, 1939-1940.

scale a score of seventy-one was critical; three-fourths of the engineering and more than three-fourths of the science freshmen scored above seventy-one; three-fourths of the arts, social science and business administration majors scored below seventy-one.<sup>7</sup>

Yum, studying University of Chicago students who took the Kuder, found significant differences among groups of students enrolled in the different divisions of the university. Those in the divisions of the physical and biological sciences were significantly higher on the scientific scale than social science division students, for example, although there was no significant difference between the physical science and biological science students on the scientific scale. On the other hand, the social sciences group was significantly higher on the literary scale than the physical sciences and biological sciences group.<sup>8</sup>

In a correlational study between the mean standard scores of forty-seven medical students and the mean standard scores of the base group of physicians on his test, Strong found a rank correlation of +.91. The mean standard scores were on thirty-four of the occupational scales.<sup>9</sup>

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<sup>7</sup>J. D. Perry and F. K. Shuttleworth, "Kuder Profiles of College Freshmen by Degree Objectives," Journal of Educational Research, XLI (1948), 363-365.

<sup>8</sup>K. S. Yum, "Student Preference in Divisional Studies and Their Preferential Activities," The Journal of Psychology, XIII (1942), 193-200.

<sup>9</sup>Strong, op. cit., p. 419.

In all of the above studies the problem was to determine the interest patterns of specific college groups. The only material difference in the above studies and the present study is that the present study is concerned with determining not only the interest patterns of a group of pre-medical students but to see if there is a significant difference between their interests and those of the general population norms on the Kuder and to see to what extent similarity is shown between their interests and the measured interests of the base group of physicians on the Strong.

#### Organization and Treatment of the Data

The present study is composed of four chapters. The first chapter, the introduction to the study, includes the statement of the problem, the need for the study, the purpose of the study, the source of the data, the limitations of the data, the definitions and abbreviations, the description of the group studied, the related studies, and the organization and treatment of the data.

The second chapter explains the nature of the Kuder and the analysis of its results; an analysis of the group interest pattern from the Kuder results, the primary, secondary, and tertiary patterns; the nature of the Strong and an analysis of its results; an analysis of the group interest pattern from the Strong results, the primary, secondary, and tertiary patterns; and the chapter summary.

In the third chapter the present study is continued with a consideration of the scores made by pre-medical students at North Texas State College compared with the percentile norms for the general population on the Kuder, and a comparison of scores of pre-medical students at North Texas State College and those of the base group of physicians on the Strong, and concludes with a chapter summary.

The concluding chapter is a summary of the findings in the present study, with conclusions and recommendations for the use of the findings of the study.

## CHAPTER II

### AN ANALYTICAL STUDY OF THE DATA

#### The Kuder and the Analysis of Its Results

Since the Kuder is a widely used interest test it will be necessary only to give a brief explanation of it before entering into a detailed treatment of the data obtained from the results. The test yields scores for ten areas of interests. The areas in which measurement of general interest is measured are: outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical. A verification score, called a V-Score, is given in order to identify those who answer carelessly or without understanding of the directions. The counselee indicates which of three activities he likes most and which he likes least. The test is constructed so that the scores in each of the ten areas are relatively independent of each other. Thus, when plotted on a profile furnished with the test, they form a basis for evaluating the relative strength of interests in these areas.

The Kuder was administered to the thirty-four pre-medical students described as to age and education earlier in this study. Raw scores were obtained for the group on all of the interest areas on the test and the standard deviation from the

mean on each area was calculated by using the formula for finding the standard deviation from ungrouped scores.<sup>1</sup> The mean group raw scores were transmitted to the Kuder profile and changed into percentile scores for the group as were the standard deviation scores in each area.

Table 1 shows the mean raw scores, the standard deviations on each area, and the mean group percentile score on each area of the Kuder. Kuder interprets the percentile scores from the profile in this manner: A score above the seventy-fifth percentile indicates high interest in that occupational area; scores between the twenty-fifth and the

TABLE 1

THE MEAN RAW SCORES, STANDARD DEVIATIONS, AND THE MEAN PERCENTILE SCORES MADE BY THIRTY-FOUR PRE-MEDICAL STUDENTS ON INTEREST AREAS OF THE KUDER

