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A DESCRIPTION AND EVALUATION OF POSSIBLE RECRUITMENT AND ADMISSION AIDS FOR PHARMACY STUDENTS

BY

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CHAPTER ONE

INTRODUCTION

After a relatively consistent enrollment in pharmacy schools in the United States in the early 1960's (12,535 in 1959-60[1] and 11,961 in 1964-65[2]), there has been an increase in the number of pharmacy students. Total enrollment for 1969-70 was 15,097. Much of this increase has been due to the increased number of women entering pharmacy schools.[3]

With more students enrolling in pharmacy schools, the schools' responsibility for maintaining high admission standards becomes greater.[4] Since more time must be spent selecting a year's enrollment, the criteria for selection should be well defined and effective in selecting applicants most deserving of admission. There has been a growing dissatisfaction with the traditional criteria for selection, such as undergraduate grades or letters

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1 "Report on Enrollment In Schools and Colleges of Pharmacy First Semester, Term, or Quarter, 1959-60," American Journal of Pharmaceutical Education (24:1) Winter 1960, p. 74.

2 "Report on Enrollment In Schools and Colleges of Pharmacy First Semester, Term, or Quarter, 1964-65," American Journal of Pharmaceutical Education (29:1) February 1965, pp. 92, 98.

3 "Report on Enrollment In Schools and Colleges of Pharmacy First Semester, Term, or Quarter, 1969-70," American Journal of Pharmaceutical Education (34:1) February 1970, p. 98.

4 Throughout this study, "admission standards" means all the factors which may be considered by an admission committee such as grades, letters of recommendation, and personal interviews. "Academic admission standards" means the minimum cumulative grade point average required for admission.

of recommendation.[5]

The need for high standards was recognized more than twenty years ago in The Pharmaceutical Survey, an in depth study of pharmacy in the United States. The survey was conducted from 1946-1949, and originated through the united efforts of the National Association of Boards of Pharmacy, the American Association of Colleges of Pharmacy, and the American Pharmaceutical Association. One of the thirteen stated objectives of the survey was the establishment of criteria for selection of pharmacy students. It was thought criteria for selection should include a minimum level of general scholastic aptitude, certain personality qualifications, and probably special aptitude for the types of training required in a pharmacy program.[6]

The Pharmaceutical Survey included faculty statements on professional problems facing pharmacy. The following statement by the faculty of the School of Pharmacy at the University of Maryland reflects their recognition of the problem of standards for admission of students to colleges of pharmacy.

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5 Travers, Robert M. W. and Wallace, Wimburn L., "Inconsistency in the Predictive Value of a Battery of Tests," Journal of Applied Psychology (34:4) August 1950, p. 237.

6 Elliott, Edward C., The General Report of the Pharmaceutical Survey, 1946-49, American Council on Education, Washington, D.C., 1950, p. 6.

> Scholarship standards for admission should be raised; more attention should be paid to the personality of the student, his aptitude for the work, and his professional ideals. New programs of testing and guidance might be of service here. Scholarship standards in colleges of pharmacy should be tightened. Better students would mean better pharmacists and would make for real progress toward the goal of better drug stores.[7]

The responsibility of pharmacy schools goes beyond the admission of pharmacy students, however. Blauch and Webster stated the following about the responsibility of pharmacy schools:

> Once the colleges have recruited and selected the kind of people the profession requires, it becomes their responsibility to bring those people to high scientific, technical, and professional competence and not to send them out with a stamp of approval, in the form of a degree, until they give evidence that they will serve the public acceptably and in accordance with the standards of the profession.[8]

The lack of professional motivation on the part of many pharmacy students has been attributed recently by a pharmacy educator to the relatively low entrance standards in most pharmacy schools.[9]

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7 Ibid, p. 87.

8 Blauch, Lloyd E. and Webster, George L., The Pharmaceutical Curriculum, American Council on Education, Washington, D.C., 1952, p. 57.

9 Canada, Andrew T., Jr., "The Training of a Clinical Pharmacist," American Journal of Pharmaceutical Education (34:2) May 1970, p. 267.

The admission of marginal students can force the quality of instruction down to their level. A marginal performer has been defined as one who is judged to be at or close to the lower limit of performance acceptability in his assigned work.[10] The level of instruction may be affected by attempts to salvage weaker students.[11] If the instructor must make an effort to keep these marginal students at the same level as the rest of the class, his time to work with better students is minimized.

Admission standards which permit the admission of marginal students are paradoxical with an educator's recent statement that it is necessary to set and maintain high standards for health education and practice.[12] A medical school educator recently stated the medical profession needs an agressive approach to recruitment and selection of highly motivated superior students.[13] The same could be said for the pharmacy profession.

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10 Weatherbee, Harvard Y., "Steering Marginal Performers to Solid Ground," Personnel (46:4) July-August 1969, p. 35.

11 Morris, J.R., "The Student: Necessary First Ingredient," American Journal of Pharmaceutical Education (30:5) December 1966, p. 642.

12 Leake, Chauncy D., "Pharmacy and the Health Professions," American Journal of Pharmacy (141:2) March-April 1969, p. 53.

13 Jacobson, Leon D., "Toward a Comprehensive Modern Medical Education," Journal of Medical Education (43:5) May 1968, p. 522.

The necessity to improve admission standards was recognized nearly three decades ago in a pharmacy journal editorial in which was stated, "No profession can be improved without improving the quality of the men who enter its ranks."[14] In the same editorial it was implied that laxness of admission requirements results in pharmacists practicing pharmacy who do not contribute to the profession in a positive manner.[15] Denzin and Mettlin reported pharmacy has recruited a larger number of students who subscribe to more of the unprofessional qualities of the occupation than to its professional elements.[16] Blauch and Webster have stated that the pharmacy colleges are the principal safeguards for the protection of the public against incompetent and unscrupulous practitioners.[17]

Pharmacy School Admission Standards

A sample of accredited schools of pharmacy in the United States was taken to develop a range of academic admission standards. The sample consisted of the largest and smallest pharmacy school from

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14 Lyman, Rufus A., "The Editor's Page," American Journal of Pharmaceutical Education (5:4) October 1941, p. 610.

15 Ibid, p. 608.

16 Denzin, Norman K. and Mettlin, Curtis J., "Incomplete Professionalism: The Case of Pharmacy," Social Forces (46:3) March 1968, p. 379.

17 Blauch and Webster, op. cit., p. 57.

each of the eight A.A.C.P. Districts.[18] Size was determined by a school's total enrollment for 1969-70.[19] Academic admission standards were obtained from a current catalogue of these schools of pharmacy. A current catalogue was not available for two of the smaller schools (Florida A and M and University of Rhode Island), so the second smallest school in each of the two particular A.A.C.P. Districts was evaluated (Medical University of South Carolina and Northeastern University).

Only one of the sixteen schools of pharmacy made any mention of having academic standards higher than a "C". That one school used a 5.0 grading system where a 3.0 was a "C". Academic requirements were a minimum cumulative GPA of 3.25, although students with between a 3.0 and 3.25 might be admitted under probationary status. There seems to be much similarity in academic admission standards for schools of pharmacy.

Professional School Admission Policies and Procedures

Mr. Edward E. Rhine recently completed a study at the Ohio State University on professional school admission policies and procedures. The study was made to collect data for an Admissions and Records Officers Handbook, sponsored by the American Association

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18 A listing of these schools is given in Appendix A.

19 American Journal of Pharmaceutical Education (34:1), op. cit., pp. 94-97.

of Collegiate Registrars and Admissions Officers.[20]

A limitation of Rhine's study is only 48 of the 73 accredited Schools of Pharmacy in the United States participated. In order of average importance, the criteria considered in the admission of pharmacy school applicants were: (1) the quality of the undergraduate academic record; (2) aptitude test scores; (3) interviews; (4) recommendations; and (5) state residency. Not all of these factors were considered in each case. In some cases, the high school transcript and/or aptitude test scores were required. These criteria are similar to those described by Remmers and Gage more than twenty years ago.[21]

According to Rhine's study, the factors which admission committees attempt to assess in the interview, in order of average importance, are: (1) the applicant's motivation toward the profession; (2) the quality of his preprofessional academic records; (3) appearance (physical factors); (4) intellectual curiosity; and (5) personality and character. However, only 13 of the 48 schools required an interview as part of their admission policy, while 13 others recommended them.

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[20] Information from the Rhine study was obtained by personal correspondence with Mr. Edward E. Rhine, Associate Director of Admissions at Ohio State University. Copies of this correspondence are found in Appendix B.

[21] Remmers, H.H. and Gage, N.L., "Student Personnel Studies of the Pharmaceutical Survey," American Journal of Pharmaceutical Education (13:1) January 1949, p. 29.

Rhine also reported on the average, two out of every three applicants are admitted to those pharmacy schools responding to his questionnaire. The range varied from 34 percent (85 out of 240 applicants) to 95.5 percent (65 out of 68 applicants). By comparison, in 1967-68, 51.8 percent of the total applicants for medical school in the United States were accepted.[22]

Admission Standards at the University of Wisconsin School of Pharmacy

The University of Wisconsin has the only School of Pharmacy in the State of Wisconsin. In recent years, the school has had one of the highest undergraduate enrollments in the country, leading all pharmacy schools in 1968-69 with 460 students and being second largest in 1969-70 with 431 students.[23]

The present criteria for admitting applicants to pharmacy school at the University of Wisconsin is a minimum 2.00 cumulative grade point average, on a 4.00 grading system, upon the completion of the two-year prepharmacy curriculum. Also, the applicant must have a minimum semester grade point average of 2.00 the semester preceding transfer into the School of Pharmacy. Applicants not meeting these prerequisite grade point averages could be admitted on a

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22 Jarecky, Roy K., Johnson, Davis G., and Mattson, Dale E., "The Study of Applicants, 1967-68," Journal of Medical Education (43:12) December 1968, pp. 1215, 1221.

23 American Journal of Pharmaceutical Education (34:1) op cit., p. 95.

probation policy upon approval of the Admissions Committee of the School of Pharmacy.[24]

Academic standards for admission vary with different departments at the University of Wisconsin. The School of Education requires a minimum 2.50 cumulative grade point average for admission while the School of Business requires a minimum 2.30.[25]

There are at least two possible reasons why these departments maintain comparatively higher academic requirements for admission: (1) the departments want to increase the quality of their student body and do not think the "C student" has the necessary academic potential; or (2) there is such a large number of applicants the departments can raise the academic requirements and continue to maintain the desired enrollment.

An evaluation of vocational interests and motivation for becoming a pharmacist is not part of the admission policy at the University of Wisconsin School of Pharmacy. The following page shows statements regarding these factors. They were made in

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[24] Information on admission requirements into the University of Wisconsin School of Pharmacy was obtained in a conversation on October 23, 1969, with Dr. R.A. Ohvall, Assistant Dean of Pharmacy at the University of Wisconsin.

[25] See Appendix C for a copy of an abstract of the conversation held with Mr. Robert E. Miller, Assistant Director of Admissions at the University of Wisconsin.

reference to veterinary medicine, but the inference for pharmacy is appropriate. Wherever the words "veterinary medicine" appeared in the statements, the word "pharmacy" has been substituted in parentheses.

> ... selection only on the basis of ability to complete the curriculum is a short-sighted goal for administrators, especially in professional curricula such as (pharmacy). They might well be equally concerned about choosing those students who will be compatible with the requirements of (pharmacy) upon graduation and subsequent entry into actual practice. A high degree of interest in (pharmacy) is probably necessary for satisfaction and stability in the vocation.[26]

Remmers and Gage studied the use of the Kuder Preference Record in measuring pharmacy students' interests in pharmacy. They stated that strength of interest should make possible significant predictions of "withdrawal-remaining" in such a profession as pharmacy, which, like other specialized occupations, draws upon a unique pattern of interests and preferences as well as upon certain types of abilities and skills.[27]

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[26] Hannum, T.E. and Thrall, John B., "Use of the Strong Vocational Interest Blank for Prediction in Veterinary Medicine," Journal of Applied Psychology (39:4) August 1955, p. 249.

[27] Remmers and Gage, op. cit., p. 28.

Strong, the originator of the Strong Vocational Interest Blank, mentioned two major problems in the selection of students for college: (1) selecting applicants who will do satisfactory scholastic work in school, and (2) selecting applicants who after graduation will be successful practitioners, enjoy their work, and be a source of pride to a profession. He warned that if the sole criterion for selection and graduation was the ability to pass examinations, there would be graduated almost every year men who were no credit to their professions.[28]

To improve the quality of pharmacy students, minimum grade point requirements for admission possibly should be raised. Factors such as vocational interest and career motivation also might be evaluated.

A Study of Admission Standards

The academic admission standards of the School of Pharmacy at the University of Wisconsin appear to be representative of pharmacy schools in the United States. A study of pharmacy students who have been admitted by these requirements could determine the effects of higher academic admission standards on overall academic performance in pharmacy school. Combining pertinent background data of the students with their

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28 Strong, Edward K. Jr., Vocational Interests of Men and Women, Stanford University Press, California, 1943, p. 58.

academic performances could show if poorer students have distinguishable characteristics. Recruitment efforts would be enhanced by knowing these characteristics, if in fact there are any.

It was decided to conduct a study of pharmacy students at the University of Wisconsin in an effort to understand better pharmacy students of different academic potential. Factors other than past academic performances have been analyzed to determine their usefulness as standards for admission. The findings of this study hopefully will include methods through which one might: (1) evaluate pharmacy school applicants; and (2) recruit students who are interested in pharmacy as a profession and who will be able to meet the academic requirements of pharmacy school.

Objectives

The objectives of this study are to:

a. Determine if academic performance differs significantly between each of the following: (1) males and females; (2) students with and without vocational counseling; (3) students from various high school graduation class sizes; and (4) transfer and nontransfer students.

b. Determine a relationship between academic performance prior to admission to pharmacy school and PH-1 year first semester GPA.

c. Determine if curriculum satisfaction is influenced by recent academic performance, and related to interest in pharmacy.

d. Determine relationships between vocational interest and each

of the following: (1) males and females; (2) anticipated career area; and (3) academic performance.

e. Determine if students with and without previous pharmacy work experience differ significantly in the following: (1) curriculum satisfaction; and (2) interest in pharmacy.

f. Determine if the timing of the decision to become a pharmacist differs significantly between males and females.

g. Determine if anticipated career areas differ between males and females.

h. Determine relationships between reasons for selecting pharmacy as a career and each of the following: (1) males and females; (2) anticipated career area; and (3) academic performance.

i. Establish a continuing data bank on pharmacy students at the University of Wisconsin, obtaining background information from a biographical questionnaire. The purpose of such a data bank is to facilitate follow-up studies on pharmacy students while completing their internship requirements and after their licensure as registered pharmacists. The need for follow-up studies on pharmacy students was expressed by Remmers and Gage in 1948, after they tested freshmen pharmacy students. They stated their results required careful and extensive follow-up studies of the students to determine whether the anticipated relationships of interests to success in and satisfaction with pharmacy would actually hold.[29]

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[29] Remmers, H.H. and Gage, N.L., "The Abilities and Interests of Pharmacy Freshmen," American Journal of Pharmaceutical Education (12:1) January 1948, p. 34.

CHAPTER TWO

METHODOLOGY

This study of first-year pharmacy students was conducted at the University of Wisconsin School of Pharmacy. Data were collected from the following sources: (1) biographical questionnaire; (2) Strong Vocational Interest Blank; (3) Academic Major Satisfaction Blank; and (4) official grade transcripts from the School of Pharmacy records. Statistical analyses were made using various computer programs.

The Sample

First-year pharmacy students were studied to allow accumulation of biographical, academic, and other data near their time of admission to the School of Pharmacy. This will permit relating these data to future academic performance in the School of Pharmacy and facilitate the collection of information for the data bank. The sample consists of students in the 1968-69 and 1969-70 first-year pharmacy classes at the University of Wisconsin - Madison campus. These students hereafter are referred to as PH-1's. A PH-1 at the University of Wisconsin usually is a student who has completed at least the two-year prepharmacy requirements and is a third-year college student. Fourteen PH-1's were not taking the first-year pharmacy courses for various reasons.[1] However, only PH-1's

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[1] Nine 1968-69 PH-1's and five 1969-70 PH-1's were taking some combination of prepharmacy, PH-1, and/or PH-2 courses. They were omitted from this study. Two 1968-69 PH-1's were dropped, but readmitted in 1969-70 as PH-1's. They were included only in the 1968-69 PH-1 class.

taking the first-year pharmacy courses were included in this study.

The total number of PH-1's in the study was 254 students, 198 males and 56 females. Table 1 categorizes the sample by class and sex.

TABLE 1

SAMPLE MEMBERS BY CLASS AND SEX

PH-1 Class	Males	Females	Total
1968-69	111	32	143
1969-70	87	24	111
Total	198	56	254

Strong Vocational Interest Blank

The Strong Vocational Interest Blank (SVIB) is an inventory of interests developed by Edward K. Strong, Jr. and was first published in 1927.[2,3] The SVIB is a device to measure different job interests among those occupations college students usually enter. The score is a measure of how nearly a person's interests coincide with those of the average person successfully engaged in

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2 Strong, Edward K., Jr., and Campbell, David P., SVIB Manual, Stanford University Press, California, 1966, p. iii.

