THE ACHIEVING VETERINARY MEDICAL STUDENT; HIS PERFORMANCE PERSONALITY CHARACTERISTICS, HISTORY, PERCEPTIONS, INTEREST PATTERNS AND VALUE-ATTITUDE SYSTEMS

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PREFACE

The training of individuals in medical science and the healing arts has been explored in many aspects. Much research has been carried out in the areas of general medicine, dentistry and nursing but work produced in the field of veterinary medicine has been limited. Due to an ever advancing need for graduate veterinarians and the ever increasing popularity of the profession as a vocation, the number of applicants to schools of veterinary medicine overtaxes the accommodations and available facilities of the training institutions. A better understanding of those individuals who enter the training program and achieve acceptable standards of skill and proficiency is warranted. The purpose of this study is to explore many aspects of the achieving veterinary medical students including such aspects as basic intelligence, previous achievement, personality characteristics, interests, attitudes, family background, work history and cognitions.

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CHAPTER I

INTRODUCTION

It has been said that the art of veterinary medicine is as old as civilization, whereas veterinary medical science is relatively new (32). From a historical point of view, the application of scientific methods to veterinary medicine goes back a little more than a century. Treating animals in veterinary hospitals originated in ancient India where there was an interest in taking care of all species of creatures coupled with concern for the practice of preventive medicine and the cultivation of animals. Archeologists have observed that veterinary medicine was a learned profession in ancient Egypt and that reference is made in certain papyri (32) to "doctors of fowls and of other species." The Roman armies had Greek "veterinarii" who attended to horses and other beasts of burden, and by the third and fourth centuries A.D. had raised practice to a higher level than that current in the medical treatment of human beings.

Following the decline of the Roman civilization, there was a deterioration of many of the arts and sciences which had been cultivated during the classical period. Somehow the mechanics of horseshoeing supplanted the interest in the veterinary art. The iron worker or "ferrarius" who forged and applied shoes and prepared the horses' feet gradually

took over the care of equine ills. It was during the great animal plagues of the early eighteenth century, when some 200,000,000 cattle died in Europe, that the need to give medical attention to animals became apparent.

The first veterinary medical school in Europe was founded at Lyon, France, in 1762. A Frenchman by the name of Viol de St. Bel established a school in London in 1792 with the backing of eminent agriculturalists and medical men, including the surgeon John Hunter. In colonial Virginia "cow doctors" are mentioned, but because there were few horses in colonial America, no regular practice of veterinary medicine developed until after 1800. After the beginning of the nineteenth century, horses and other livestock became more numerous as wealth increased. In addition, graduates from the European schools began arriving in the United States. Dr. Benjamin Rush recommended that a school of veterinary medicine be established at the University of Pennsylvania as early as 1807. It was not until 1850 that his suggestion was implemented at that institution. The oldest extant veterinary school in the United States was established at Iowa State College in 1879 (2).

Ever since veterinary medical programs have been in operation, it has been the concern of those in charge of professional training to seek ways of encouraging and educating those most likely to be effective in the profession. The same objectives have been the concern of those in medicine, dentistry and nursing. A review of the literature

shows that the body of research on veterinary medical trainees is limited compared with that available on medical students. The need for a better understanding of the characteristics of veterinary medical students and of the various aspects of the training they undergo seem critical in the light of demands put upon them by recent developments.

To illustrate these demands, it is helpful to look briefly at some of the types of responsibilities veterinarians must be prepared to meet in a variety of job settings. Private practice continuously attracts the greatest number with specialization on small or large animals. Veterinarians in government service are constantly engaged in controlling the more than one hundred animal diseases or zoonoses known to be transmissible to man. Research involving expert animal knowledge is basic in development of serums and vaccines, in the improvement of stock-raising procedures and in conducting certain space and nuclear experiments. Veterinarians are actively engaged in research, in collaboration with physicians and other scientific personnel, in the search for improved human medicine in such areas as kidney transplants, heart research and other types of scientific activity. Veterinarians are in demand with pharmaceutical manufacturers in research, production, quality control and sale of biological products with feed plants, meat packing houses and other commercial enterprises. Approximately eight hundred veterinarians are

in the armed forces protecting military personnel against animal-communicated diseases and providing medical care for animals utilized by the armed services. In addition to these activities, U. S. veterinarians are assisting in initiating and developing veterinary medical schools and laboratories all over the world. Despite the shortage of qualified teachers, the veterinary medical schools in this country have encouraged and attracted competent instructional staff.

Today, these opportunities for professional service require individuals trained in greater depth than ever before. With the knowledge that high standards of training must be established and maintained, a concern with the characteristics of those taking the program becomes a matter of paramount importance to those involved in setting up such programs. Groups of students already selected, who are achieving in terms of criteria set up for measuring satisfactory progress, should be useful in offering some meaningful guides as to the behavioral characteristics for success in the veterinary medical program.

Purpose and Need

The purpose of the study is to determine the value of a battery of psychological measures for predicting performance of students in the College of Veterinary Medicine at Oklahoma State University who are meeting acceptable academic standards and to achieve a more thorough understanding

of these students regarding their performance, personality characteristics, personal background and history, perceptions, interest patterns and value-attitude systems. The attrition rate tends to be less than 12 per cent, indicating that most students admitted to the program are likely to complete it. Despite the fact that the students are carefully selected on the basis of previous academic performance, as well as recommendations and personal interview (29), conducted by the Admissions Committee, they often differ in level of competency, nature of preference, home background and value-attitude orientation. This study is concerned with the analysis and evaluation of additional information obtained from standardized measuring instruments and scholastic and personal data, not only for enriching understanding of the qualities and characteristics of the veterinary medical trainees, but for the purpose of further improving selection and strengthening training.

The results of this investigation may assist the staff of veterinary medical schools in making better assessments of what may be expected of incoming students as to aptitude, interests and value-attitude patterns, achievement and adjustment in the professional program of their institution. Much of the content of this study has previously been pulled together during the interview by the Admissions Committee. This committee has functioned as a significant part of the program and has become aware of subtle cues that might escape the inexperienced in evaluating prospective

students. The low attrition rate speaks highly of the adeptness of this group.

The research on veterinary medical students is limited, compared with studies on the other professional groups such as engineers, physicians and teachers (26). Since the training of a veterinarian is expensive and the facilities for education limited, it is highly important that a better understanding be acquired of those individuals making progress in the program. Such information is needed by admissions committees to (a) further refine the selection process; (b) serve as a basis for a sound counseling program; (c) bring closer together, when necessary, the needs of the trainees and the content and goals of the instructional program.

Population Studied

The students selected for the study were attending the College of Veterinary Medicine at Oklahoma State University, a recently established institution, relatively free of tradition and completely modern in terms of program, facilities and professional outlook. This veterinary medical school ranks among the best in the United States and Canada.

Hypotheses Tested

The purpose of this exploratory study is to achieve a better understanding of the ability, interests, emotional adjustment, educational-social background and value

orientation of veterinary medical students who are meeting acceptable academic standards. The analyses involve the examination of variables from certain standardized measuring instruments, responses to a questionnaire, ratings made by instructional staff and grades in course work. Each of the three groups of students selected for the study had completed different amounts of time in the veterinary medical program. The hypotheses examined were as follows:

1. There is no significant degree of relationship between a battery of selected measures and grades obtained at the end of one year, two years and three years for the students in the veterinary medical program.

2. There is no significant degree of relationship between courses in botany, zoology, physics, English and chemistry taken in the pre-veterinary program and (a) grade point average at the end of the first year in the professional program; (b) grade point average at the end of the second year in the professional program; and (c) grade point average at the end of the third year in the professional program.

3. There is no significant degree of relationship: (a) between grades in the pre-veterinary program and instructors' ratings obtained at the end of the first semester of clinical training; (b) between grades obtained at the end of the preclinical program and instructors' ratings at the end of the first semester of clinical training.

4. There is no significant degree of relationship

between performance on the standardized battery of tests and ratings assigned by instructors at the end of the first semester of clinical training.

5. There is no significant difference on responses to the Berg Perceptual Reaction Test (an experimental instrument) between students in the veterinary medical program and "people-in-general."

6. There is no significant degree of relationship between factors such as family background, educational and work history and performance in the veterinary medical program at the end of one year, two years and three years.

7. There is no significant degree of relationship between the measures from the test battery and grades obtained in the pre-veterinary medical program when correlated with stated preferences.

8. There is no significant relationship between instructors' ratings made at the end of the first course in clinical training and stated preferences for either large animal practice, small animal practice or other types of activity in the veterinary medical field.

9. There is no significant degree of relationship between various aspects of self concept as assessed by items on the Veterinary Medical Student Questionnaire and (a) performance in the clinical program, and (b) stated preferences.

10. Interest patterns for the three groups of students as measured by the Strong Vocational Interest Blank are not modified significantly during the course of training.

11. Values as measured by the Allport, Vernon, Lindzey Study of Values are not significantly modified as a consequence of veterinary medical training.

12. There is no significant relationship between stated preferences of the veterinary medical students in the first semester of clinical training and responses made to items on the Gough Checklist of Descriptive Adjectives by (a) the instructional staff and (b) by the students on themselves.

The analyses of data to test the questions raised above were undertaken by utilizing primarily three methods of statistical analysis: (a) the technique of correlation; (b) the method of multivariate analysis; (c) the procedure of analysis of variance. In instances where linearity of regression appeared questionable, the data were plotted for visual inspection. None of the plots exhibited marked non-linear characteristics.

CHAPTER II

PROCEDURE

In this section are presented a description of (a) the subjects; (b) the tests and other sources of data utilized; (c) the criteria; (d) the statistical design of the study.

Subjects

One hundred and sixteen students who were meeting acceptable standards of academic performance in the professional curriculum of the College of Veterinary Medicine at Oklahoma State University were utilized in the study. The total sample consisted of 9 females and 107 males, ranging in age from 19 to 42 with a median age of 30. Since the number of females was small, sex differences were disregarded in the investigation. Fifty-six per cent of the students were married.

All of the students had completed a minimum of 60 semester credit hours in the pre-veterinary training program. This program included 53 semester credit hours of required courses in zoology, botany, physics, algebra, chemistry and English. The seven additional hours were electives. Twelve of the subjects had done work above the 60-hour minimum including some who held bachelor's and

master's degrees at the time of entrance into the College of Veterinary Medicine at Oklahoma State University.

Three classes were employed in the analysis. Group I (N = 44) were second year students; Group II (N = 34) were third year students; Group III (N = 38) were fourth year students. The courses and the credit hours for each of the courses completed by the subjects in each of the three groups when the study was undertaken are presented in Appendix A.

Data in Table I indicate that the three groups were comparable in intellectual ability as measured by the total score on the Cooperative School and College Abilities Test. None of the t values reached the 5 per cent level of confidence. Further validation of the comparability of intellectual ability of the subjects used, is the fact that they had already completed certain requirements and been accepted into the College of Veterinary Medicine at Oklahoma State University.

TABLE I

COMPARISON DATA FOR GROUPS I, II, AND III BASED ON TOTAL SCORE OF THE COOPERATIVE SCHOOL AND COLLEGE ABILITIES TEST

Group	I	II	III	t
N	44	34	38	
Mean	306.77	308.15	306.50	
Sigma	9.00	7.21	6.84	
Groups I vs II	M_d = 1.38			NS
Groups I vs III	M_d = .27			NS
Groups II vs III	M_d = 1.65			NS

The students had reached the levels of training represented by each group in the academic year 1962-63.

Tests and Other Sources of Research Data

Information and data obtained from the materials described in this section were employed in the analyses. The test battery was administered initially to the students in each of the three groups at the time they entered the first year of veterinary medical training. The battery was selected originally on the basis of the face validity of the instruments. An investigation conducted by Luther (29) showed that certain measures in the battery gave a multiple of .69 with over-all grade point average earned at the end of the first semester of the first year in the College of Veterinary Medicine. The results seemed to warrant further study. The questionnaire was administered to all students in the fall of 1962. Groups I and II completed Items 1 through 53; students in Group III answered Items 1 through 111. The items from 54 through 111 were primarily for the fourth year students.

Descriptions of several of the predictor variables which follow are taken in part from a study by Luther (29):

(a) Pre-veterinary grades. The courses from which grades were taken to be used as predictors were from the list of required per-veterinary courses. These included botany, zoology, physics, algebra, English, and chemistry. A final grade was determined from grades received in a given

course using a four-point scale. Under this policy, A = 4, B = 3, C = 2, D = 1. If a student had received a grade of D or F in a required pre-requisite course or for some other reason had repeated one or more of the required courses, both grades were averaged together.

(b) The Cooperative School and College Abilities Test (SCAT), Level 1, Form A (1). This test was designed to measure school-learned abilities rather than abstract psychological trait. Verbal, quantitative and total scores are obtained. The test items in each of the parts consist of multiple choice questions.

Internal consistency reliability coefficients are .95 or better for all levels of the test. The validity of the instrument is in line with results obtained from other carefully developed measures of a similar nature. Luther found that the SCAT correlated .46 with grade point average at the end of the first semester of the first year in veterinary medicine.

(c) The Engineering and Physical Science Aptitude Test (EPSAT) (10). This test deals primarily with aptitude for training in mathematics and the physical sciences. The entire test consists of six subtests covering content in mathematics, mathematical formulation, physical science comprehension, arithmetic reasoning, verbal comprehension and mechanical comprehension. The first edition of EPSAT was made up of a number of items drawn from a series of previously developed and standardized tests.

Split-half reliability coefficients for the subtests ranged from .68 to .93 with the reliability for the whole test reaching .96. In the study by Luther a validity coefficient of .30 was obtained between total score on the EPSAT and grade point average for the first semester of the first year in veterinary medicine.

(d) The Strong Vocational Interest Blank for Men (SVIB) Revised (34). This inventory contains 400 items covering occupations, school subjects, recreational activities, hobbies, kinds of people, personal abilities and characteristics. Some of the items require that the respondent rate himself. In other instances, he must indicate whether he likes, dislikes, or is indifferent to the content of the items.

Scores are available on fifty-one occupations, five groups, and four special scales. On the basis of scale intercorrelations, the occupational scales have been put into eleven groups of occupations.

The reliability and validity of this interest blank has been reported in many studies over the years (14,15). Data for two hundred and eighty-five Stanford University seniors were analyzed using the split-half technique. The average coefficient of reliability for thirty-six of the revised scales was .88. Test-retest correlations on seventeen of the scales over an eighteen year period gave a median r of .69. The validity of the SVIB has been assessed in various ways. The data show that the interest scales

effectively differentiate members of a given occupation from men in general. In addition, interests of individuals in different occupations can be differentiated. Strong was able to show also that interest scores obtained by students in college predicted occupations in which they were engaged eighteen years later (33).

(e) The Minnesota Multiphasic Personality Inventory (MMPI) Revised (25). This test consists of 566 statements covering a wide variety of content which can be scored and summarized in a profile containing four validity scales and ten clinical scales. Although the instrument was originally developed to assist clinical psychologists, subsequent experimental work has shown that it is useful for understanding normal persons (36). The personality characteristics estimated by this inventory are fairly complex.

Test-retest studies have been reported based on two samples of unselected normals and on a sample of unselected psychiatric patients (13). The reliability coefficients varied by scale and nature of the sample, ranging from .46 to .93 with the greatest number falling between .70 and .88.

The validity of the MMPI was investigated by studying the degree to which a high score on a scale related to the clinical diagnosis of newly admitted psychiatric patients. Stated another way, were the high scale scores useful in differentiating among various kinds of mental and emotional disorders? Investigation showed that in more than 60 per cent of the cases a high scale score predicted a corresponding clinical diagnosis (13).

(f) The Allport, Vernon, Lindzey Study of Values (AVLSV) Third Edition (3). This edition, as well as earlier forms, was based on Spranger's thesis that personality may be deduced from an individual's values and attitudes. Allport and his coworkers built the Study of Values on the theme proposed by Spranger that men could be classified into six types. The dominant interest and concern being for (1) the theoretical man--the discovery of truth; (2) the economic man--the development of that which is useful; (3) the aesthetic man--the achievement of form and harmony; (4) the social man--the love of people; (5) the political man--desire for power; (6) the religious man--to comprehend the cosmos and relate to its embracing totality. The forty-five questions were designed to evaluate attitudes and values of an individual, determined for each of the six types as well as the relative strength of each value.

The bulk of the work on the reliability of this inventory was done on the older form. Split-half reliabilities for the six values ranged from .73 to .90. Test-retest reliability coefficients on the third edition of the test varied between .77 and .91 for each of the scales.

The validity of the inventory was derived from defined groups whose value characteristics were inferred from their vocations. Engineers were found to score high on the theoretical and economic scales; lawyers scored high on the economic and political scales; clergymen scored high on the social and religious scales (4). Norms were developed on

851 male and 965 female college students in addition to 463 occupational students and practitioners (4).

(g) The Berg Perceptual Reaction Test (BPRT) (9). Since this was an exploratory study, it was decided to include the experimental instrument in the investigation following discussions with Dr. Irwin A. Berg. The Berg Perceptual Reaction Test was included in the study for the purpose of determining whether or not the subpopulation of veterinarians might be considered to vary significantly as an occupational group from "people-in-general." The test contains sixty designs which can be responded to in one of four ways: like much, like slightly, dislike slightly, dislike much. The assumption underlying Berg's Deviation Hypothesis is that deviant response patterns in non-critical areas of behavior can be employed to differentiate members of various subpopulations (7). Berg and Adams (8) have shown recently that certain items on the test can be utilized to develop a scale for differentiating schizophrenics from mental defectives.

Norms have been collected on a large sample of "people-in-general" and on various neurotic and psychotic subpopulations. Work is presently underway on the development of norms for subpopulations consisting of various occupational groups.

Scales developed by Barnes (5) using items from the BPRT, and readministered four days following initial administration, resulted in reliability coefficients ranging

from .55 to .75.

(h) The Veterinary Medical Student Questionnaire (VMSQ). This instrument was a modified form of the questionnaire utilized in the investigation described by Hammond and Kern (22). It consisted of items covering the following content: general information and family, education, work experience, health, interests, cognitions, values and attitudes. A revised form of the Gough Checklist of Descriptive Adjectives (5) was attached to the back of the VMSQ. The revised questionnaire with the adjective checklist are presented in Appendix B.

Reliability and validity data for the questionnaire utilized in the study by Hammond and Kern (22) are not reported.

Administration of Instruments

In order to clarify the steps involved in collecting the data, several important procedures are briefly outlined:

(a) The Cooperative School and College Abilities Test, the Engineering and Physical Science Aptitude Test, the Strong Vocational Interest Blank for Men, the Minnesota Multiphasic Personality Inventory had been administered to the students in each of the three groups two weeks after starting the classwork in their first year.

(b) The Strong Vocational Interest Blank was administered a second time to Groups II and III in September, 1962, for the purpose of assessing amount and direction of change,

if any, of interest patterns during the course of training.

(c) The Allport, Vernon, Lindzey Study of Values was not a part of the original battery administered to first year students. It was administered to the three groups of students in September of 1962. Since a needed interest in the values and attitudes of veterinary medical students had become apparent, this test was administered to students in all three groups for the purpose of comparing possible change and direction of change of value-attitude systems by means of a cross-sectional approach.

(d) The Berg Perceptual Reaction Test was an experimental instrument used for the purpose of determining whether the veterinary medical students tended to differ from other subpopulations in responding to a series of abstract designs. It was administered to the three groups of students in September, 1962.

(e) The Veterinary Medical Student Questionnaire and the appended Gough Checklist of Descriptive Adjectives were given to the students in the three groups with instructions to respond to the content of each. As indicated earlier, the students in Groups I and II responded to Items 1 through 53; the students in Group III completed the total 111 items. All of the students reacted to the Gough checklist. The questionnaire was completed by the students on their own time in September of 1962 for the purpose of obtaining the following information: marital and family status; interests, hobbies and occupations of family members; socio-economic

status; grades, education and academic feelings; work experience; health; personal interests, hobbies and favored literature; ambitions, cognitions, values and attitudes; feelings of responsibility and confidence.

Since a portion of this investigation is concerned with the relationships among independent and criterion variables, the latter are presented below in order to maintain meaningful organization of content.

Criteria

Testing a number of the hypotheses in this study involved examining the relationships among different predictors and a series of criteria which are presented below. More than 20,000 correlation coefficients were computed on the IBM 7040[1] for the purpose of getting at the degrees of relationship among the measures and criteria. The stepwise regression procedure[2] was programmed on the computer to obtain the zero order r's, the multiples, and the regression weights.

The criterion variables employed were:

(a) Pre-veterinary grade point average: This grade

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[1]The IBM 7040 computer was employed through the courtesy of the Computer Research Center at Louisiana State University, Baton Rouge, Louisiana.

[2]The stepwise regression program utilized was obtained from the UCLA Medical School and adapted for use in this study.

point average was obtained as the average of all the courses required for admittance into the College of Veterinary Medicine, Oklahoma State University. This does not include the grades for all of the semester credit hours earned previous to the acceptance of the individual into the professional program, but only grades in those courses required for admittance to the College of Veterinary Medicine at Oklahoma State University. These required courses included 53 credit hours minimum: Botany (4 semester credit hours), Zoology (4 semester credit hours), Physics (8 semester credit hours), Algebra (3 semester credit hours), English (6 semester credit hours), and Chemistry (13 semester credit hours). American History (3 semester credit hours) and Political Science (3 semester credit hours) are State requirements for a degree.

(b) First year grade point average: This included all grades received in all courses taken the first year in the professional program. The courses included in this first year grade point average may be found in Appendix A under the heading "Second Year Students (Group I)."

(c) Second year grade point average: This was computed on all grades received in all courses taken during the second year in the professional program. A list of the courses included in this second year grade point average is presented in Appendix A under the heading "Third Year Students (Group II)."

(d) Third year grade point average: This was based

upon all grades received in all courses taken during the third year in the professional program. For reference, these courses have been included in Appendix A under the heading "Fourth Year Students (Group III)."

(e) First and second year grade point average: This was determined by the use of grades received in courses taken during the first and second years of the professional program. These were combined into a grade point average to indicate a two-year total.

(f) First, second and one-half years grade point average: This was set up by including all courses taken during the first, second and first semester of the third year in the professional program.

(g) First, second and third year grade point average: This consisted of all courses taken during the first, second and third years in the professional curriculum. The total courses listed under the three headings in Appendix A indicate the total hours included in this grade point average.

(h) Stated preferences: This criterion was based upon subject answers to question in the Veterinary Medical Student Questionnaire, in which they were asked to specify the type of work they hoped to do after the formal curriculum was completed. The "stated preferences" were arranged into three primary groups. The large animal category included all those sub-categories such as equine practice, bovine practice, porcine practice and so forth. Those who indicated a preference for mixed practice were included in

this group after a meeting with a board of experts from the instructional staff of the College of Veterinary Medicine at Oklahoma State University. The consensus of this board indicated that the large animal practitioner was much more likely to see small animals on occasion that the small animal practitioner was to see large animals. The small animal category included those who indicated a preference for working with felines, canines and so forth. The third category included all those activities veterinarians perform outside of practice. These included such work as research, teaching, animal disease eradication, meat inspection, public health service, and poultry pathology.