Interest Area	Mean Raw Score	Standard Deviation	Mean Percentile Score
Outdoor	48	12	58
Mechanical	36	13	32
Computational	21	7	23
Scientific	56	6	91
Persuasive	30	13	21
Artistic	22	10	53
Literary	20	7	57
Musical	12	7	64
Social Service	54	15	83
Clerical	39	12	31

seventy-fifth percentiles, average interest; and scores below the twenty-fifth percentile, no interest or a possible dislike

<sup>1</sup>M. J. Nelson and E. C. Denny, Statistics for Teachers, p. 65.



for occupations in those areas of interest.<sup>2</sup> It can be seen from Table 1 that the mean group percentile in the outdoor area is fifty-eight. A standard deviation of twelve shows that about two-thirds of the group scored between the thirty-first and the eighty-second percentiles and indicates that most of the group have average or high interest in the outdoor occupations. A mean percentile score of thirty-two in the mechanical area indicates a low average interest in the mechanical occupations. Two-thirds of the group scored between the tenth and sixtieth percentiles. In the computational area a mean percentile score of twenty-one is seen, indicating a lack of interest in that area as a group. Two-thirds of the group made scores from the fifth to the fiftieth percentile. A mean score of ninety-one was made by the group in the scientific area, two-thirds of them scoring between the seventy-eighth and the ninety-seventh percentiles. All of the students scored above the fiftieth percentile in the scientific area, indicating a significantly high interest in science. A lack of interest is shown by the group in the persuasive area of the Kuder. Two-thirds of them scored between the third and the fifty-first percentiles with a mean percentile score of twenty-one. High average interest is shown in the artistic area by a mean percentile score of fifty-three; two-thirds of them scoring between the tenth and the eighty-eighth percentiles. A mean percentile score of fifty-seven was made in the literary

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<sup>2</sup>Kuder, op. cit., p. 4.

area giving indication of high average interest as a group. Two-thirds of them scored between the twenty-third and the eighty-third percentiles. On the musical area a high average interest score is also shown. A mean percentile score of sixty-four was made by the group with a two-thirds range between the twentieth and the eighty-sixth percentiles. High interest is indicated in the social service area by a mean percentile score of eighty-three. Two-thirds of the group scored between the forty-first and the ninety-eighth percentiles. Low average interest is shown on the clerical scale by a mean percentile score of thirty-one. Two-thirds of the group scored between the eighth and the sixty-eighth percentiles on the Kuder profile in clerical interest.

#### The Group Pattern Revealed by the Kuder

The problem of the study is to determine the group interest pattern of pre-medical students through an analysis of the interests as revealed by the Kuder and the Strong interest inventories. Each of the interest areas of the Kuder was analyzed in the preceding paragraph through a study of Table 1. It was indicated whether the interest of the group was average, high, or whether a lack of interest was shown in each of the areas on the test. The method for analyzing the interest pattern and showing the primary, secondary, and tertiary patterns on the Kuder is given on page five of the present study.

Table 2 shows the mean group percentile score in each of

the occupational interest areas, the type of interest according to primary, secondary, tertiary, or no interest, and a profile of the interest pattern of the group. It is seen in Table 2, that the group of pre-medical students show a pattern on the Kuder areas of a primary and tertiary nature. The primary pattern contains the scientific and social service occupational areas. Tertiary interest is shown in the outdoor,

TABLE 2

PROFILE OF THE INTEREST PATTERN FOR THE GROUP OF PRE-MEDICAL STUDENTS SHOWING THE MEAN PERCENTILE SCORES AND INTEREST TYPES ON THE INTEREST AREAS OF THE KUDER

Interest Area	Mean Percentile Score	Interest Type*	Profile of Pattern			
			0-25	25-65	65-75	75-100
Outdoor	58	T				
Mechanical	32	T				
Computational	23	No				
Scientific	91	P				
Persuasive	21	No				
Artistic	53	T				
Literary	57	T				
Musical	64	T				
Social Service	83	P				
Clerical	31	T				

\*P=primary interest, T=tertiary interest, S=secondary interest, No=no interest.

the mechanical, the artistic, the literary, the musical, and the clerical. A lack of interest is shown by the group in the computational and persuasive interest areas. A secondary pattern of interest is not shown as defined in the section on definitions and abbreviations in the present study.