3 A copy of the SVIB-M test booklet and answer sheet used in the study is found in Appendix D.

the particular occupation.[4] The SVIB measures vocational interests only, and not specific abilities such as intelligence.[5]

The following statements describe the interpretation of SVIB scores.

> A person should consider seriously those occupations in which he receives high scores on the Strong Vocational Interest Blank before entering some unrelated occupation. On the other hand, he should scrutinize critically any occupation in which he receives a low score before accepting it as a final choice.[6]

Studies have been made concerning the usefulness of SVIB scores. In two studies of high school seniors, Berdie found the scores related to occupations entered after college graduation. Berdie concluded that careful use of the SVIB is justified with high school seniors.[7,8] Adams conducted a comparative study of intellectually gifted college students who either withdrew or remained in college. She found the group which remained contained

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4 Strong, op cit., p. 67.

5 Strong and Campbell, op. cit., p. 1.

6 Ibid, p. iii.

7 Berdie, R.F., "Strong Vocational Interest Blank Scores of High School Seniors and Their Later Occupational Entry," Journal of Applied Psychology (44:3) June 1960, p. 165.

8 Berdie, R.F., "Strong Vocational Interest Blank Scores of High School Seniors and Their Later Occupational Entry, II," Journal of Applied Psychology (49:3) June 1965, p. 193.

a significantly larger number of students whose curriculum choice was compatible with their Strong interest pattern.[9] Hannum and Thrall studied the use of the SVIB for prediction of academic success in veterinary students, and found it to be of little value.[10] A recent study using the SVIB suggested first year achievement in college is more directly related to past indices of grade-getting behavior than to interest patterns associated with good scholarship.[11] Powers found the vocational interests of adult males, regardless of age, aptitudes, education, vocational opportunity, and economic status tend to remain stable for the first ten years of adulthood, and presumably over the long span of adulthood.[12]

The SVIB contains an occupational scale for each occupation included on the test. The SVIB Manual explains the meaning of the occupational scales in the following manner.

> A person's score on an occupational scale of the SVIB represents an index of the similarity between that person's likes and dislikes and the

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9 Adams, Lois, "A Study of Intellectually Gifted Students Who Withdrew from the Pennsylvania State University," Unpublished Master's Thesis, Pennsylvania State University, 1955, p. 17.

10 Hannum and Thrall, op. cit., p. 249.

11 Lindsay, Carl A., and Althouse, Richard, "Comparative Validities of the SVIB Academic Achievement Scale and the College Student Questionnaire Motivation for Grades Scale," Education and Psychological Measurement (29:2) Summer 1969, p. 492.

12 Powers, Mabel K., "Permanence of Measured Vocational Interests of Adult Males," Journal of Applied Psychology (40:2) April 1956, p. 71.

> likes and dislikes distinguishing members of that occupational group from men (or women) in general. An individual's response to a single item is only a weak clue to his interests, but his collective responses to an appropriate cluster of items can provide meaningful information about the kinds of occupations he might be happy in.[13]

For the derivation of any occupational scale, the SVIB is administered to a group of people (usually about 300) in a specified occupation. In most cases, the following three standards have been applied: (1) The person must be between 25 and 55 years old; (2) He (or she) must have been employed in the occupation for three years or more; and (3) He (or she) must indicate that he likes his work.[14]

The Pharmacist occupation scale of the SVIB was originated by Schwebel, the results of which were published in 1951.[15] The scale was derived from the interests of 309 male pharmacists in the State of New York in 1947, all of whom indicated they were satisfied with their occupation.[16]

No revision has been published since Schwebel's original study. It is possible the interests of pharmacists practicing in 1947 do

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[13] Strong and Campbell, op. cit., p. 7.

[14] Ibid, p. 7.

[15] Schwebel, Milton, The Interests of Pharmacists, King's Crown Press, New York, 1951.

[16] Strong and Campbell, op. cit., p. 60.

not correspond to pharmacists' interests in 1970. However, the Pharmacists scale of the SVIB has not been shown to misrepresent pharmacists' interests. Campbell found the SVIB Banker scale to remain valid for 30 years.[17]

An SVIB profile is prepared for a person completing the SVIB so he can observe the relation between the various occupational scores received.[18] Each occupation receives a score which is interpreted in terms of a letter grade in the following manner.[19,20]

A ..... 45 and above
B+ 40-44
B 35-39
B- 30-34
C+ 25-29
C ..... below 25

There is a 50 percent probability that a person will enter an occupation for which he has a B rating. The probability for a student's entering and remaining in an occupation where he has a C rating is less than 20 percent. However, there is a 75 percent probability for one entering and remaining in an occupation where

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17 Campbell, D.P., "Stability of Interest Within An Occupation Over 30 Years," Journal of Applied Psychology (50:1) February 1966, p. 53.

18 The profile sheet received by the 1968-69 PH-1's is found in Appendix E. A revised SVIB profile sheet was introduced in 1969 and was completed for the 1969-70 PH-1's. A copy of this form is found in Appendix F.

19 Strong and Campbell, op. cit., p. 9.

20 A complete explanation of the procedure in scoring the SVIB is found in Edward K. Strong, Jr.'s text, Vocational Interests of Men and Women, Stanford University Press, California, 1943, pp. 64-69.

he has a A rating.[21] About two-thirds of the men in a given occupation score above 45 on their own scale.[22]

The SVIB was completed by each participating student in the 1968-69 PH-1 class in the last week of Fall Semester, 1968. The participating PH-1's in the 1969-70 class completed the SVIB the first week of Fall Semester, 1969.[23] The SVIB was completed during a 50-minute class period in both classes. The completed answer sheets were submitted to the University of Wisconsin Counseling Center, who sent them to the SVIB Scoring Center in Minneapolis, Minnesota, where the tests were scored. An SVIB profile sheet was returned for each participating PH-1.

Academic Major Satisfaction Blank

The Academic Major Satisfaction Blank (AMSB) used in this study was obtained from the University of Wisconsin Counseling Center. Unpublished studies of nursing students have been made by the Counseling Center using the AMSB. The AMSB is a modified

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21 Strong and Campbell, op. cit., p. 9.

22 Ibid, p. 10.

23 The SVIB is available in two forms, one for men (SVIB-M) and one for women (SVIB-W). Because a Pharmacist scale has been developed only on the SVIB-M, all PH-1's completed the SVIB-M. Thus, SVIB scores for the PH-1's in this study are scores from the SVIB-M. This allowed a comparison of Pharmacist scores between the sexes and was done with the concurrence of Dr. Richard W. Johnson, Assistant Director of Research and Consultation, University of Wisconsin Student Counseling Center.

version of the Hoppock Job Satisfaction Scales.[24,25] Each of the four questions are graded on a one to seven scale, seven represents the highest satisfaction level for each question.

Similar modifications of the Hoppock Job Satisfaction Scales have been used by both Schwebel and Hammel to determine job satisfaction of pharmacists.[26,27] Ohvall proposed a slightly revised version of the Hoppock Scales different from Schwebel or Hammel, for establishing the criterion of job satisfaction of pharmacists.[28]

A computer test analysis was performed on the AMSB using the Fortran Fortap program.[29] This analysis showed the AMSB to have a Hoyt Coefficient of Reliability of 0.80 with a standard error of

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24 Hoppock, Robert, Job Satisfaction, Harper and Brothers, New York, 1935,

25 A copy of the AMSB used in this study is found in Appendix G.

26 Schwebel, op. cit., pp. 17,72,73.

27 Hammel, Robert Warren, "Employment History of University of Wisconsin Pharmacy Graduates: 1951-1955," Unpublished M.B.A. Seminar Paper, Univeristy of Wisconsin, 1956, pp. 64,65, and p. 8 of Appendix I.

28 Ohvall, Richard Arthur, "A Study of the Need and Feasibility of Establishing Differential Guidance Standards for Pharmacy Undergraduates in the Extended Curriculum," Unpublished Ph.D. Dissertation, University of Wisconsin, 1962, pp. 175, 293-295.

29 A complete description of the Fortap analysis is available in Fortap A Fortran Test Analysis Package, by Frank B. Baker, published by the Laboratory of Experimental Design, Department of Educational Psychology at the University of Wisconsin, September 1969.

1.2.[30] This coefficient is referred to also as the test's internal consistency. The Hoyt Coefficient of Reliability gives the percentage of the obtained variance in the distribution of test scores that may be regarded as true variance.[31] True variance is that variance not due to the unreliability of the measuring instrument.[32]

This Fortap program determines reliability, but not validity. Reliability is a measure of consistency between independent variables. The extent to which differences in the item being measured are in fact true differences is determined through validity measurements. Thus, it is possible individual PH-1's used different frames of reference when answering the four questions on the AMSB.

An AMSB was used by Nahm in her study of nursing students at Duke University School of Nursing. She reported a growing recognition of the close relationship which existed between the extent of satisfaction within a professional group and the quality of service which that group rendered to society.[33]

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30 The Hoyt Coefficient of Reliability is derived and explained in detail in: Hoyt, Cyril, "Test Reliability Estimated By Analysis of Variance," Psychometrika (6:3) June 1941, pp. 153-160.

31 Ibid, p. 153.

32 Ibid, p. 153.

33 Nahm, Helen, "Satisfaction With Nursing," Journal of Applied Psychology (32:4) August 1948, p. 335.

The AMSB was administered to each participating PH-1 in the 1968-69 class during the first two weeks of Spring Semester, 1969, and Spring Semester, 1970. The 1969-70 PH-1 class participants completed the AMSB during the first week of both Fall Semester, 1969, and Spring Semester, 1970. The reasons for giving the AMSB twice to both classes were: (1) to see if satisfaction changed after the first semester of pharmacy school (1969-70 PH-1's); (2) to see if satisfaction changed after the third semester of pharmacy school (1968-69 PH-1's); and (3) to compare the results of the two classes having taken the AMSB at the same point in time during the PH-1 year (the beginning of Spring Semester).

Biographical Questionnaire

The biographical questionnaire was designed specifically for this study. It was completed by each participating PH-1 in the 1968-69 class the last week of Fall Semester, 1968. The 1969-70 PH-1's completed it the first week of Fall Semester, 1969. As a result of analyzing responses to the questionnaire completed by the 1968-69 PH-1's, a revised version was completed by the 1969-70 PH-1's in hopes of obtaining more specific and useful responses.[34]

The primary purpose of the biographical questionnaire was to supply pertinent data for this study. However, a secondary and

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[34] A copy of the original biographical questionnaire is found in Appendix H, and the revised version in Appendix I.

long-range purpose was to supply material for a continuing data bank on pharmacy students at the University of Wisconsin. Thus, not all of the questions pertain to this study.

The following questions in the biographical questionnaire do pertain to this study: (1) sex of student; (2) name of the last college or university attended for a full academic semester (used to distinguish transfer students); (3) time decision was made to become a pharmacist; (4) evaluation of counseling, if any had been received; (5) field of pharmacy or other occupation planning to enter upon completion of pharmacy school; (6) the three most significant factors in selecting pharmacy as a career, in order of their importance (1969-70 PH-1's only); and (7) previous work experience in pharmacy, if any.

Grade Point Averages

The following grade point averages (GPA) were recorded for each participating PH-1: (1) cumulative GPA for inorganic chemistry courses, generally regarded as freshmen chemistry; (2) cumulative GPA for organic chemistry courses;[35] (3) cumulative GPA upon entering the PH-1 year (admission GPA); and (4) semester GPA for the first semester of the PH-1 year. The semester GPA for the second semester

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[35] Cumulative freshmen and organic chemistry GPA's were determined by calculating the mean GPA's for each PH-1 for the required freshmen and organic chemistry courses in the prepharmacy curriculum. If any course was repeated, the only grade recorded for that course was the grade earned for the first completion of the course.

of the PH-1 year was recorded for each participating PH-1 in the 1968-69 class.

It is believed the prepharmacy curriculum places particular emphasis on chemistry courses. Organic chemistry often is regarded as the most difficult courses of the required prepharmacy classes. Therefore, it was thought either one or both of the grade point averages from these two chemistry courses might be predictive of how well a pharmacy school applicant will do academically in the pharmacy curriculum.

The term "admission GPA" is used rather than "prepharmacy GPA" because the GPA at time of admission for some students includes more than the prepharmacy course requirements. However, for comparison with other studies, "admission GPA" and "prepharmacy GPA" can be regarded as synonymous.

Statistical Analyses

The majority of the statistical analyses were calculated using the Chi-Square test of significance at the

five percent level of significance.[36,37] Calculations were made using the CDC 3600 Computer and the Univac 1108 Computer at the Computer Center at the University of Wisconsin. Chi-square tests were made using the Statjob CROSSTAB program, F-tests for SVIB scores were made using the Statjob ONEWAY1 program, and correlation analyses of grade point averages were made using the Statjob REGAN2 program.[38,39]

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36 The objective of a chi-square analysis is to determine the maximum differences that normally could be expected to occur because of sampling variations. If the measure of difference falls within the acceptable sampling variation limits, then the differences are attributed to sampling. But if the measure fall outside these limits, then the differences are thought to be real. More information about chi-square analyses can be found in: Boyd, Harper W., Jr. and Westfall, Ralph, Marketing Research Text and Cases, Richard D. Irwin, Inc., Homewood, 1964, p. 533.

37 The 0.05 probability level is generally used as the boundary line between significance and nonsignificance. If the probability of obtaining a value of X^2 larger than the computed value is greater than 0.05, the observed differences are ascribed to sampling variations. If the probability is less than 0.05, the observed relationships are ~~are~~ assumed really to exist in the population. More information about significance levels can be found in: Ferber, Robert, Statistical Techniques In Market Research, McGraw-Hill, New York, 1949, p. 261.

38 The F-ratio is a type of variance analysis. The underlying basis of variance analysis is the segregation of the total variance in a set of data into component variances attributable to each of the various factors involved in the problem. Computationally, the F-ratio is the mean square between groups over the mean square within groups. More information on the F-ratio can be found in: Ferber, Robert, Statistical Techniques In Market Research, McGraw-Hill, New York, 1949, pp. 279-281.

39 The purpose of correlation analysis is to measure the degree of relationship between two or more variables. This degree of correlation is expressed as a correlation coefficient which gives the extent to which the scores on one of the variables bear a systematic linear relation to the scores on the other(s). More information on correlation can be found in: Magnusson, David, Test Theory, Addison-Wesley, Massachusetts, 1966, pp. 32-34.

Limitations

Some of the limitations of this study are: (1) time factor, resulting in only obtaining first-year grades for one PH-1 class and first semester grades for two PH-1 classes; (2) the sample represents students from only one pharmacy school; (3) the size of some subgroups is limited, particularly the sample size of some groups of female pharmacy students; and (4) the SVIB for Men had to be given to both male and female students because a Pharmacist scale was not included on the SVIB for Women. Additional limitations are discussed as they appear throughout the study.

CHAPTER THREE

FINDINGS

The findings of this study include: (1) analyses of grade point averages; (2) comparisons of Strong Vocational Interest Blank profiles; (3) analysis of Academic Major Satisfaction Blank scores; and (4) classification and analyses of data from the biographical questionnaire.

In the analyses of admission GPA, emphasis was placed on PH-1's admitted with less than a 2.30 cumulative GPA. By comparing these PH-1's to the remaining PH-1's, an attempt was made to determine the possibility of there being a sound rationale for raising academic admission requirements to a 2.30 cumulative GPA rather than the present 2.00. A dividing line of 2.30 was selected because it was the cumulative GPA required for admission to the University of Wisconsin School of Pharmacy previous to the five-year curriculum.[1]

Grade Point Averages Between Sexes

The two PH-1 classes were categorized by sex to determine possible significant differences in academic performance. Five ranges of grade point averages were established for the analyses.

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[1] The University of Wisconsin Catalog, Part I and College of Letters and Science, Announcement of Courses - 1958-60, p. 114.

There was a significant difference between the grade point averages of male and female PH-1's, both for admission GPA and the PH-1 first semester GPA. The mean admission GPA for male PH-1's was 2.57 compared to 2.95 for the females; median GPA values were 2.49 for males and 2.90 for the females. Table 2 shows the distribution of admission GPA's between male and female PH-1's.[2]

TABLE 2

ADMISSION GPA RANGES FOR
MALE AND FEMALE PH-1'S

Admission GPA Ranges	Males	Females	Total
Less Than 2.30	64	9	73
Between 2.30 and 2.49	37	4	41
Between 2.50 and 2.99	64	18	82
Between 3.00 and 3.49	25	12	37
Between 3.50 and 4.00	8	13	21
Total	198	56	254

$X^2 = 29.35$ (4 d.f.)

The data show 32.3 percent of the men were admitted with less

[2] When a chi-square analysis is performed in this study, the calculated chi-square value is given at the bottom of the table. Comparison of this value to chi-square table values will show significant or nonsignificant differences in the data. For example, in Table 2, the calculated chi-square (X^2) is 29.35. The chi-square table shows a value of 9.49 with four degrees of freedom at the five percent level of significance. Since 29.35 is greater than 9.49, there is a significant difference between the admission GPA's of male and female PH-1's.

than a 2.30 compared to 16.1 percent of the women. Also, 16.6 percent of the men were admitted with a 3.00 or better compared to 44.6 percent of the women.

Table 3 shows the distribution of PH-1 first semester GPA's between males and females. The data show 23.2 percent of the men received less than a 2.00 their first semester of pharmacy school compared to 14.3 percent of the women. Also, 19.7 percent of the men received a 3.00 or better compared to 44.6 percent of the women. The mean GPA for men was 2.40 compared to 2.69 for females. Median GPA's were 2.37 for males and 2.73 for females.