This criterion was selected for the purpose of gaining a better understanding of the differences, in characteristics of personality, value-attitudes and interests, in students who later choose various types of activities in veterinary medicine.

(i) Instructors' ratings: The ratings refer to numerical grade averages. During Clinic I, Veterinary Medicine and Surgery 544, taken the second semester of the third year of professional training in the curriculum of the College of Veterinary Medicine at Oklahoma State University, a numerical grade or rating was issued each week for each student by the supervisor in the department in which the student had worked that week. At the end of the semester, Dr. J. Wylie Wolfe, the professor in charge of this phase of the training, averaged these numerical scores for the entire

semester for each student. From this average he derived a letter grade for the semester. For the group of students with which these averaged numerical scores were to be used, the range was from 84 to 89. The frequency distribution was as follows: 84 = 1, 85 = 4, 86 = 3, 87 = 16, 88 = 16, and 89 = 1. The numerical scores were used rather than the letter grades received in the course because all subjects received a letter grade of "B." These numerical scores were obtained in September, 1962. The reliability of these ratings was not determined. The validity was based on the qualifications of the raters, all of whom were on the instructional staff of the College of Veterinary Medicine at Oklahoma State University and were qualified specialists in the areas in which they were supervising.

The independent variables with which these criterion data were associated and the methods of treatment are spelled out in detail for each hypothesis in the section on Treatment of Results.

Statistical Design of the Study

The steps in the extensive analyses are presented in order to assist in maintaining logical cohesion and clarity of content. The steps pursued in the analysis follow:

1. A battery of measures (SCAT, EPSAT, SVIB, MMPI, AVSLV) were intercorrelated and multiple regression equations developed for predicting the following:

(a) Grade point average for Group I at the end of the

first year of the veterinary medical program.

(b) Grade point average for Group II at the end of two years in the veterinary medical program.

(c) Grade point average for Group III at the end of two and one-half years in the veterinary medical program.

(d) Grade point average for Group III at the end of three years in the veterinary medical program.

(e) Grade point average for Groups I, II and III at the end of one year in the veterinary medical program.

(f) Grade point average for Groups II and III at the end of the second year in the veterinary medical program.

(g) Grade point average for Group III at the end of the third year in the veterinary medical program.

The independent variables were selected on the basis of a minimum r of .25 with the criterion. The program ordered that the best predictor be selected first, the next best predictor second, and so on. The t test was run on each variable examined in the analysis. The Multiple r was obtained at the point at which the t value for the entering variable yielded significance at the .05 per cent level of confidence or better.

2. The courses taken in the pre-veterinary program (botany, zoology, physics, algebra, English and chemistry) were correlated independently and in various combinations with:

(a) Grade point average at the end of the first year

of the veterinary medical program.

(b) Grade point average at the end of the second year of the veterinary medical program.

3. Relationships between the following were explored:

(a) The degree of correlation between grade point average in the pre-veterinary program and grade point average at the end of the first year of veterinary medical training.

(b) The degree of correlation between grades obtained in the pre-veterinary program and instructors' ratings made at the end of the first semester of clinical training.

4. The relationship of performance on the test battery to ratings assigned by instructors at the end of the first semester of clinical training was analyzed using the multiple regression technique.

5. The responses to items on Berg's Perceptual Reaction Test which differentiated veterinary medical students from people-in-general were identified by means of chi square analysis.

6. The items from the VMSQ concerning family background, work and educational history were examined in relation to performance in the veterinary medical program at the end of one year, two years and three years. The technique of analysis of variance was employed. The method used represented a basic design prepared for the employed through the use of the IBM 1620. The data from the VMSQ was

numerically coded for the purpose of fitting it into treatment groups upon which the between groups and within groups sums of squares were obtained. This then yielded the F value. Although few of the analyses were significant, approximately 620 analyses were undertaken.

7. How measures from the test battery and grades obtained in the pre-veterinary program were related to stated preferences for either large animal practice, small animal practice or other types of professional veterinary medical activities were investigated by analysis of variance. The design employed raw scores from test data and the calculations were obtained through the use of the IBM 1620 program.

8. The extent the instructors' ratings made at the end of the first course in clinical training related to stated preferences for either large animal practice, small animal practice or other types of activities in the veterinary medical field. The relationship between instructors' ratings and stated preferences was determined after the chi square had been computed from a 2 x 5 table.

9. Items from the VMSQ assessing the way the student saw himself and the way he thought others perceived him were examined in relation to (a) performance in the clinical program and (b) stated preference. The technique of correlation was employed in this analysis.

10. The degree to which interest patterns for the three groups, as measured by the SVIB, changed during the

course of veterinary medical training was analyzed by analysis of variance. The basic design of the method employed was that of comparing raw scale scores of the students' initial testing with those of the retest record taken after one year, two years or three years had lapsed.

11. The degree to which attitudes for the three groups, as measured by the AVLSV, changed during the course of veterinary medical training was analyzed by means of analysis of variance. The analysis of variance design employed raw score test data obtained from the three groups in September, 1962. Test data of each group was then compared with the other two groups to determine direction and degree of change.

12. Stated preferences of students in the first semester of clinical training were studied in relation to ratings made on the revised Gough Checklist of Descriptive Adjectives by (1) the instructional staff; (2) the students themselves. The techniques of correlation and analysis of variance were employed in the analysis. The analysis of variance procedure involved a comparison of raw score ratings of these two groups to determine the degree of relationship between the way in which the instructional staff viewed a student and the way in which he saw himself.

As indicated earlier, this investigation was primarily exploratory in nature. Certain questions were raised basically for assessing the extent to which meaningful outcomes might be made available by exploring the interrela-

tionships of a large number of variables in many thousands of combinations. Detailed discussions of treatment and outcomes of data are presented in Chapter IV.

CHAPTER III

RELATED LITERATURE

Little has been added to the literature concerning research on veterinary medical students since Luther's (29) review in 1962. The studies are concerned mainly with the validation of various predictors against success in the veterinary medical training program. A brief resumé of the significant efforts undertaken at different universities is presented below.

Work at Iowa State University

In 1950, Owens and Payne (31) constructed and validated an aptitude test for predicting achievement in veterinary medicine. The test was divided into four parts, each timed separately. Part I dealt with anatomy and physiology; Part II with zoology and chemistry; Part III consisted of a long reading assignment based on anatomical-physiological content; Part IV consisted of questions based on material in Part III. When the test was copyrighted in 1958, all rights went to the Psychological Corporation.[1]

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[1]The Veterinary Aptitude Test has not been required of the students seeking admission to the College of Veterinary Medicine at Oklahoma State University.

Validity data were based on (a) the academic records of 133 freshmen and sophomores enrolled in the School of Veterinary Medicine at the Iowa State College during the academic year 1947-1958 and (b) the academic records of 150 pre-veterinary students who later enrolled in veterinary medicine at either Cornell University (25 students), Michigan State College (41 students), Kansas State College (49 students) or Iowa State College (35 students) during the academic year 1948-1949. Test data yielded a reliability coefficient of .88. The instrument was found to be a better predictor of the specified criterion, the grade point average, than either pre-veterinary grades or the American Council on Education Psychological Examination. Correlations with grade point average yielded validity coefficients that ranged from .48 to .72.

Several other studies were reported from Iowa State College. Those reported by Hannum and Thrall (23,24) in 1954-1955 examined the relationship between academic achievement in the veterinary medical curriculum and (a) pre-veterinary grade point average and (b) scores on the veterinarian scale of the Strong Vocational Interest Blank. The subjects consisted of 61 freshmen who entered the Iowa State College of Veterinary Medicine in the fall of 1949. Pre-veterinary grades correlated around .40 with grades while a very low relationship was found to exist between the veterinarian scale and the same criterion. Results seemed to indicate fairly clearly that the SVIB did differentiate

between those found in the veterinary curriculum and those in other fields. Measured interest in veterinary medicine did not seem to be significantly affected by academic training, and the level of achievement in the curriculum did not affect the degree or direction of change.

An unpublished study by Lunden, Anderson and Hildahl (28) reported an exploratory analysis of the social background of students in the College of Veterinary Medicine at Iowa State University in 1960. The authors attempted to spell out the social-economic characteristics of the "typical" veterinary medical student attending the veterinary medical program at Iowa State University.

Work at the University of Minnesota

An investigation was reported by Layton in 1952 (27) in which he studied freshmen in the School of Veterinary Medicine at the University of Minnesota. The subjects were tested in the fall of 1948 and 1949 with the Strong Vocational Interest Blank, the Iowa State College Veterinary Aptitude Test and two parts of the Professional Aptitude Test of the Educational Testing Service. Grades achieved in physical science were combined, as were those in biological science, to serve as measures of pre-veterinary achievement. From a battery of 20 variables, the veterinary scale of the Strong Vocational Interest Blank, pre-veterinary grade point average and the score on the Iowa Veterinary Aptitude Test were combined in a final regression equation

which yielded a multiple correlation coefficient of .60.

Work at the University of Missouri

A study reported in 1960 by Brown (12) was based on data from 131 members of the classes 1956-1960 in the School of Veterinary Medicine at the University of Missouri. Seventy-six had completed four years of veterinary medical school and all had completed at least two years. The purpose of the study was to evaluate the method of selection employed by the University of Missouri School of Veterinary Medicine and to compare the selection data in predicting achievement in the preclinical and clincial years. The clinical group included only the 76 students who had completed the four years. The preclinical group included all those in the clinical group in addition to 55 others who had completed less than four years, but at least two years. The two predictor variables employed were the student's grade point average and scores on the Veterinary Aptitude Test referred to earlier in this section. Two criteria were utilized because it was felt that the first two years or preclinical years required a different type of performance since the training dealt almost entirely with academic and laboratory work, whereas the second two, or clinical years, were concerned more with practical application of veterinary medicine under supervision. The final analysis yielded multiple r's of .62 for the preclinical group and .70 for the clinical group. The correlation between preclinical grade point

average and clinical grade point average was .75. The total score on the Veterinary Aptitude Test when correlated with grade point average was .48 for the preclinical group and .55 for the clinical group. As in the multiple regression analysis, scores for the clinical group correlated somewhat higher with the criteria than those for the preclinical group. In cross validation, a multiple r of .92 was obtained for the preclinical group and a multiple of .33 for the clinical group. The variation was probably a function of the small number of subjects used in the cross validation which was 24 in the preclinical group and 26 in the clinical group.

Work at Oklahoma State University

Luther (29) completed a study in 1962 in which she investigated the relationship between a battery of predictors and grade point average at the end of the first semester of the first year in Veterinary Medicine at Oklahoma State University. The subjects consisted of 40 males and 3 females who had entered the College of Veterinary Medicine in the fall of 1959. All had completed a minimum of 60 semester credit hours of pre-veterinary training.

She found that data from the following measures could be used to predict criterion scores: verbal, quantitative and total scores from the Cooperative School and College Abilities Test; mathematical and total scores for the Engineering and Physical Science Aptitude Test; total score

from the American Council on Education Biological Science Test; the psychopathic deviate scale score of the Minnesota Multiphasic Personality Inventory. The multiple r obtained from the analysis was .69.

An interesting finding from this carefully executed investigation indicated that pre-veterinary grade point average, for the sample studied correlated no higher than .12 with grade point average at the end of the first semester of the first year in the veterinary medical program.

Work at a Large Western Medical School

Gordon and Mensh (19) report a study in the February, 1962, Journal of Educational Psychology in which they attempted to determine whether or not there was a downward trend from the first to the fourth year of medical school on that aspect of idealism or humanitarianism as measured by the benevolence scale of the Survey of Interpersonal Values. Since it appeared reasonable that other values might also be affected, they studied the trends of the other scales of the instrument. These scales included: (a) support--defined as being treated with understanding, receiving encouragement from other people, being treated with kindness and consideration; (b) conformity--defined as doing that which is socially acceptable, adhering closely to rules and regulations, performing in an acceptable and proper manner, being a conformist; (c) recognition--which is being admired, considered important, being in prominence, attracting favorable

notice; (d) independence--having the right to behave as one wishes, being free to make one's own decisions, being free from dependence, being able to do things in one's own way; (e) benevolence--doing things for other people, humanitarianism, sharing with others, helping unfortunates, generosity; (f) leadership--having authority over others, being in a position of power, a decision maker. The Survey of Interpersonal Values was administered to medical students in the first through fourth year classes of a large western medical school. The sample included 208 males and 14 females but due to the limited number of females, the analysis was limited to the male sample of the population. The mean difference between the first and fourth year groups was significant at the .01 level of confidence which supported the original hypothesis of a declining trend on the benevolence scale occurring gradually from the first through the fourth years. Of the other five scales, four were significant and one, leadership, was insignificant. Independence, recognition and support had higher value placed on them by fourth year students than by first year students, whereas the inverse was true of the conformity scale. It should also be noted that greater differences occur between the first and second year than at any other time during the training program.

This concurs with Freedman's (16) finding that personality changes in the course of college training tend to occur early rather than being linear from year to year. In

discussing this work, Gordon and Mensh point out that the study confirms the finding of other investigators in this area. From the first year on through professional training, there seems to be a continual decrease in the value placed on being kind and benevolent by medical school students. This trend is apparently consistent throughout the course of medical school training and appears to continue beyond graduation into resident work. Inferences cannot be drawn from this study as to the scope or continuance of this, in other words, whether or not this is carried over into medical practice. These results, however, are not as striking as they might seem. At the beginning of training, the student is somewhat idealistic in his value which he places on benevolence, but as he nears the completion of the program, he is probably no less benevolent than the average adult male in our society. This factor, coupled with the decrease in value placed on conformity may simply reflect the students' increased problem orientation and decreased social orientation as noted by Becker and Geer (6).

Work at the University of Colorado School of Medicine

A significant study in the province of general medicine was reviewed because it offered inspiration and some suggestions for the present investigation. Hammond and Kern (22) in collaboration with workers in psychology and sociology made an extensive study of the medical training

program at the University of Colorado School of Medicine. The study involved an analysis of all aspects of comprehensive medical care in which the patient was regarded not only as a complex biological entity with a disease, but also as a living person who was part of a family and of a larger society. It recognized the idea that psychological and social factors were important influences on the well-being of the patient and that they may be the immediate and most important concern of the attending physician. Suggestions for the questionnaire to get at cognitive content were taken from this study and developed to meet the needs of the present investigation.

Summary and Findings

In the work at Iowa State College, the correlation between interest in veterinary medicine as measured by the Strong Vocational Interest Blank, veterinarian scale and academic achievement in the professional program of the School of Veterinary Medicine was fairly low. It was suggested that this outcome might be due to the homogeneity of the group. The Strong Vocational Interest Blank on the other hand, was helpful in distinguishing those who were found in the veterinary medical curriculum from those studying in other fields.

The work at the University of Minnesota made use of the Veterinary Aptitude Test developed at Iowa State College. By combining the scores on the Strong Vocational Interest

Blank veterinarian scale, pre-veterinary grade point average and the total score on the Veterinary Aptitude Test, a multiple correlation coefficient of .60 was obtained.

The Missouri study employed the Veterinary Aptitude Test and the pre-veterinary grade point average as independent variables. The veterinary medical students were divided into two groups--those who had completed the first two years of veterinary medical training and those who had completed four years, the latter two in a clinical setting. The clinical work, although conducted under supervision, more nearly approximated the routine of the practicing veterinarian. If different types of information and skill were required for achievement in the preclinical and clinical portions of the program, the multiple r's for predicting the two criteria on the basis of the same test battery turned out to be nearly comparable.

The investigation at Oklahoma State University showed that performance in the first semester of the first year of the veterinary medical program could be predicted with a high degree of proficiency from a battery of selected measures administered to the incoming students. The multiple r for the predictive battery was .69.

The work of Gordon and Mensh discussed in this review was useful for this study. These investigators studied amounts and direction of change of value systems during the course of professional training. They concluded from the use of the Survey of Interpersonal Values, that conformity

and benevolence declined, independence, recognition and support ascended and leadership showed no significant change during the course of study in the professional curriculum.

The research by Hammond and Kern was one of the most complete studies of medical students and various aspects of medical training undertaken to date. It should serve as a guide for assessing the demands of a general medical training program. Certain of its features should serve as leads for the study of other programs in the fields of the healing arts. Inspiration and ideas were adopted from this tremendous effort, modified and applied to the investigation of veterinary medical students reported in this study.

A more extensive examination of the relationships among various types of performance and criteria of proficiency, and a broader study of the characteristics of the veterinary medical students at three different levels of preparation, seemed appropriate in the light of the limited information available on such trainees.

CHAPTER IV

TREATMENT OF DATA AND ANALYSIS OF OUTCOMES

In order to develop and maintain an organized study, the data analysis and discussion of each hypothesis are presented in separate sections. A summary of outcomes is given in Chapter V of the report.

Hypothesis I

This hypothesis was stated as follows: there is no significant degree of relationship between a certain battery of selected measures and grades obtained at the end of one year, two years and three years in the College of Veterinary Medicine at Oklahoma State University. Tests of various aspects of this hypothesis involved extensive statistical treatment.

Analysis of the Data for Group I Utilizing Grade Point Average Obtained at the End of One Year in the Veterinary Medical Program

The initial analysis consisted of examining 3,081 intercorrelations among grades obtained in courses in the pre-veterinary program, subtest scores, total test scores and criteria. The test battery which was described earlier and which had been administered at the beginning of the

first year of the veterinary medical program consisted of the Cooperative School and College Abilities Test (SCAT), the Engineering and Physical Science Aptitude Test (EPSAT), the Strong Vocational Interest Blank (SVIB) and the Minnesota Multiphasic Personality Inventory (MMPI). The criterion employed in this part of the analysis was over-all grade point average attained at the end of the first year in veterinary medicine.

The step-wise regression procedure was programmed so that only those variables with correlations of $\pm$.25 or better with the criterion were utilized in assessing the most effective predictors. The variables and their criterion r's are given on Tables II-A, III-A, IV-A, V-A, VI-A, VII-A, VIII-A, IX-A. The most predictive variable was selected first, the next most predictive second, and so on. The multiple r was obtained at the last step in which the t test for the entering variable reached the .05 per cent confidence level or better.

Table II-A presents the intercorrelations employed in developing the regression equation. Table II-B shows the results of the regression analysis with weights for predicting the criterion in raw score form.

The results in Table II-B showed that the mechanical comprehension subtest of the EPSAT and the physics grade in the pre-veterinary curriculum were related to the prediction of the criterion. Insights into technical intracacies and the capacity to manipulate mathematical and scientific

TABLE II-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF THE FIRST YEAR IN VETERINARY MEDICAL TRAINING
GROUP I (N = 44)

	1	2	3	4	5	6	7	8
1. Physician Scale, SVIB[a]		.468	.513	.614	-.070	.087	-.124	-.294
2. Mathematician Scale, SVIB[a]			.878	.283	-.107	.101	-.061	-.298
3. Physicist Scale, SVIB[a]				.232	.038	.076	-.038	-.290
4. Musician Scale, SVIB[a]					-.246	-.055	-.002	-.295
5. Masculinity-Feminity Scale, SVIB[a]						.021	-.020	.254
6. Mechanical Comprehension, EPSAT							.194	.295
7. Physics Grade, Pre-Veterinary Program								.298
8. Grade Point Average, First Year Veterinary Medical Program								
Mean	39.22	22.95	19.43	26.84	47.34	14.16	26.70	2.73
Sigma	7.45	5.62	6.02	5.68	4.67	3.77	5.51	.62

[a]Data obtained on the initial administration of the SVIB.

concepts are demanded by such courses as gross anatomy and physiology, biochemistry, bacteriology and histology (see Appendix A). Negative weights for the physicist and musician scales of the SVIB on this sample reflect an inverse relationship for highly theoretical and artistic interests with grade point average. It may well be that indirectly, these outcomes indicate limited concerns with the discovery of new truths and in the pioneering of new ideas, with more preference for the application of ideas to development and production.

TABLE II-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE II-A

Multiple Correlation Coefficient .635

Multiple Regression Equation:

Y (criterion)[a] =

$$2.5688 - .0256x_3 - .0244x_4 + .0420x_6 + .2688x_7$$

Standard Error of Multiple Estimate (SE_{ME}) $\pm .55$

Predictor Variables:

x_3 = Physicist Scale, SVIB
x_4 = Musician Scale, SVIB
x_6 = Mechanical Comprehension, EPSAT
x_7 = Physics Grade, Pre-veterinary Program

[a]Deviations between predicted grades for the 44 students in Group I and actual grades received are presented in Appendix C-1.

Analysis of Data for Group II Utilizing Grade Point Average Obtained at the End of Two Years in the Veterinary Medical Program

The analysis was based upon 3,081 intercorrelations of test and criterion data. The criterion presented in Table III-A consisted of grade point average attained at the end of two years in the veterinary medical program. The results indicate that for this group the best predictor is the pre-veterinary grade point average (Table III-B). The dentist and musician scales of the SVIB improved the prediction somewhat. As indicated earlier, the negative correlations of the musician scale with the criterion might suggest a lack of concern for the "artistic and impractical." The relationship between earlier academic performance and achievement in the professional school appears reasonable.