### The Strong and the Analysis of Its Results

The Strong was designed to reveal the extent to which a counselee's interest agree with those of persons engaged in certain occupations. The revised blank for men may be scored for thirty-eight occupations, six occupational group scales, and three non-occupational variables: namely, occupational level, interest maturity, and masculinity-femininity. The occupations for which interest may be measured on the Strong are:

Artist	City School Supt.
Psychologist	Minister
Architect	Musician
Physician	C. P. A.
Dentist	Accountant
Mathematician	Office Worker
Engineer	Purchasing Agent
Chemist	Banker
Production Manager	Sales Manager
Farmer	Real Estate Salesman
Carpenter	Life Insurance Salesman
Printer	Advertising Man
Math.-Phy. Sci. Teacher	Lawyer
Policeman	Author-Journalist
Forest Service	President of Mfg. Concern
Y. M. C. A. Phy. Director	Aviator
Personnel Manager	Public Administrator
Y. M. C. A. Secretary	Mortician
Soc. Sci. H. S. Teacher	Osteopath

Scores may be interpreted in the form of standard scores and letter ratings on the occupational scales and the occupational group scales. The non-occupational variables are interpreted in percentile scores. The letter ratings are: A, B+, B, B-, C+, and C. A rating of A indicates a high interest in an occupation and should be considered as a vocational choice

if the counselee has the ability to succeed in it. A rating of B+ indicates secondary interest and should be considered in the absence of an A rating. A rating of B indicates some interest and may be considered since interest can be developed. Caution should be taken in considering an occupation in which a letter rating of B- and lower is made by the counselee. Strong gives the actual percentage of the base group for each occupation that obtained the letter ratings of A to B-. The percentage of the base group scoring A is 70.2, the percentage scoring B+ is 11.9, the percentage scoring B is 9.6, the percentage scoring B- is 4.8, and the percentage scoring below B- is 3.5.<sup>3</sup>

The Strong was administered to the same group taking the Kuder test. The test was scored for all of the occupational scales, the group scales, and the non-occupational scales. Preliminary treatment of raw scores was made. A mean score for the group was found for each occupation, the occupational group scales, and the non-occupational scales. A standard deviation from the mean for each scale was also computed.

Table 3 shows the mean raw scores for the group, the standard deviations, and the mean group letter rating for the pre-medical students on all scales of the Strong. The occupational scales are arranged in the table so that it may be readily seen which scales have been placed in the occupational

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<sup>3</sup>Strong, op. cit., p. 415.

group scales by Strong. Occupational group scales I, II, V, VIII, IX, and X may be scored for letter ratings. The occupational scales of mortician, osteopath, and public administrator have not been placed in any group by the author of the test.

TABLE 3

THE MEAN RAW SCORES, STANDARD DEVIATIONS, AND THE MEAN LETTER RATINGS MADE BY THIRTY-FOUR PRE-MEDICAL STUDENTS ON THE STRONG

Group	Occupational Scales	Mean Raw Score	Standard Deviation	Letter Rating	
I	Artist	-4	90	C+	
	Psychologist	25	59	C+	
	Architect	8	51	C+	
	Physician	53	35	A	
	Dentist	56	32	B+	
II	Mathematician	-19	70	C	
	Engineer	27	48	B-	
	Chemist	44	48	B	
III	Production Manager	5	31	B-	
IV	Aviator	49	46	B	
	Farmer	12	32	B	
	Carpenter	-56	28	C	
	Printer	6	32	B	
	Math.-Phy. Sci. Teacher	42	41	B	
	Policeman	36	53	B	
	Forest Service	49	40	B-	
	V	Y.M.C.A. Physical Director	56	51	B
		Personnel Manager	1	35	C+
		Y.M.C.A. Secretary	-11	49	C
Soc. Sci. H. S. Teacher		7	58	B	
City School Superintendent		6	43	C	
VI	Minister	0	61	C	
	Musician	-4	30	B	
VII	C. P. A.	-12	23	C	
VIII	Accountant	-18	24	C	
	Office Worker	-12	27	B-	
	Purchasing Agent	-13	24	C	
	Banker	-35	32	C	

TABLE 3--Continued

Group	Occupational Scales	Mean Raw Score	Standard Deviation	Letter Rating
IX	Sales Manager	-7	27	C+
	Real Estate Salesman	-27	23	B-
	Life Insurance Salesman	12	44	B
X	Advertising Man	-27	52	B-
	Lawyer	8	23	B-
XI	Author-Journalist	-27	88	B-
	President, Mfg. Concern	-15	19	C+
	Public Administrator	25	29	B
	Osteopath	64	23	A
	Mortician	5	37	B-
Group Scales:				
	Group I	26	38	B+
	Group II	30	37	B
	Group V	14	36	B+
	Group VIII	-27	25	C
	Group IX	-21	28	B-
	Group X	-35	54	B
Non-Occupational Interests:				
	Masculinity-Femininity	62	67	51%
	Occupational Level	32	43	56%
	Interest Maturity	64	97	47%