TABLE 3

PH-1 YEAR FIRST SEMESTER GPA RANGES
FOR MALE AND FEMALE PH-1'S

First Semester GPA Ranges	Males	Females	Total
Less Than 2.00	45	8	53
Between 2.00 and 2.49	63	17	80
Between 2.50 and 2.99	50	6	56
Between 3.00 and 3.49	29	13	42
Between 3.50 and 4.00	10	12	22
Total	197[a]	56	253

$X^2 = 21.32$ (4 d.f.)

[a] One male PH-1 in the 1969-70 class did not complete the first semester due to illness.

Data on PH-1 year second semester GPA's were analyzed for the 1968-69 class only. Table 4 shows the distribution of these grades between males and females. As before, the females were better students with 51.9 percent of them receiving a 3.00 or better compared to only 19.6 percent of the males. However, 16.7 percent of the males and 11.1 percent of the females received less than a 2.00 their second semester of pharmacy school.

TABLE 4

PH-1 YEAR SECOND SEMESTER GPA RANGES FOR MALES AND FEMALES IN THE 1968-69 PH-1 CLASS

Second Semester GPA Ranges	Males	Females	Total
Less Than 2.00	17	3	20
Between 2.00 and 2.49	38	4	42
Between 2.50 and 2.99	27	6	33
Between 3.00 and 3.49	14	5	19
Between 3.50 and 4.00	6	9	15
Total	102	27	129[a]

[a] Five females and nine males did not attend pharmacy school for the second semester.

It would appear from Tables 2, 3, and 4 that the School of Pharmacy has been more selective in admitting female students. The same standards, however, are used to judge all applicants regardless of sex.

Although differences in intellectual capacity between men and women are not outstanding, there are notable sex differences in academic achievement.[3] Women enter college with superior high school grades and continue to do comparatively well in college.[4] This difference between the sexes is especially evident in science courses, in which girls receive grades equal to those of boys despite evidence that boys are more interested in science, score higher than girls on standardized tests of science knowledge, and win more science scholarships.[5]

Lewis offers the following explanation of why girls get better grades than boys: (1) girls have superior verbal ability; (2) girls likely have better handwriting; (3) girl's personality and behavior are more apt to make a favorable impression on teachers; (4) at the college level, girls conform better to the academic standards; (5) girls benefit from the unwritten assumption that girls are supposed to get better grades; and (6) girls generally work harder in school.[6] No attempt has been made in this study to determine why the female PH-1's earned higher grades than the male PH-1's.

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3 Lewis, Edwin C., Developing Woman's Potential, Iowa State University Press, Ames, 1968, p. 45.

4 Ibid, pp. 45, 256.

5 Ibid, pp. 45, 256.

6 Ibid, pp. 47-48.

Admission GPA and Academic Performance In Pharmacy School

A common standard on which to judge a pharmacy school applicant's academic potential is to examine his or her prepharmacy GPA. This practice assumes grade point average is a valid indicator of a student's scholastic ability. In a study of dental students, the following statement was made in reference to the value of grade point averages.

> One should keep in mind that the GPA is an unsatisfactory criterion of academic success in any college or professional school. Many of the grades which enter into the computation of the GPA are not objectively derived, and as such they reflect, in large measure, the instructor's personal prejudices rather than the student's true achievement.[7]

However, this should not imply prepharmacy grades are not important in evaluating an applicant. Past academic performance may be the only tangible item an admission committee has on which to evaluate an applicant. This could account for the heavy reliance on past academic performance. A recent study at the University of Georgia School of Pharmacy found prepharmacy GPA to be a useful variable to discriminate between better, average,

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[7] Chen, Martin K., Podshadley, Dale W., and Shrock, John G., "A Factorial Study of Some Psychological, Vocational Interest, and Mental Ability Variables As Predictors of Success in Dental School," Journal of Applied Psychology (51:3) March 1967, p. 240.

and below-average students.[8] Predental GPA has been found to be an efficient predictor of dental school GPA.[9]

Table 5 shows how PH-1's in various ranges of admission GPA's performed academically their first semester of pharmacy school.

TABLE 5

PH-1 YEAR FIRST SEMESTER GPA RANGES BY ADMISSION GPA RANGES

First Semester GPA Ranges	Admission GPA Ranges					Total
	< 2.30	2.30-2.49	2.50-2.99	3.00-3.49	3.50-4.00	
Less Than 2.00	32	14	6	1	0	53
Between 2.00 and 2.49	28	13	31	8	0	80
Between 2.50 and 2.99	11	11	28	6	0	56
Between 3.00 and 3.49	2	3	16	15	6	42
Between 3.50 and 4.00	0	0	0	7	15	22
Total	73	41	81[a]	37	21	253

[a] One PH-1 in the 1969-70 class did not complete the first semester due to illness.

Of the 53 PH-1's who received less than a 2.00 their first PH-1 semester, 32 (60.4 percent) had been admitted with less than

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[8] Harris, John, Bargmann, Rolf, Braucher, Charles, and Booth, Edward, "Predicting Performance in Pharmacy School By Discrimination Analysis," American Journal of Pharmaceutical Education (34:1) February 1970, p. 14.

[9] Chen, Podshadley, and Shrock, op. cit., p. 240.

a 2.30. These 32 PH-1's comprised 43.8 percent of the 73 PH-1's who had been admitted with less than a 2.30. These 73 PH-1's earned a mean GPA of 2.00 their first semester. However, PH-1's admitted with between a 2.30 and 2.49 earned a mean GPA of only 2.12 their first semester with 34.1 percent earning less than a 2.00. Of the PH-1's admitted with a 2.50 or better, only 5.0 percent received less than 2.00 their first semester of pharmacy school.

Table 6 shows there was not a significant difference in the academic performance during the first semester of pharmacy school between PH-1's admitted with less than a 2.30 and those admitted with between a 2.30 and 2.49.

TABLE 6

PH-1 YEAR FIRST SEMESTER GPA RANGES BY ADMISSION GPA LESS THAN 2.30 AND 2.30-2.49

First Semester GPA Ranges	Admission GPA		
	< 2.30	2.30-2.49	Total
Less Than 2.00	32	14	46
Between 2.00 and 2.49	28	13	41
Between 2.50 and 4.00	13	14	27
Total	73	41	114

$X^2 = 3.89$ (2 d.f.)

One should not necessarily draw the conclusion that raising the admission requirements to a 2.30 would have no effect on the

academic performances in the School of Pharmacy. There may be a psychological effect on a student knowing he must do better than "C" work to be admitted into pharmacy school. Such an effect would be difficult to measure and no attempt to do so has been made in this study.

These data include only the first semester's work in pharmacy school. They show, however, that a minimum admission GPA of 2.50, rather than a 2.30, might be successful in denying admission to those students less likely to meet academic requirements of pharmacy school. Such an admission requirement, however, would have denied admission to 114 (44.8 percent) of the 254 PH-1's in this study. When asked how he would change entrance requirements for colleges of pharmacy, Dean Raphael O. Bachmann answered in part, "a requisite pattern of two years prepharmacy with a 2.5 overall average and a 2.3 science average as a minimum admission requirement would sharpen up the faculties, the curriculum, and the profession in a hurry."[10]

Yet, any applicant with an admission GPA of at least 2.00 probably should be admitted into pharmacy school and given an opportunity to prove himself capable of handling the pharmacy courses. The first semester curriculum in pharmacy school should be rigorous so students lacking necessary academic ability be identified and

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10 Bachmann, Raphael O., "Distillations," American Journal of Pharmaceutical Education (33:4) November 1969, p. 505.

not permitted to continue. Such a policy might have the following effects: (1) academically poor students would not remain in the pharmacy school to impede the learning for other students; (2) academically poor students would be able to find another academic area in which to seek admission before they waste too much of their time in pharmacy school; and (3) it would give a certain amount of pride to the pharmacy students who have met the academic requirements.

A comparison of the frequencies of various grade point ranges between time of admission and the first semester of pharmacy school is presented in Table 7.

The number (58) of PH-1's earning a 3.00 or higher their first semester is similar to the number (64) admitted with a 3.00 or higher. However, the number (105) of PH-1's earning less than a 2.20 their first semester is more than twice the number (47) admitted with less than a 2.20. Continued studies of semester GPA's should be made to see how these frequencies change as the students proceed through pharmacy school.

TABLE 7

NUMBER OF STUDENTS BY ADMISSION AND PH-1 YEAR FIRST SEMESTER GPA RANGES

GPA Ranges	Admission GPA	1st Semester GPA
Less Than 2.00	9	53
Between 2.00 and 2.19	38	52
Between 2.20 and 2.39	46	17
Between 2.40 and 2.59	40	38
Between 2.60 and 2.79	29	25
Between 2.80 and 2.99	34	14
Between 3.00 and 3.29	26	32
Between 3.30 and 3.59	18	17
Between 3.60 and 4.00	14	15
Total	254	253[a]

a One PH-1 in the 1969-70 class did not complete the first semester due to illness.

The coefficients of linear correlation and determination between admission GPA and first semester pharmacy school GPA were calculated. Also, a multiple correlation calculation was made using the following independent variables: (1) admission GPA; (2) cumulative freshmen chemistry GPA; and (3) cumulative organic chemistry GPA (see page 24, footnote 35). The dependent variable was PH-1 year first semester GPA.

It was shown earlier (Table 5, page 34) that applicants with an admission GPA of less than 2.50 were more apt to earn less than a 2.00 their first semester of pharmacy school than were those admitted with a 2.50 or higher. The PH-1's were divided into two groups: (1) those admitted with less than a 2.50 cumulative GPA; and (2) those admitted with a 2.50 cumulative GPA or better. Separate correlation analyses were made for each group. Table 8 shows these data.

TABLE 8

COEFFICIENTS OF CORRELATION AND DETERMINATION - PH-1 YEAR FIRST SEMESTER GPA IS THE DEPENDENT VARIABLE

Independent Variable(s)	PH-1's Admission GPA <2.50	PH-1's Admission GPA 2.50 or Higher	All PH-1's
Admission GPA	$r_2 = 0.17$ $r^2 = 0.03$	$r_2 = 0.69$ $r^2 = 0.48$	$r_2 = 0.71$ $r^2 = 0.50$
Admission GPA, Freshmen Chem. GPA, & Organic Chem. GPA	$r_2 = 0.20$ $r^2 = 0.04$	$r_2 = 0.71$ $r^2 = 0.50$	$r_2 = 0.72$ $r^2 = 0.51$
(Number of Students)	(112)	(139)	(251)[a]

[a] One PH-1 did not complete the first semester due to illness and two had not completed organic chemistry requirements at time of data collection.

The data show the addition of freshmen chemistry and organic chemistry to admission GPA does not improve the correlation greatly.[11]

[11] See Appendix J for computer print-outs of these data for the entire group of PH-1's.

PH-1's with an admission GPA of 2.50 or higher had a coefficient of correlation of 0.69. Those with an admission GPA of less than 2.50 had a coefficient of correlation of only 0.17.[12] This is a significant finding because it alters the importance which might be given to admission GPA. It would appear admission GPA for the PH-1 classes as a whole is a useful predictor of future academic success in pharmacy school. However, for admission purposes, those students with admission GPA's of less than 2.50 showed a 40 percent probability of earning less than a 2.00 their first semester of pharmacy school (see Table 5, page 34). Thus, it is this group of PH-1's for which differences should be noted to separate out the potentially better students. With this group, admission GPA does not appear to be useful as the coefficient of determination is 0.03. This means only three percent of the variance in PH-1 year first semester GPA can be explained by the variance in admission GPA.[13]

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[12] See Appendix K for computer print-outs of these data.

[13] The coefficient of determination is a measure of the proportion of the variance in Y which is explained by the variance in X. Its value is calculated by squaring the coefficient of correlation. See page 26, footnote 39 for additional information.

Table 9 shows the mean values for each of the correlation variables studied. The data show a considerable difference in academic achievement between PH-1's admitted with less than a 2.50 and those admitted with a 2.50 cumulative GPA or better. It should be noted that freshmen and organic chemistry GPA's also are part of the admission GPA.

TABLE 9

MEAN GPA VALUES FOR CORRELATION VARIABLES

GPA Variable	PH-1's Admission GPA		All PH-1's
	< 2.50	2.50 or Higher	
Admission GPA	2.22	3.00	2.66
PH-1 Year First Semester GPA	2.06	2.80	2.47
Freshmen Chemistry GPA	2.14	3.08	2.66
Organic Chemistry GPA	1.92	2.66	2.33
(Number of Students)	(112)	(139)	(251)[a]

[a] One PH-1 did not complete the first semester due to illness and two had not completed organic chemistry requirements at time of data collection.

It would appear admission GPA is a useful predictor of academic performance for the PH-1 class as a whole. The linearity of the relationship appears to breakdown for students with admission GPA's of less than 2.50, however, so it is difficult to make differential predictions among these students regarding their first semester

pharmacy grades. These data should be cross-validated with data from other first-year pharmacy classes to see if the dividing line of 2.50 is unique to the group of PH-1's in this study.

All of these PH-1's should be studied further as they proceed through the pharmacy curriculum. It is possible PH-1 first semester grades are not valid indicators of how well a pharmacy student will do academically throughout pharmacy school.

The Academic Major Satisfaction Blank

The results of the AMSB have been analyzed separately for each PH-1 class. This was done because the 1968-69 PH-1's completed the AMSB twice, one year apart, whereas the 1969-70 PH-1's completed the AMSB twice, but only one semester apart.

The scores on the AMSB are classified as follows:

Enthusiastic About Pharmacy	24-28 points
Likes Pharmacy	20-23 points
Indifferent About Pharmacy	16-19 points
Does Not Like Pharmacy	12-15 points
Dislikes Pharmacy	8-11 points
Hates Pharmacy	4- 7 points

Table 10 summarizes the results for both PH-1 classes. For an unknown reason, a substantially higher percentage of the 1969-70 PH-1 class were "Enthusiastic About Pharmacy" than were the 1968-69 PH-1's. This was demonstrated both times the students completed the AMSB. Also, the 1968-69 PH-1's appeared much less satisfied with pharmacy as a higher percentage of them scored below the "Indifferent About Pharmacy" level than did the 1969-70 PH-1's.

TABLE 10

TWO AMSB SCORES RANGES FOR EACH PH-1 CLASS

AMSB Score Ranges	1968-69 PH-1 Class				1969-70 PH-1 Class			
	1st Score		2nd Score		1st Score		2nd Score	
	n	%	n	%	n	%	n	%
Between 24-28 (Enthusiastic About Pharmacy)	10	7.3	5	3.5	20	17.8	17	17.0
Between 20-23 (Likes Pharmacy)	82	59.4	75	52.1	55	49.1	51	51.0
Between 16-19 (Indifferent About Pharmacy)	30	21.7	50	34.7	34	30.4	27	27.0
Between 12-15 (Does Not Like Pharmacy)	12	8.7	10	6.9	3	2.7	2	2.0
Between 8-11 (Dislikes Pharmacy)	4	2.9	3	2.1	0	0.0	2	2.0
Between 4-7 (Hates Pharmacy)	0	0.0	1	0.7	0	0.0	1	1.0
Total	138[a]	100.0	144[b]	100.0	112[c]	100.0	100[d]	100.0
(Mean Score)	(19.7)		(19.4)		(20.7)		(20.5)	

a Five 1968-69 PH-1's did not complete the AMSB the first time.
b The 1969-70 PH-2 class is larger because students completing their PH-1 year at UW-Milwaukee campus transferred to Madison.
c One 1969-70 PH-1 completed the AMSB, but dropped out of school soon after and was not a part of the class in other analyses.
d Eleven of the 1969-70 PH-1's did not complete the AMSB the second time.

The AMSB should continue to be given to both classes at scheduled intervals to determine if satisfaction increases or decreases as the students progress through pharmacy school. A one year interval would lessen the possibility of students remembering their previous responses. In a study of nursing students, Nahm found 54 percent of the first-year students to be enthusiastic, compared to 18 and 20 percent of the second and third-year students respectively.[14] Also in Nahm's study, the students appeared to be more satisfied than did the PH-1's in this study. The 1968-69 PH-1 class had 63.7 percent score above the indifferent level the first time and 55.6 percent the second time. Of Nahm's first-year nursing students, 98 percent were above the indifferent level as were 80.5 percent of the second-year students.[15]

Although the mean scores on each of the four AMSB questions were nearly identical, a linear correlation analysis between the two completions of the AMSB for each PH-1 class showed considerable variation. The 1968-69 PH-1 class, which completed the AMSB twice, one year apart, showed a coefficient of correlation of 0.62, or a coefficient of determination of 0.39.[16] This means that 39 percent of the variance in the second AMSB score

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[14] Nahm, op. cit., p. 338.

[15] Ibid, p. 338.

[16] See Appendix L for calculation data.

is related to the variations in the first AMSB score. It is important, however, that no cause and effect be implied between the two scores (see page 26, footnote 39).