Analysis of Data for Group III Utilizing Grade Point Average Obtained at the End of Two and One-Half Years in the Veterinary Medical Program

It should be pointed out that the criterion employed in this analysis excluded evaluations made during the second semester of the third year. Assessment of preformance the second semester of the third year was based mainly upon instructors' ratings of students in supervised clinical practice. As pointed out previously, a rating was given to each student every week by the supervisor in the department

TABLE III-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF THE SECOND YEAR IN VETERINARY MEDICAL TRAINING
GROUP II (N = 34)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Dentist Scale, SVIB[a]		-.230	.403	.155	.375	.171	-.078	-.072	.223	.182	.005	.226	-.026	-.102	-.128	.014	.253
2. Lawyer Scale, SVIB[a]			.371	.048	-.286	.397	-.538	.041	.079	-.263	.368	-.325	.049	-.287	-.102	-.143	-.377
3. Physician Scale, SVIB[a]				.435	.248	.618	-.609	-.053	-.023	-.266	.371	-.134	-.034	-.134	-.098	-.131	-.318
4. Osteopath Scale, SVIB					-.135	.260	-.177	-.275	-.158	-.186	.009	-.196	-.242	-.211	-.126	-.175	-.275
5. Engineer Scale, SVIB						-.325	-.032	.253	.077	.213	.214	.264	.242	.322	.194	.093	.254
6. Musician Scale, SVIB							-.567	-.081	.065	-.321	.197	-.019	-.123	-.168	-.270	-.046	-.349
7. Purchasing Agent, SVIB								-.148	-.170	.094	-.329	.037	-.081	-.106	.027	-.089	.259
8. Mathematics, EPSAT									.632	.449	-.068	.339	.155	.281	.127	.186	.298
9. Formulation, EPSAT										.317	.087	.270	.323	.139	-.153	.227	.291
10. Quantitative, SCAT											-.168	.179	.012	.167	.156	.152	.289
11. Theoretical, AVLSV												-.974	.098	.163	.106	.175	.262
12. Si Scale, MMPI													.273	.435	.058	.330	.386
13. Zoology Grade, Pre-Veterinary Program														.541	.433	.570	.490
14. Physics Grade, Pre-Veterinary Program															.683	.815	.433
15. Chemistry Grade, Pre-Veterinary Program																.759	.444
16. Pre-Veterinary Grade Point Average																	.566
17. Grade Point Average Based on First Two Years of Veterinary Medical Program																	
Mean	37.97	26.71	46.71	49.12	32.15	33.91	24.56	19.68	6.82	319.03	46.47	25.00	31.98	27.32	28.29	2.92	3.15
Sigma	7.61	13.88	9.25	7.17	10.48	10.39	7.73	3.85	2.39	7.49	5.20	8.73	7.28	6.91	5.89	.46	.48

[a]Data obtained on the initial administration of the SVIB.

in which the student trained that week. The numerical ratings were averaged at the end of the semester.

TABLE III-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE III-A

Multiple Correlation Coefficient .800

Multiple Regression Equation:

Y (criterion)[a] =

$$.8028 + .0261x_1 - .0149x_6 + .5834x_{16}$$

Standard Error of Multiple Estimate (SE_{ME}) $\pm$ .32

Predictor Variables:

x_1 = Dentist Scale, SVIB

x_6 = Misician Scale, SVIB

x_{16} = Pre-veterinary Grade Point Average

[a]Deviations between grades predicted for the 34 students in Group II and actual grades received are presented in Appendix C-2.

Zero order r's are given in Table IV-A. When clinical ratings were excluded from the criterion the most critical predictor for the group was the quantitative score of the SCAT (Table IV-B). It appears that the capacity to think quantitatively and logically is related to academic

TABLE IV-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF THE THIRD YEAR IN VETERINARY MEDICAL TRAINING
GROUP III (N = 38)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Banker Scale, SVIB[a]		-.018	-.144	-.181	.262	-.050	-.124	.015	-.023	.109	.152	.144	.274
2. Mathematics, EPSAT			.552	.571	.710	.530	-.104	-.053	.077	.400	.400	.369	.309
3. Formulation, EPSAT				.636	.531	.491	-.141	.135	.187	.319	.447	.398	.353
4. Total, EPSAT					.492	.694	-.299	.216	-.011	.378	.300	.430	.346
5. Quantitative, SCAT						.613	-.155	.046	-.014	.524	.359	.312	.544
6. Total, SCAT							-.309	-.088	-.183	.332	.140	.210	.460
7. Ma Scale, MMPI								-.007	.046	-.018	-.110	.084	-.356
8. Botany Grade, Pre-Veterinary Program									.353	.194	.402	.490	.254
9. Zoology Grade, Pre-Veterinary Program										.145	.359	.408	.245
10. Physics Grade, Pre-Veterinary Program											.374	.452	.450
11. Chemistry Grade, Pre-Veterinary Program												.690	.259
12. Pre-Veterinary Grade Point Average													.273
13. Grade Point Average at the End of Two and One-Half Years in the Veterinary Medical Program													
Mean	32.68	16.89	6.26	88.03	314.84	306.50	20.58	29.16	28.66	24.50	25.79	2.69	2.84
Sigma	8.78	5.11	2.50	18.20	10.14	6.85	3.74	7.16	6.31	5.29	4.94	.35	.44

[a]Data obtained on the initial administration of the SVIB.

progress at an advanced level in the professional program. On the basis of the analysis of the three groups to this point it would appear that scientific and practical orientations along with capacities to think quantitatively and to utilize scientific concepts tend to be related to satisfactory progress in the veterinary medical curriculum.

TABLE IV-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE IV-A

Multiple correlation Coefficient	.552
Multiple Regression Equation:	
Y (criterion)[a] $= -4.5381 + .0234x_5$	
Standard Error of Multiple Estimate (SE_{ME})	$\pm .37$
Predictor Variable:	
x_5 = Quantitative, SCAT	

[a]Deviations between grades predicted for the 38 students in Group III and actual grades received are presented in Appendix C-3.

Analysis of Data for Group III Utilizing Grade Point Average Obtained at the Conclusion of Three Years in the Veterinary Medical Program

In order to analyze the data for students in Group III, 3,081 zero order correlation coefficients were computed.

The step-wise multiple regression technique was employed as indicated earlier to select the most critical predictors of the criterion from the variables presented in Table V-A. The multiple began to shrink with the introduction of the second variable. The t test for the second variable did not reach the .05 per cent level of confidence. When the clinical ratings obtained in the second semester of the third year were added to the criterion, the quantitative subtest of the SCAT, still proved to be the most efficient predictor (Table V-B). This outcome is similar to the results obtained for the group when the second semester data for the third year were excluded from the criterion (Table IV-B).

TABLE V-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE V-A

Multiple Correlation Coefficient	.560
Multiple Regression Equation:	
Y (criterion)[a] = $-3.9952 + .0218x_5$	
Standard Error of Multiple Estimate (SE_{ME})	$\pm .34$
Predictor Variable:	
x_5 = Quantitative, SCAT	

[a]Deviations between grades predicted for the 38 students in Group III and actual grades received are presented in Appendix C-4.

TABLE V-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF THREE YEARS IN VETERINARY MEDICAL TRAINING
GROUP III (N = 38)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Banker Scale, SVIB[a]		-.018	-.144	-.181	.262	-.050	-.009	-.124	0.15	-.023	.109	.152	.144	.290
2. Mathematics, EPSAT			.552	.571	.710	.530	-.179	-.104	-.053	.077	.400	.400	.369	.305
3. Formulation, EPSAT				.636	.531	.491	-.261	-.141	.134	.187	.319	.447	.398	.361
4. Total, EPSAT					.492	.694	-.085	-.299	.216	-.011	.378	.300	.430	.350
5. Quantitative, SCAT						.613	-.221	-.155	.046	-.014	.524	.359	.312	.553
6. Total, SCAT							-.168	-.309	-.088	-.183	.332	.140	.210	.448
7. D Scale, MMPI								-.175	.365	.325	-.074	.086	.208	.248
8. Ma Scale, MMPI									-.007	.046	-.018	-.110	.084	-.344
9. Botany Grade, Pre-Veterinary Program										.353	.194	.402	.490	.292
10. Zoology Grade, Pre-Veterinary Program											.145	.359	.480	.251
11. Physics Grade, Pre-Veterinary Program												.374	.452	.439
12. Chemistry Grade, Pre-Veterinary Program													.690	.268
13. Pre-Veterinary Grade Point Average														.303
14. Grade Point Average at the End of Three Years in the Veterinary Medical Program														
Mean	32.68	16.89	6.26	88.02	314.84	306.50	17.16	20.58	29.16	28.66	24.50	25.79	2.69	2.86
Sigma	8.78	5.11	2.50	18.20	10.14	45.68	4.28	3.74	7.16	6.31	5.29	4.94	.35	.40

[a]Data obtained on the initial administration of the SVIB.

Analysis of Data for Groups I, II and III Utilizing Grade Point Average Obtained at the End of the First Year in Veterinary Medicine

The bank of intercorrelations in Table VI-A shows only one criterion correlation above .25.[1] This coefficient occurs between pre-veterinary grade point average and grade point average at the end of the first year in the veterinary medical program. The formulation subtest score and total test score of the EPSAT, as well as the quantitative score of the SCAT, manifest some positive association with the criterion. These outcomes are not unexpected in line with findings noted above.

The most efficient predictors of the criterion on the basis of multiple regression analysis are the pre-veterinary grade point average and the Ma scale of the MMPI (Table VI-B). Logically, it could be assumed that the kind of preparation prior to entering the veterinary medical program would have a salient effect upon the academic performance of the trainees. The negative weight contributed by the Ma scale could suggest that over activity and motion that tend to be

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[1]Due to the fact that the IBM program being utilized for this analysis was limited in the number of variables which could enter the regression and to the fact that there were on occasion many more variables available, the ±.25 degree of relationship rule for entrance of a variable was arbitrarily adopted. In the case of this particular part of the analysis, only one criterion variable was obtained, so the arbitrary ±.25 rule was not followed as no harm could be forseen in the utilization of the available variables.

TABLE VI-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF THE FIRST YEAR IN VETERINARY MEDICAL TRAINING (GROUPS I, II, AND III (N = 116)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1. Physician Scale, SVIB[a]		.655	.578	.682	.670	.305	-.076	.433	-.295	-.608	-.412	.009	.198	.460	.508	.539	.401	.454	.215	.357	.465	.012	-.045	.081	.062	.131	.245	.024	.050	.090	.011	.001	.083	.139	-.044
2. Dentist Scale, SVIB[a]			.609	-.030	.316	.053	.167	.324	.032	-.349	.136	-.159	.128	.070	.217	.261	.209	-.243	.003	.011	-.291	-.058	.116	-.101	-.020	.090	.029	-.052	-.053	-.098	.046	.030	-.045	.129	-.048
3. Mathematician Scale, SVIB[a]				.486	.642	.443	.057	.329	-.268	.449	-.204	-.140	.251	.391	.461	.454	.465	-.288	-.245	-.292	.465	.094	-.182	-.062	-.077	.156	.151	-.028	-.015	-.106	.014	.066	.165	.098	.012
4. Physicist Scale, SVIB[a]					.102	-.022	.017	.147	.063	.081	.283	-.352	.489	-.070	-.037	.006	.020	.298	.201	.204	-.223	.229	-.050	-.109	.035	.100	-.035	.108	-.102	-.083	.036	.065	-.015	.086	.010
5. Chemist Scale, SVIB[a]						.541	-.100	.199	-.284	-.391	-.642	.116	.086	.688	.631	.576	.537	-.402	-.325	-.531	-.438	.110	-.261	.193	.176	.141	.338	.151	.131	-.040	-.100	-.184	.145	.091	.018
6. Engineer Scale, SVIB[a]							.002	-.047	-.438	-.610	-.530	.079	.295	.640	.679	.621	.618	-.362	-.187	-.453	-.512	.166	-.286	.178	.212	.152	.342	.156	.094	.007	.062	-.162	.114	.156	.066
7. Production Manager Scale, SVIB[a]								.258	-.183	-.575	-.554	-.077	.346	.607	.668	.662	.646	-.453	-.261	-.450	-.403	.230	-.280	.075	.152	.193	.299	.096	.064	-.151	-.061	.037	.040	.071	.075
8. Musician Scale, SVIB[a]									-.212	-.359	-.392	-.058	.296	.432	.519	.490	.625	-.225	-.166	-.316	-.271	.324	-.317	.157	.150	.241	.249	.108	.121	-.173	-.013	-.021	.097	-.030	.104
9. Accountant Scale, SVIB[a]										-.041	.090	-.378	.439	.069	.165	.222	.321	-.097	-.074	-.109	-.040	.277	.071	-.023	.192	.211	.143	.205	.021	-.293	-.189	.019	-.110	.021	-.017
10. Banker Scale, SVIB[a]											-.158	-.481	.633	.186	.267	.304	.320	.116	.019	-.086	-.532	.402	-.128	.030	.135	.126	.113	.176	-.002	-.128	.021	-.056	.208	.114	-.044
11. Mortician Scale, SVIB[a]												-.153	.083	-.281	-.250	-.144	-.220	-.116	-.083	.058	.117	-.089	.513	-.134	-.010	-.030	-.060	.019	.034	.114	-.085	-.066	-.337	.270	-.169
12. Lawyer Scale, SVIB[a]													-.112	.141	.111	.121	-.088	-.331	-.237	-.188	-.160	-.249	.108	-.061	-.151	-.072	-.013	-.038	.054	.160	-.188	.105	-.092	.043	-.126
13. Masculinity-Feminity Scale, SVIB[a]														-.260	-.258	-.182	-.129	.250	.085	.195	.052	.062	.348	-.093	-.113	-.068	-.108	.194	.012	-.074	-.133	-.151	-.093	.005	.171
14. Mathematician Scale, SVIB															-.255	-.241	-.043	.474	.301	.321	.382	.247	-.146	-.097	-.049	.029	-.124	.145	.044	-.302	.009	.138	-.019	-.138	.107
15. Physicist Scale, SVIB																-.426	-.332	.634	.335	.407	.262	.103	.122	-.077	.010	-.142	-.292	.089	-.107	-.092	-.056	-.057	.049	-.076	.133
16. Chemist Scale, SVIB																	-.039	.327	.416	.298	.172	.114	-.167	-.094	-.106	-.051	-.148	.104	-.033	-.170	.009	.154	.022	.034	.128
17. Engineer Scale, SVIB																		.529	.258	.670	.329	-.111	.118	-.206	-.161	-.172	-.342	.034	-.085	.006	.155	.168	-.113	-.081	.126
18. Banker Scale, SVIB																			c.107	.242	.650	-.217	.049	-.167	-.210	-.015	-.166	-.113	.009	-.092	-.019	.244	.248	-.202	-.104
19. Pharmacist Scale, SVIB																				-.154	.195	-.395	-.135	.037	-.148	.044	.142	-.156	.105	.176	.032	.097	-.136	-.110	-.131
20. Mortician Scale, SVIB																					.307	-.339	-.056	.056	-.044	.124	.149	-.134	.148	.045	-.036	.066	-.057	-.129	-.160
21. Sales Manager Scale, SVIB																						.673	-.130	.000	.207	.275	.210	-.202	-.054	-.391	-.023	-.063	.045	.099	-.094
22. Masculinity-Feminity Scale, SVIB																							.524	-.113	.020	-.070	-.145	.004	.021	.107	-.165	-.065	-.224	-.005	.136
23. Interest Maturity Scale, SVIB																								.134	.003	.099	.298	.036	.158	.130	-.042	-.092	-.077	.109	.021
24. Formulation, EPSAT																									-.067	-.033	-.001	-.046	.048	.191	.064	-.051	-.117	.030	.200
25. Arithmetic Reasoning, EPSAT																										.051	.113	-.035	.031	.018	.077	-.021	.101	.065	.129
26. Mechanical Comprehension, EPSAT																											-.190	.046	-.219	-.140	.128	.009	-.074	-.051	.142
27. Total, EPSAT																												-.134	.163	-.066	-.090	-.216	.231	.083	.226
28. Quantitative, SCAT																													.085	-.085	-.081	-.157	.194c	.091	.199
29. Total, SCAT																														-.113	-.110	-.149	.101	.120	.153
30. Mf Scale, MMPI																															-.090	-.209	.198	.097	-.030
31. Pt Scale, MMPI																																-.034	-.085	-.083	-.149
32. Ma Scale, MMPI																																	.136	.003	-.173
33. Si Scale, MMPI																																		-.063	.121
34. Pre-Veterinary Grade Point Average																																			.312
35. Grade Point Average at the end of the First Year in Veterinary Medical Training																																			
Mean	41.16	40.38	22.59	18.47	29.92	29.30	32.72	32.26	23.36	30.05	32.11	27.02	50.56	19.41	18.44	32.12	30.42	28.09	36.75	32.91	26.08	50.72	50.90	6.89	5.68	14.32	91.53	316.32	307.09	24.22	25.93	19.71	25.35	2.778	2.769
Sigma	9.21	9.44	7.60	8.50	7.73	8.40	7.96	8.87	9.71	6.91	7.10	8.77	8.06	9.10	10.17	10.83	10.18	8.38	7.48	8.77	8.37	8.89	6.66	2.31	2.35	4.31	18.48	9.58	7.80	5.63	7.13	3.56	9.53	.374	.607

[a]Data obtained on the initial administration of the SVIB.

non-productive and symptomatic generally of unresolved emotional conflicts are not unlikely to be associated with adequate academic performance. These assumptions are not unrealistic when viewed from the position that personal adjustment, as well as aptitude and prior scholastic preparation determine level of proficiency in highly competitive programs such as veterinary medicine.

TABLE VI-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE VI-A

Multiple Correlation Coefficient .402
Multiple Regression Equation:
Y (criterion)[a] = 1.9566 - .0319x_{32} + .5194x_{34}
Standard Error of Multiple Estimate (SE_{ME}) ± .57
Predictor Variables:
x_{32} = Ma Scale, MMPI
m x_{34} = Pre-Veterinary Grade Point Average

[a]Deviations between grades predicted for the 116 students in Groups I, II and III and actual grades received are presented in Appendix C-5.

Analysis of Data for Groups II and III Employing Grade Point Average Obtained at the End of the Second Year in Veterinary Medicine

When the data for this analysis are examined, it is apparent that the quantitative score of the SCAT and academic performance prior to entering the veterinary medical program are the best predictors of this criterion (Table VII-B). Table VII-A shows that moderately high correlations appear for grades in zoology, physics and chemistry with the criterion. These grades are included in the over-all pre-veterinary grade point average. The findings support again the observation that the preliminary preparation and the capacity to deal with quantitative concepts are important in dealing with the requirements of the professional program.

TABLE VII-B

MULTIPLE CORRELATION COEFFICIENTS AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE VII-A

Multiple Correlation Coefficient .656
Multiple Regression Equation:
Y (criterion)[a] = $-.3.3484 + .0158x_4 + .4876x_{11}$
Standard Error of Multiple Estimate (SE_{ME}) $\pm$ .38
Predictor Variables:
x_4 = Quantitative, SCAT
x_{11} = Pre-Veterinary Grade Point Average

[a]Deviations between grades predicted for the 72 students in Groups II and III and actual grades received are presented in Appendix C-6.

TABLE VII-A

CORRELATION OF SELECTED MEASURES WITH GRADE POINT AVERAGE FOR THE SECOND YEAR IN VETERINARY MEDICAL TRAINING GROUPS II AND III (N = 72)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Lawyer Scale, SVIB[a]		-.013	.041	-.220	.097	-.170	-.024	.090	-.233	-.050	-.107	-.253
2. Mathematics, EPSAT			.584	.647	.374	.205	.153	.172	.376	.320	.330	.355
3. Formulation, EPSAT				.456	.462	.180	.219	.272	.240	.165	.321	.330
4. Quantitative, SCAT					.525	-.001	.218	.052	.379	.301	.276	.430
5. Total, SCAT						.106	.160	-.009	.166	.034	.261	.267
6. Si Scale, MMPI							.081	.286	.242	.122	.270	.289
7. Botany Grade, Pre-Veterinary Program								.325	.319	.425	.546	.287
8. Zoology Grade, Pre-Veterinary Program									.405	.433	.533	.510
9. Physics Grade, Pre-Veterinary Program										.576	.693	.460
10. Chemistry Grade, Pre-Veterinary Program											.745	.404
11. Pre-Veterinary Grade Point Average												.522
12. Second Year Grade Point Average in Veterinary Medicine												
Mean	26.14	18.21	6.53	316.82	307.28	24.69	31.22	30.22	25.83	26.97	2.80	3.01
Sigma	10.42	4.74	2.45	9.17	7.02	8.98	7.19	6.94	6.23	5.51	.42	.47

[a]Data obtained on the initial administration of the SVIB.

Analysis of Data for Group III Using Grade Point Average at the End of the Third Year in Veterinary Medicine

In Table VIII-A the quantitative section of the SCAT has the highest correlation with grade point average for the third year in the veterinary medical program. This points out again the significance of quantitative ability for work in the veterinary medical curriculum. Table VIII-B shows that in addition to this score, the results from the depression scale of the MMPI contributed most to the prediction of the criterion. This seems to bear out to some extent the clinical observation made by advisors in the veterinary medical program over the years "that students with high quantitative and depression scale scores seem to be poor risks." This comment, however, has been based generally on profiles of first year students.

TABLE VIII-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE VIII-A

Multiple Correlation Coefficient	.616
Multiple Regression Equation:	
Y (criterion)[a] = $-3.1136 + .0173x_3 + .0304x_5$	
Standard Error of Multiple Estimate (SE_{ME})	$\pm .30$
Predictor variables:	x_3 = Quantitative, SCAT
	x_5 = D Scale, MMPI

[a]Deviations between grades predicted for the 38 students in Group III and actual grades received are presented in Appendix C-7.

TABLE VIII-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE FOR THE THIRD YEAR IN VETERINARY MEDICAL TRAINING
GROUP III (N = 38)

	2	3	4	5	6	7	8	9
1. Mathematics, EPSAT	.552	.710	.143	-.179	-.097	-.053	.369	.267
2. Formulation, EPSAT		.531	-.091	-.261	-.023	.133	.398	.248
3. Quantitative, SCAT			.191	-.221	-.095	.046	.312	.420
4. Social Scale, AVLSV				.023	.175	-.011	-.081	.275
5. D Scale, MMPI					.546	.365	.208	.261
6. Hy Scale, MMPI						.206	.077	.282
7. Botany Grade, Pre-Veterinary Program							.490	.305
8. Pre-Veterinary Grade Point Average								.298
9. Grade Point Average for the Third Year in Veterinary Medical Program								
Mean	16.89	6.26	314.84	34.11	17.16	20.61	29.16	2.69	2.86
Sigma	5.11	2.50	10.14	6.65	4.28	5.11	7.16	.35	.35

In retrospect, there seems to be no inconsistency in the idea that personality characteristics, as well as intellectual capacity, are important for success in a competitive professional program.

Analysis of Data for Groups II and III Using Grade Point Average at the End of Two Years in Veterinary Medicine

The data in Table IX-A contain the criterion correlations of .25 or better for Groups II and III combined. It should be kept in mind that grades in botany, zoology, physics and chemistry contribute in part to the pre-veterinary grade point average. When the regression equation was developed it may be noted in Table IX-B that the most efficient predictors of the criterion turned out to be the quantitative section of the SCAT, the Si Scale of the MMPI and the pre-veterinary grade point average. Performance in the preparatory program, capacity to deal with quantitative concepts and in this sample of students to be somewhat self contained appear to be critical elements for predicting performance at the end of two years in the professional program.