Mean letter ratings of A are found on the physician and osteopath scales. The average letter rating of B+ is found on the dentist scale. The mean group letter rating of B was made on the following occupational scales: chemist, farmer, printer, mathematics-physical science teacher, policeman, Y. M. C. A. physical director, musician, life insurance salesman, aviator, and public administrator. The mean letter rating of B- was made by the group on the engineer, production manager, forest service, social science high school teacher, office worker, real estate salesman, advertising man, lawyer, author-journalist,

and mortician scales. On the artist, psychologist, architect, personnel manager, sales manager, and president of a manufacturing plant occupational scales a mean group rating of C+ was made.

There was no mean group letter rating of A on any of the occupational group scales. A rating of B+ is shown on Occupational Groups I and V. The occupations of artist, psychologist, architect, physician, and dentist are found in Group I. Group V contains the Y. M. C. A. physical director, personnel manager, Y. M. C. A. secretary, social science high school teacher, city school superintendent, and minister. Mean group ratings of B were made on Occupational Groups II and X. A mean group rating of B- was made on Group IX. The mean group rating for Group VIII is C.

The pre-medical students as a group ranked in the fifty-first percentile on the Masculinity-Femininity scale, indicating that the group as a whole have average masculine interests. The Occupational Level scale mean group percentile score of fifty-six indicates a low occupational level for the group as a whole. The Interest Maturity score in the forty-seventh percentile indicates that the group as a whole has not developed mature interests to any appreciable extent.

The standard deviation scores in practically all cases are larger than the mean group score on the occupational scale. This indicates that there is no tendency for scores to center



near the mean on most of the occupational scales. The standard deviation for the scales of physician, dentist, and osteopath are much smaller than the group mean, thereby indicating a tendency for individuals to score near the mean score for the group of students.

#### The Group Pattern Revealed by the Strong

The purpose of determining the interest pattern on the Strong is to improve and facilitate the interpretations of scores on the blank to other pre-medical students receiving counseling. The use of the interest pattern in counseling other pre-medical students would eliminate the possibility of considering only one interest score made by the student on an occupational scale of the Strong.

The interest patterns of the primary, secondary, and tertiary nature are shown in the profile of interests of the group of pre-medical students in Table 4. The profile of the mean group letter ratings shows that in Occupational Group I a primary interest pattern is found. Letter ratings of A on physician and B+ on dentist with C+ ratings on artist, psychologist, and architect are noted in Group I. A primary interest is shown by the group on the osteopath scale. A pattern of secondary interest is not shown on the test. Tertiary interests are spread out over a number of the occupational groups. Interests of a tertiary nature are found in Group II (B rating on chemist and B- rating on engineer), a B- rating

TABLE 4

PROFILE OF THE INTEREST PATTERN FOR THE GROUP OF PRE-MEDICAL STUDENTS SHOWING THE MEAN INTEREST RATING AND INTEREST TYPES ON THE OCCUPATIONAL SCALES OF THE STRONG

Group	Occupation	Interest Rating	Interest Type*	Letter Rating						
				C	C+	B-	B	B+	A	
I	Artist	C+	P							
	Psychologist	C+								
	Architect	C+								
	Physician	A								
II	Dentist	B+	T							
	Mathematician	C								
	Engineer	B-								
III	Chemist	B	T							
	Production Manager	B-								
IV	Aviator	B	T							
	Farmer	B								
	Carpenter	C								
	Printer	B								
	Math.-Phy. Sci. Teacher	B								
	Policemen	B								
	Forest Service	B-								
	Y.M.C.A. Phy. Director	B		No						
	Personnel Manager	C+								
	Social Sci. Teacher	B-								
City School Supt.	C									
VI	Minister	C	T							
	Musician	B								
VII	C. P. A.	C	No							
VIII	Accountant	C	No							
	Office Worker	B-								
	Purchasing Agent	C								
	Banker	C								
IX	Sales Manager	C+	T							
	Real Estate Salesman	B-								
	Life Insur. Salesman	B								
X	Advertising Man	B-	T							
	Lawyer	B-								
	Author-Journalist	B-								
XI	President, Mfg. Con.	C+	No							
	Osteopath	A		P						
	Mortician	B-		T						
	Public Administrator	B		T						

\*P=primary interest, T=tertiary interest, S= secondary interest, No=no interest.