The 1969-70 PH-1 class, which had completed the AMSB twice, one semester apart, had a coefficient of correlation of 0.46, or a coefficient of determination of 0.22.[17] Thus, even though there was a shorter period of time between the two completions of the AMSB, there was less correlation between the two scores for the 1969-70 PH-1 class. This could be due to the times at which the AMSB was given. The 1969-70 PH-1's completed the AMSB at the beginning of the academic year. This may have resulted in optimistic evaluations of satisfaction. The 1968-69 PH-1's completed the AMSB at the beginning of Spring Semester in each of two successive years. They may have had similar attitudes each time, since they had just received their grades from the previous semesters.

There is a possibility satisfaction is related to how well a student is doing academically. Both PH-1 classes completed the AMSB at the beginning of their PH-1 Spring Semesters although for the 1969-70 class, it was its second completion. Table 11 shows the distribution of Spring Semester AMSB scores among three ranges

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[17] Ibid.

of first semester GPA's. This was the semester ended just prior to the completion of the AMSB.

TABLE 11

SPRING SEMESTER AMSB SCORE RANGES BY THREE PH-1 YEAR FIRST SEMESTER GPA RANGES

Spring Semester AMSB Score Ranges	PH-1 Year First Semester GPA Ranges					
	Less Than 2.00		2.00-2.74		2.75-4.00	
	n	%	n	%	n	%
Between 24-28 (Enthusiastic About Pharmacy)	3	7.0	10	9.4	14	16.5
Between 20-23 (Likes Pharmacy)	22	51.2	65	60.7	44	51.7
Between 16-19 (Indifferent About Pharmacy)	9	20.9	26	24.3	21	24.7
Between 12-15 (Does Not Like Pharmacy)	7	16.3	2	1.9	5	5.9
Between 8-11 (Dislikes Pharmacy)	1	2.3	4	3.7	1	1.2
Between 4-7 (Hates Pharmacy)	1	2.3	0	0.0	0	0.0
Total (253)[a]	43[b]	100.0	107[c]	100.0	85[d]	100.0
(Mean Score)	(19.3)		(20.2)		(20.9)	

[a] One PH-1 did not complete the first semester due to illness.
[b] Ten PH-1's earning less than a 2.00 did not complete the AMSB.
[c] Seven PH-1's earning between a 2.00 and a 2.74 did not complete the AMSB.
[d] One PH-1 earning a 2.75 or better did not complete the AMSB.

Of the PH-1's who earned a 2.75 or better their first semester of pharmacy school and who completed the AMSB, 68.2 percent scored above and 7.1 percent scored below the indifferent level of satisfaction. The corresponding percentages for the PH-1's earning between a 2.00 and a 2.74 and who completed the AMSB were 70.1 and 5.6 percents. However, for the PH-1's who earned less than 2.00 their first semester in pharmacy school and who completed the AMSB, 58.2 percent scored above and 20.9 percent scored below the indifferent level of satisfaction. Thus, it would appear academic success had some effect on satisfaction.

A limiting factor in this analysis is the number of PH-1's who did not complete the AMSB during the spring semesters. These PH-1's left the School of Pharmacy for various reasons after the first semester and were not available to complete the AMSB the next semester. The majority of these PH-1's had low grade point averages first semester, so the analysis is weighted somewhat toward the better students.

Strong Vocational Interest Blank Profiles

A student's SVIB scores often are plotted on a specially devised profile form.[18] This profile of occupational scores shows the

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[18] See Appendices E and F. The type profile used in this study is in Appendix E. This was used because it presents better the occupational profiles.

interest pattern for an individual. The occupational scales are arranged in groups according to their similarity. Particular attention should be given to the plotting of scores in the individual groups. A total of 11 groups of 54 occupations have been developed for the SVIB-M. The groups are classified as follows:[19]

Group Number	Occupational Area
I	Biological Science
II	Physical Science
III	Technical Supervision
IV	Technical and Skilled Trades
V	Social Service
VI	Aesthetic-Cultural
VII	CPA Owner
VIII	Business and Accounting
IX	Sales
X	Verbal-Linguistic
XI	President, Manufacturing Concern

Pharmacy was placed in the group of occupations comprising business and accounting interests. Schwebel concluded from his study that pharmacists have interests similar to those of the businessman.[20]

The original occupational groupings were established by Strong using the results of several factor analyses and visual inspection of the scale intercorrelations.[21] A revised profile, established

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19 Strong and Campbell, op. cit., p. 12.

20 Schwebel, op. cit., p. 68.

21 Strong and Campbell, op. cit., p. 12.

in 1966, incorporated the following four types of data, listed in decreasing order of importance: (1) mean scores of the occupations on the scales; (2) intercorrelations between the scales; (3) similarity of educational requirements for the occupation; and (4) past classifications made by Strong.[22]

It is possible Pharmacist should be classified in the Biological Science group (Group I) rather than in Business and Accounting (Group VIII). The profiles constructed for the PH-1's in this study help substantiate this because: (1) Pharmacist is the only occupation in the Business and Accounting group for which the PH-1's score above the B- range (a score of 30 or higher); and (2) the highest mean group score for the PH-1's was in the Biological Science group.

To substantiate this possibility of reclassifying the Pharmacist scale on the SVIB-M, practicing male pharmacists would have to complete the SVIB-M to find if pharmacists today have different vocational interest patterns than did the pharmacists in Schwebel's original study conducted in 1947. However, changes of interest with age are slight between the ages of 20 and 25, and change very little after age 25.[23] Most of the PH-1's are at least 21 years old.

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[22] Ibid, pp. 12-13.

[23] Ibid, p. 2.

Thus, the profiles of these students should represent the interests of today's younger pharmacists, if not pharmacists of all ages.

The male-female SVIB profile for the 1968-69 PH-1 class (Profile 1) was completed in 1969 and the total sample size was 143. However, subsequent to the preparation of that profile, the SVIB scores for two PH-1's in the class were destroyed accidentally. Therefore, total sample size in the remaining profiles was 141 for the 1968-69 class and 252 for both classes together.

Each occupational score given on all the SVIB profiles in this study represents the mean score for that occupation for all the PH-1's in the particular group. Profile 1 compares the SVIB scores for male and female PH-1's in the 1968-69 class. Profile 2 compares the males and females in the 1969-70 class.[24] The two classes have profiles very closely related which demonstrates a high amount of consistency between two groups, both planning careers in the same occupation. It would appear there are definite interest patterns for students interested in practicing pharmacy.

There is a difference in interest patterns between the male and female PH-1's. The female PH-1's had significantly higher scores in the Verbal-Linguistic group, (Group X), Aesthetic-Cultural

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[24] For a sample copy of the computer print-out received for SVIB profile data, see Appendix M which shows the Pharmacist scale data for the 1969-70 male and female PH-1's.

group (Group VI), and portions of the Biological Science (Group I) and Physical Science group (Group II). The males scored significantly higher in the Technical Supervision group (Group III) and the Technical and Skilled Trades group (Group IV).

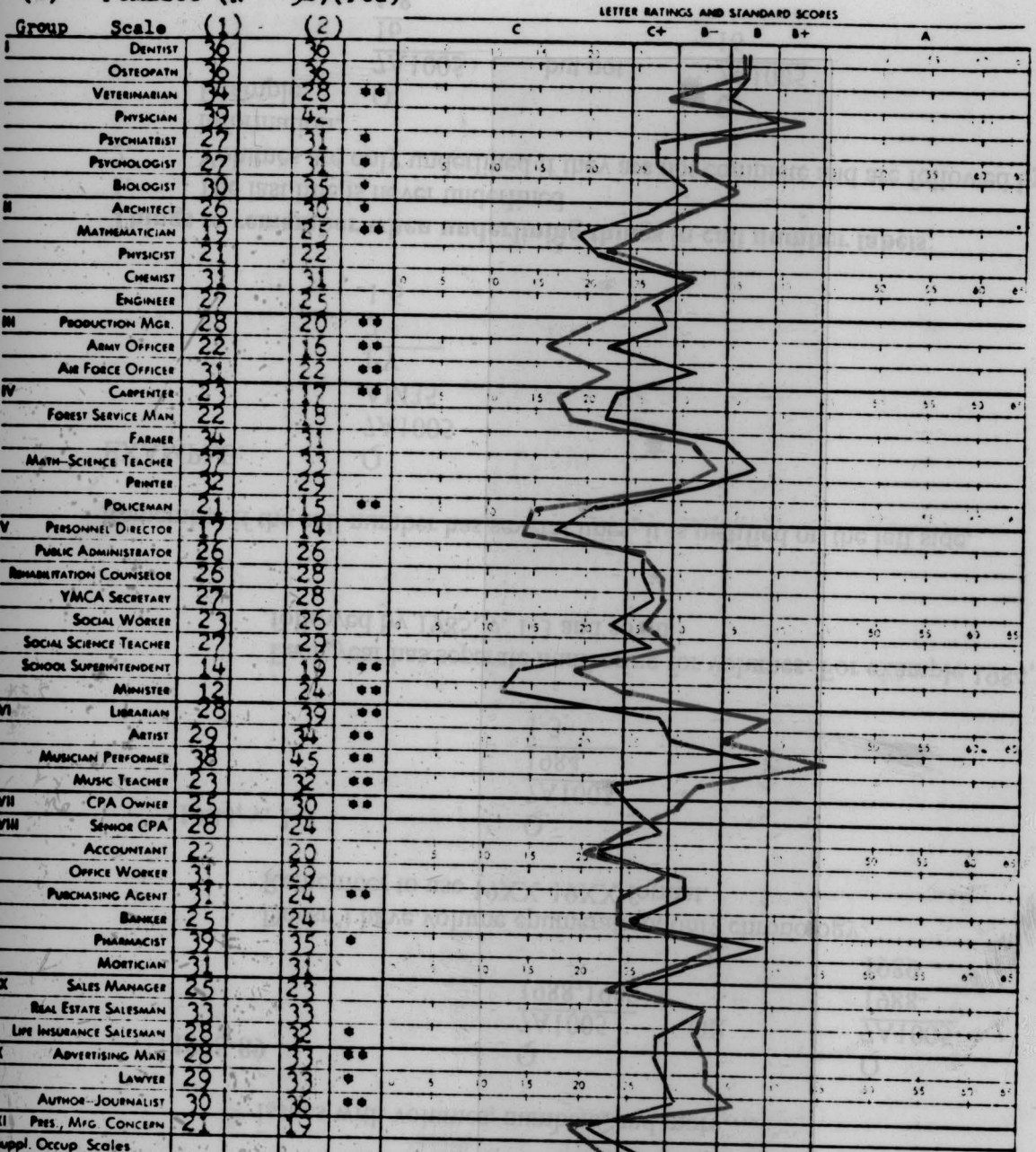
One point of inconsistency between the two PH-1 classes is evidenced by the males in the 1968-69 class scoring significantly higher on the Pharmacist scale than the 1968-69 PH-1 females. There was no significant difference between the 1969-70 male and female PH-1's on the Pharmacist scale. However, the overall profile between the two PH-1 classes show a consistency of interest patterns.

Females in the 1968-69 PH-1 class scored significantly higher than men on 16 occupations and significantly lower on nine occupations. The 1969-70 female PH-1's scored significantly higher on 12 occupations and significantly lower on 14 occupations. With the increasing number of women selecting pharmacy as a career, these data demonstrate the need for a Pharmacist scale on the SVIB-W. Female PH-1's had different interest patterns than the males which warrants separate Pharmacist scales for each form, SVIB-M and SVIB-W. This could be substantiated further by administering the SVIB-W to a sufficient sample of practicing female pharmacists.

SVIB PROFILE 1

MALES AND FEMALES - 1968-69 PH-1 CLASS

(1) = Males (N = 111)(black)
(2) = Females (N = 32)(red)

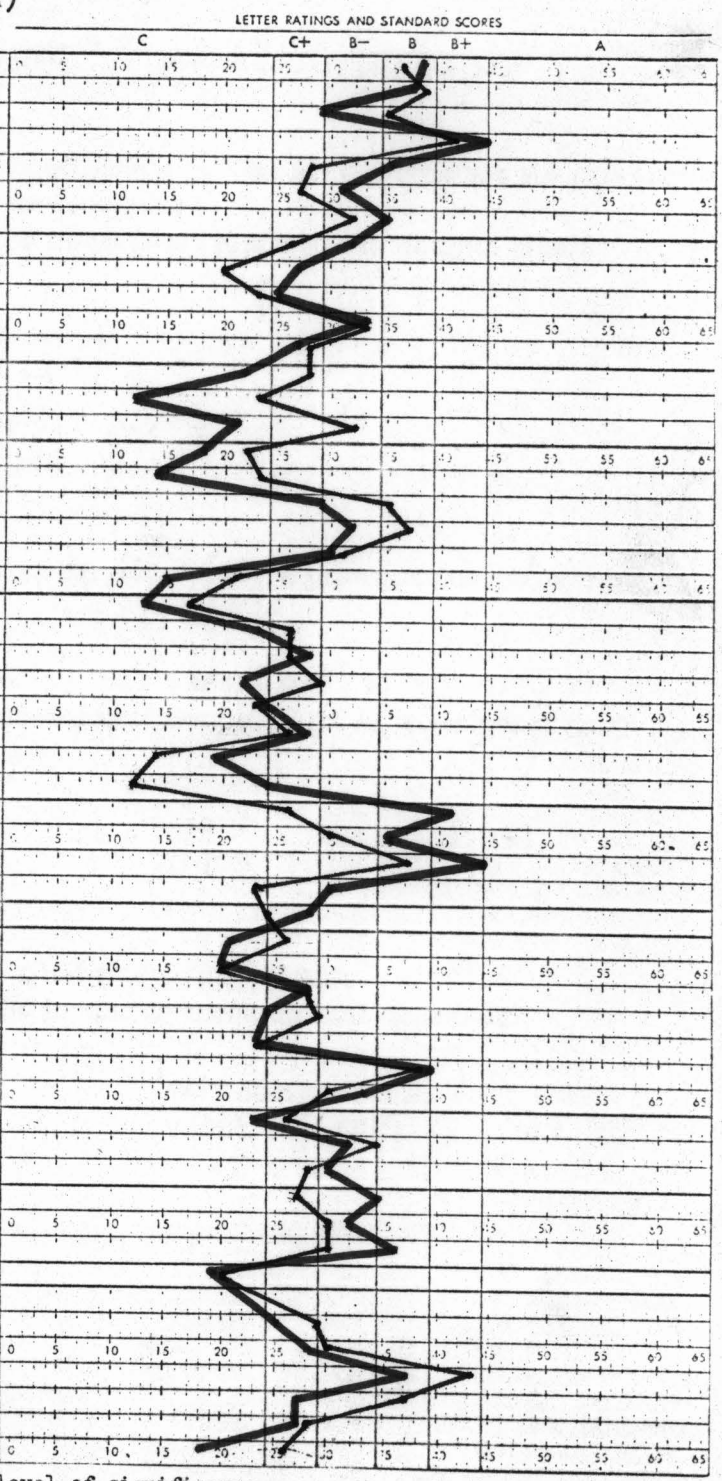


* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

MALES AND FEMALES - 1969-70 PH-1 CLASS

(1) = Males (N. = 87)(black)
(2) = Females (N = 24)(red)

Group	Scale	(1)	(2)	
I	Dentist	36	38	
	Osteopath	38	37	
	Veterinarian	35	29	*
	Physician	41	44	
	Psychiatrist	28	35	**
	Psychologist	27	31	
	Biologist	32	35	
II	Architect	26	32	*
	Mathematician	20	27	**
	Physicist	23	25	
	Chemist	33	33	
	Engineer	28	27	
III	Production Mgr.	28	22	**
	Army Officer	23	12	**
	Air Force Officer	32	21	**
IV	Carpenter	22	18	
	Forest Service Man	23	14	**
	Farmer	35	29	**
	Math–Science Teacher	37	32	*
	Printer	31	30	
	Policeman	21	15	**
V	Personnel Director	17	13	
	Public Administrator	26	23	
	Rehabilitation Counselor	26	28	
	YMCA Secretary	29	22	*
	Social Worker	23	24	
	Social Science Teacher	26	28	
	School Superintendent	14	19	*
	Minister	12	24	**
VI	Librarian	26	41	**
	Artist	30	35	*
	Musician Performer	37	44	**
	Music Teacher	23	30	**
VII	CPA Owner	24	28	*
VIII	Senior CPA	26	21	*
	Accountant	20	20	
	Office Worker	28	28	
	Purchasing Agent	29	24	*
	Banker	23	23	
	Pharmacist	38	39	
	Mortician	30	33	
IX	Sales Manager	26	23	
	Real Estate Salesman	34	32	
	Life Insurance Salesman	28	30	
X	Advertising Man	27	34	**
	Lawyer	30	32	
	Author–Journalist	30	36	**
XI	Pres., Mfg. Concern	20	19	
Suppl. Occup. Scales				
	Credit Manager	29	25	
	Chamber of Comm. Exec.	30	28	
	Physical Therapist	43	37	**
	Computer Programmer	37	27	**
	Business Educ. Teacher	28	27	
	Community Recr. Admin.	26	18	**



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

Profiles 3-A and 3-B show the 1968-69 PH-1 class divided into four different area of pharmacy the students planned to enter. These areas are community, hospital, undecided, other. Profiles 4-A and 4-B are an identical analysis for the 1969-70 PH-1's. The profiles show a great amount of similarity in the interest patterns regardless of the area of pharmacy one planned to enter. There were more significant differences in occupational scores between groups in the 1968-69 PH-1 class. The most notable observation is that students in the 1968-69 PH-1 class interested in community pharmacy scored significantly higher on the Pharmacist scale than the other three groups of students.[25] However, the Pharmacist score of all four groups in the 1969-70 PH-1 class were nearly identical. There is no apparent reason for this difference between the two classes. However, any reliability of these data is limited by the ability of the first-year pharmacy students to report meaningfully what area of pharmacy they want to enter. Further studies on these students as they graduate and enter the practice of pharmacy are necessary to evaluate this reliability.