TABLE IX-A

CORRELATIONS OF SELECTED MEASURES WITH GRADE POINT AVERAGE AT THE END OF TWO YEARS IN VETERINARY MEDICAL TRAINING GROUPS II AND III (N = 72)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Mathematics, EPSAT		.584	.568	.647	.375	.205	.153	.172	.367	.320	.330	.292
2. Formulation, EPSAT			.633	.456	.462	.180	.219	.272	.240	.165	.321	.327
3. Total, EPSAT				.478	.584	.114	.282	.104	.208	.120	.267	.263
4. Quantitative, SCAT					.525	-.001	.218	.052	.379	.301	.276	.389
5. Total, SCAT						.106	.160	-.009	.166	.034	.261	.289
6. Si, Scale, MMPI							.081	.286	.242	.122	.270	.300
7. Botany Grade, Pre-Veterinary Grade Point Average								.235	.319	.425	.546	.275
8. Zoology Grade, Pre-Veterinary Grade Point Average									.405	.433	.533	.398
9. Physics Grade, Pre-Veterinary Grade Point Average										.576	.693	.410
10. Chemistry Grade, Pre-Veterinary Grade Point Average											.745	.409
11. Pre-Veterinary Grade Point Average												.455
12. Grade Point Average at the End of Two Years in the Veterinary Medical Program												
Mean	18.21	6.53	92.06	316.82	307.28	24.69	31.22	30.22	25.83	26.97	2.80	2.91
Sigma	4.74	2.45	19.17	9.17	7.02	8.98	7.19	6.94	6.23	5.51	.42	.47

TABLE IX-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE IX-A

Multiple Correlation Coefficient .610

Multiple Regression Equation:

$$Y \text{ (criterion)}^{a} = -3.2931 + .0156x_4 + .0014x_6 + .3520x_{11}$$

Standard Error of Multiple Estimate (SE_{ME}) $\pm .37$

Predictor Variables:

x_4 = Quantitative, SCAT

x_6 = Si Scale, MMPI

x_{11} = Pre-Veterinary Grade Point Average

[a]Deviations between grades predicted for the 72 students in Groups II and III and actual grades received are presented in Appendix C-8.

Hypothesis II

The second hypothesis is concerned with a fairly extensive examination of the relationships among critical content in the pre-veterinary program and global criteria of performance at various junctures in the veterinary medical curriculum. In testing the first hypothesis, it was observed that pre-veterinary grade point average often contributed significant weight to the prediction of academic

performance. Grades in botany, chemistry, English, physics and zoology were included in the determination of pre-veterinary grade point average. At this point, it would be informative to examine the relationships among the grades in these courses independently and with achievement in veterinary medical school.

The hypothesis to be tested may be stated as follows: there is no significant degree of relationship between courses in botany, chemistry, English, physics and zoology taken in the pre-veterinary program and grade point average at the end of (a) the first year in the professional curriculum; (b) the second year; (c) the third year. Data for Groups I, II and III are presented in Tables X-A, X-B, X-C, X-D.

It appears that course work in physics and chemistry is related to the global criteria, although the correlation coefficients are relatively low.

Data in Table X-B suggested that chemistry, physics and zoology show some positive degree of association with both criteria. The correlation coefficients are not out of line with results to be expected, despite the low N. There r's, however, are likely to shift in subsequent samples of this magnitude.

In Table X-C the correlations for the science grades are somewhat higher than for English with the same criterion. In Table X-D the correlation for the physics grade with three year grade point average gives the highest criterion r.

TABLE X-A

GRADES IN PRE-VETERINARY COURSES CORRELATED AGAINST FIRST YEAR GRADE POINT AVERAGE IN VETERINARY MEDICAL TRAINING
GROUP I (N = 44)

	1	2	3	4	5	6
1. Botany Grade, Pre-Veterinary Program		.384	.214	.231	.170	.074
2. Chemistry Grade, Pre-Veterinary Program			.207	.415	.333	.211
3. English Grade, Pre-Veterinary Program				.207	.053	.136
4. Physics Grade, Pre-Veterinary Program					.334	.298
5. Zoology Grade, Pre-Veterinary Program						.058
6. First Year Grade Point Average						
Mean	30.86	27.02	24.25	26.70	29.18	2.73
Sigma	8.06	5.06	6.92	5.51	6.98	.62

TABLE X-B

GRADES IN PRE-VETERINARY COURSES CORRELATED WITH GRADE POINT AVERAGE AT THE END OF THE SECOND YEAR AND WITH GRADE POINT AVERAGE FOR THE FIRST AND SECOND YEARS COMBINED
GROUP II (N = 34)

	1	2	3	4	5	6	7
1. Botany Grade, Pre-Veterinary Program		.372	.292	.347	.189	.210	.237
2. Chemistry Grade, Pre-Veterinary Program			.059	.683	.433	.444	.462
3. English Grade, Pre-Veterinary Program				.216	.163	.098	.091
4. Physics Grade, Pre-Veterinary Program					.541	.433	.443
5. Zoology Grade, Pre-Veterinary Program						.490	.459
6. Second Year Grade Point Average							.926
7. First and Second Years Grade Point Average Combined							
Mean	33.53	28.29	27.74	27.32	31.97	3.15	2.99
Sigma	6.57	5.89	8.41	6.91	7.28	.48	.46

TABLE X-C

GRADES IN PRE-VETERINARY COURSES CORRELATED WITH GRADE POINT AVERAGE AT THE END OF THE SECOND YEAR AND WITH GRADE POINT AVERAGE FOR THE FIRST AND SECOND YEARS COMBINED
GROUP III (N = 38)

	1	2	3	4	5	6	7
1. Botany Grade, Pre-Veterinary Program		.401	.513	.194	.353	.232	.240
2. Chemistry Grade, Pre-Veterinary Program			.553	.373	.360	.267	.306
3. English Grade, Pre-Veterinary Program				.321	.307	.183	.125
4. Physics Grade, Pre-Veterinary Program					.144	.412	.326
5. Zoology Grade, Pre-Veterinary Program						.460	.284
6. Second Year Grade Point Average							.840
7. First and Second Years Grade Point Average Combined							
Mean	29.16	25.79	24.34	24.50	28.66	2.89	2.84
Sigma	7.16	4.94	6.36	5.29	6.31	.42	.46

TABLE X-D

GRADES IN PRE-VETERINARY COURSES CORRELATED WITH GRADE POINT AVERAGE AT THE END OF THE THIRD YEAR AND WITH GRADE POINT AVERAGE FOR THE FIRST, SECOND AND THIRD YEARS COMBINED
GROUP III (N = 38)

	1	2	3	4	5	6	7
1. Botany Grade, Pre-Veterinary Program		.401	.513	.194	.353	.305	.292
2. Chemistry Grade, Pre-Veterinary Program			.553	.373	.360	.176	.268
3. English Grade, Pre-Veterinary Program				.321	.307	.232	.211
4. Physics Grade, Pre-Veterinary Program					.144	.244	.439
5. Zoology Grade, Pre-Veterinary Program						.177	.251
6. Third Year Grade Point Average							.720
7. First, Second and Third Year Grade Point Average Combined							
Mean	29.16	25.79	23.34	24.50	28.66	2.86	2.87
Sigma	7.16	4.94	6.36	5.29	6.31	.35	.40

Hypothesis III

In this exploratory study, a number of facets of veterinary medical training have been investigated. Hypothesis II involved the testing of questions based upon data showing the relationships among pre-veterinary grades required for admission to veterinary medical school and criteria at various junctures in the veterinary medical program. The data were treated separately for the three groups. In this section the following hypothesis was tested: there is no significant degree of relationship between (a) grades obtained in the pre-veterinary program and instructors' ratings obtained at the end of the first semester of clinical training and (b) grades obtained at the end of the preclinical program and instructors' ratings at the end of the first semester of clinical training.

The first semester of clinical training was offered the second semester of the third year. The Clinic I course, as indicated earlier, extended over a sixteen-week period. Each of the sixteen instructors supervised a student in his specialty for one week. At the end of the semester, the sixteen ratings were averaged for each individual. The range of scores was narrow, falling between the limits 85 - 90. These scores represented the instructors' ratings in Clinic I. They were available only on the fourth year students (Group III) at the time the data were collected. The grade point averages for the preclinical criteria were

based upon performance at the end of two years and two and one-half years in the professional program.

The relationships of grades in pre-veterinary training to instructors' ratings in Clinic I appear in Table XI-A. The correlations for preclinical grades with the same ratings are given in Table XI-B.

Hypothesis IV

It was considered of interest to determine how performance on the battery of psychological tests taken at the time of admission to the professional program related to instructors' ratings in supervised clinical practice. The ratings were correlated with each of the measures in the test battery. The measures which correlated $\pm.25$ or better with the criterion were utilized in assessing the most efficient predictors. The inter-test and criterion correlations are given in Table XII-A. The regression equation based upon the most efficient predictors is presented in Table XII-B.

The hypothesis to be tested was stated as follows: there is no significant degree of relationship between performance on the test battery administered to the first year students and ratings assigned by instructors at the end of the first course in supervised clinical practice. It should be kept in mind that approximately three years elapsed between the time students in Group III took the test battery and the period in which they were enrolled in Clinic I.

TABLE XI-A

CORRELATION COEFFICIENTS FOR GRADES IN THE PRE-VETERINARY PROGRAM WITH INSTRUCTORS' RATINGS IN CLINIC I
GROUP III (N = 38)

	1	2	3	4	5	6
1. Botany Grade, Pre-Veterinary Program		.513	.401	.194	.353	.086
2. English Grade, Pre-Veterinary Program			.553	.321	.307	-.050
3. Chemistry Grade, Pre-Veterinary Program				.373	.359	.150
4. Physics Grade, Pre-Veterinary Program					.144	.060
5. Zoology Grade, Pre-Veterinary Program						.143
6. Instructors' Ratings in Clinic I						
Mean	29.16	24.35	25.79	24.50	26.66	87.16
Sigma	7.16	6.36	4.94	5.29	6.31	1.10

TABLE XI-B

THE RELATIONSHIP OF PRECLINICAL GRADE POINT AVERAGE
WITH INSTRUCTORS' RATINGS IN CLINIC I
GROUP III (N = 38)

	1	2	3
1. Grade Point Average at the End of Two Years		.953	.353
2. Grade Point Average at the end of Two and One-Half Years			.365
3. Instructors' Ratings in Clinic I			
Mean	2.84	2.84	87.16
Sigma	.46	.44	1.10

TABLE XII-A

CORRELATIONS OF SELECTED MEASURES WITH INSTRUCTORS' RATINGS IN CLINIC I
GROUP III (N = 38)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Osteopath Scale, SVIB[a]		.589	.296	.149	-.188	-.454	.108	-.307	-.014	.002	-.101	.068	.038	-.313
2. Dentist Scale, SVIB[a]			.658	.522	-.204	-.514	-.299	-.318	.133	-.037	-.215	.251	-.041	-.257
3. Chemist Scale, SVIB[a]				.646	-.228	-.617	-.575	-.469	.108	.085	.056	.368	-.107	-.309
4. Engineer Scale, SVIB[a]					.106	-.370	-.310	-.098	.037	.111	.037	.153	-.248	-.326
5. Purchasing Agent Scale, SVIB[a]						.484	.638	.699	-.285	-.371	.152	-.430	.123	.267
6. Banker Scale, SVIB[a]							.466	.777	-.228	-.268	.262	-.378	.068	.393
7. Mortician Scale, SVIB[a]								.585	-.273	-.268	.106	-.459	.283	.293
8. Banker Scale, SVIB									-.316	-.344	.199	-.475	.221	.386
9. Verbal Comprehension, EPSAT										.725	-.037	.197	-.363	-.363
10. Verbal, SCAT											.021	.000	-.297	-.403
11. Quantitative, SCAT												-.067	.191	.282
12. Aesthetic Scale, AVLSV													-.255	-.254
13. Social Scale, AVLSV														.351
14. Instructors' Ratings in Clinic I														
Mean	40.74	35.66	30.61	28.84	28.79	32.68	32.82	27.87	26.47	300.76	314.84	32.37	34.11	87.16
Sigma	9.42	8.95	9.94	10.82	7.17	8.78	9.28	9.82	5.99	9.20	10.14	8.61	6.65	1.10

[a]These scores were gained on the initial administration of the SVIB.

TABLE XII-B

MULTIPLE CORRELATION COEFFICIENT AND MULTIPLE REGRESSION EQUATION DEVELOPED ON DATA IN TABLE XII-A

Multiple Correlation Coefficient	.580
Standard Error of Multiple Estimate (SE_{ME})	$\pm$.98

Regression Equation:

$$Y \text{ (criterion)}^{a} = 103.1788 - .0366x_1 - .0483x_{10}$$

Predictor Variables:

x_1 = Osteopath, SVIB

x_{10} = Verbal, SCAT

[a]Deviations between actual and predicted ratings for students in Group III are presented in Appendix D.

The best predictors appeared to be the osteopath scale of the SVIB and the verbal score on the SCAT, both of which had negative correlations with the criterion. It is interesting to note that the verbal comprehension subtest score of the EPSAT showed a moderately high negative correlation with the criterion. The four scales out of the eight on the SVIB which showed positive correlations with the criterion indicated stronger economic and business preferences than interests in scientific activities. Practical interests, quantitative ability and social values as measured by the AVLSV related positively to the ratings, but were not included among the most efficient predictors in the regression equation.

Hypothesis V

The Berg Perceptual Reaction Test (BPRT) was not administered to first year students as part of the standard test battery. It is an experimental instrument on which considerable research is currently being undertaken to assess its effectiveness in differentiating various groups on the basis of deviant response sets (7). Since this is an exploratory investigation it was decided, after consultation with Dr. Irwin A. Berg, Louisiana State University, to gather data on Groups I, II and III for the purpose of comparing the responses of the veterinary medical students with a sample of males from the general population. The tested hypothesis was stated as follows: there is no significant difference on responses to the Berg Perceptual Reaction Test between students in the veterinary medical program and "people-in-general."

The BPRT was referred to earlier. It is composed of 60 abstract designs and is administered without time limitation. Each subject is required to check either Like Much (LM); Like Slightly (LS); Dislike Slightly (DS); or Dislike Much (DM) for each design. Response options which are omitted are classified as No Response (NR). Deviant response patterns to the stimulus objects in the form of abstract designs have been employed to distinguish groups of normal subjects from groups with such different behavioral characteristics as neuroticism, schizophrenia, character disorder, immaturity and mental retardation (9).

The responses of the 116 students in Groups I, II and III combined are compared with those of normal males. Contingency values were computed for all response options using the tables developed by Mainland and Murray (30). The results are presented in Table XIII.

TABLE XIII

OPTIONS OF RESPONSES FOR ITEMS IN THE BERG PERCEPTUAL REACTION TEST DIFFERENTIATING VETERINARY MEDICAL STUDENTS FROM A SAMPLE OF MALES REPRESENTING THE GENERAL POPULATION
(N = 116)

Chi Squares significant at the .05 per cent level:

Item 7 (Like, Dislike Much)
Item 15 (Dislike Much)
Item 29 (Like Much, Dislike)
Item 30 (Like)
Item 56 (Dislike Much)
Item 57 (Like Much)

Chi Squares significant at the .01 per cent level:

Item 44 (Like)
Item 50 (Like)
Item 53 (Dislike Much)

It is apparent that certain options for nine of the abstract designs resulted in significant statistical outcomes. These findings, it would seem, are too limited to utilize as a basis for drawing any meaningful generalizations concerning the responses of the two groups.

Hypothesis VI

The Veterinary Medical Student Questionnaire (VMSQ), as described earlier, consisted of items dealing with family background, work and educational history, health, interests, cognitions, values and attitudes and the revised Gough Check-list of Descriptive Adjectives. In testing Hypothesis VI the responses to items concerned with family background, work and educational history were examined in relation to performance in the veterinary medical program at the end of the first year, second year and third year. The contingency technique was employed in the analysis (18).[1] Over-all grade point average at the end of each year served as criteria. Only those contingency coefficients which reached the level of .20 or better were reported.

The hypothesis that was examined may be stated as follows: there is no significant degree of relationship between factors such as family background, work and educational history and over-all grade point average in the veterinary medical program at the end of one year, two years and three years. The outcomes may be noted in Tables XIV-A, XIV-B and XIV-C.

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[1]In most instances, the computation of C was based upon a 4 x 4 fold classification. C based upon such a calssification is a fairly good approximation of r. The maximum C for a 4 x 4 table is .87.

TABLE XIV-A

THE RELATIONSHIP BETWEEN SELECTED VMSQ ITEMS AND OVER-ALL GRADE POINT AVERAGE AT THE END OF THE FIRST YEAR IN VETERINARY MEDICAL TRAINING
GROUP I (N = 44)

Item (VMSQ)	Contingency Coefficient
14. How many members of your immediate family have worked in some area of the medical sciences?	.27
15. The amount you believe represents your parents' annual income:	.24
17. How much of your life before entering the pre-veterinary program was spent in a rural area?	.28
21. Which academic subjects did you like best in undergraduate college?	.30
22. In which academic subjects did you receive your best grades in undergraduate college?	.29
28. Which of the jobs described above did you like best?	.31

An examination of data upon which the summary in Table XIV-A was based showed that better grades tended to be associated with the following: (a) one or more relatives who were in some branch of medical work; (b) parental income of $12,000 annually or better; (c) 60 per cent or more time spent in rural areas prior to entering pre-veterinary program; (d) interests in biology, chemistry and mathematics in the undergraduate program; (e) best academic grades received in these subjects in the undergraduate program; (f) prefer-

ences for part-time jobs of an agricultural or scientific nature. Such findings do not seem out of line with what might be expected. It is interesting to note that approximately the same items held up for the three samples.

Low positive correlations with the criterion for five of the items were found for Group II (Table XIV-B). Item 15 correlated .09 with the criterion and was excluded from the list.

TABLE XIV-B

THE RELATIONSHIP BETWEEN SELECTED VMSQ ITEMS AND OVER-ALL GRADE POINT AVERAGE AT THE END OF THE SECOND YEAR IN VETERINARY MEDICAL TRAINING
Group II (N = 34)

Item (VMSQ)	Contingency Coefficient
14. How many members of your immediate family have worked in some area of medical science?	.22
17. How much of your life before entering the pre-veterinary program was spent in a rural area?	.24
21. Which academic subjects did you like best in undergraduate college?	.34
22. In which academic subjects did you receive your best grades in undergraduate college?	.30
28. Which of the jobs described above did you like best?	.22

TABLE XIV-C

THE RELATIONSHIP BETWEEN SELECTED VMSQ ITEMS AND OVER-ALL GRADE POINT AVERAGE AT THE END OF THE THIRD YEAR IN VETERINARY MEDICAL TRAINING
GROUP III (N = 38)

Item (VMSQ)	Contingency Coefficient
15. The amount you believe represents parents' annual income.	.20
21. Which academic subjects did you like best in undergraduate college?	.26
22. In which academic subjects did you receive your best grades in undergraduate college?	.29

Three items correlated .20 or better with grade point average at the end of the third year (Group III). Items 14, 17 and 28 did not correlate above .16 with the criterion and were excluded from the table.

Hypothesis VII

The Veterinary Medical Student Questionnaire (VMSQ) presented in Appendix B contained an item which asked the students to specify the types of work they planned to pursue following graduation. The stated preferences were arranged into three groups. The large animal category consisted of the responses of those expressing interests in equine, bovine, porcine or other practice dealing with large animals; the small animal category was comprised of expressions

of interest in feline, canine or other small animals; the third category included expressed interests in mixed practice or in other professional activities such as teaching, research, animal disease eradication, meat inspection, public health supervision and other related areas.

The three categories were coded as follows for statistical treatment: 10 (large animals); 20 (small animals); 30 (mixed practice or other professional activities). The preference data for each of the groups were combined and presented in Table XV-A. Although there was a spread of preferences among the three categories, the means of the groups suggested that the greater expression of interest tended toward small animal practice.

TABLE XV-A

MEANS AND STANDARD DEVIATIONS OF THREE CATEGORIES OF PREFERENCES FOR GROUPS I, II AND III

	Group I	Group II	Group III
N	44	34	38
Mean	17.50[a]	17.65	19.21
Sigma	8.92	8.90	9.41

[a]None of the differences among the three means were significant at the .05 per cent level of confidence.

In studying the data, it appeared that it might be helpful in understanding the students better to determine if any meaningful relationships existed between expressed

preferences and various objective measures of performance. The question asked specifically was: there is no significant degree of relationship between the measures from the test battery and grades obtained in the pre-veterinary program when correlated with stated preferences. The data for the purpose of answering this question are given in Tables XV-B, XV-C, XV-D, and XV-E.

The criterion correlations for Groups I in Table XV-B ranged from -.343 to .250. The criterion r that reaches the .05 per cent confidence level represents the relationship between the musician scale, SVIB, and stated preferences. The data showed that there was a tendency for low scores on this scale to correlate with preferences for mixed practice or other types of professional activities.

Table XV-C contains eight criterion correlation coefficients that reach the .05 confidence level. Three of them are in the negative direction. The responses to items on the mortician scale, SVIB, initial and final testing, as well as responses to the sales manager scale, SVIB, were inversely related to stated preferences for mixed practice or research. The positive correlations that were significant suggested that high interests in scientific activities and interest in dealing with others were related to preferences of teaching, research, mixed practice and supervision in health work.

Table XV-D which contains the criterion correlations for the fourth year students shows only one significant

TABLE XV-B

THE RELATIONSHIPS OF TEST DATA AND GRADES TO STATE PREFERENCES AS THE CRITERION GROUP I (N = 44)

	1	2	3	4	5	6	7	8	9	10	11
1. Chemist Scale, SVIB[a]		-.083	-.276	-.466	.165	.107	.074	.055	.109	.249	.258
2. Mortician Scale, SVIB[a]			-.418	-.346	.462	.344	.372	.387	-.290	-.002	-.343[b]
3. Occupational Level, SVIB[a]				-.177	-.530	-.058	-.279	-.245	.039	-.171	.289
4. Mf. SVIB[a]					.116	.122	-.169	-.225	.014	-.020	.250
5. Interest Maturity Scale, SVIB[a]						.144	.603	.612	-.138	.011	-.260
6. Physician Scale, SVIB							.088	.163	-.034	.152	.251
7. Personnel Manager Scale, SVIB								.857	-.252	.048	-.282
8. Interest Maturity Scale, SVIB									-.251	.119	-.251
9. Botany Grade, Pre-Veterinary Program										.231	.296
10. Physics Grade, Pre-Veterinary Program											.283
11. Stated Preference											
Mean	27.95	26.84	50.68	47.34	48.11	45.84	31.77	49.55	3.09	2.67	17.50
Sigma	5.30	5.68	2.21	4.67	5.40	11.04	7.09	6.12	.81	.55	8.92

[a]Data obtained from scores on the initial administration of the SVIB.

[b]Significant at the .05 per cent level of confidence.