TABLE 4--Continued

Group	Occupation	Interest Rating	Interest Type	Letter Rating					
				C	C+	B-	B	B+	A
Group Scores									
	Group I	B+	P						
	Group II	B	T						
	Group V	B+	P						
	Group VIII	C	No						
	Group IX	B-	T						
	Group X	B	T						

on production manager, Group IV (B ratings in farmer, aviator, printer, mathematics-physical science teacher, policeman, and a B- rating on forest service), Group VI (musician), Group IX (B rating on life insurance salesman and B- on real estate salesman), and Group X (B- ratings on advertising man, lawyer, and author-journalist). Tertiary interest is shown on the mortician and public administrator scales.

Although the mean letter rating for Occupational Group Scale V of B+ indicates a primary interest, a closer examination of the mean ratings on the scales within Group V reveals that a lack of interest is shown on the majority of the scales by the group. The results of the other Occupational Group Scales compare favorably with the results shown by an analysis of the occupational scales in the respective groups.

#### Chapter Summary

In this chapter it was found that there is some general agreement between the Kuder and the Strong in revealing the

interest patterns of pre-medical students. It was found that the pre-medical students concerned with in this study show primary interest in the scientific and social service areas on the Kuder test. A secondary pattern of interest is not shown by the group. Tertiary interest is shown in the outdoor, mechanical, artistic, literary, musical, and clerical. No interest is shown in the computational and persuasive interest areas of the Kuder.

The profile in Table 2, showing the pattern for the group of students as revealed by the Kuder, indicates that the pre-medical students concerned with in the present study have high interest in the scientific and social service occupations and interest in a number of occupational areas.

It was found that the pre-medical students concerned with in this study show primary interest on the physician's, dentist's, and osteopath's scales on the Strong test. A secondary pattern of interest is not shown by the group. Tertiary interest is shown on the following scales of the Strong test: engineer, chemist, production manager, aviator, farmer, printer, mathematics-physical science teacher, policeman, forest service, Y. M. C. A. physical director, social science teacher, musician, office worker, real estate salesman, life insurance salesman, advertising man, lawyer, author-journalist, mortician, and public administrator.

The profile in Table 4, showing the pattern for the group

of students as revealed by the Strong, indicates that the pre-medical students concerned with in the present study have high technical interest in medicine with wide interests in a number of the technical and business occupations.

## CHAPTER III

### A COMPARISON STUDY OF THE SCORES MADE BY THE PRE-MEDICAL STUDENTS WITH THE NORMS FOR THE KUDER AND STRONG TESTS

#### Scores Made by Pre-Medical Students at North Texas State College Compared with the Percentile Norms for the General Population on the Kuder

In order to compare the interests of the group of pre-medical students with the interests of the general population as revealed by the Kuder interest test, the percentage of scores made by the students in each occupational interest area higher and lower than the median percentile score of the general populations will be shown. The fiftieth percentile is the median score for the general population in each area of the Kuder.

Table 5 shows the number of scores made by the group of pre-medical students within each decile rank on the Kuder test. On the outdoor scale twenty-three students ranked above the fiftieth percentile, or 67.6 per cent of the total group of pre-medical students. Only six, or 17.6 per cent of the group, scored above the fiftieth percentile score for the general population. The estimated median score of the pre-medical students on the mechanical area is between the thirtieth and

thirty-ninth percentiles. Four students scored above the fiftieth percentile on the computational area, or 11.7 per cent of the group. Over half of the group scored below the nineteenth percentile. All of the students scored above the

TABLE 5

DISTRIBUTION OF INDIVIDUAL SCORES OF THIRTY-FOUR  
PRE-MEDICAL STUDENTS BY DECILE  
RANK ON THE KUDER TEST

Interest Areas	Percentiles										Total
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	
Outdoor	1	1	3	2	4	6	7	2	7	1	34
Mechanical	4	8	4	3	9	0	2	1	1	2	34
Computational	7	10	7	4	2	0	2	1	1	0	34
Scientific	0	0	0	0	0	1	1	4	4	24	34
Persuasive	13	6	2	5	3	2	0	2	1	0	34
Artistic	3	9	1	2	1	4	4	3	3	4	34
Literary	1	2	5	8	0	4	4	4	1	5	34
Musical	6	1	0	3	2	5	4	5	2	6	34
Social Service	2	0	3	2	2	2	0	2	5	16	34
Clerical	10	9	1	2	7	3	0	0	1	1	34