Most pharmacists practice either community or hospital pharmacy.[26] Profile 3-A shows separate profiles for 1968-69 PH-1's

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[25] The significant differences noted on Profiles 3-A and 4-A are differences between the community and hospital groups. The significant differences noted on Profiles 3-B and 4-B are differences between all four groups.

[26] National Association of Boards of Pharmacy 1969 Proceedings, p. 194.

interested in community pharmacy and those interested in hospital pharmacy. Profile 4-A shows an identical analysis for the 1969-70 PH-1's. As in the previous sets of profiles, much similarity in interest patterns is noted between the two PH-1 classes.

However, the 1968-69 PH-1's show greater differences between community and hospital pharmacy. The community group scored significantly higher than the hospital group on the Pharmacist scale at the one percent level of significance. Also, the community group scored significantly higher in four of the occupations included in the Business and Accounting group (Group VIII) which included Pharmacist, and in all of the occupations in the Technical Supervision group (Group III).

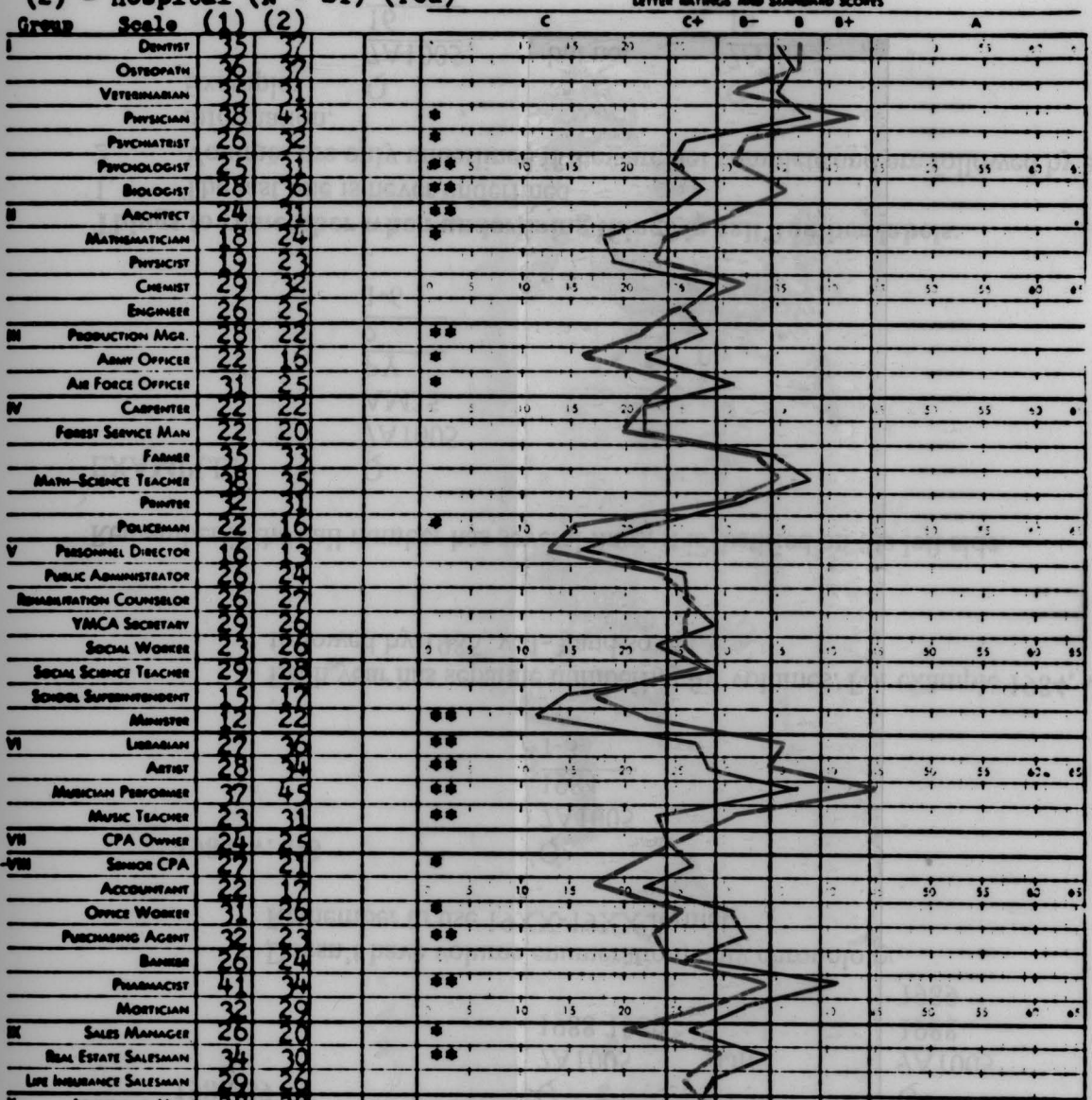
PH-1's in the 1968-69 class interested in hospital pharmacy scored significantly higher in four of the occupations in the Biological Science group (Group I) and in all of the occupations in the Aesthetic-Cultural group (Group VI).

The 1969-70 PH-1 class showed similar differences in scores between students interested in community and those interested in hospital pharmacy. However, these differences were not as significant, partially because of the reduced size of the community group in the 1969-70 class.

SVIB PROFILE 3-A

CAREER PLANS IN COMMUNITY AND HOSPITAL PHARMACY
1968-69 PH-1 CLASS

(1) = Community (N = 60)(black)
(2) = Hospital (N = 21) (red)



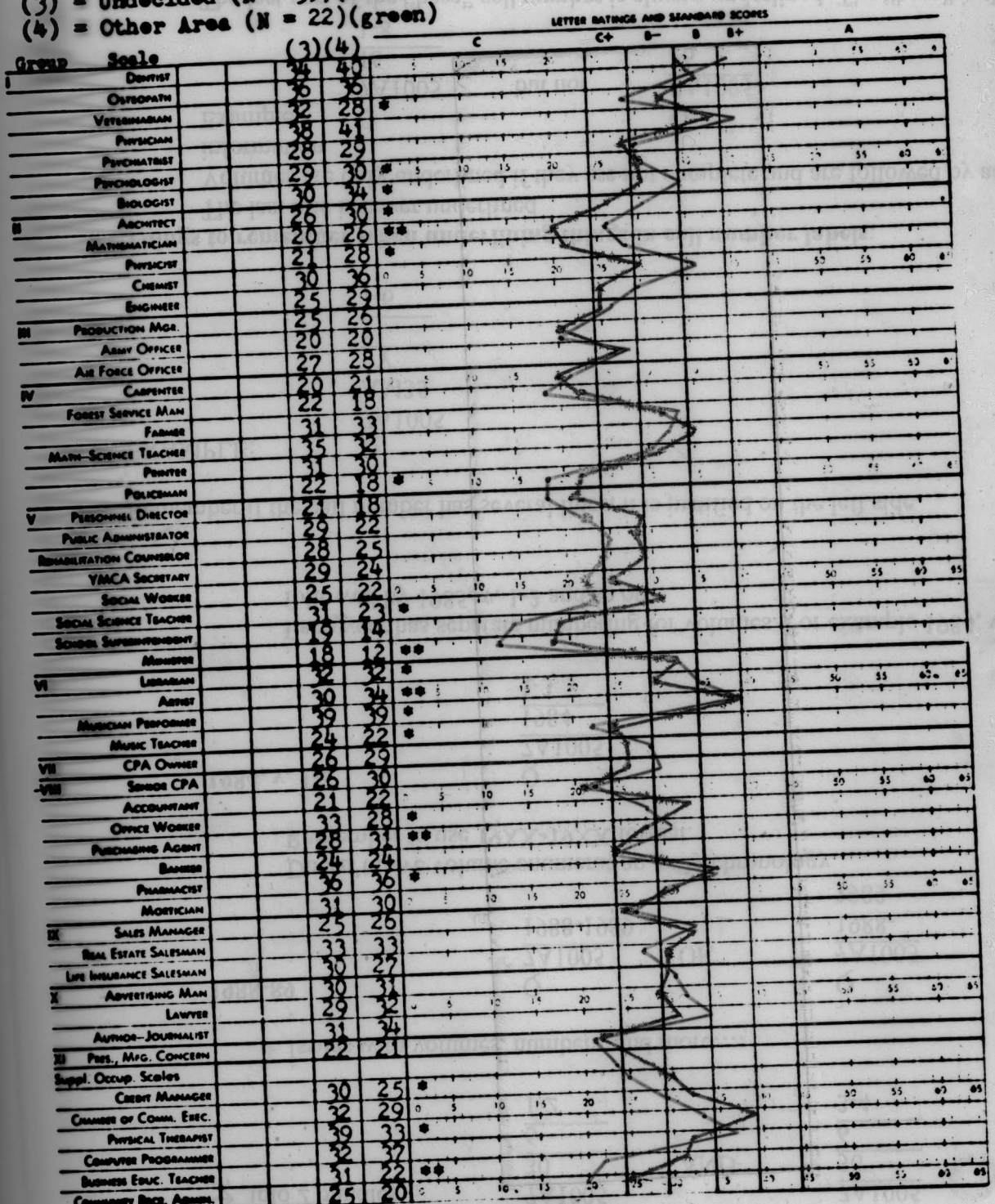
Group	Scale	(1)	(2)
I	Dentist	35	37
	Osteopath	36	37
	Veterinarian	35	31
	Physician	38	43
	Psychiatrist	26	32
	Psychologist	25	31
	Biologist	28	36
II	Architect	24	31
	Mathematician	18	24
	Physicist	19	23
	Chemist	29	32
	Engineer	26	25
III	Production Mgr.	28	22
	Army Officer	22	16
	Air Force Officer	31	25
IV	Carpenter	22	22
	Forest Service Man	22	20
	Farmer	35	33
	Math–Science Teacher	38	35
	Printer	32	31
	Policeman	22	16
V	Personnel Director	16	13
	Public Administrator	26	24
	Rehabilitation Counselor	26	27
	YMCA Secretary	29	26
	Social Worker	23	26
	Social Science Teacher	29	28
	School Superintendent	15	17
	Minister	12	22
VI	Librarian	27	36
	Artist	28	34
	Musician Performer	37	45
	Music Teacher	23	31
VII	CPA Owner	24	25
VIII	Senior CPA	27	21
	Accountant	22	17
	Office Worker	31	26
	Purchasing Agent	32	23
	Banker	26	24
	Pharmacist	41	34
	Mortician	32	29
IX	Sales Manager	26	20
	Real Estate Salesman	34	30
	Life Insurance Salesman	29	26
X	Advertising Man	28	28
	Lawyer	29	30
	Author–Journalist	29	33
XI	Pres., Mfg. Concern	21	18
Suppl. Occup. Scales			
	Credit Manager	31	24
	Chamber of Comm. Exec.	31	28
	Physical Therapist	41	40
	Computer Programmer	35	34
	Business Educ. Teacher	31	27
	Community Rec. Admin.	27	23

* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

SVIB PROFILE 3-B

CAREER PLANS UNDECIDED OR IN AREA OTHER THAN COMMUNITY OR HOSPITAL - 1968-69 PH-1 CLASS

(3) = Undecided (N = 39)(blue)
(4) = Other Area (N = 22)(green)



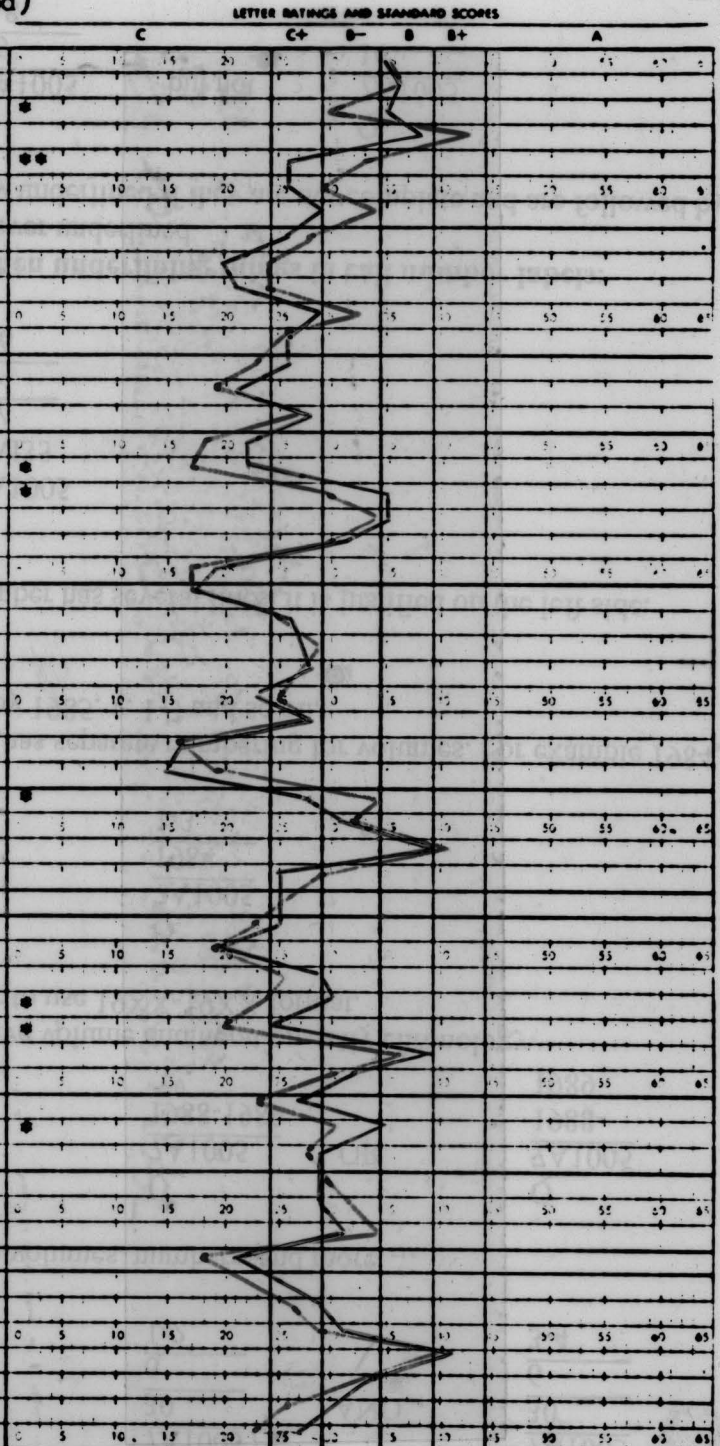
* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

SVIB PROFILE 4-A

CAREER PLANS IN COMMUNITY AND HOSPITAL PHARMACY
1969-70 PH-1 CLASS

(1) = Community (N = 34)(black)
(2) = Hospital (N = 27)(red)

Group	Scale	(1)	(2)
I	Dentist	35	35
	Osteopath	36	36
	Veterinarian	35	30
	Physician	38	43
	Psychiatrist	26	33
	Psychologist	26	29
	Biologist	29	34
II	Architect	26	28
	Mathematician	20	24
	Physicist	21	24
	Chemist	29	33
	Engineer	26	26
III	Production Mgr.	26	23
	Army Officer	21	19
	Air Force Officer	28	28
IV	Carpenter	22	18
	Forest Service Man	22	17
	Farmer	35	30
	Math–Science Teacher	35	34
	Printer	31	30
	Policeman	19	17
V	Personnel Director	17	17
	Public Administrator	26	25
	Rehabilitation Counselor	27	29
	YMCA Secretary	28	27
	Social Worker	23	25
	Social Science Teacher	28	28
	School Superintendent	16	16
	Minister	15	19
VI	Librarian	28	34
	Artist	31	32
	Musician Performer	39	41
	Music Teacher	25	29
VII	CPA Owner	25	26
VIII	Senior CPA	25	23
	Accountant	20	19
	Office Worker	29	26
	Purchasing Agent	30	24
	Banker	24	20
	Pharmacist	39	37
	Mortician	32	30
IX	Sales Manager	27	23
	Real Estate Salesman	35	31
	Life Insurance Salesman	29	28
X	Advertising Man	29	30
	Lawyer	29	32
	Author–Journalist	31	34
XI	Pres., Mfg. Concern	21	18
Suppl. Occup. Scales			
	Credit Manager	29	27
	Chamber of Comm. Exec.	31	29
	Physical Therapist	41	41
	Computer Programmer	33	33
	Business Educ. Teacher	30	26
	Community Rec. Admin.	27	23