TABLE XV-C

THE RELATIONSHIPS OF TEST DATA TO STATED PREFERENCE AS A CRITERION
GROUP II (N = 34)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Mathematician, SVIB[a]		.915	.811	.778	-.324	-.448	-.754	-.148	.774	-.254	-.339	-.421	-.492	-.704	-.613	.218	.082	-.002	.278
2. Physicist, SVIB[a]			.933	.909	-.311	-.579	-.712	-.093	.728	-.215	-.282	-.482	-.524	-.723	-.566	.214	.126	-.072	.305
3. Chemist, SVIB[a]				.895	-.194	-.600	-.670	-.044	.703	-.164	-.158	-.517	-.446	-.662	-.529	.224	.178	-.150	.352[b]
4. Engineer, SVIB[a]					-.329	-.494	-.663	-.100	.576	-.190	-.138	-.437	-.506	-.664	-.438	.255	.127	-.211	.267
5. Personnel Manager, SVIB[a]						-.125	-.087	-.229	-.146	.528	-.218	-.276	-.015	-.029	.125	.332	.221	.129	.340[b]
6. Banker, SVIB[a]							.525	.453	-.480	-.157	.353	.684	.438	.511	.075	-.493	-.224	.057	-.292
7. Mortician, SVIB[a]								.432	-.709	-.065	.424	.538	.719	.816	.495	-.515	-.204	-.034	-.440[b]
8. Veterinarian, SVIB[a]									-.273	-.371	.434	.451	.619	.419	-.098	-.705	-.376	-.015	-.334
9. Mathematician, SVIB										-.361	-.461	-.522	-.570	-.761	-.567	.174	.331	.047	.338
10. Personnel Manager, SVIB											.033	-.055	-.020	.099	.264	.650	-.069	-.024	.384[b]
11. Purchasing Agent, SVIB												.621	.549	.538	.399	-.314	-.170	-.318	-.271
12. Banker, SVIB													.560	.674	.329	-.437	-.249	-.037	-.316
13. Pharmacist, SVIB														.764	.492	-.492	-.384	-.234	.462[b]
14. Mortician, SVIB															.536	-.391	-.310	-.023	-.367[b]
15. Sales Manager, SVIB																.077	-.302	-.329	-.378[b]
16. Specialization Level, SVIB																	.143	-.085	.341[b]
17. D, MMPI																		.221	.325
18. Pa Scale, MMPI																			.273
19. Stated Preference																			
Mean	23.56	24.24	31.71	29.24	22.94	25.85	31.44	49.41	20.74	32.15	24.56	28.06	36.06	31.35	22.32	35.68	17.88	9.38	17.65
Sigma	6.44	6.92	7.23	7.01	6.57	5.85	6.38	9.61	9.17	8.28	7.73	8.46	7.27	9.48	7.15	7.14	3.78	2.63	8.90

[a]Data obtained from the initial administration of the SVIB.

[b]Significant at the .05 per cent level of confidence.

TABLE XV-D

THE RELATIONSHIPS OF TEST DATA AND GRADES TO STATED PREFERENCE AS THE CRITERION GROUP III (N = 38)

	1	2	3	4	5	6	7	8	9	10	11
1. Farmer Scale, SVIB[a]		.688	.027	.186	.124	.067	-.045	.082	.321	.001	-.251
2. M.F. Scale, SVIB[a]			-.096	-.038	-.036	-.002	.045	-.006	-.051	.111	-.250
3. Arithmetic Reasoning, EPSAT				.386	.642	-.121	.114	.074	-.028	-.012	-.306
4. Mechanical Comprehension, EPSAT					.586	-.432	.368	.390	.246	-.039	-.382[b]
5. Total, EPSAT						-.038	.299	.131	.222	-.011	-.256
6. Aesthetic Scale, AVLSV							-.237	-.294	-.207	.000	.261
7. Hs Scale, MMPI								.700	-.084	.187	-.304
8. Sc Scale, MMPI									-.087	.006	-.253
9. Si Scale, MMPI										.303	-.302
10. Zoology Grades, Pre-Veterinary Program											-.287
11. Stated Preference											
Mean	44.50	49.95	5.24	14.37	88.03	32.37	11.63	22.74	24.42	2.87	19.21
Sigma	9.99	7.49	2.38	4.35	18.20	8.61	5.02	8.48	9.30	.63	9.41

[a]Data obtained from the initial administration of the SVIB.

[b]Significant at the .05 per cent level of confidence.

correlation coefficient. The outcome could suggest that performance on the mechanical comprehension subtest, EPSAT, tends to be related inversely to preference for teaching, research and health supervisory activities. The majority of r's are in a negative direction, but fail to reach acceptable levels of statistical significance.

When the data for the three groups were combined, none of the criterion correlations reached the .05 per cent level of confidence excepting one (Table XV-E). The Hs scale, MMPI, correlated -.201 with stated preference. This indicates that the students who were more interested in mixed practice, teaching, research and health supervisory activities scored lower on the Hs scale of the MMPI. A single significant r in a bank of correlations coefficients could be suspected of having arisen by chance.

Hypothesis VIII

Even though the procedure for determining instructors' ratings in Clinic I was described earlier, it might be helpful to outline it briefly again. The course was taken the second semester of the third year of professional training in the College of Veterinary Medicine. A numerical value was issued each week for each student by the supervisor of the department in which the student worked. At the end of the semester, which comprised sixteen weeks, the numerical values were averaged for each student. The values ranged from 84 to 89, with a mean of 87.16 and a sigma of 1.10.

TABLE XV-E

THE RELATIONSHIPS OF TEST DATA AND GRADES TO STATED PREFERENCE AS THE CRITERION
GROUPS I, II, III (N = 116)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1. Mathemematician Scale, SVIB[a]	.777		.732	.541	.195	-.399	.199	-.391	-.641	.723	.086	-.399	.475	.118	.688	-.251	-.317	-.402	-.325	-.531	-.438	.149	-.261	.175	.141	.338	.246	-.099	.074	-.122	-.125	.145	.102	.158	.049	.086
2. Physicist Scale, SVIB[a]			.715	.596	.297	-.345	-.047	-.610	-.530	-.018	.295	-.565	.548	.041	.640	-.318	-.296	-.362	-.187	-.453	-.512	.045	-.286	.212	.152	.342	.134	.034	.094	-.086	-.002	.114	.166	.252	.152	.085
3. Chemist Scale, SVIB[a]				.701	.300	-.172	.258	-.575	-.554	-.007	.346	-.278	.467	-.076	.607	-.267	-.238	-.453	-.261	-.450	-.403	.102	-.208	.152	.193	.299	.163	-.014	-.033	-.231	-.035	.040	.045	.104	.115	.163
4. Engineer Scale, SVIB[a]					.200	-.351	-.104	-.359	-.392	.117	.296	-.347	.237	-.022	.432	-.300	.032	-.225	-.166	-.315	-.271	-.070	-.317	.150	.241	.249	.007	-.027	-.037	-.137	.023	.097	-.058	.053	.135	.122
5. Farmer Scale, SVIB[a]						-.202	.118	.013	-.158	-.544	.633	-.176	.205	.443	.186	-.267	.059	.116	.019	-.086	-.532	-.262	-.128	.135	.126	.113	-.135	-.049	-.074	-.127	.003	.208	.144	.108	.080	-.135
6. Personnel Manager Scale, SVIB[a]							.253	-.050	.107	-.141	.083	.719	-.108	-.161	-.281	.555	-.132	-.116	-.083	.058	.117	.416	.513	-.010	-.030	-.060	-.002	.029	-.039	.223	-.036	-.337	-.122	-.038	.067	-.036
7. Musician Scale, SVIB[a]								-.179	-.169	-.170	-.112	.307	.258	-.206	.141	.141	-.349	.331	-.237	-.179	-.160	.217	.108	-.151	-.072	-.013	.388	-.157	-.078	-.018	-.228	-.092	-.067	.026	-.031	-.017
8. Banker Scale, SVIB[a]									.460	-.179	-.097	.346	-.458	.241	-.376	.055	.491	.634	.336	.407	.262	-.204	.122	.010	-.142	-.292	-.226	-.072	-.090	.083	.018	.049	-.084	-.091	-.021	-.134
9. Mortician Scale, SVIB[a]										-.102	-.183	.118	-.365	.305	-.550	.081	.430	.529	.528	.670	.329	-.259	.118	-.161	-.172	-.342	-.279	.060	.019	.116	.100	-.113	-.095	-.094	-.020	-.056
10. Occupational Level Scale, SVIB[a]											-.415	-.161	-.050	-.435	.104	.036	-.152	-.169	-.209	-.151	.307	.214	-.056	-.044	.124	.149	.058	-.037	-.023	-.014	-.056	-.057	-.040	.015	-.259	.174
11. M.F. Scale, SVIB[a]												-.111	.032	.252	.170	-.122	.155	.022	-.033	-.222	-.315	-.095	-.130	.207	.275	.210	-.226	-.015	.037	-.159	.036	.045	.091	.050	.157	-.001
12. Interest Maturity Scale, SVIB[a]													-.172	-.133	-.305	.443	-.002	.019	-.023	.129	.092	.304	.524	.020	-.070	-.145	.029	-.030	-.118	.138	-.071	-.224	-.148	-.145	.031	-.072
13. Physician Scale, SVIB														.172	.594	-.064	-.583	-.568	-.109	-.386	-.596	.223	-.055	.003	.099	.298	.308	-.007	-.043	-.074	-.049	-.077	.135	.241	.105	.104
14. Veterinarian Scale, SVIB															-.184	-.173	.310	.427	.636	.492	-.162	-.502	-.037	.000	-.052	-.189	-.386	.146	-.152	.026	.125	-.074	-.082	-.104	-.009	-.112
15. Mathematician Scale, SVIB																-.452	-.418	-.459	-.417	-.729	-.582	.136	-.475	.168	.225	.388	.234	-.064	.078	-.132	-.074	.231	.163	.269	.126	.086
16. Personnel Manager Scale, SVIB																	-.048	-.119	-.043	.167	.216	.595	.807	-.122	-.198	-.102	.087	-.108	.024	.077	-.094	-.323	-.168	-.126	-.130	.061
17. Purchasing Agent Scale, SVIB																		.689	.529	.570	.429	-.337	-.018	-.085	.112	-.278	-.348	-.036	-.063	-.073	.038	.030	-.166	-.263	-.097	-.055
18. Banker Scale, SVIB																			.518	.598	.269	-.469	.050	-.042	-.206	-.326	-.360	.077	-.036	.136	.086	.050	-.138	-.152	-.097	-.096
19. Pharmacist Scale, SVIB																				.755	.285	-.365	.021	-.136	-.259	-.334	-.259	.103	-.334	.021	.092	-.130	-.119	-.107	-.101	-.044
20. Mortician Scale, SVIB																					.471	-.349	.214	-.221	-.276	-.420	-.248	.116	-.056	.136	.100	-.193	-.196	-.296	-.164	-.074
21. Sales Manager Scale, SVIB																						-.015	.030	-.160	-.086	-.286	-.113	.014	-.101	.007	.040	-.219	-.125	-.248	-.165	-.081
22. Specialization Level Scale, SVIB																							.489	.042	.031	.217	.306	-.123	-.013	-.026	-.081	-.127	-.016	.057	-.022	.081
23. Interest Maturity Scale, SVIB																								-.044	-.150	-.028	.054	-.030	-.046	.174	-.015	-.265	-.109	-.151	-.061	.017
24. Arithmetic Reasoning, EPSAT																									.359	.542	-.081	.075	-.085	-.012	.063	.191	.086	.107	.276	.085
25. Mechanical Comprehension, EPSAT																										.654	-.073	.052	-.034	-.129	.110	.101	.051	-.020	.175	-.058
26. Total, EPSAT																											.125	.083	-.009	-.080	.050	.107	.176	.089	.219	.026
27. Aesthetic Scale, AVLSV																												-.191	-.141	-.014	-.217	-.196	.090	-.015	-.065	.163
28. Hs Scale, MMPI																													.342	.321	.640	.038	.008	.215	.274	-.201[b]
29. D Scale, MMPI																														.279	.328	.462	.077	.225	.068	.083
30. Pa Scale, MMPI																															.388	.131	-.011	.059	.022	.094
31. Sc Scale, MMPI																																.220	.024	.113	.207	-.091
32. Si Scale, MMPI																																	.108	.229	.180	-.127
33. Botany Grades, Pre-Veterinary Program																																		.263	.282	.130
34. Zoology Grades, Pre-Veterinary Program																																			.373	-.105
35. Physics Grades, Pre-Veterinary Program																																				.079
36. Stated Preference																																				
Mean	22.60	18.47	29.92	29.30	45.35	20.49	32.26	30.05	32.11	50.86	50.56	49.99	44.57	44.60	19.41	23.38	26.68	28.09	36.75	32.91	26.06	34.63	50.90	5.68	14.32	91.53	31.53	12.37	17.79	9.48	24.80	25.35	3.19	2.98	2.62	18.10
Sigma	7.60	8.50	7.74	8.40	8.41	10.45	8.87	6.91	7.10	4.32	8.06	6.64	10.90	10.20	9.10	10.58	8.16	8.38	7.48	8.77	8.37	8.25	6.66	2.35	4.31	18.48	7.91	3.88	4.02	2.82	6.88	9.53	.75	.69	.60	9.03

[a]Data obtained from the initial administration of the SVIB.

[b]Significant at the .05 per cent level of confidence.

The stated preferences were based upon an item in the VMSQ described earlier which made it possible to classify expressed preferences into three categories: (a) the large animal category which included equine, bovine and porcine and other types of large animal practices; (b) the small animal category which included feline, canine and other types of small animal practices; and (c) the mixed category which included research, teaching, animal disease eradication, meat inspection, etc. The relationship between instructors' ratings and stated preferences was determined after the chi square had been computed from a 2 x 5 table.

The hypothesis to be tested was stated as follows: there is no significant relationship between ratings made at the end of the first course in clinical training and stated preferences for either large animal practice, small animal practice or such activities as research, teaching, animal disease eradication. In other words, were ratings based on work in the clinic setting associated to any significant degree with areas of preference in which the students thought they might specialize?

The degree of association was disappointingly low. The chi square was 3.27 for 4 degrees of freedom. The .05 level of confidence was not approached. When the chi square value was converted into a contingency coefficient (18) the C was .28. The outcome suggested a trend between instructors' ratings and stated preferences, but not significant enough to make it possible to draw useful inferences. The

results, however, were not out of line with the outcomes reported in the literature concerning the relationships between stated interests and performances (35).

Hypothesis IX

The second and third year veterinary medical students responded only to the first fifty-four items of the VMSQ. The fourth year students responded to the entire questionnaire. An analysis of responses to items by the fourth year students dealing with self concepts in various types of interactions, as "related to performance and stated preference," comprise this discussion.

The following hypothesis was tested: there is no significant degree of relationship between various aspects of self concept as assessed by items on the VMSQ and (a) performance in the clinic program, and (b) stated preferences. In order to deal with this question, a series of correlation coefficients were computed between responses to the VMSQ items in Table XVI-A and the criteria. The numbers in the parentheses are the numbers of the items found in the VMSQ which is presented, as mentioned earlier, in Appendix B.

TABLE XVI-A

VMSQ ITEMS CONCERNED WITH VARIOUS ASPECTS OF SELF CONCEPT WHICH WERE CORRELATED AGAINST CRITERIA OF PERFORMANCE AND STATED PREFERENCE

1. (86) In most of the dealings you have had with clients, how have you tended to think of yourself?

   1. primarily as a doctor
   2. primarily as a student

2. (87) In most of the dealings you have had with patients, how have you tended to think of yourself?

   1. primarily as a doctor
   2. primarily as a student

3. (88) How have you tended to think of yourself when you talk with your classmates?

   1. primarily as a doctor
   2. primarily as a student

4. (89) How have you tended to think of your classmates?

   1. primarily as a doctor
   2. primarily as a student

5. (90) How have you tended to think of yourself when you talked with underclassmen?

   1. primarily as a doctor
   2. primarily as a student

6. (91) When you have had contacts with your instructors, how have you tended to think of yourself?

   1. primarily as a doctor
   2. primarily as a student

7. (92) In your recent contacts with the general public, how have you tended to think of yourself?

   1. primarily as a doctor
   2. primarily as a student

8. (93) If you, as a fourth-year student, make a mistake in the diagnosis of a patient, do you feel that this is

   1. primarily your own responsibility

TABLE XVI-A (CONTINUED)

2. primarily the responsibility of the staff

9. (94) If you, as a fourth-year student, make a mistake in the treatment of a patient, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

10. (95) If you, as a fourth-year student, make a mistake in the amount of dosage for a particular case, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

11. (96) Do you look upon your contact with clients

1. primarily as an opportunity to learn medicine
2. primarily as an opportunity to help patients
3. primarily as an opportunity to study science
4. primarily as an opportunity to work with people

12. (97) How much satisfaction did you derive from the veterinarian-client relationships you have had?

1. a great deal
2. a moderate amount
3. very little
4. none at all

13. (98) With respect to responsibility for the diagnosis of conditions of patients, would you say that you have had

1. too little responsibility
2. enough responsibility
3. too much responsibility

14. (99) With respect to responsibility for the treatment of patients, would you say that you have had

1. too little responsibility
2. enough responsibility
3. too much responsibility

15. (100) With respect to success in diagnosis of patients, would you say that you have had

TABLE XVI-A (CONTINUED)

1. a great deal
2. a moderate amount
3. very little
4. none at all

16. (101) With respect to success in treatment of patients, would you say that you have had

1. a great deal
2. a moderate amount
3. very little
4. none at all

17. (102) When a client has an outburst of crying, swearing or other emotional display

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

18. (103) Talking with an elderly lady whose cat has just died

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

19. (104) Talking with a little girl whose puppy has just died

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

20. (105) Talking with a business man whose expensive and valuable animal has died

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

21. (106) Knowing what to do in an emergency

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

TABLE XVI-A (CONTINUED)

22. (107) Being able to perform a (some difficult technical skill)?

    1. completely confident
    2. fairly confident
    3. not really confident
    4. completely lacking in confidence

23. (108) Having an M.D. or D.V.M. as one of your clients

    1. completely confident
    2. fairly confident
    3. not really confident
    4. completely lacking in confidence

24. (109) Being able to make an adequate (or correct) disgnosis in a difficult case

    1. completely confident
    2. fairly confident
    3. not really confident
    4. completely lacking in confidence

25. (110) Deciding on an appropriate medication and dosage

    1. completely confident
    2. fairly confident
    3. not really confident
    4. completely lacking in confidence

Table XVI-B indicates the intercorrelations of the VMSQ items and the correlations with the criteria. It may be noted that the intercorrelations between VMSQ items remain high throughout indicating that the nature of the questions is similar in this part of the questionnaire.

The relationship Between VMSQ items and instructors' ratings was low, falling below .113 in all instances and

TABLE XVI-B

INTERRELATIONS BETWEEN ITEMS FROM THE VMSQ RELATING TO SELF CONCEPT
AND PERFORMANCE IN THE CLINIC PROGRAM
GROUP III (N = 38)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. VMSQ # 86		.994	.994	.990	.991	.990	.993	.993	.993	.994	.992	.994	.993	.989	.874	.980	.992	.987	.990	.977	.985	.986	.989	.992	.994	.062	.972
2. VMSQ # 87			.995	.993	.993	.992	.997	.997	.997	.997	.995	.996	.994	.993	.878	.975	.995	.990	.994	.982	.988	.987	.991	.991	.996	.107	.976
3. VMSQ # 88				.994	.994	.993	.996	.995	.994	.996	.994	.996	.995	.993	.862	.973	.994	.988	.992	.981	.985	.985	.993	.992	.996	.081	.974
4. VMSQ # 89					.991	.992	.993	.994	.994	.994	.995	.993	.993	.992	.875	.969	.991	.983	.990	.979	.981	.982	.988	.987	.993	.104	.971
5. VMSQ # 90						.994	.994	.993	.995	.994	.996	.994	.992	.991	.871	.971	.993	.988	.990	.985	.988	.988	.987	.992	.995	.101	.973
6. VMSQ # 91							.993	.992	.993	.994	.995	.993	.990	.989	.866	.973	.992	.984	.988	.986	.981	.984	.990	.999	.993	.090	.974
7. VMSQ # 92								.999	.998	.998	.994	.996	.996	.993	.876	.975	.996	.992	.994	.983	.988	.987	.993	.993	.997	.096	.979
8. VMSQ # 93									.997	.997	.993	.996	.996	.993	.878	.975	.996	.991	.994	.982	.988	.987	.993	.991	.997	.096	.980
9. VMSQ # 94										.997	.996	.996	.994	.993	.882	.973	.996	.991	.995	.985	.990	.987	.991	.993	.996	.112	.976
10. VMSQ # 95											.995	.997	.996	.994	.883	.977	.997	.993	.995	.984	.989	.988	.992	.994	.997	.096	.980
11. VMSQ # 96												.994	.992	.991	.868	.972	.993	.987	.993	.986	.987	.984	.988	.990	.994	.109	.974
12. VMSQ # 97													.996	.995	.872	.974	.997	.993	.993	.982	.987	.987	.993	.994	.997	.094	.980
13. VMSQ # 98														.994	.882	.975	.996	.991	.990	.987	.984	.985	.992	.992	.995	.075	.975
14. VMSQ # 99															.881	.968	.992	.987	.990	.980	.979	.980	.989	.988	.993	.104	.979
15. VMSQ # 100																.881	.878	.875	.877	.856	.876	.884	.884	.883	.878	.068	.867
16. VMSQ # 101																	.972	.969	.973	.966	.965	.973	.976	.979	.978	.040	.964
17. VMSQ # 102																		.995	.991	.979	.988	.987	.991	.991	.996	.077	.979
18. VMSQ # 103																			.987	.971	.984	.986	.986	.990	.993	.083	.974
19. VMSQ # 104																				.987	.989	.988	.989	.991	.995	.092	.976
20. VMSQ # 105																					.979	.978	.977	.981	.982	.091	.974
21. VMSQ # 106																						.993	.984	.988	.992	.096	.968
22. VMSQ # 107																							.986	.992	.993	.057	.965
23. VMSQ # 108																								.990	.994	.046	.980
24. VMSQ # 109																									.995	.083	.970
25. VMSQ # 110																										.083	.977
26. Instructors' Ratings																											.089
27. Stated Preference																											
Mean	2.24	5.24	2.73	2.44	2.88	2.85	2.37	2.56	2.39	2.90	2.88	2.88	2.93	2.68	2.05	2.10	1.54	2.59	1.93	3.61	2.68	2.83	2.24	2.71	2.49	87.10	2.93
Sigma	.09	1.33	.45	.45	.43	.44	.43	.45	.44	.44	.44	.44	.44	.45	.44	.45	.22	.26	.25	.88	.42	.44	.23	.44	.44	1.09	.45

below .10 in most cases. From this, it may be inferred that self attitudes and the way in which the student sees himself in various situations has very little relationship with the rating of his performance. It might further be inferred from this that the way in which the student sees himself in this very restricted area has little affect on the way in which he performed the clinical operations and duties.

The reverse of this was indicated for stated preference. All of the VMSQ items correlated .867 or above with this criterion. The high degree of relationship here indicates that the way in which the student sees himself while in the formal curriculum is closely associated with the way in which he mentally views himself as functioning after he has become a graduate member of the profession.