fiftieth percentile rank on the scientific area, 70.6 per cent of them above the ninetieth percentile. Five students, or 14.7 per cent, scored above the fiftieth percentile on the persuasive area. Over half of them scored below the nineteenth percentile. Fifty-three per cent scored above the fiftieth percentile on the artistic area. On the literary area it is found that fifty-three per cent of the students also scored above the fiftieth percentile. Twenty-two students, or 64.7 per cent of the group, scored above the fiftieth percentile on

the musical area. Over half of them scored above the sixtieth percentile. About three-fourths of the students, or 73.5 per cent, scored above the fiftieth percentile on the social service area. Half of them scored above the eighty-fifth percentile. Nineteen of the students scored below the nineteenth percentile rank on the clerical area of the Kuder. Only 14.7 per cent of them scored above the fiftieth percentile rank.

Comparison of Scores of Pre-Medical Students at North  
Texas State College and Those of the Base Group of  
Physicians on the Strong

In a previous part of the present study the scores made by the pre-medical students on the interest areas of the Kuder were compared with the median percentile rank of the general population for the purpose of finding any difference in the interests of pre-medical majors in college and the interests of the general population. The purpose of comparing the mean standard scores made by the group of pre-medical students and those made by the base group of physicians on Strong's test is to determine the similarity, if any, between the interests of the students and successful physicians.

Table 6 shows the mean standard scores made by the pre-medical students and the base group of physicians on thirty-four occupational scales of the Strong. The mean standard scores of the physicians group in Table 6 were taken from Strong's base group norms.<sup>1</sup> Using the scores shown in Table 6,

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<sup>1</sup>Strong, *op. cit.*, p. 418.



TABLE 6

MEAN SCORES OF PRE-MEDICAL STUDENTS AT NORTH TEXAS STATE  
COLLEGE AND BASE GROUP OF PHYSICIANS ON THIRTY-FOUR  
OCCUPATIONAL SCALES OF THE STRONG

Group	Occupational Scales	Mean Standard Scores		
		Students	Physicians	
I	Artist	29	32	
	Psychologist	26	26	
	Architect	27	33	
	Physician	45	50	
	Dentist	41	42	
II	Mathematician	22	29	
	Engineer	31	37	
	Chemist	36	36	
III	Production Manager	32	32	
IV	Farmer	39	35	
	Carpenter	21	20	
	Printer	39	28	
	Math.-Physical Science Teacher	39	31	
	Policeman	38	28	
	Forest Service	30	25	
	V	Y.M.C.A. Physical Director	36	26
		Personnel Manager	27	23
		Y.M.C.A. Secretary	24	19
		Social Science H. S. Teacher	32	21
City School Superintendent		21	28	
VI	Minister	24	22	
	Musician	37	26	
VII	Certified Public Accountant	23	23	
VIII	Accountant	21	29	
	Office Worker	31	24	
	Purchasing Agent	23	24	
	Banker	23	24	
IX	Sales Manager	28	24	
	Real Estate Salesman	34	32	
	Life Insurance Salesman	35	28	
X	Advertising Man	30	30	
	Lawyer	32	36	
	Author-Journalist	33	35	
XI	President of Manu. Concern	24	32	

all of the occupations were ranked from one to thirty-four for both the student's and physicians group. The Spearman

rank correlation method was used to find a coefficient of correlation between the rankings of the students and base group physicians on the thirty-four scales of the Strong.<sup>2</sup> It was found that a coefficient of correlation of +.57 existed between the scores of the pre-medical students and those of the base group of physicians. Although the coefficient of correlation does not show that there is any strong relationship, it does indicate that there is some positive relationship between the interests of the two groups.

#### Chapter Summary

In this chapter a comparison of the interests of the pre-medical students with the Kuder norms for the general population and with the norms for the base group of physicians on the Strong test was made.

It was found that the group of pre-medical students made a score significantly higher on the scientific and social service areas of the Kuder than the score expected for the general population. The students show more interest in the outdoor and musical occupational areas than the general population. About the same interest is shown by the students as is expected by the general population in the artistic and literary areas. Less interest is shown by the students in the computational and persuasive interest areas.