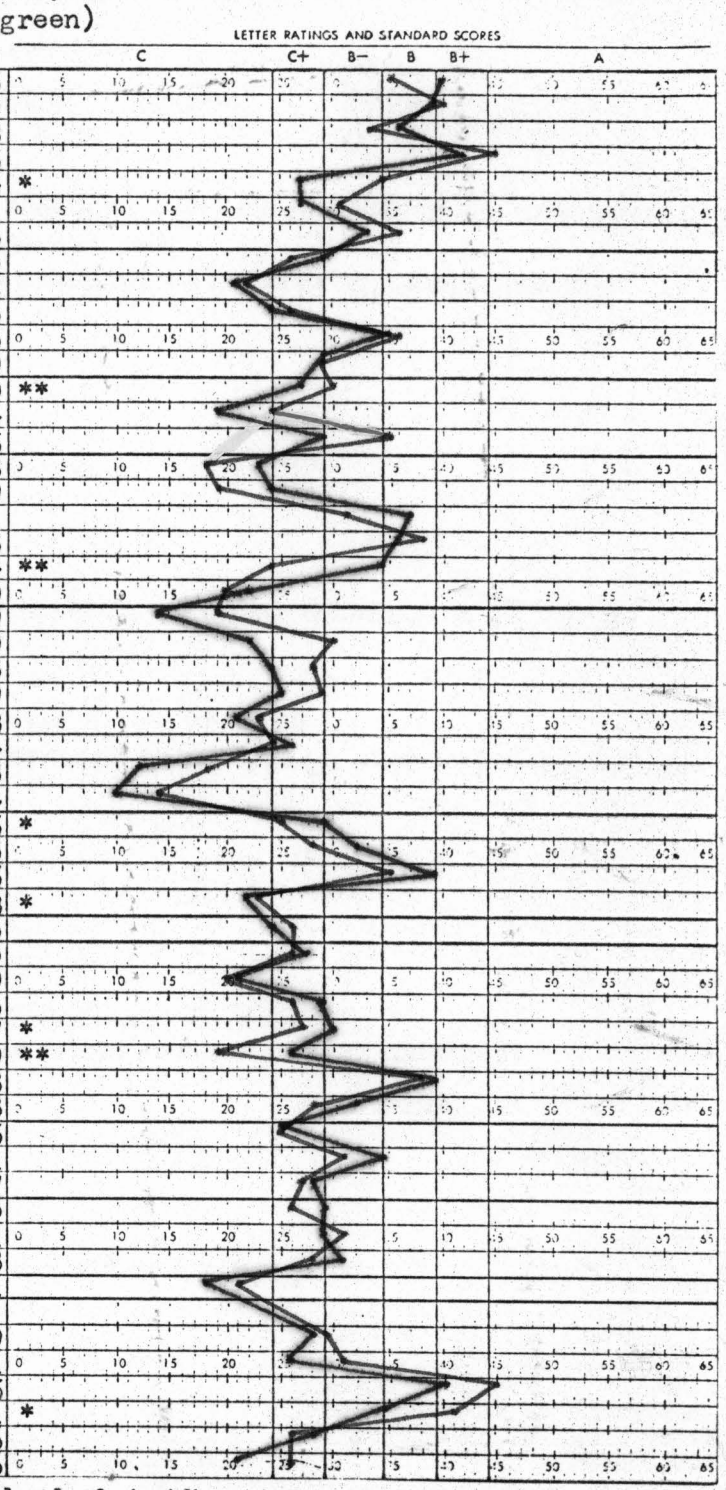
* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

SVIB PROFILE 4-B

CAREER PLANS UNDECIDED OR IN AREA OTHER THAN COMMUNITY OR HOSPITAL - 1969-70 PH-1 CLASS

(3) = Undecided (N = 32)(blue)
(4) = Other Area (N = 18)(green)

Group	Scale	(3)	(4)	
I	Dentist	40	35	
	Osteopath	39	40	
	Veterinarian	36	33	
	Physician	42	45	
	Psychiatrist	27	34	*
	Psychologist	27	31	
	Biologist	33	36	
II	Architect	29	26	
	Mathematician	21	22	
	Physicist	24	26	
	Chemist	35	36	
	Engineer	29	29	
III	Production Mgr.	27	30	**
	Army Officer	19	24	
	Air Force Officer	29	35	
IV	Carpenter	23	18	
	Forest Service Man	24	19	
	Farmer	37	31	
	Math–Science Teacher	36	38	
	Printer	34	24	**
	Policeman	22	20	
V	Personnel Director	14	19	
	Public Administrator	22	30	
	Rehabilitation Counselor	24	28	
	YMCA Secretary	25	29	
	Social Worker	21	23	
	Social Science Teacher	26	24	
	School Superintendent	12	18	
	Minister	10	14	
VI	Librarian	29	25	*
	Artist	32	28	
	Musician Performer	39	35	
	Music Teacher	22	23	*
VII	CPA Owner	24	26	
VIII	Senior CPA	27	26	
	Accountant	21	20	
	Office Worker	29	26	
	Purchasing Agent	30	27	*
	Banker	26	19	**
	Pharmacist	39	38	
	Mortician	32	28	
IX	Sales Manager	25	25	
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XI	Pres., Mfg. Concern	18	21	
Suppl. Occup. Scales				
	Credit Manager	28	29	
	Chamber of Comm. Exec.	26	31	
	Physical Therapist	40	45	
	Computer Programmer	34	41	*
	Business Educ. Teacher	28	26	
	Community Recr. Admin.	21	26	



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

An analysis was made to determine how much of the observed differences between students interested in community pharmacy and those interested in hospital pharmacy could be attributed to the specific area of pharmacy planning to enter rather than sex. Profile 5 shows separate profiles for all males in both classes interested in community pharmacy and those interested in hospital pharmacy. Profile 6 shows an identical analysis for the female PH-1's in both classes.

The profiles for the male PH-1's show great similarity between the two areas of interest. However, the males interested in community pharmacy had significantly higher scores for three of the occupations in the Business and Accounting group (Group VIII), although Pharmacist was not one of the three.

The group of pharmacists studied by Schwebel when he originated the Pharmacist scale were males and were differentiated by the percentage of time they devoted to prescription work.[27] Only 20 pharmacists in Schwebel's study reported to be practicing hospital pharmacy.[28] There might be a similarity in the interests of male pharmacists practicing community pharmacy

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[27] Schwebel, op. cit., pp. 15, 22.

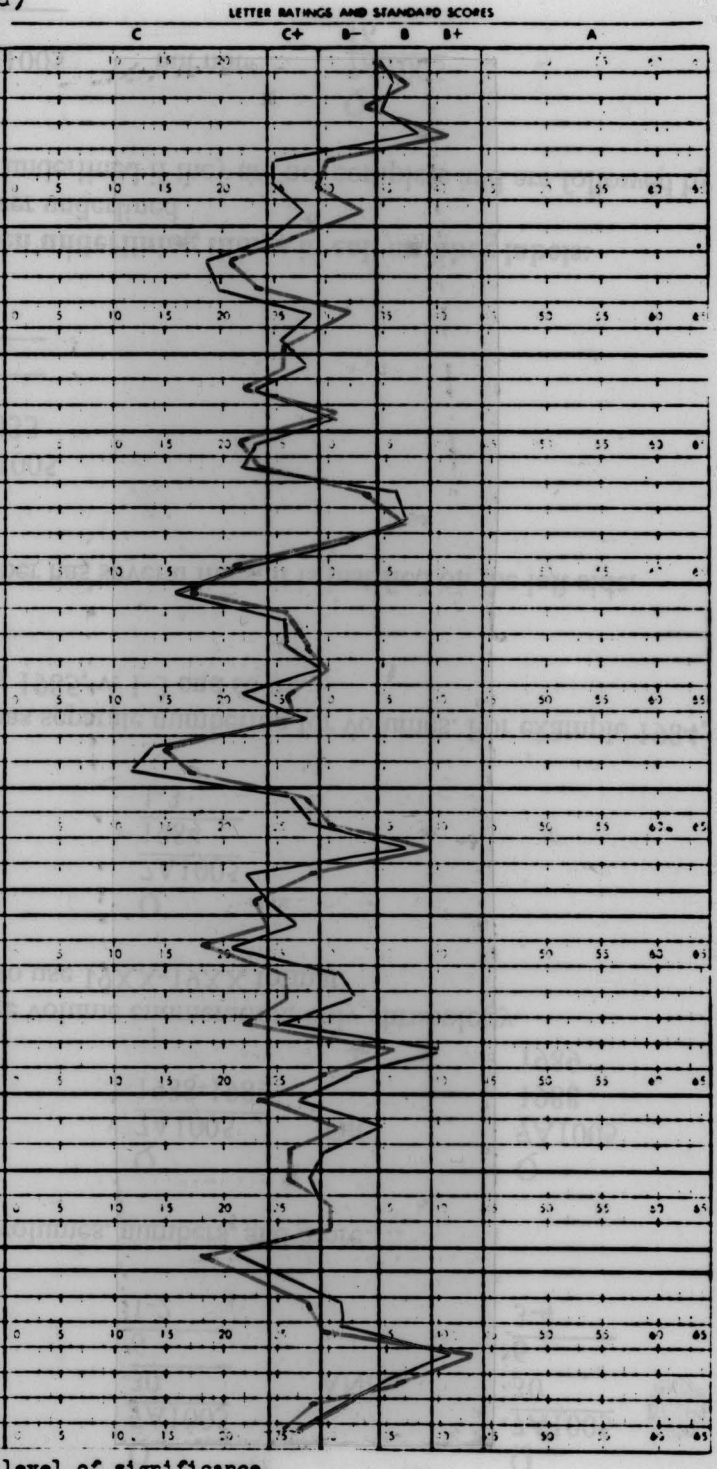
[28] Ibid, p. 21.

SVIB PROFILE 5

MALES WITH CAREER PLANS IN COMMUNITY AND HOSPITAL PHARMACY

(1) = Community (N = 83)(black)
(2) = Hospital (N = 27)(red)

Group	Scale	(1)	(2)	
I	Dentist	35	34	
	Osteopath	36	37	
	Veterinarian	35	33	
	Physician	38	41	
	Psychiatrist	25	30	*
	Psychologist	23	29	
	Biologist	28	33	*
II	Architect	25	26	
	Mathematician	19	21	
	Physicist	20	23	
	Chemist	29	32	
	Engineer	26	26	
III	Production Mgr.	28	26	
	Army Officer	23	22	
	Air Force Officer	31	31	
IV	Carpenter	23	22	
	Forest Service Man	22	23	
	Farmer	36	33	
	Math-Science Teacher	37	37	
	Printer	32	30	
	Policeman	21	21	
V	Personnel Director	16	17	
	Public Administrator	26	26	
	Rehabilitation Counselor	26	28	
	YMCA Secretary	29	30	
	Social Worker	22	26	
	Social Science Teacher	28	27	
	School Superintendent	14	15	
	Minister	12	17	
VI	Librarian	26	28	
	Artist	28	30	
	Musician Performer	32	39	
	Music Teacher	22	28	*
VII	CPA Owner	24	23	
VIII	Senior CPA	27	24	
	Accountant	21	18	
	Office Worker	31	26	*
	Purchasing Agent	32	26	**
	Banker	25	22	
	Pharmacist	40	36	
	Mortician	32	29	*
IX	Sales Manager	27	23	
	Real Estate Salesman	35	31	*
	Life Insurance Salesman	29	26	
X	Advertising Man	28	26	
	Lawyer	29	30	
	Author-Journalist	29	30	
XI	Pres., Mfg. Concern	21	18	
Suppl. Occup. Scales				
	Credit Manager	31	28	
	Chamber of Comm. Exec.	31	29	
	Physical Therapist	41	43	
	Computer Programmer	35	36	
	Business Educ Teacher	31	28	
	Community Recr. Admin.	27	26	



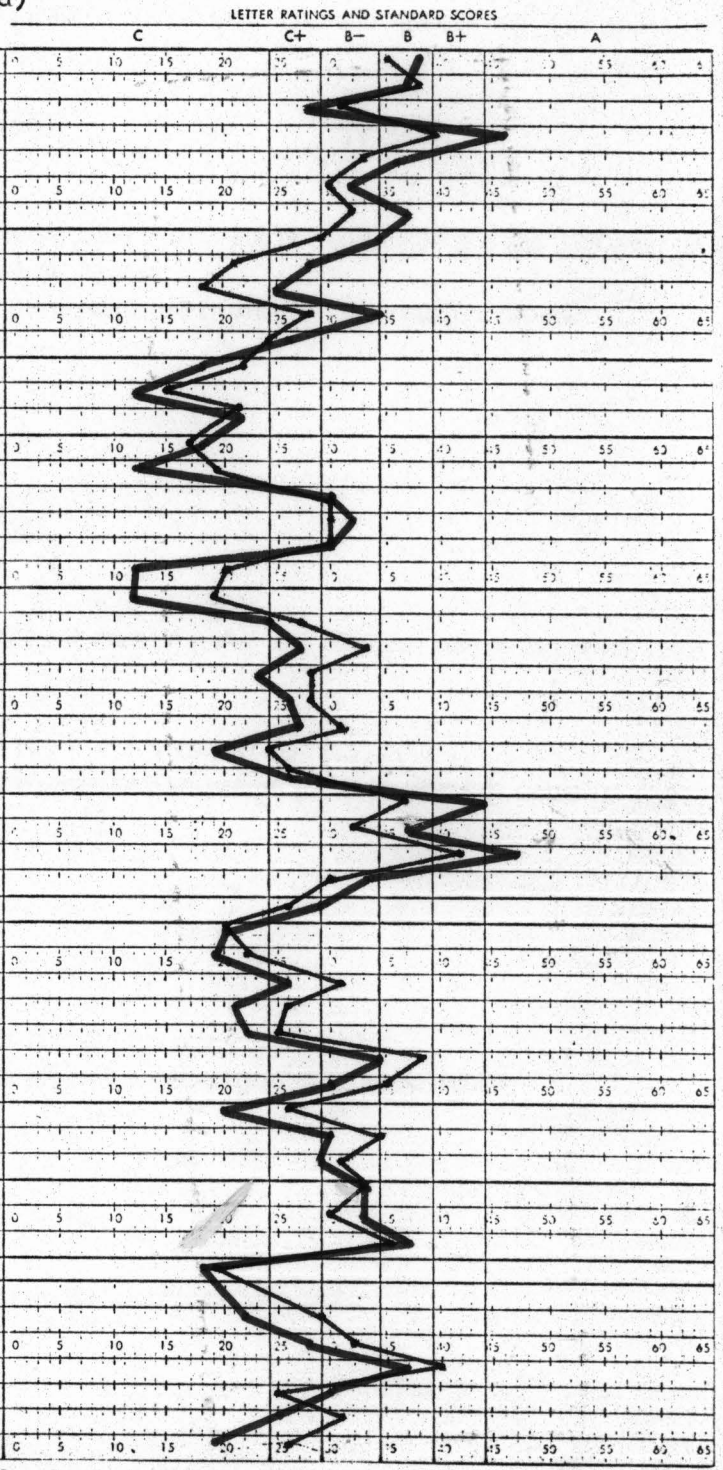
* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

SVIB PROFILE 6

FEMALES WITH CAREER PLANS IN COMMUNITY AND HOSPITAL PHARMACY

(1) = Community (N = 11)(black)
(2) = Hospital (N = 21)(red)

Group	Scale	(1)	(2)	
I	Dentist	35	38	
	Osteopath	38	37	
	Veterinarian	31	28	
	Physician	39	46	*
	Psychiatrist	33	36	
	Psychologist	30	32	
	Biologist	32	37	
II	Architect	29	34	
	Mathematician	21	28	*
	Physicist	18	25	*
	Chemist	28	34	
	Engineer	24	26	
III	Production Mgr.	22	18	
	Army Officer	15	12	
	Air Force Officer	21	21	
IV	Carpenter	17	18	
	Forest Service Man	19	12	*
	Farmer	30	30	
	Math–Science Teacher	30	32	
	Printer	30	30	
	Policeman	20	12	**
V	Personnel Director	19	12	
	Public Administrator	27	24	
	Rehabilitation Counselor	33	27	
	YMCA Secretary	28	23	
	Social Worker	28	26	
	Social Science Teacher	31	27	
	School Superintendent	24	19	
	Minister	26	26	
VI	Librarian	37	44	
	Artist	32	37	
	Musician Performer	42	47	
	Music Teacher	30	33	
VII	CPA Owner	26	29	
VIII	Senior CPA	20	20	
	Accountant	22	19	
	Office Worker	31	26	
	Purchasing Agent	26	21	
	Banker	25	22	
	Pharmacist	38	34	
	Mortician	35	30	
IX	Sales Manager	26	20	
	Real Estate Salesman	34	30	
	Life Insurance Salesman	31	29	
X	Advertising Man	33	33	
	Lawyer	30	33	
	Author–Journalist	35	37	
XI	Pres., Mfg. Concern	19	18	
Suppl. Occup. Scales				
	Credit Manager	29	22	*
	Chamber of Comm. Exec.	32	28	
	Physical Therapist	40	37	
	Computer Programmer	25	30	
	Business Educ. Teacher	31	25	
	Community Recr. Admin.	26	19	



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

today and those practicing in 1947. However, these data do not strongly substantiate this possibility.

The profiles for PH-1 females are very similar also between those interested in community pharmacy and those in hospital pharmacy. One occupation to be noted is the females interested in hospital pharmacy scored significantly higher on the Physician scale and in fact, scored in the A range. This analysis of female PH-1's is limited because in the two classes, there were only 11 females interested in community pharmacy and only 21 in hospital pharmacy. Thus, this small sample size precludes extensive analysis of the data although there does appear to be some similarity between the two areas of interest for female PH-1's.

Profiles 5 and 6 show the differences in interest patterns between all PH-1's interested in community pharmacy and those interested in hospital pharmacy are attributable primarily to differences between the sexes, rather than the specific area of pharmacy planning to enter.