The analysis of variance between the VMSQ items and the criteria of instructors' ratings and stated preference which were found to be significant at the .05 level of confidence or better are presented in Table XVI-C.

Table XVI-C indicates those responses which varied significantly. Only three of the VMSQ items yielded significant variation, two of these when using instructors' ratings as a criterion and one when using stated preference as a criteria.

TABLE XVI-C

SIGNIFICANT ANALYSES OF VARIANCE BETWEEN VMSQ ITEMS AND CRITERIA OF INSTRUCTORS' RATINGS AND STATED PREFERENCES
GROUP III (N = 38)

Item 86. In most of the dealings you have had with clients, how have you tended to think of yourself?

1. primarily as a doctor
2. primarily as a student

Instructors' Ratings

Treatment Groups	1	2
Sample Size	4	34
Mean	86.000	87.294
Sigma	1.826	0.938

Analysis of Variance

	S of S	DF	MS	F
Between Groups	5.9938	1	5.9938	5.5244[a]
Within Groups	39.0588	36	1.0850	
Total	45.0526	37		

Item 93. If you, as a fourth-year student, make a mistake in diagnosis of a patient, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

Instructors' Ratings

Treatment Groups	1	2
Sample Size	3	35
Mean	85.667	87.286
Sigma	2.082	0.926

Analysis of Variance

	S of S	DF	MS	F
Between Groups	7.2432	1	7.2432	6.8965[a]
Within Groups	37.8095	36	1.0503	
Total	45.0527	37		

TABLE XVI-C (CONTINUED)

Item 105. Talking with a business man whose expensive and valuable animal has died

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

Stated Preference

Treatment Groups	1	2
Sample Size	10	28
Mean	1.4000	2.1071
Sigma	0.6992	0.9560

Analysis of Variance

	S of S	DF	MS	F
Between Groups	3.6846	1	3.6846	4.5616[a]
Within Groups	29.0786	36	0.8077	
Total	32.7632	37		

[a]Significant at the .05 per cent level of confidence.

Hypothesis X

The extent to which training influences changes in the measured interest patterns of veterinary medical students appeared to be worth exploring. Reliability coefficients for the scales of the SVIB have been shown to be substantial resulting in an average coefficient of reliability of .877 for the thirty-six revised scales (34). Test-retest correlations on seventeen scales over an eighteen-year period gave a median of .69 (33). Interest scores obtained by college students predicted occupations

in which they were engaged eighteen years later (33). Hannum and Thrall (23,24) observed that scores on the veterinarian scale of the SVIB were stable over the four years in veterinary medical school and were unaffected by training or achievement.

The hypothesis tested at this point was: interest patterns measured by the SVIB, based upon data for the three groups, are not significantly changed during the course of training. There was some doubt originally as to whether this might be a meaningful question in the light of the research outcomes referred to above.

In this investigation the initial testing on the SVIB was done at the time the students entered the first year of veterinary medical training. Group I was retested again at the end of the first year, Group II at the end of the second year, and Group III at the end of the third year. The data for the three groups were combined for the analysis. An analysis of variance involving one criterion of classification was applied to each of the scales of the SVIB to determine if changes greater than could be expected to occur by chance appeared between initial and final testing. Five of the SVIB scales gave F values significant at the .05 per cent level of confidence or better. Two other scales approached significance at the .05 per cent level and have been included in the discussion.

Data in Tables XVII-A, XVII-B, and XVII-C show that the means for the physician, osteopath and dentist scales

increased on retest. These significant changes reflect probably a maturing professional interest in the whole field of health science as applied to both animals and man. Increased understanding and proficiency in the theory and application of medical knowledge has broadened perspective and insight. The results in Table XVII-D are in line with the findings of Hannum and Thrall (24). The shift on the veterinarian scale was in a positive direction. The difference approached, but did not reach, the .05 per cent confidence level. The interest in veterinary activities was substantial from the beginning, remaining fairly stable over the training period.

TABLE XVII-A

SUMMARY OF ANALYSIS OF VARIANCE OF INITIAL AND RETEST DATA FOR VETERINARY MEDICAL STUDENTS ON THE PHYSICIAN SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		41.16	44.57	
Sigma		9.22	10.90	
Source of Variation	**DF**	**SS**	**MS**	**F**
Between	1	675.93	675.93	6.63[a]
Within	230	23437.65	101.90	
Total	231	24113.58		

[a]Significant at the .05 per cent level of confidence.

TABLE XVII-B

SUMMARY OF ANALYSIS OF VARIANCE FOR INITIAL AND RETEST DATA FOR VETERINARY MEDICAL STUDENTS ON THE OSTEOPATH SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		40.38	47.58	
Sigma		9.44	8.32	
Source of Variation	DF	SS	MS	F
Between	1	3005.28	3005.28	37.98[a]
Within	230	18197.61	79.12	
Total	231	21202.89		

[a]Significant at the .01 per cent level of confidence

TABLE XVII-C

SUMMARY OF ANALYSIS OF VARIANCE FOR INITIAL AND RETEST DATA FOR VETERINARY MEDICAL STUDENTS ON THE DENTIST SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		34.42	40.10	
Sigma		8.31	8.61	
Source of Variation	DF	SS	MS	F
Between	1	1871.90	1871.90	26.14[a]
Within	230	16469.06	71.60	
Total	231	18340.96		

[a]Significant at the .01 per cent level of confidence.

TABLE XVII-D

SUMMARY OF ANALYSIS OF VARIANCE FOR INITIAL AND RETEST DATA FOR THE VETERINARY MEDICAL STUDENTS ON THE VETERINARIAN SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		42.00	44.60	
Sigma		9.98	10.24	
Source of Variation	DF	SS	MS	F
Between	1	390.52	390.52	3.83[a]
Within	230	23429.95	101.87	
Total	231	23820.47		

[a]Approaches the .05 per cent level of confidence.

TABLE XVII-E

SUMMARY OF ANALYSIS OF VARIANCE FOR INITIAL AND RETEST DATA FOR THE VETERINARY MEDICAL STUDENTS ON THE MATHEMATICIAN SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		22.60	19.41	
Sigma		7.60	9.10	
Source of Variation	DF	SS	MS	F
Between	1	590.09	590.09	8.39[a]
Within	230	16171.91	70.31	
Total	231	16761.99		

[a]Significant at the .01 per cent level of confidence.

The outcomes in Table XVII-E indicate that the mean for the mathematician scale dropped on retest. The difference is significant at the .01 per cent level. In testing hypothesis I, it was observed that ability to manage quantitative concepts was related to scholastic performance in veterinary medicine. The change in interest patterns may reflect a drop in concern for this type of activity and a growth of preference for the activities more directly involved in carrying on in the medical setting. The preference for the types of activities preferred by chemists remains fairly stable, although the initial mean test score was not high (Table XVII-F). Data in Table XVII-G reflect an interesting change. The difference which is statistically significant could point toward a broadening of interest in others as well as an increased sensitivity to the feelings and needs of others.

TABLE XVII-F

SUMMARY OF ANALYSIS OF VARIANCE OF INITIAL AND RETEST DATA FOR VETERINARY MEDICAL STUDENTS ON THE CHEMIST SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Mean		29.92	32.12	
Sigma		7.74	10.83	
Source of Variation	DF	SS	MS	F
Between	1	280.28	280.28	3.16[a]
Within	230	20382.60	88.62	
Total	231	20662.88		

[a]Approaches the .05 per cent level of confidence.

TABLE XVII-G

SUMMARY OF ANALYSIS OF VARIANCE OF INITIAL AND RETEST DATA FOR VETERINARY MEDICAL STUDENTS ON THE PERSONNEL MANAGER SCALE OF THE SVIB

Conditions		Initial	Retest	
Treatment Groups		1	2	
N (Groups I,II,III combined)		116	116	
Means		20.49	23.40	
Sigma		10.45	10.58	
Source of Variation	DF	SS	MS	F
Between	1	483.73	383.73	4.37[a]
Within	230	25442.29	110.62	
Total	231	25926.02		

[a]Significant at the .05 per cent level of confidence.

Hypothesis XI

It seemed important that a study of this kind include data dealing with the value systems of the students and the possibility of their change during the course of training. The Allport, Vernon, Lindzey Study of Values was administered to all three groups in September, 1962, for the purpose of testing the following hypothesis: values as measured by the Allport, Vernon, Lindzey Study of Values are not significantly modified as a consequence of veterinary medical training.

Tables XVIII-A, XVIII-B, XVIII-C and XVIII-D contain the intercorrelations among the various scales of the AVLSV

for the three groups separately and in combination

TABLE XVIII-A

INTERCORRELATIONS AMONG SCALES OF THE AVLSV FOR GROUP I

	1	2	3	4	5	6
1. AVLSV, Theoretical Scale		-.127	-.126	-.247	.118	-.516
2. AVLSV, Economic Scale			-.492	-.425	.204	-.075
3. AVLSV, Aesthetic Scale				.026	-.324	-.202
4. AVLSV, Social Scale					-.442	.051
5. AVLSV, Political Scale						-.400
6. AVLSV, Religious Scale						
Mean	45.02	44.39	31.00	34.68	40.79	44.11
Sigma	6.16	6.19	6.98	6.19	5.83	7.07

TABLE XVIII-B

INTERCORRELATIONS AMONG SCALES OF THE AVLSV FOR GROUP II

	1	2	3	4	5	6
1. AVLSV, Theoretical Scale		-.039	.075	-.194	-.147	-.401
2. AVLSV, Economic Scale			-.432	-.119	.186	-.533
3. AVLSV, Aesthetic Scale				-.499	-.338	-.057
4. AVLSV, Social Scale					-.163	.058
5. AVLSV, Political Scale						-.253
6. AVLSV, Religious Scale						
Mean	46.47	41.91	31.29	35.53	38.91	45.59
Sigma	5.20	7.29	8.37	6.51	4.90	7.08

TABLE XVIII-C

INTERCORRELATIONS AMONG SCALES OF THE AVLSV FOR GROUP III

	1	2	3	4	5	6
1. AVLSV, Theoretical Scale		.069	.233	-.563	-.455	-.357
2. AVLSV, Economic Scale			-.469	-.265	.022	-.268
3. AVLSV, Aesthetic Scale				-2.55	-.196	-.475
4. AVLSV, Social Scale					-.003	.161
5. AVLSV, Political Scale						-.135
6. AVLSV, Religious Scale						
Mean	45.68	42.74	32.37	34.11	40.79	44.32
Sigma	6.75	7.41	8.61	6.65	5.72	8.18

TABLE XVIII-D

INTERCORRELATIONS AMONG SCALES OF THE AVLSV FOR GROUPS I, II, III COMBINED

	1	2	3	4	5	6
1. AVLSC, Theoretical Scale		-.041	.069	-.342	-.165	-.413
2. AVLSV, Economic Scale			-.463	-.273	.145	-.289
3. AVLSV, Aesthetic Scale				-.243	-.271	-.264
4. AVLSV, Social Scale					-.223	.099
5. AVLSV, Political Scale						-.273
6. AVLSV, Religious Scale						
Mean	45.66	43.12	31.53	34.74	40.24	44.61
Sigma	6.08	6.95	7.91	6.41	5.56	7.42

Table XVIII-E indicates the analyses of variance between the three groups of each of the scales of the Allport, Vernon, Lindzey Study of Values.

TABLE XVIII-E

ANALYSES OF VARIANCE BETWEEN GROUPS FOR EACH OF THE AVLSV SCALES

1. Theoretical Scale:

Treatment Group		1	2	3
Sample size		44	23	38
Mean		45	46	
Sigma		6.159	5.200	6.747
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	40.2295	20.1148	0.5402[a]
Within Groups	113	4207.6578	37.2359	
Total	115	4247.8873		

2. Economic Scale:

Treatment Groups		1	2	3
Sample Size		44	34	38
Mean		44.386	41.912	42.737
Sigma		6.192	7.288	7.406
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	125.7748	62.8874	1.3086[a]
Within Groups	113	5430.5350	48.0578	
Total	115			

3. Aesthetic Scale:

Treatment Groups		1	2	3
Sample Size		44	34	38
Mean		31.000	31.294	32.368
Sigma		6.978	8.369	8.610
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	40.9611	20.4805	0.3238[a]
Within Groups	113	7147.9002	63.2558	
Total	115			

4. Social Scale:

Treatment Groups		1	2	3
Sample Size		44	34	38
Mean		34.682	35.529	34.105
Sigma		6.190	6.510	6.653
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	36.6464	18.3232	0.4421[a]
Within Groups	113	4683.5946	41.4477	
Total	115	4720.2410		

TABLE XVIII-E (CONTINUED

5. Political Scale:

Treatment Groups		1	2	3
Sample Size		44	34	38
Mean		40.795	38.912	40.789
Sigma		5.837	4.901	5.724
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	85.0312	42.5156	1.3844[a]
Within Groups	113	3470.2097	30.7098	
Total	115	3555.2409		

6. Religious Scale:

Treatment Groups		1	2	3
Sample Size		44	34	38
Mean		44.114	45.588	44.316
Sigma		7.072	7.076	8.181
Source of Variation	**DF**	**SS**	**MS**	**F**
Between Groups	2	46.6655	23.3327	0.4199[a]
Within Groups	113	6278.8769	55.5653	
Total	115	6325.5423		

[a]Non-significant.

As may be noted from the foregoing table, no significant changes in value attitudes were found between the three groups. It may, therefore, be inferred from this cross-sectional study that the curriculum of the College of Veterinary Medicine did not significantly affect the value attitudes of the students as measured by the Allport, Vernon, Lindzey Study of Values.

Hypothesis XII

The statement presented in hypothesis XII was as follows: there is no significant relationship between

stated preferences of the veterinary medical students in the first semester of clinical training and responses made to items on the revised Gough Checklist of Descriptive Adjectives by (a) the instructional staff and (b) by the students on themselves.

The revised Gough Checklist of Descriptive Adjectives was first given to each member of the instructional staff with directions to mark those adjectives which were most desirable as traits in a veterinarian. These were collected and the responses weighted according to how many faculty members included them as desirable qualities. Each instructor was then asked to fill out a checklist on two students according to the traits he felt the student possessed and each student filled one out on himself. These were then scored and a numerical value gained according to the weighting procedure devised from the original "typical veterinarian" forms which the instructors had filled out prior to the initiation of the testing. These numerical scores were then used as factors for the analysis of variance procedure. The analyses of variance are presented in Table XIX-A.

This table indicates a lack of significant variation among the means of the treatment groups. Although no significant variance was found, it is interesting to note that the variable of stated preference yielded a trend in the direction from a preference for mixed practice on the high end of the Gough range through small animal practice to a

TABLE XIX-A

ANALYSES OF VARIANCE FOR THE REVISED GOUGH CHECKLIST OF DESCRIPTIVE ADJECTIVES

1. F = Students' Self Ratings on the Revised Gough Checklist of Descriptive Adjectives.

V = Instructors' Ratings in Clinic I.

Conditions	High	Medium High	Medium Low	Low
Treatment Groups	1	2	3	4
Sample Size	2	18	15	3
Mean	87.500	87.333	86.800	87.667
Sigma	0.707	1.085	1.207	0.577

Source of Variation	DF	SS	MS	F
Between Groups	3	3.4860	1.1620	0.9505[a]
Within Groups	34	41.5667	1.2225	
Total	37	45.0526		

2. F = Students' Self Ratings on the Revised Gough Checklist of Descriptive Adjectives

V = Stated Preferences.

Conditions	High	Medium High	Medium Low	Low
Treatment Groups	1	2	3	4
Sample Size	2	18	15	3
Mean	2.5000	2.1667	1.6000	1.6667
Sigma	0.7071	0.9852	0.8281	1.1547

Source of Variation	DF	SS	MS	F
Between Groups	3	3.4965	1.1655	1.3540[a]
Within Groups	34	29.2667	0.8608	
Total	37	32.7632		

3. F = Faculty Ratings of Students on the Revised Gough Checklist of Descriptive Adjectives.

V = Instructors' Ratings in Clinic I.

Conditions	High	Medium High	Medium Low	Low
Treatment Groups	1	2	3	4
Sample Size	1	13	23	1
Mean	88.00	86.692	87.348	88.000
Sigma	0.000	1.437	0.832	0.000

TABLE XIX-A (CONTINUED)

Source of Variation	DF	SS	MS	F
Between Groups	3	5.0660	1.6887	1.4358[a]
Within Groups	34	1.1761		
Total	37			

4. F = Faculty Ratings of Students on the Revised Gough Checklist of Descriptive Adjectives.

V = Stated Preferences.

Conditions	High	Medium High	Medium Low	Low
Treatment Groups	1	2	3	4
Sample Size	1	13	23	1
Mean	3.0000	2.0000	1.8696	1.0000
Sigma	0.0000	1.0000	0.9197	0.0000

Source of Variation	DF	SS	MS	F
Between Groups	3	2.1545	0.7182	0.7977[a]
Within Groups	34	30.6087	0.9003	
Total	37	32.7632		

[a]Non-significant.

preference for large animal practice on the lower end of the Gough score. This was true of both the self ratings and the faculty ratings, although it was more pronounced in the faculty ratings. No such trend was evident for the variable of instructors' ratings in Clinic I.

CHAPTER V

SUMMARY OF FINDINGS

In this exploratory study, a number of hypotheses were tested. The first hypothesis was concerned with the predictive value of a battery of psychological measures in addition to pre-veterinary grade point average. Grade point average at certain junctures in the veterinary medical program were employed as criteria. No attempt was made to factor analyze tests and criteria to isolate relatively pure factors. The basic concern was with the practical utilization of these measures as presently constituted for predicting performance. The outcomes were as follows:

1. When data for the second year class (Group I) were related to over-all grade point average at the end of the first year in veterinary medical school, the most efficient predictors were: (1) mechanical comprehension, EPSAT; (2) physics grade in the pre-veterinary program; (3) physicist scale, SVIB; (4) musician scale, SVIB. The physicist and musician scales correlated negatively with the criterion and contributed negative weights to the regression equation. The physics grade contributed most to the prediction.

2. When results for the third year class (Group II) were correlated with over-all grade point average at the end

of two years in the professional program the best predictors were: (1) pre-veterinary grade point average; (2) dentist scale, SVIB; (3) musician scale, SVIB. The pre-veterinary grade point average contributed the most weight, while the musician scale contributed again a negative regression value.

3. When the data for the fourth year class (Group III) were correlated with over-all grade point average at the end of two and one-half years in the professional program, the best predictor was found to be the quantitative section of the SCAT. When the same type of global criterion was utilized based upon three years of course work in the same program, the best predictor for the fourth year students proved to be the same measure.

4. Data for the second, third and fourth year students (Groups I, II, III) were combined and correlated against the global criterion of over-all grade point average at the end of one year. The outcomes of the regression analysis based upon this composite indicated that the best predictors were: (1) pre-veterinary grade point average and (2) Ma scale of the MMPI. The Ma scale appeared in the regression equation with a negative weight.

5. Data for the third and fourth year students (Groups II, III) were combined and correlated against over-all grade point average for the second year. The most efficient predictors were: (1) pre-veterinary grade point average; (2) the quantitative score, SCAT. Pre-veterinary

grade point average contributed the great weight to the prediction of the criterion.

6. The regression analysis of data for fourth year students (Group III), using over-all grade point average for the third year as criterion, indicated the following to be the most efficient predictors: (1) quantitative score, SCAT; (2) D scale, MMPI. The D scale contributed a little more weight to the prediction than the quantitative score of the SCAT in this particular analysis.

7. When the results for the third and fourth year classes (Groups II, III) were related to over-all grade point average at the end of two years, the best predictors were found to be: (1) pre-veterinary grade point average; (2) quantitative score, SCAT; (3) Si scale, MMPI. Again, the pre-veterinary grade point average contributed the most weight to the criterion prediction from among the three most efficient measures.

On the basis of these several analyses which are exploratory in nature certain generalizations might be drawn. Evidence would seem to indicate that performance in the training program prior to entering veterinary medicine is critical for dealing with the demands of the professional program. It appears that one of the major strengths required is in the area of quantitative ability. The measure of this category appeared more than once in the regression equations. Insights into mechanical processes as well as interests of a practical, technical nature were suggested as

important by certain of the outcomes. Significant outcomes based on personality data suggested that excessive hyperactivity contributed negatively to adequate performance in the professional program. A mild amount of depression, along with the tendency to withdraw from social contacts with others, appeared to contribute positively to the prediction of performance in veterinary medical school.

Despite the fact that in analyzing the data for hypothesis I it was observed that pre-veterinary grade point average predicted effectively the criteria of veterinary medical school performance at certain junctures in the program, it was deemed helpful to note how grades in the basic sciences were related to these criteria. As pointed out previously, in the work for hypothesis II, the science grades constituted a part of the pre-veterinary grade point average.

The results in Tables X-A, X-B, X-C, X-D indicated that the relationships for the science courses with the various criteria were positive and moderate. Although the numbers of cases for each group upon which the correlations were based were not large, the relationships in the four tables showed much comparability. The requirement to do well in physics, and the mathematical content that constitutes the basis of this course, seemed to be critical for performance at all levels in veterinary medicine. In addition, adequate backgrounds in chemistry and zoology seemed important in contributing to successful progress.

It seemed significant in hypothesis III to determine to what extent grades in required courses in the pre-veterinary curriculum and grades in didactic and laboratory instruction in the professional veterinary medical program were related to the initial clinical experience. The activities in Clinic I, on which the students were rated, comprised such things as the following: small animal medicine and surgery, large animal medicine and surgery, hemotology laboratory, pathology laboratory, histological pathology and others. The students involved in this aspect of the training program were exposed to clinical conditions similar in every way to those they would be meeting as practicing veterinarians.

It appeared that the relationships between grades in courses required for admission to the veterinary medical program and clinical performance were close to zero. The associations between preclinical grade point average and instructors' ratings were higher, being statistically significant at the .05 level of confidence. It would not be out of line to assume that formal class work contributed in some measure to clinical competence. It is also significant to keep in mind that the instructors in the supervised clinical experience have the same students in formal course work at certain points in the program.

In hypothesis IV, it is difficult to explain why the best predictors correlated negatively with the criterion. Verbal skills and interest in various aspects of medical

science should have some positive relationship with clinical performance. It seems that more meaningful inferences can be drawn from the data in Table XII-A. The results indicate that interests in activities of a practical nature coupled with quantitative aptitude and a value system that emphasized kindness and consideration toward other living beings correlate low, but positively, with ratings in Clinic I. Such outcomes would seem to be more in line with what should be expected. There is the possibility that the unusual and unexpected outcomes may have resulted from utilizing a criterion that lacked adequate reliability and validity.