When the mean standard scores of the pre-medical students

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<sup>2</sup>Nelson and Denny, *op. cit.*, p. 84.

were compared to those of the base group of physicians on the Strong for thirty-four occupational scales, it was found that there was some positive relationship between the interests of the groups. A coefficient of correlation of  $+0.57$  was found between the ranked interests of the two groups.

## CHAPTER IV

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary of Findings

The present study was made to determine the interest patterns of pre-medical students enrolled at North Texas State College as revealed by the Kuder and Strong interest inventories. It was also a purpose of this study to find out if there is a significant difference between the interests of pre-medical students and those of the general population and if there is a similarity between the interests of pre-medical students and the measured interests of successful physicians. The results of the present study are to be used as an aid in counseling with beginning pre-medical students.

In Chapter II an analysis of the results on the Kuder and the Strong was made to determine the interest patterns of the students. It was found that the pre-medical students concerned with in this study showed primary interest in the scientific and social service areas on the Kuder test. A secondary pattern of interest was not shown by the group. Tertiary interest was shown in the outdoor, mechanical, artistic, literary, musical, and clerical areas. There was no interest shown by the group in the computational and persuasive areas on the Kuder.

On the Strong it was found that the pre-medical students showed primary interest on the physician's, dentist's, and osteopath's scales. A secondary pattern of interest was not shown on the Strong. Tertiary interest was shown on the following scales of the Strong: engineer, chemist, production manager, aviator, farmer, printer, mathematics-physical science teacher, policeman, forest service, Y. M. C. A. physical director, social science teacher, musician, office worker, real estate salesman, life insurance salesman, advertising man, lawyer, author-journalist, mortician, and public administrator.

In Chapter III a comparison was made between the pre-medical students' results on the Kuder and the median percentile scores for the general population. The results on the Strong were compared to the mean standard scores of the base group of physicians on thirty-four occupational scales of the Strong.

It was found that the pre-medical students made scores significantly higher on the scientific and social service areas of the Kuder than the score expected for the general population. The students showed more interest in the outdoor and musical occupational areas than the general population. About the same interest was shown by the students as is expected by the general population in the artistic and literary

areas. Less interest was shown by the students in the computational and persuasive areas than by the general population.

A coefficient of correlation of  $+0.57$  was found to exist between the measured interests of the pre-medical students and the measured interests of the base group of physicians on the Strong test.

### Conclusions

Although the data for this study are somewhat limited because of the small number of pre-medical students in the group, certain conclusions may be reached concerning the results of the study.

1. The pre-medical students as a group showed a specific pattern of interest on both the Kuder and Strong results, implying that pre-medical students concerned with in this study have similar interests. This finding is substantiated by the results of the related studies given earlier in the present study.

2. The interest pattern of the group of pre-medical students as revealed by the Kuder shows a high interest in the scientific and social service occupational interest areas with low interest in the outdoor, mechanical, artistic, literary, musical, and clerical occupational areas. A lack of interest is shown in the computational and persuasive areas.

3. The interest pattern of the group of pre-medical students as revealed by the Strong shows a high interest in the

technical aspects of medicine and science with a wide variety of interests in a number of occupations.

The implication of conclusions two and three is that the pre-medical students included in this study should have high interest in the study of science and some general interest in the study of a number of other academic subjects.

4. The Occupational Group Scales of the Strong measure about the same interests as does the Kuder test. The results of the group scales for the Strong indicated that the pre-medical students have primary interests in the technical-scientific and the uplift occupations in agreement with the results of the Kuder. When the scores for the individual occupations included in Group V (uplift) were inspected it was found that not even a tertiary interest was shown, implying that the use of only the Group Scales for counseling purposes could lead to a misinterpretation of the counselee's interests.

5. The results of the present study indicate that the interests of pre-medical students are different from the interests of the general population and similar to the interests of physicians.

6. All of the pre-medical students included in this study do not have the interest pattern of physicians. Therefore, it is implied that they have selected a major out of line with their interests.

### Recommendations

It is recommended that consideration be given to using the results of the present study as an aid in counseling beginning pre-medical students at North Texas State College. The counselee's measured interests could be compared with the measured interests of a group of pre-medical students.

It is recommended that in counseling with pre-medical students both the Kuder and Strong be administered since there is some disagreement as well as some agreement between the tests in measuring the interests of a group of pre-medical students.

All scales of the Strong should be scored since scoring of only the group scales might cause the counselor to be misleading in the interpretation of test results to the counselee.



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