Profiles 7 and 8 corroborate these sex differences. Profile 7 shows the interest patterns for males and females interested in community pharmacy. Profile 8 shows the interest patterns for males and females interested in hospital pharmacy. The differences in scores are similar to those observed in Profiles 1 and 2, (pages 52 and 53) which showed the differences between all males and all

SVIB PROFILE 7

MALES AND FEMALES WITH CAREER PLANS IN COMMUNITY PHARMACY

(1) = Males (N = 83)(black)
(2) = Females (N = 11)(red)

Group	Scale	(1)	(2)	
I	Dentist	35	35	
	Osteopath	36	38	
	Veterinarian	35	31	
	Physician	38	39	
	Psychiatrist	25	33	**
	Psychologist	25	30	
	Biologist	28	32	
II	Architect	25	29	
	Mathematician	19	21	
	Physicist	20	18	
	Chemist	29	28	
	Engineer	26	24	
III	Production Mgr.	28	22	*
	Army Officer	23	15	*
	Air Force Officer	31	21	**
IV	Carpenter	23	17	
	Forest Service Man	22	19	
	Farmer	36	30	
	Math–Science Teacher	37	30	*
	Printer	32	30	
	Policeman	21	20	
V	Personnel Director	16	19	
	Public Administrator	26	27	
	Rehabilitation Counselor	26	33	*
	YMCA Secretary	29	28	
	Social Worker	22	28	
	Social Science Teacher	28	31	
	School Superintendent	14	24	**
	Minister	12	26	**
VI	Librarian	26	37	**
	Artist	28	32	
	Musician Performer	37	42	*
	Music Teacher	22	30	*
VII	CPA Owner	24	26	
VIII	Senior CPA	27	20	*
	Accountant	21	22	
	Office Worker	31	31	
	Purchasing Agent	32	26	*
	Banker	25	25	
	Pharmacist	40	38	
	Mortician	32	35	
IX	Sales Manager	27	26	
	Real Estate Salesman	35	34	
	Life Insurance Salesman	29	31	
X	Advertising Man	28	33	
	Lawyer	29	30	
	Author–Journalist	29	35	*
XI	Pres., Mfg. Concern	21	19	
Suppl. Occup. Scales				
	Credit Manager	31	29	
	Chamber of Comm. Exec.	31	32	
	Physical Therapist	41	40	
	Computer Programmer	35	25	**
	Business Educ. Teacher	31	31	
	Community Rec. Admin.	27	26	

LETTER RATINGS AND STANDARD SCORES

C | C+ | B− | B | B+ | A

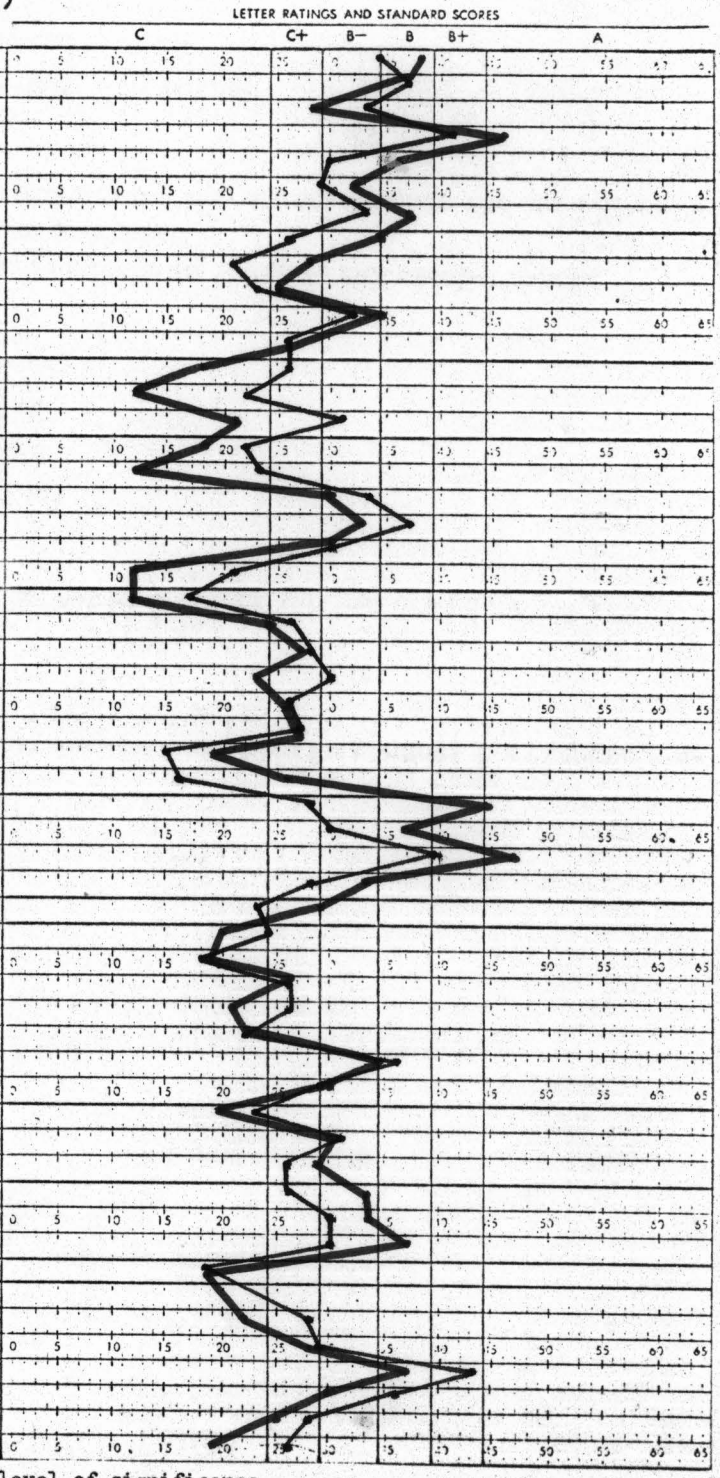
0 5 10 15 20 25 30 35 40 45 50 55 60 65

* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

MALES AND FEMALES WITH CAREER PLANS IN HOSPITAL PHARMACY

(1) = Males (N = 27)(black)
(2) = Females (N = 21)(red)

Group	Scale	(1)	(2)	
I	Dentist	34	38	
	Osteopath	37	37	
	Veterinarian	33	28	
	Physician	41	46	
	Psychiatrist	30	36	
	Psychologist	29	32	
	Biologist	33	37	
II	Architect	26	34	**
	Mathematician	21	28	**
	Physicist	23	25	
	Chemist	32	34	
	Engineer	26	26	
III	Production Mgr.	26	18	**
	Army Officer	22	12	**
	Air Force Officer	31	21	**
IV	Carpenter	22	18	
	Forest Service Man	23	12	**
	Farmer	33	30	
	Math–Science Teacher	37	32	
	Printer	30	30	
	Policeman	21	12	**
V	Personnel Director	17	12	
	Public Administrator	26	24	
	Rehabilitation Counselor	28	27	
	YMCA Secretary	30	23	*
	Social Worker	26	26	
	Social Science Teacher	27	27	
	School Superintendent	15	19	
	Minister	16	26	*
VI	Librarian	28	44	**
	Artist	30	37	*
	Musician Performer	39	47	**
	Music Teacher	28	33	
VII	CPA Owner	23	29	**
VIII	Senior CPA	24	20	
	Accountant	18	19	
	Office Worker	26	26	
	Purchasing Agent	26	21	
	Banker	22	22	
	Pharmacist	36	34	
	Mortician	29	30	
IX	Sales Manager	23	20	
	Real Estate Salesman	31	30	
	Life Insurance Salesman	26	29	
X	Advertising Man	26	33	*
	Lawyer	30	33	
	Author–Journalist	30	37	**
XI	Pres., Mfg. Concern	18	18	
Suppl. Occup. Scales				
	Credit Manager	28	22	
	Chamber of Comm. Exec.	29	28	
	Physical Therapist	43	37	*
	Computer Programmer	36	30	
	Business Educ. Teacher	28	25	
	Community Recr. Admin.	26	19	*



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

females in each of the two PH-1 classes.

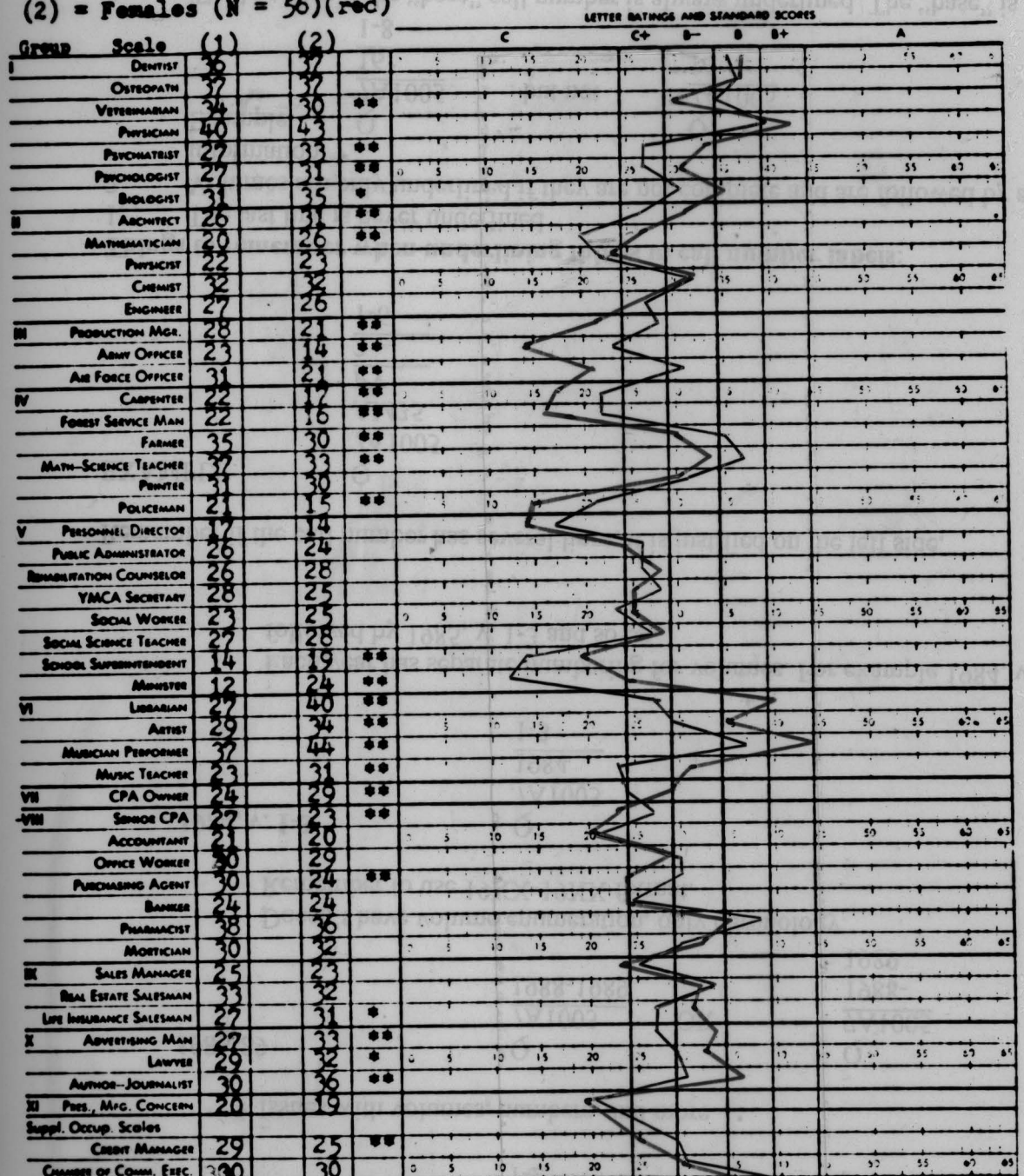
Profiles 9 and 10 compare the male and female PH-1's to the pharmacists in Schwebel's study. The PH-1's scored higher in the Biological Science (Group I) and Physical Science groups (Group II), while Schwebel's pharmacists scored higher in the Business and Accounting group (Group VIII) which includes the Pharmacist scale. It would appear there is a difference in interest patterns for the male PH-1's compared to Schwebel's male pharmacists. This possible difference in pharmacist interests should be confirmed by having a sufficient sized sample of male pharmacists complete the SVIB-M.

In summary, there is considerable congruency in SVIB profiles between the two PH-1 classes. However, substantial differences exist between the interest patterns of male and female PH-1's. Few differences are found between the interest patterns of males interested in community pharmacy and males interested in hospital pharmacy. There also are few differences between the interest patterns of females interested in community pharmacy and females interested in hospital pharmacy. There is evidence that the interest patterns for the male PH-1's in this study are different than the interests of the pharmacists in Schwebel's study. Further studies should be made to determine if these differences in interests warrant a revision of Pharmacist scale on the SVIB-M.

SVIB PROFILE 9

MALES AND FEMALES

(1) = Males (N = 196)(black)
(2) = Females (N = 56)(red)

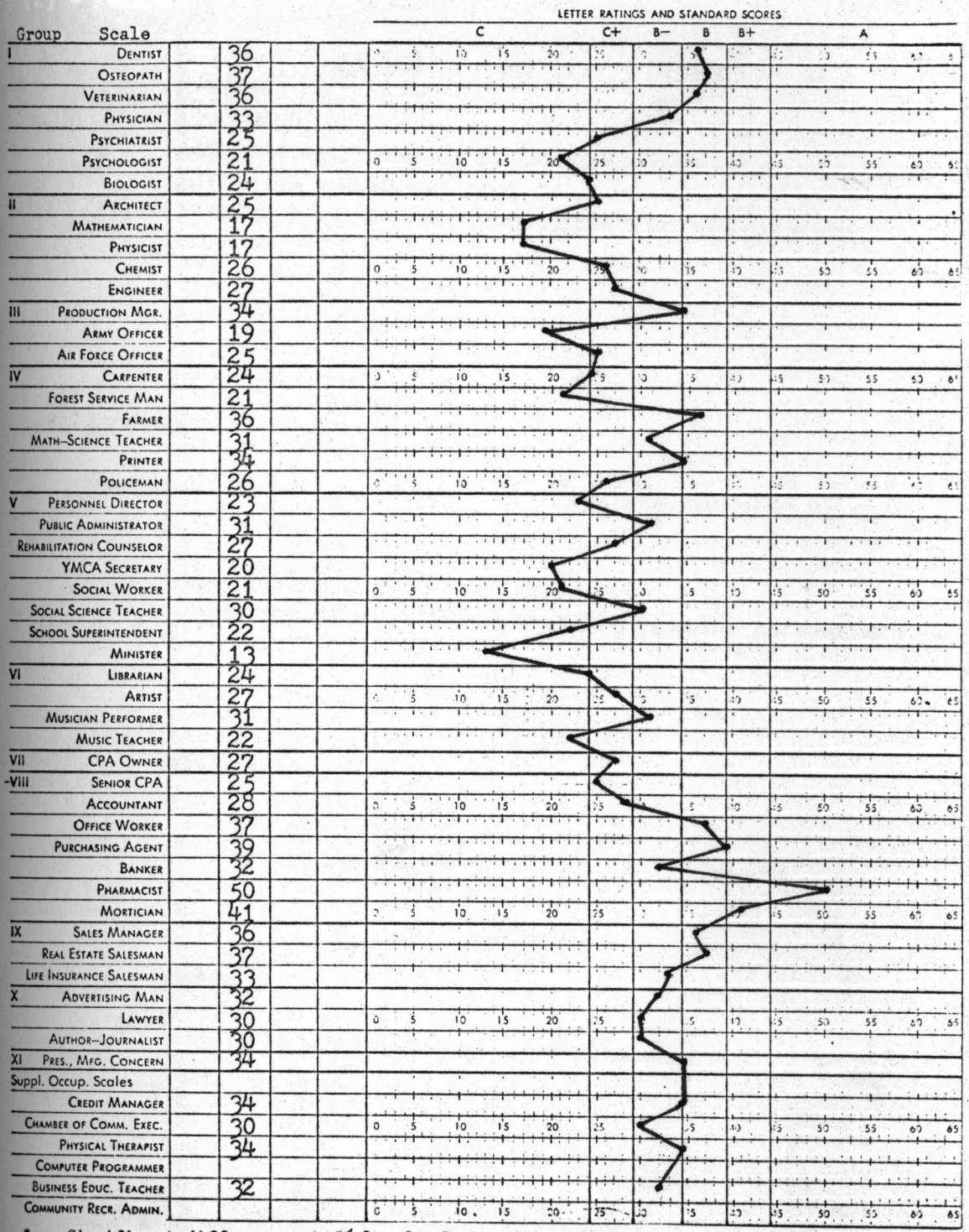


Group	Scale	(1)	(2)	
I	Dentist	36	37	
	Osteopath	37	37	
	Veterinarian	34	30	**
	Physician	40	43	
	Psychiatrist	27	33	**
	Psychologist	27	31	**
	Biologist	31	35	*
II	Architect	26	31	**
	Mathematician	20	26	**
	Physicist	22	23	
	Chemist	32	32	
	Engineer	27	26	
III	Production Mgr.	28	21	**
	Army Officer	23	14	**
	Air Force Officer	31	21	**
IV	Carpenter	22	12	**
	Forest Service Man	22	16	**
	Farmer	35	30	**
	Math–Science Teacher	37	33	**
	Printer	31	30	
	Policeman	21	15	**
V	Personnel Director	17	14	
	Public Administrator	26	24	
	Rehabilitation Counselor	26	28	
	YMCA Secretary	28	25	
	Social Worker	23	25	
	Social Science Teacher	27	28	
	School Superintendent	14	19	**
	Minister	12	24	**
VI	Librarian	27	40	**
	Artist	29	34	**
	Musician Performer	37	44	**
	Music Teacher	23	31	**
VII	CPA Owner	24	29	**
VIII	Senior CPA	27	23	**
	Accountant	21	20	
	Office Worker	30	29	
	Purchasing Agent	30	24	**
	Banker	24	24	
	Pharmacist	38	36	
	Mortician	30	32	
IX	Sales Manager	25	23	
	Real Estate Salesman	33	32	
	Life Insurance Salesman	27	31	*
X	Advertising Man	27	33	**
	Lawyer	29	32	*
	Author–Journalist	30	36	**
XI	Pres., Mfg. Concern	28	19	
Suppl. Occup. Scales				
	Credit Manager	29	25	**
	Chamber of Comm. Exec.	30	30	
	Physical Therapist	42	37	**
	Computer Programmer	37	30	**
	Business Educ. Teacher	29	27	
	Community Rec. Admin.	25	22	*

* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

SVIB PROFILE 10

SVIB CRITERION GROUP OF MALE PHARMACISTS (N = 309)



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

For admission purposes it would be helpful to know if an applicant's SVIB profile is an indicator of his or her academic potential in pharmacy school. An analysis was made to determine if the SVIB could be useful for this purpose.