Hypothesis V deals with the thought that has been given to the possibility of developing keys that might be useful in differentiating various professional and occupational groups from samples of subjects representing the general population. Departures from the common expression of set are believed to be related to personality traits (8). Berg and Adams (7) point out that: "No single deviant response is in and of itself particularly meaningful; however, when a significant proportion of responses to a series of stimuli is deviant, a pattern of deviant responses often emerges. This deviant response pattern can then be used to identify abberrant or deviant behavior in other areas." Unfortunately, the limited number of significant outcomes were of little value in identifying a deviant response pattern which would be useful in differentiating the veterinary medical students from the sample of males representing the general population.

There seems to be some evidence from hypothesis VI to show that satisfactory academic progress of veterinary medical students is associated to a limited degree with number of relatives in the medical sciences, level of parental income, time lived in rural areas, interests and performance in the biological and physical sciences, and preferences for part-time work experience in agriculture and other areas of scientific endeavor. The correlations were low and represented nothing more than trends. The interesting outcome was that essentially the same items manifested these trends for the three samples.

The data for hypothesis VII, shown in Tables XV-B, XV-C, and XV-D, seem to suggest that some association exists between certain psychological measures obtained on the three groups separately and stated preferences. The relationships are not high. In Table XV-B, a significant relationship occurs between musician scale, SVIB, and stated preference. An examination of the distribution showed that low scores on the measured interest scale are associated with stated preferences for mixed practice, teaching, research and supervisory health activities. It may be that students with practical interests are not inclined to have concern for certain types of aesthetic activities.

The results shown in Table XV-C could simply indicate that the practical types of concern measured by the mortician and sales manager scales of the SVIB are not preferred by students who state preferences for teaching, research and

health work of a supervisory nature. On the other hand, concern for scientific work and the welfare of others relate positively to stated preferences for teaching, research and other activities in improving the conditions of the environment.

Data in Tables XV-B, XV-D, and XV-E contain a number of criterion r's the bulk of which do not reach a critical level of statistical significance. In each table a single significant r occurs. The probability is high that all three could have arisen by chance. Any inferences drawn from the results must be highly tentative.

In hypothesis VIII, the degree of association was found to be low between instructors' ratings in Clinic I and stated preferences of advanced students. There would be a tendency to suspect that clinic performance and interest in stated specialties might show some moderate degree of association. The outcomes of the analysis did not show this to be the case for this group.

It seemed significant to determine the degree of association between the students' self attitudes in the clinic program and instructors' ratings and stated preference for specified activities after graduation. The analysis of hypothesis IX indicated that the way in which the student viewed himself had little relationship with the rating of his performance in the clinic program. From this, it was further inferred that the students' self attitudes in this restricted area had little affect on his performance in

the clinical program. The degree of association between the VMSQ items and stated preference was high and indicated that the way in which the student viewed himself during his clinical training was closely associated with the way in which he viewed himself as a functioning member of the profession.

On the basis of changes observed under hypothesis X on certain scales of the SVIB between initial test and retest it appears that interests in veterinary work remains stable and high, accompanied by inversed interest in medical science as a profession and a way of life. Mathematical and scientific preferences drop off somewhat or remain stable. Broadening interest and greater sensitivity to the needs of others seem to occur, changes which frequently accompany increasing emotional maturity.

Hypothesis XI was concerned with the possible modification of value attitudes as measured by the AVLSV during the course of training in veterinary medicine. The analysis of variance technique was employed in a cross-sectional approach utilizing the three groups of students. It yielded no significant variation indicating that the degree of change of value attitudes, during the course of training in the veterinary medical curriculum, was no more than could be expected to occur by chance.

The analysis of variance used on the data in hypothesis XII yielded no significant variance among the means of the variables instructors' ratings in Clinic I and stated preference and the factors of self ratings and faculty

ratings on the revised Gough Checklist of Descriptive Adjectives. It was noted that there was a tendency for the stated preference for mixed practice to be associated with the higher end of the Gough range, small animal preference in the medium range and large animal preference at the lower end of the range. This trend was slightly more pronounced in the faculty ratings than in self ratings.

Implications and Recommendations

The more outstanding findings of this study imply that the ability of students to think quantitatively and logically utilize scientific concepts in a practical orientation tend to be related to satisfactory progress in the veterinary medical curriculum. In opposition to this, a limited concern with pioneering new truths and lack of concern with that which is artistic and impractical in nature seemed to be indicated. A factor with logical as well as statistical affect upon performance in the professional curriculum is that of previous preparation. Emotional adjustment could not be ignored as an important factor especially in the area of unproductive motion and the characteristic of being somewhat self contained. An interest in the practical aspects of the program, quantitative ability and value for the social aspects of the clinical setting in forming workable relationships with clients and colleagues were found to indicate a trend toward better achievement in the practical clinical aspect of the program.

There was further implication from this study that certain aspects of personal background data were associated with better grade point average. This would seem to imply that previous familial attitudes toward medical science and exposure to rural atmosphere tend to create some positive effect for the veterinary medical student. It further implies that the annual parental income and possibly the parents' ability to aid the student financially during training may leave his mind and time more free for academic pursuits.

The study implied that self perceptions of students had very little relationship with either the rating of his performance or the way in which he performed in the clinical setting.

Interest patterns showed a slight increase in a positive direction in areas of health science. This trend may indicate maturing professional interests and less concern with the quantitative aspects rather than an actual change in interest patterns.

Recommendations for further study follow as possible suggestions for research to be undertaken in the area explored by this study.

1. The study should be repeated employing the variables found to be most predictive of the criterion in order to cross validate the findings.

2. It is suggested that a factor analysis be applied to test and criteria to isolate relatively pure factors.

3. It is further recommended that a follow-up study of these subjects be made to determine the degree of success they have achieved as practicing veterinarians. This might be determined through the use of a questionnaire asking for such information as the type of activity in which they are employed, estimation of annual income and amount of satisfaction gained from occupational endeavors. The measurement devices utilized in this study could then be applied to the information gained and used for predicting the success of students as practicing veterinarians.

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APPENDIX A

COURSES AND CREDIT HOURS COMPLETED BY THE STUDENTS IN VETERINARY MEDICINE AT THE TIME THE STUDY WAS UNDERTAKEN

The subjects in the various groups had reached the level of training stipulated below in the school year 1962-1963.

Second year students (Group I) had completed the following course content: Gross Anatomy (7 semester credit hours); Histology and Embryology I (5 semester credit hours); Biochemistry of Domestic Animals (5 semester credit hours); Advanced Histology and Embryology II (5 semester credit hours); Introduction to Veterinary Bacteriology (5 semester credit hours); Veterinary Physiology (7 semester credit hours).

Third year students (Group II) had completed the following course content in addition to that listed for Group I students: Advanced Veterinary Bacteriology (5 semester credit hours); Veterinary Physiology (3 semester credit hours); General Pathology (6 semester credit hours); Animal Genetics (3 semester credit hours); Animal Nutrition (3 semester credit hours); Systemic Pathology (6 semester credit hours); Comparative Anatomy (5 semester credit hours); Veterinary Agronomics (1 semester credit hours); Veterinary

Parasitology (3 semester credit hours); Pharmacology I (3 semester credit hours).

Fourth year students (Group III) had completed all course content indicated for both Groups I and II in addition to the following: Advanced Pharmacology II (4 semester credit hours); Veterinary Parasitology (4 semester credit hours); Poultry Pathology (2 semester credit hours); Pathology of Infectious Diseases (3 semester credit hours); Medicinal and Poisonous Plants (2 semester credit hours); Surgery I (4 semester credit hours); Diseases of Small Animals (3 semester credit hours); Sporadic Diseases of Large Animals (4 semester credit hours); Obstetrics (2 semester credit hours); Clinic I (4 semester credit hours); Radiology I (1 semester credit hour); Clinical Orientation (1 semester credit hour); Advanced Surgery II (3 semester credit hours); Applied Anatomy (3 semester credit hours).

APPENDIX B

THE VETERINARY MEDICAL STUDENT QUESTIONNAIRE WITH REVISED GOUGH CHECKLIST OF DESCRIPTIVE ADJECTIVES ATTACHED

VETERINARY MEDICAL STUDENT QUESTIONNAIRE

1. Name_____ Age____ Birth Date_____
2. Address_____ Date_____
3. Marital status: Single___ Married___ Widowed____
   Divorced_____
4. Number of children__ Ages__ __ __ __ __
5. Family status: Father living_____ Year of death_____
   Mother living_____ Year of death_____
7. If your parents were ever separated or divorced, give year_____
8. Number of sisters___ Number of brothers__ Ages__ __ ___
9. Were you the first child, second child, etc.?_____
10. Father's position or business (be specific: teacher, car salesman, farmer, etc.)_____
11. What are your father's main interests and hobbies?_____

_____

12. Mother's position or business_____
13. What are your mother's main interests and hobbies?_____

_____

14. How many members of your immediate family have worked in some area of the medical sciences? (Examples of occupations in the medical sciences are laboratory technician, X-ray technician, nurse, dentist, veterinarian, physician, bio-chemist, etc.)_____

_____

15. Please circle the amount which you believe represents your parents' annual income.

1. $1,000-4,999 2. $5,000-9,999 3. $10,000-14,999

4. $15,000-19,999 4. $20,000 and above

16. How much of your pre-veterinary school life was spent in an urban area (estimate in terms of percentage of time)?

_____

17. How much of your pre-veterinary school life was spent in a rural area (estimate in terms of percentage of time)?

_____

18. How much of your life did you live and/or work on a farm (estimate in terms of percentage of time)?_____

Education

19. Which academic subjects did you like most?_____

_____

20. Which academic subjects did you like least?_____

_____

21. In which academic subjects did you receive your best grades?_____

22. In which academic subjects did you receive your poorest grades?_____

23. What was your rank in your class in the last school attended? (check one) Top quarter____ Second quarter___ Third quarter____ Fourth quarter____

Work Experience

Type of job	Salary	Company & Location	Why did you leave

24. Your most recent

    What did you do?_____

25. Previous job

    What did you do?_____

26. Previous job

    What did you do?_____

27. Any other jobs not listed which you wish to report?_____

    _____

28. Which of the above jobs did you like best?_____

29. Why?_____

30. Which of the above jobs did you like least?_____

31. Why?_____

Health

32. (a) Height___ (b) Weight___ (e) Eyesight____ _____ ____
    good medium poor

    (d) Hearing____ _____ ____
    good medium poor

33. Any physical disabilities or handicaps?_____

34. Have you any health problems that would affect the type of work you can do in veterinary medicine?_____

    What?_____

Interests

35. What do you do in your spare time when not involved in the work of the veterinary program?_____

36. Which of these activities do you like most?_____

37. If you had the time and money, what other things would you like to do in your spare time?_____

38. What newspapers and magazines do you read most frequently?_____

39. In what topics are you especially interested? (science, economics, politics, languages, etc.)_____

40. As you look back over your personal history, what influence or influences were responsible for bringing about an interest in the healing arts, particularly veterinary science?_____

41. Please rank the following from 1 to 5 in terms of their interest and importance for you. The most preferred should be ranked number 1, the next preferred 2, etc.

    Work for yourself
    Science
    Animals
    Healing Arts
    People

This section deals with your professional plans and ambitions for the future. Even though you may not be certain of your plans, please answer the questions on the basis of your present feelings. Please circle your answer.

42. How much have you thought about the kind of career you would like to have?

    1. a great deal
    2. a fair amount
    3. only a little
    4. not at all

43. If you could have exactly what you want, would you choose

    1. a small animal practice
    2. a large animal practice
    3. a mixed practice
    4. research
    5. teaching
    6. government work (specify kind)_____
    7. other (specify)_____

44. When did you decide on the career you have indicated in the previous question?

    1. fourth year in Veterinary Medical School
    2. third year in Veterinary Medical School
    3. second year in Veterinary Medical School
    4. first year in Veterinary Medical School
    5. before entrance into the profession school (When?)_____

45. Which do you feel least inclined to enter?

    1. small animal practice
    2. large animal practice
    3. mixed practice
    4. research
    5. teaching
    6. government work (specify kind)_____
    7. other (specify)_____

46. Which of the following groups of clientele would you prefer to work with?

    1. primarily urban
    2. primarily rural
    3. urban and rural
    4. small town, urban-rural
    5. edge of large city, urban-rural

47. If you could devote the major portion of your time to one type of animal, what one would you prefer?_____

48. To what type of professional activity would you <u>prefer</u> to give <u>most</u> of your working time?

    1. large animal
    2. small animal
    3. mixed
    4. research
    5. teaching
    6. government work (specify kind)_____
    7. other (specify)_____

49. Apart from what you would like, to what type of professional activity do you expect to give most of your working time?

    1. large animal
    2. small animal
    3. mixed
    4. research

5. teaching
6. government work (specify kind)_____
7. other (specify)_____

Cognitions, Values and Attitudes

50. In what kind of activities, work, etc., do you feel that you are not very good? For example: music, sports (kind), clerical, manual labor, mathematics, science, languages, etc._____

51. In which do you feel you are good?_____

52. What things would you like to do that you never have done because you feel that you haven't enough ability?_____

53. What things have caused you most humiliation or sense of failure?_____

THE BALANCE OF THE ITEMS IN THE QUESTIONNAIRE SHOULD BE ANSWERED BY FOURTH-YEAR STUDENTS ONLY.

Because of the scope of the field of veterinary medicine, it is likely that students select areas of major interest. We would like to ascertain your own interests as a fourth-year student. Circle one answer for each of the following areas.

54. To acquire more of the basic facts of organic medicine.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

55. To acquire more of the basic facts of clinical medicine.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

56. To acquire skill at applying the facts of organic medicine to the practice of clinical medicine.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

57. To acquire more skill at applying the facts of organic medicine to the practice of large animal clinical medicine.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

58. To acquire more skill at applying the facts of organic medicine to the practice of small animal clinical medicine.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

59. To acquire more of the basic facts of reaiology and radiological therapy.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

60. To acquire more of the basic facts of pathology.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

61. To acquire more of the basic facts of parasitology.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

62. To acquire more of the facts, techniques and methods of teaching.

    1. not important at all
    2. less than average importance
    3. of average importance
    4. more than average importance
    5. very important

63. To acquire more of the facts, techniques and methods of research.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

64. To improve your ability to establish and maintain good veterinarian-client relationships.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

65. To acquire knowledge and skill in utilizing the ancillary services available.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

66. To learn to organize diagnostic and therapeutic regimes.

1. not important at all
2. less than average importance
3. of average importance
4. more than average importance
5. very important

67. Others, not listed above, you would like to specify.

On the basis of <u>your</u> experiences, how helpful do you think the clinics you completed the second semester of last year were with respect to the following topics. (Circle one answer for each.)

68. In acquiring more of the basic facts of organic medicine

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

69. In acquiring more of the basic facts of clinical medicine

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

70. In acquiring skill at applying the facts of organic medicine to the practice of clinical medicine.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

71. In acquiring more skill at applying the facts of organic medicine to the practice of large animal clinical medicine.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

72. In acquiring more skill at applying the facts of organic medicine to the practice of small animal clinical medicine.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

73. In acquiring more of the basic facts of radiology and radiological therapy.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

74. In acquiring more of the basic facts of pathology.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

75. In acquiring more of the basic facts of parasitology.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

76. In acquiring more of the basic facts, techniques and methods of teaching.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

77. In acquiring more of the facts, techniques and methods of research.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

78. In improving your ability to establish and maintain good veterinarian-client relationships.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

79. In acquiring knowledge and skill in utilizing the ancillary services available.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

80. In learning to organize diagnostic and therapeutic regimes.

1. was extremely helpful
2. was moderately helpful
3. was only slightly helpful
4. was not at all helpful
5. was a hindrance

81. Others, not listed above, you would like to specify.____

_____

Although you are not yet a doctor officially, many people probably think of you as one. We'd like to find out how you feel about yourself in this respect. For each of the following, circle one answer.

82. In your dealings with clients, how have they thought of you mostly?

    1. primarily as a doctor
    2. primarily as a student

83. When you talked with your classmates in recent weeks, how, in your opinion, did they think of you?

    1. primarily as a doctor
    2. primarily as a student

84. In your recent contacts with your instructors, how have they thought of you?

    1. primarily as a doctor
    2. primarily as a student

85. Finally, in your recent contacts with the general public, how have people tended to think of you?

    1. primarily as a doctor
    2. primarily as a student

86. In most of the dealings you have had with clients, how have you tended to think of yourself?

    1. primarily as a doctor
    2. primarily as a student

87. In most of the dealings you have had with patients, how have you tended to think of yourself?

    1. primarily as a doctor
    2. primarily as a student

88. How have you tended to think of yourself when you talked with your classmates?

    1. primarily as a doctor
    2. primarily as a student

89. How have you tended to think of your classmates?

    1. primarily as a doctor
    2. primarily as a student

90. How have you tended to think of yourself when you talked with underclassmen?

1. primarily as a doctor
2. primarily as a student

91. When you have had contacts with your instructors, how have you tended to think of yourself?

1. primarily as a doctor
2. primarily as a student

92. In your recent contacts with the general public, how have you tended to think of yourself?

1. primarily as a doctor
2. primarily as a student

For the following questions, circle one answer.

93. If you, as a fourth-year student, make a mistake in the diagnosis of a patient, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

94. If you, as a fourth-year student, make a mistake in the treatment of a patient, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

95. If you, as a fourth-year student, make a mistake in the amount of dosage for a particular case, do you feel that this is

1. primarily your own responsibility
2. primarily the responsibility of the staff

96. Do you look upon your contact with clients

1. primarily as an opportunity to learn medicine
2. primarily as an opportunity to help patients
3. primarily as an opportunity to study science
4. primarily as an opportunity to work with people

97. How much satisfaction did you derive from the veterinarian-client relationships you have had?

1. a great deal
2. a moderate amount
3. very little
4. none at all

98. With respect to responsibility for the diagnosis of patients, would you say that you have had

1. too little responsibility
2. enough responsibility
3. too much responsibility

99. With respect to responsibility for the treatment of patients, would you say that you have had

1. too little responsibility
2. enough responsibility
3. too much responsibility

100. With respect to success in diagnosis of patients, would you say that you have had

1. a great deal
2. a moderate amount
3. very little
4. none at all

101. With respect to success in treatment of patients, would you say that you have had

1. a great deal
2. a moderate amount
3. very little
4. none at all

Below is a list of problems and situations which you might meet in your dealings with clients and patients. How confident do you feel in your ability to deal with each of these problems at the present time? Circle one answer for each.

102. When a client has an emotional outburst of crying, swearing or other emotional display?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

103. Talking with an elderly lady whose cat has just died?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

104. Talking with a little girl whose puppy has just died?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

105. Talking with a business man whose expensive and valuable animal has just died?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

106. Knowing what to do in an emergency?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

107. Being able to perform a (some difficult technical skill)?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

108. Having an M.D. or D.V.M. as one of your clients?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

109. Being able to make an adequate (or correct) diagnosis in a difficult case?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

110. Deciding on an appropriate medication and dosage?

1. completely confident
2. fairly confident
3. not really confident
4. completely lacking in confidence

111. Please indicate in several paragraphs, what you would like to achieve in the next ten years in the field of the healing arts, particularly veterinary science. This implies you will attempt to give some indication of your ambitions and goals and the satisfaction you would like to achieve in the professional area for which you are preparing.

Put a check mark in front of each adjective below that you feel is descriptive of you. Do not be concerned about contradictions, duplications, and so forth

1. ___Accommodating
2. ___Adaptable
3. ___Adventurous
4. ___Aggressive
5. ___Alert
6. ___Aloof
7. ___Anxious
8. ___Appreciative
9. ___Argumentative
10. ___Arrogant
11. ___Assertive
12. ___Autocratic
13. ___Bossy
14. ___Calm
15. ___Capable
16. ___Changeable
17. ___Cheerful
18. ___Clear-thinking
19. ___Clever
20. ___Cold
21. ___Complicated
22. ___Conscientious
23. ___Conservative
24. ___Considerate
25. ___Conventional
26. ___Cool
27. ___Cooperative
28. ___Curious
29. ___Defensive
30. ___Deliberate
31. ___Dependable
32. ___Determined
33. ___Dominant
34. ___Easy going
35. ___Efficient
36. ___Egotistical
37. ___Emotional
38. ___Energetic
39. ___Enterprising
40. ___Fair-minded
41. ___Forceful
42. ___Foresighted
43. ___Forgetful
44. ___Formal
45. ___Frank
46. ___Friendly
47. ___Gentle
48. ___Good-natured
49. ___Hasty
50. ___Helpful
51. ___Humorous
52. ___Hurried
53. ___Idealistic
54. ___Impatient
55. ___Independent
56. ___Imaginative
57. ___Impulsive
58. ___Individualistic
59. ___Informal
60. ___Ingenious
61. ___Insightful
62. ___Intelligent
63. ___Interested in people
64. ___Irritable
65. ___Kind
66. ___Leisurely
67. ___Likeable
68. ___Logical
69. ___Loves animals
70. ___Mannerly
71. ___Masculine
72. ___Methodical
73. ___Mild
74. ___Moderate
75. ___Natural
76. ___Obliging
77. ___Opinionated
78. ___Opportunistic
79. ___Organized
80. ___Patient
81. ___Persistent
82. ___Planful
82. ___Pleasant
84. ___Polished

85. ___Practical
86. ___Praising
87. ___Precise
88. ___Preoccupied
89. ___Progressive
90. ___Rational
91. ___Realistic
92. ___Reflective
93. ___Relaxed
94. ___Reserved
95. ___Resourceful
96. ___Responsible
97. ___Restless
98. ___Rigid
99. ___Sarcastic
100. ___Scientific
101. ___Self-confident
102. ___Sensitive
103. ___Sharp-witted
104. ___Sincere
105. ___Soft-hearted
106. ___Stable
107. ___Strong
180. ___Stubborn
109. ___Sympathetic
110. ___Tactful
111. ___Temperamental
112. ___Tense
113. ___Thorough
114. ___Tolerant
115. ___Unassuming
116. ___Unconventional
117. ___Understanding
118. ___Unemotional
119. ___Unrealistic
120. ___Versatile
121. ___Warm
122. ___Wise
123. ___Witty
124. ___Worrying
125. ___Other (Specify)_____
126. _____

APPENDIX C-1

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 44 STUDENTS IN GROUP I AND ACTUAL GRADES RECEIVED AT THE END OF THE FIRST YEAR IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	2.14700	2.57990	-0.43290
2	2.20600	2.84298	-0.63698
3	2.35300	2.43200	-0.07900
4	2.00000	2.32204	-0.32204
5	3.35300	2.48526	0.86774
6	3.70600	3.10763	0.59837
7	2.55900	2.49923	0.05977
8	3.00000	2.79329	0.20671
9	2.05900	2.65183	-0.59283
10	2.50000	2.31441	0.18559
11	3.00000	2.20800	0.79200
12	3.00000	3.00298	-0.00298
13	3.79400	3.20032	0.59366
14	2.35300	2.90084	-0.54784
15	2.70600	3.14662	-0.44063
16	2.29400	2.96432	-0.67032
17	3.85300	3.48331	0.36969
18	2.41200	2.65255	-0.24055
19	2.85300	3.00964	-0.15664
20	2.20600	2.15385	0.05214
21	3.00000	3.32983	-0.32983
22	2.20600	2.88868	-0.68268
23	3.70600	2.76130	0.94470
24	2.00000	2.33217	-0.33217
25	2.64700	2.45527	0.19273
26	3.05900	2.51361	0.54539
27	3.00000	2.43887	0.56113
28	3.05900	2.83967	0.21933
29	1.64700	2.54368	-0.89688
30	3.64700	3.16015	0.48685
31	2.70600	2.43925	0.26675
32	2.91200	3.32692	-0.41492
33	4.00000	3.01241	0.98759
34	2.41200	2.54073	-0.12873
35	2.55900	3.01539	-0.45639
36	1.85300	2.03064	-0.17765

Subject	Actual	Predicted	Deviation
37	2.64700	2.94677	-0.29977
38	2.20600	2.32064	-0.11464
39	2.70600	3.13148	-0.42548
40	3.35300	2.87084	0.48216
41	1.64700	2.31063	-0.66363
42	3.05900	3.02818	0.03082
43	2.05900	2.38619	-0.32719
44	3.70600	2.77663	0.92937

APPENDIX C-2

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 34 STUDENTS IN GROUP II AND ACTUAL GRADES RECEIVED AT THE END OF THE SECOND YEAR IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	3.19400	3.49946	-0.30546
2	3.58500	2.77186	-0.18686
3	3.22200	3.05276	0.16924
4	3.51400	3.77324	-0.25924
5	3.61100	3.32816	0.28284
6	3.26400	2.89623	0.36777
7	2.81900	3.01764	-0.19864
8	2.58300	2.57798	0.00502
9	3.38900	2.67177	0.71723
10	3.34700	3.45689	-0.10989
11	2.59400	2.61114	-0.01714
12	2.76400	2.72565	0.03835
13	2.29200	2.59214	-0.30015
14	2.27800	2.41608	-0.13808
15	2.84700	2.89114	-0.04414
16	2.73600	2.76258	-0.02658
17	2.37500	2.41209	-0.03709
18	3,47200	3.10835	0.36365
19	3.16700	3.55766	-0.39066
20	2.52800	2.85172	-0.32372
21	2.58300	2.64792	-0.06492
22	3.05600	2.10491	-0.04871
23	3.40600	3.30925	0.09675
24	3.73600	3.06159	0.77441
25	2.22200	2.33853	-0.11653
26	3.50000	3.30618	0.19382
27	3.20800	3.21580	-0.00780
28	2.93100	3.15269	-0.22169
29	3.88900	3.74736	-0.14164
30	2.40300	2.98201	-0.57901
31	3.24100	3.05973	0.18127
32	3.66700	3.51921	0.14779
33	2.37500	2.45950	-0.08121
34	3.04200	2.96079	0.08121

APPENDIX C-3

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 38 STUDENTS IN GROUP III AND ACTUAL GRADES RECEIVED AT THE END OF TWO AND ONE-HALF YEARS IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	2.49500	2.53902	-0.04402
2	3.12900	2.81100	0.31800
3	3.00000	2.92907	0.07093
4	3.03300	2.91839	0.11461
5	2.07500	2.87145	-0.79645
6	2.15100	2.19726	-0.04626
7	3.51600	2.96413	0.55187
8	2.97800	2.93820	0.03980
9	3.10800	2.90549	0.20251
10	3.80600	3.25345	0.55255
11	3.55900	2.99876	0.56024
12	2.97800	2.87662	0.10138
13	2.66700	2.75762	-0.09062
14	3.16100	3.28624	-0.12524
15	2.24700	2.68992	-0.44292
16	3.36600	3.22725	0.13875
17	3.11800	3.48144	-0.36344
18	2.86000	2.87816	-0.01816
19	2.90300	2.43985	0.46315
20	2.54800	2.71697	-0.16897
21	2.64500	2.31183	0.33317
22	2.52700	2.94658	-0.41958
23	3.16100	3.27775	-0.11675
24	2.38700	2.70436	-0.31736
25	2.83300	2.95296	-0.11996
26	2.20400	2.56936	-0.36536
27	2.17200	2.67465	-0.50265
28	2.72000	2.67220	0.04780
29	2.90300	2.65917	0.24383
30	2.79600	2.88236	-0.08636
31	2.19400	2.74323	-0.54923
32	2.84900	2.59932	0.24968
33	2.64500	2185003	-0.20503
34	3.31200	2.72770	0.58430
35	3.66500	3.41249	0.25251
36	2.74200	2.78153	-0.03953
37	2.83900	2.95646	-0.11746
38	2.52700	2.41675	0.11025

APPENDIX C-4

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 38 STUDENTS IN GROUP III AND ACTUAL GRADES RECEIVED AT THE END OF THREE YEARS IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	2.52700	2.56595	-0.03895
2	3.08000	2.82602	0.25398
3	2.93800	2.89756	0.04044
4	2.96300	2.93924	0.02376
5	2.20500	2.85095	-0.64595
6	2.21600	2.25334	-0.03934
7	3.50900	2.97824	0.53076
8	3.03700	2.94634	0.09066
9	3.12500	2.89989	0.22511
10	3.69600	3.21169	0.48431
11	3.48200	2.99304	0.48896
12	2.94600	2.90977	0.03623
13	2.72300	2.82129	-0.09829
14	3.15200	3.24931	-0.09731
15	2.31300	2.68540	-0.37240
16	3.39300	3.27014	0.12286
17	3.08000	3.49188	-0.41188
18	2.99100	2.91227	0.07873
19	2.94600	2.52260	0.42340
20	2.67000	2.75242	-0.08242
21	2.73200	2.36554	0.36646
22	2.66100	2.97100	-0.31000
23	3.21600	3.28848	-0.07448
24	2.53600	2.78973	-0.25373
25	2.84400	2.94888	-0.10488
26	2.27700	2.64536	-0.36836
27	2.17900	2.69513	-0.51613
28	2.67900	2.69658	-0.01758
29	2.89300	2.69186	0.20114
30	2.76800	2.87262	-0.10462
31	2.25000	2.76752	-0.51752
32	2.87000	2.66577	0.20923
33	2.69600	2.87761	-0.18161
34	3.27700	2.75533	0.52167
35	3.62700	3.40368	0.22322
36	2.75900	2.79364	-0.03464
37	2.90200	2.96210	-0.06010
38	2.46400	2.45482	0.00918

APPENDIX C-5

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 116 STUDENTS IN GROUPS I, II AND III AND ACTUAL GRADES RECEIVED AT THE END OF THE FIRST YEAR IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	2.14700	2.57612	-0.42912
2	2.20600	2.77844	-0.57244
3	2.35300	2.54628	-0.19328
4	2.00000	2.55053	-0.55053
5	3.35300	2.25699	1.09601
6	3.70600	3.02618	0.67982
7	2.55900	2.99798	-0.43898
8	3.00000	3.82341	0.17659
9	2.05900	2.51749	-0.45849
10	2.50000	2.73055	-0.23055
11	3.00000	2.51760	0.48240
12	3.00000	2.48862	0.51138
13	3.79400	3.26473	0.52927
14	2.35300	2.44903	-0.09603
15	2.70600	3.13168	-0.42568
16	2.29400	2.61826	0.32426
17	3.85300	3.37670	0.47630
18	2.41200	2.42412	-0.01212
19	2.85300	2.74279	0.11021
20	2.20600	2.37446	-0.16846
21	3.00000	2.60936	0.39064
22	2.20600	2.31713	-0.11113
23	3.70600	2.75557	0.95043
24	2.00000	2.68388	-0.68388
25	2.64700	2.83044	-0.18344
26	3.05900	2.74271	0.31629
27	3.00000	3.16997	-0.16997
28	3.05900	2.70445	0.35455
29	1.64700	2.46327	-0.81627
30	3.64700	3.36555	0.28145
31	2.70600	2.86018	-0.15418
32	2.91200	2.85378	0.05822
33	4.00000	3.42230	0.57770
34	2.41200	2.32025	0.08275
35	2.55900	2.81214	-0.25314
36	1.85300	2.58044	-0.72744

APPENDIX C-5 (CONTINUED)

Subject	Actual	Predicted	Deviation
37	2.64700	2.98414	-0.33714
38	2.20600	2.27453	-0.06853
39	2.70600	2.95888	-0.25288
40	3.35300	3.03964	0.31336
41	1.64700	2.84972	-1.20092
42	3.05900	3.22393	-0.16493
43	2.05900	2.51176	-0.45276
44	3.70600	3.35472	0.35128
45	2.70600	2.75852	-0.05252
46	2.52900	2.75236	-0.22336
47	3.20600	2.69025	0.51575
48	3.64700	3.14214	0.50486
49	3.5000	2.64471	0.85529
50	2.85300	2.13600	0.71700
51	3.00000	2.96409	0.03591
52	2.50000	2.74294	-0.24294
53	3.55900	2.91335	0.64565
54	3.05900	3.33840	-0.27940
55	2.79400	2.89841	-0.10441
56	2.29400	2.79875	-0.50475
57	2.00000	2.32467	-0.32467
58	1.85300	2.74638	-0.89338
59	2.50000	2.74706	-0.24706
60	2.50000	2.33792	0.16208
61	2.50000	2.89755	-0.39755
62	3.05900	2.82664	0.23236
63	3.00000	3.38745	-0.38745
64	2.35300	2.46214	-0.10914
65	2.50000	2.68092	-0.18092
66	2.85300	2.45208	0.40092
67	4.00000	3.42260	0.57740
68	3.85300	3.09699	0.75601
69	1.85300	1.96212	-0.10912
70	3.35300	3.30527	0.04773
71	3.00000	2.84615	0.15385
72	2.64700	2.83963	-0.19163
73	3.85300	3.48349	0.36951
74	2.14700	2.75366	-0.60666
75	3.20600	2.40235	0.80365
76	3.29400	3.09742	0.19658

APPENDIX C-5 (CONTINUED)

Subject	Actual	Predicted	Deviation
77	2.00000	2.49762	-0.49762
78	3.00000	2.96126	0.03874
79	2.55900	2.29862	0.26038
80	3.35300	3.06403	0.28897
81	3.85300	3.21124	0.64176
82	3.20600	3.21556	-0.00956
83	1.85300	2.75630	-0.90330
84	2.00000	2.78626	-0.78626
85	3.20600	3.30042	-0.09442
86	3.00000	3.23361	-0.23361
87	2.50000	2.92625	-0.42625
88	4.00000	3.16097	0.83903
89	3.85300	3.04101	0.81199
90	3.00000	2.89183	0.10817
91	2.70600	1.80172	0.90428
92	3.35300	2.56619	0.78681
93	2.00000	2.25468	-0.25468
94	3.20600	3.02037	0.18563
95	3.20600	3.46725	-0.26125
96	2.29400	3.05780	-0.76380
97	2.35300	2.10901	0.24399
98	2.14700	2.53116	-0.38416
99	2.44100	2.45435	-0.01335
100	2.20600	2.73782	-0.53182
101	3.20600	3.60968	-0.40368
102	2.00000	2.19259	-0.19259
103	2.55900	2.73225	-0.17325
104	2.00000	2.69544	-0.69544
105	1.70600	2.00958	-0.30358
106	3.55900	2.43722	1.12178
106	3.00000	2.94490	0.05510
108	3.00000	2.83262	0.16738
109	2.00000	2.77466	-0.77466
110	2.70600	2.76536	-0.05936
111	2.35300	2.37773	-0.02473
112	3.70600	2.80295	0.90305
113	3.00000	2.72017	0.27983
114	2.64700	2.13411	0.51289
115	2.35300	2.90986	-0.55686
116	2.00000	2.18717	-0.18717

APPENDIX C-6

DEVIATION BETWEEN GRADES PREDICTED FOR THE 72 STUDENTS IN GROUPS II AND III AND ACTUAL GRADES RECEIVED AT THE END OF THE SECOND YEAR IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	3.63200	3.32642	0.30588
2	2.68400	2.69852	-0.01452
3	3.23700	3.16639	0.07061
4	3.39500	3.56018	-0.16518
5	3.71100	3.39466	0.31634
6	3.63200	2.83308	0.79892
7	2.65800	2.99232	-0.33432
8	2.65800	2.48047	0.17753
9	3.23700	2.63241	0.60459
10	3.60500	3.43883	0.16617
11	2.40000	2.61008	-0.21008
12	3.18400	2.83595	0.34805
13	2.55300	2.87566	-0.32266
14	2.65800	2.95985	-0.30185
15	3.15800	2.10032	0.05768
16	2.94700	2.90817	0.03883
17	2.26300	2.72098	-0.45789
18	3.84200	3.18082	0.66118
19	3.31600	3.36236	-0.31636
20	2.68400	2.85755	-0.17355
21	2.65800	2.89484	-0.23684
22	3.23700	3.12079	0.11621
23	3.68600	3.40345	0.63687
24	3.63200	2.99513	0.63687
25	2.55300	2.66328	-0.11028
26	3.36200	3.62481	0.00719
27	3.39500	2.93394	0.46106
28	3.18400	3.12637	0.05763
29	3.92100	3.99488	-0.07388
30	2.63600	2.89562	-0.25962
31	3.15800	3.12352	0.03448
32	4.00000	3.60566	0.39434
33	2.71100	2.93839	-0.22739
34	3.07900	3.22465	-0.14565
35	2.50000	2.74207	-0.24207
36	2.10700	3.22749	-0.12049

APPENDIX C-6 (CONTINUED)

Subject	Actual	Predicted	Deviation
37	2.63200	2.72940	-0.09740
38	2.85700	3.18293	-0.32593
39	2.31600	2.83006	-0.51406
40	2.26300	2.34675	-0.08375
41	3.55300	3.47568	0.07732
42	2.91000	3.06292	-0.15292
43	3.47400	3.16041	0.31359
44	3.76400	3.22368	0.54032
45	3.21100	3.10902	0.10198
46	3.10500	2.72311	0.38189
47	2.63200	2.45993	0.17207
48	3.26300	3.08300	0.18000
49	2.34200	2.65904	-0.31704
50	3.60500	3.55962	0.04538
51	3.28900	3.31429	-0.02529
52	3.02600	3.27946	-0.25346
53	3.15500	3.13568	0.01932
54	2.89200	3.24361	-0.35161
55	2.89500	2.44344	0.45156
56	2.78900	2.78060	0.00840
57	3.31600	3.46864	-0.15264
58	2.57900	2.66723	-0.08823
59	2.97100	2.64833	0.32267
60	2.15800	2.79317	-0.63517
61	2.26300	2.72900	-0.46690
62	2.31600	2.47255	-0.15655
63	3.10500	2.96460	0.14040
64	2.73700	3.01825	-0.28125
65	2.39500	3.04227	-0.6472
66	2.94800	2.55378	0.39422
67	2.94700	2.90053	0.04647
68	3.36800	2.90165	0.46635
69	3.15800	3.45291	-0.29491
70	2.78900	3.17576	-0.38676
71	2.23700	2.38756	-0.15056
72	2.63200	2.73540	-0.10340

APPENDIX C-7

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 38 STUDENTS IN GROUP III AND ACTUAL GRADES RECEIVED FOR THE THIRD YEAR IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	2.52500	2.58521	-0.06021
2	2.82500	3.04109	-0.21609
3	2.45000	2.69262	-0.24262
4	2.85000	2.93377	-0.08377
5	2.40000	2.78168	-0.38168
6	2.35000	2.28163	0.06837
7	3.72500	3.09071	0.63429
8	3.17500	2.65454	0.52046
9	3.25000	3.15975	-0.13475
10	3.37500	3.21491	0.16009
11	3.22500	3.18695	0.03805
12	2.75000	2.62064	0.12936
13	2.82500	2.64710	0.17790
14	2.87500	2.80039	0.07461
15	2.50000	2.71612	-0.16612
16	3.35000	3.17959	0.17041
17	2.76900	3.13366	-0.36466
18	3.55000	3.05664	0.49336
19	3.25000	3.02840	0.22160
20	2.90000	3.09951	-0.19951
21	2.82500	2.64876	0.17624
22	2.82500	2.93203	-0.10703
23	3.12500	3.11659	0.00841
24	2.95000	2.81476	0.13524
25	2.97500	2.70770	0.26721
26	2.62500	2.79582	-0.17082
27	2.20000	2.69290	-0.49290
28	2.27500	2.77382	-0.49882
29	2.60000	2.78204	-0.18204
30	2.60000	2.78546	-0.18546
31	2.32500	2.68024	-0.35524
32	2.95000	2.70253	0.24747
33	3.15000	2.74581	0.40419
34	2.82500	2.81187	0.01313
35	2.92500	3.10141	-0.17641
36	2.82500	3.02229	-0.19729
37	3.05000	2.71973	0.33027
38	2.70000	2.75522	-0.05522

APPENDIX C-8

DEVIATIONS BETWEEN GRADES PREDICTED FOR THE 72 STUDENTS IN GROUPS II AND III AND ACTUAL GRADES RECEIVED AT THE END OF TWO YEARS IN THE VETERINARY MEDICAL PROGRAM (DEVIATIONS PRESENTED HEREIN BASED UPON ALL ENTERING VARIABLES)

Subject	Actual	Predicted	Deviation
1	3.19400	3.17415	0.01985
2	2.58500	2.83502	-0.25002
3	3.22200	3.10531	0.11669
4	3.51400	3.28349	0.23051
5	3.61000	3.46382	0.14718
6	3.26400	2.66269	0.60131
7	2.81900	2.89612	-0.07712
8	2.58300	2.54085	0.04215
9	3.38900	2.70984	0.67916
10	3.34700	3.54607	-0.19907
11	2.59400	2.94416	-0.35016
12	2.76400	2.68898	0.07502
13	2.29200	2.79058	-0.49858
14	2.27800	2.68018	-0.40218
15	2.84700	3.09750	-0.25050
16	2.73600	2.77167	-0.03567
17	2.37500	2.78651	-0.41151
18	3.47200	3.03684	0.43516
19	3.16700	3.62012	-0.45312
20	2.52800	2.93755	-0.40955
21	2.58300	2.59516	-0.01216
22	3.05600	2.89010	0.16590
23	3.40600	3.47324	-0.06724
24	3.73600	2.91770	0.81830
25	2.22200	2.78402	-0.56202
26	3.50000	3.54114	-0.04114
27	3.20800	2.92341	0.28459
28	2.93100	3.08674	-0.15574
29	3.88900	3.39754	0.49146
30	2.40300	2.76937	-0.36637
31	3.24100	2.85078	0.39022
32	3.66700	3.35842	0.30858
33	2.37500	2.82875	-0.45375
34	3.04200	2.98685	0.05515
35	2.52800	2.64104	-0.11304
36	3.22200	2.93853	0.28347

APPENDIX C-8 (CONTINUED)

Subject	Actual	Predicted	Deviation
37	3.20800	2.86184	0.34616
38	3.02900	3.32445	-0.29545
39	2.09700	2.73487	-0.63787
40	2.13900	2.60056	-0.46156
41	3.38900	3.12944	0.25956
42	2.95700	3.36961	-0.41261
43	3.12500	2.98615	0.13885
44	3.87500	3.13921	0.73579
45	3.62500	2.97000	0.65500
46	3.05600	2.80617	0.24983
47	2.66700	2.54777	0.11923
48	3.30600	3.02113	0.28487
49	2.11100	2.56286	-0.45186
50	3.41700	3.27041	0.14659
51	3.25000	3.40457	-0.15457
52	2.68100	2.93503	-0.25403
53	2.77800	2.89661	-0.11861
54	2.54200	2.72896	-0.18696
55	2.68100	2.38751	0.29349
56	2.56900	2.79257	-0.22357
57	3,26400	3.40555	-0.14155
58	2.30600	2.55257	-0.24657
59	2.76800	2.71123	0.05677
60	2.08300	2.58198	-0.49898
61	2.16700	2.66501	-0.49801
62	2.90300	2.53566	0.36734
63	3.05600	2.83379	0.22221
64	2.86100	2.98954	-0.12854
65	2.20800	2.71838	-0.51038
66	2.83300	2.60044	0.23256
67	2.66700	2.65232	0.01468
68	3.52800	2.52457	1.00343
69	3.08300	3.20328	-0.12028
70	2.72200	2.60480	0.11720
71	2.81900	2.57474	0.24426
72	2.33300	2.51519	-0.18219

APPENDIX D

DEVIATIONS BETWEEN GRADES PREDICTED FROM ALL ENTERING VARIABLES FOR THE 38 STUDENTS IN GROUP III AND ACTUAL GRADES RECEIVED IN CLINIC I TAKEN DURING THE THIRD YEAR IN THE VETERINARY MEDICAL PROGRAM

Subject	Actual	Predicted	Deviation
1	87.00000	87.10198	-0.10198
2	88.00000	87.89299	0.10701
3	85.00000	86.11779	-1.11779
4	85.00000	87.20931	-2.20931
5	88.00000	87.82969	0.17031
6	85.00000	84.57543	0.42457
7	87.00000	86.48315	0.51686
8	88.00000	87.57324	0.42676
9	87.00000	87.58622	-0.58622
10	88.00000	87.92313	0.07687
11	88.00000	87.33945	0.66055
12	87.00000	87.30164	-0.30164
13	88.00000	87.89903	0.10097
14	87.00000	86.92070	0.07930
15	87.00000	87.64251	-0.64251
16	89.00000	87.73096	1.26904
17	88.00000	88.17739	-0.17739
18	88.00000	87.91922	0.08078
19	88.00000	86.84153	1.15847
20	88.00000	87.74502	0.25498
21	87.00000	86.34477	0.65523
22	87.00000	87.09836	-0.09836
23	88.00000	87.33826	0.66174
24	88.00000	87.95384	0.04616
25	87.00000	86.95612	0.04388
26	85.00000	86.88950	-1,88950
27	86.00000	87.33399	-1.33399
28	87.00000	86.74325	0.25675
29	88.00000	87.07502	0.92498
30	87.00000	85.90855	1.09145
31	84.00000	85.52346	-1.52346
32	88.00000	87.99322	0.00678
33	88.00000	87.36004	0.63996
34	87.00000	86.39272	0.60728
35	87.00000	86.57425	0.42575
36	88.00000	87.97713	0.02287
37	87.00000	87.11125	-0.11125
38	87.00000	87.61543	-0.61543

VITA

Tama Ruth Wiggins Luther

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE ACHIEVING VETERINARY MEDICAL STUDENT; HIS PERFORMANCE, PERSONALITY CHARACTERISTICS, HISTORY, PERCEPTIONS, INTEREST PATTERNS AND VALUE-ATTITUDE SYSTEMS

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