Separate SVIB profiles were prepared for PH-1's with admission GPA's of less than a 2.50 and those with admission GPA's of 2.50 or higher. Profile 11 shows this comparison in interest patterns. There were significant differences in scores for only nine occupations, all differences being at the five percent level of significance. One of the occupations was Pharmacist, but both scores were in the same grade level of B. Thus, there were virtually no differences in SVIB profiles between students in the upper portion of the class and those in the lower portion, based on cumulative GPA at time of admission.

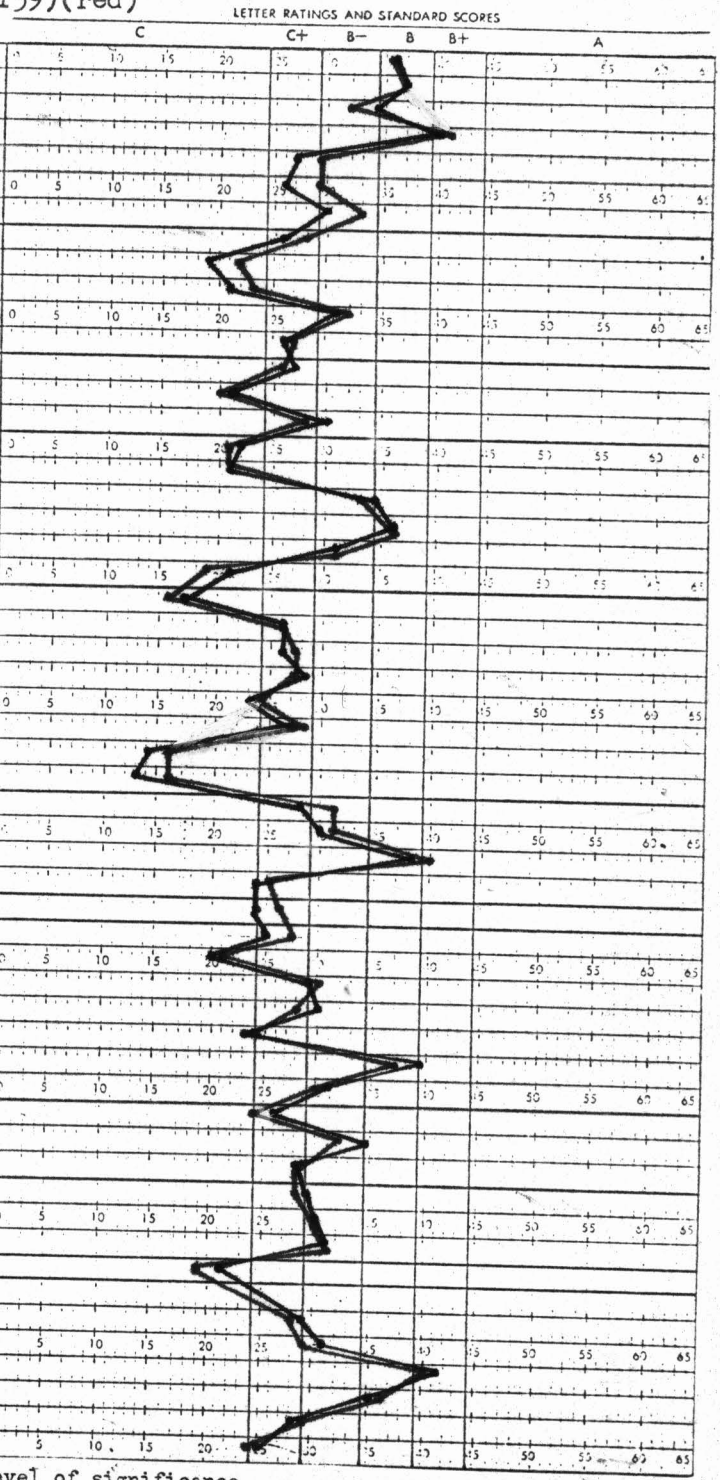
However, it has been demonstrated earlier in this study that it would be useful to determine distinguishing characteristics of PH-1's admitted with less than a cumulative GPA of 2.50. An analysis was made of just the PH-1's with admission GPA's of less than 2.50. Separate SVIB profiles were prepared for those who earned less than a 2.00 the first semester of pharmacy school and those who earned a 2.00 or better. Profile 12 shows this comparison in interest patterns. There were no significant differences in occupational scores for any occupation. Thus, there were no differences in interest patterns for these two groups of PH-1's admitted with less than a 2.50 cumulative GPA.

SVIB PROFILE 11

PH-1'S WITH ADMISSION GPA LESS THAN 2.50 AND THOSE WITH 2.50 OR HIGHER

(1) = Less Than 2.50 (N = 113)(black)
(2) = 2.50 or Higher (N = 139)(red)

Group	Scale	(1)	(2)	
I	Dentist	36	36	
	Osteopath	37	37	
	Veterinarian	34	32	*
	Physician	40	41	
	Psychiatrist	27	29	
	Psychologist	26	29	
	Biologist	30	33	
II	Architect	26	28	
	Mathematician	19	22	*
	Physicist	21	23	
	Chemist	31	32	
	Engineer	26	27	
III	Production Mgr.	27	26	
	Army Officer	21	20	
	Air Force Officer	30	28	
IV	Carpenter	22	21	
	Forest Service Man	21	21	
	Farmer	34	33	
	Math–Science Teacher	36	36	
	Printer	31	31	
	Policeman	21	19	
V	Personnel Director	17	16	
	Public Administrator	26	26	
	Rehabilitation Counselor	26	27	
	YMCA Secretary	28	27	
	Social Worker	23	24	
	Social Science Teacher	27	28	
	School Superintendent	14	16	
	Minister	13	16	*
VI	Librarian	28	31	*
	Artist	30	31	
	Musician Performer	38	40	
	Music Teacher	24	25	
VII	CPA Owner	24	26	
VIII	Senior CPA	25	27	
	Accountant	20	21	
	Office Worker	29	30	
	Purchasing Agent	30	28	*
	Banker	23	24	
	Pharmacist	39	37	*
	Mortician	31	30	
IX	Sales Manager	26	24	
	Real Estate Salesman	34	32	
	Life Insurance Salesman	28	28	
X	Advertising Man	29	28	
	Lawyer	30	30	
	Author–Journalist	31	31	
XI	Pres., Mfg. Concern	21	19	*
Suppl. Occup. Scales				
	Credit Manager	29	28	
	Chamber of Comm. Exec.	31	29	
	Physical Therapist	41	40	
	Computer Programmer	35	36	
	Business Educ. Teacher	28	29	
	Community Recr. Admin.	25	24	

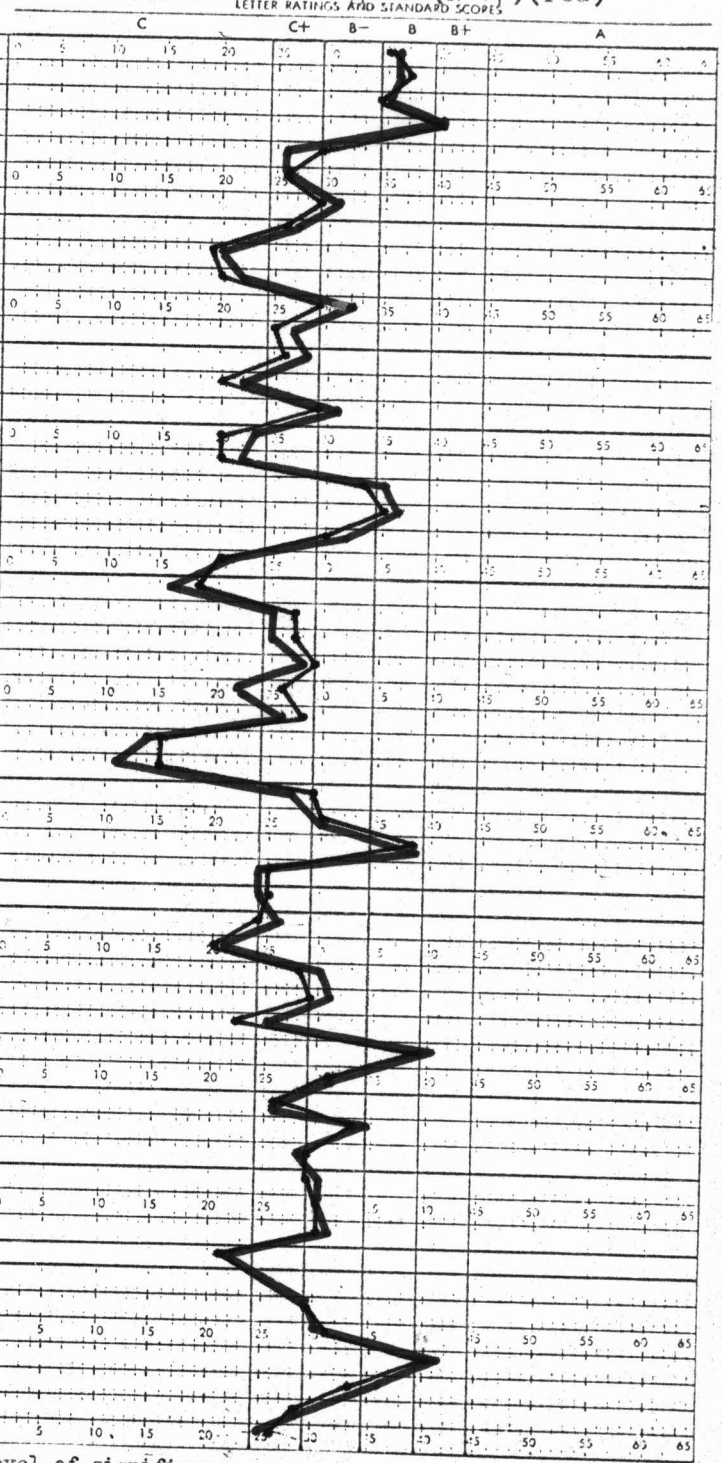


* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

PH-1'S WITH ADMISSION GPA LESS THAN 2.50 - THOSE WHO EARNED LESS THAN 2.00 FIRST SEMESTER OF PHARMACY SCHOOL AND THOSE WHO EARNED 2.00 OR HIGHER

(1)=Less Than 2.00 (N=46)(black) (2)=2.00 or Higher (N=67)(red)

Group	Scale	(1)	(2)
I	Dentist	35	36
	Osteopath	37	36
	Veterinarian	34	35
	Physician	40	40
	Psychiatrist	29	26
	Psychologist	26	26
	Biologist	29	31
II	Architect	26	27
	Mathematician	19	20
	Physicist	20	22
	Chemist	29	32
	Engineer	25	27
III	Production Mgr.	26	28
	Army Officer	20	22
	Air Force Officer	29	31
IV	Carpenter	20	23
	Forest Service Man	20	22
	Farmer	33	35
	Math–Science Teacher	35	36
	Printer	30	32
	Policeman	20	21
V	Personnel Director	18	16
	Public Administrator	27	25
	Rehabilitation Counselor	27	25
	YMCA Secretary	29	28
	Social Worker	26	22
	Social Science Teacher	28	26
	School Superintendent	15	14
	Minister	15	11
VI	Librarian	29	27
	Artist	30	30
	Musician Performer	38	38
	Music Teacher	25	24
VII	CPA Owner	25	24
-VIII	Senior CPA	24	26
	Accountant	20	21
	Office Worker	28	30
	Purchasing Agent	29	31
	Banker	22	25
	Pharmacist	39	40
	Mortician	31	31
IX	Sales Manager	26	26
	Real Estate Salesman	33	34
	Life Insurance Salesman	29	28
X	Advertising Man	29	30
	Lawyer	30	30
	Author–Journalist	30	31
XI	Pres., Mfg. Concern	21	22
Suppl. Occup. Scales			
	Credit Manager	29	29
	Chamber of Comm. Exec.	31	30
	Physical Therapist	40	41
	Computer Programmer	33	36
	Business Educ. Teacher	28	28
	Community Recr. Admin.	26	25



* - Significant difference at 5% level of significance.
** - Significant difference at 1% level of significance.

It would appear the use of SVIB profiles would be of no assistance to an admissions committee as there was no relationship between academic performance and vocational interest patterns. Thus, the Strong Vocational Interest Blank was not capable of predicting first semester academic performance for first year pharmacy students.

SVIB Pharmacist Scores and First Semester Pharmacy School GPA

As mentioned previously (page 18), one occupational score on the SVIB-M is the Pharmacist score. A correlation analysis of the Pharmacist score with first semester pharmacy school GPA was made to determine if the amount of interest in pharmacy was related to academic performance in pharmacy school.

The correlation between SVIB Pharmacist scores and first semester pharmacy school GPA was only 0.12. The coefficient of correlation for PH-1's with admission GPA's of 2.50 or higher was 0.11. The corresponding figure for PH-1's with admission GPA's of less than 2.50 was 0.002.[29] Thus, it appears the Pharmacist score on the SVIB is not useful in predicting first semester academic performance for first year pharmacy students.

A study of veterinary medical students concluded that the utilization of a measure of interest would be an aid in vocational

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[29] See Appendix N for computer print-out of these correlation data.

counseling even though it may prove to be statistically unrelated to scholastic success.[30] Travers and Wallace stated it is possible that the correlations between SVIB test scores and grades may be zero although the instrument is valid for selection purposes.[31]

The PH-1's would have to be studied after they enter the practice of pharmacy to see if their SVIB Pharmacist scores are useful in determining how satisfied they are with pharmacy as a career. For admission purposes, however, there seems to be little usefulness in the SVIB Pharmacist score.

SVIB Pharmacist Scores and AMSB Scores

Satisfaction in an occupation is one criterion used in developing SVIB occupational scales. Subjects must indicate satisfaction in their occupation when completing the SVIB for occupation scale construction (see page 18). To determine the relationship between satisfaction and SVIB scores, the following analysis was made. Scores from the first completion of the AMSB were compared to SVIB Pharmacist scores.[32] The SVIB and AMSB-1 were completed within one week's time of each other by both classes. Table 12 shows there was not a significant difference

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[30] Hannum and Thrall, op. cit., p. 249.

[31] Travers and Wallace, op. cit., p. 239.

[32] AMSB scores from the first and second completions are hereafter referred to as AMSB-1 and AMSB-2 scores respectively.

between the PH-1's levels of satisfaction with the pharmacy curriculum and their SVIB Pharmacist scores.

TABLE 12

SVIB PHARMACIST SCORE RANGES
BY AMSB-1 SCORE RANGES

SVIB Pharmacist Score Ranges	AMSB-1 Score Ranges <16	16-19	20-23	>23	Total
40 or higher (B+ or A)	7	29	65	13	114
Between 30 and 39 (B- or B)	5	19	51	13	88
Less Than 30 (C or C+)	7	15	18	4	44
Total	19	63	134	30	246[a]

$X^2 = 9.16$ (6 d.f.)

[a] Eight PH-1's did not complete the AMSB the first time.

If there is no significant difference in the SVIB Pharmacist scores between groups of satisfied and dissatisfied pharmacy students, it is possible the same would be true of groups of satisfied and dissatisfied practicing pharmacists. To substantiate this possibility, a study could be done with practicing pharmacists. SVIB Pharmacist scores could be compared between practicing pharmacists reported to be satisfied with pharmacy and those reporting to be dissatisfied with pharmacy. It might be that occupational satisfaction is an unnecessary criterion in selecting members of an occupation when developing an SVIB occupational scale.

Timing of Vocational Choice

The PH-1's were asked to designate from five possible choices at what time in their life they decided to become a pharmacist. Table 13 shows the replies for male and female PH-1's.

TABLE 13

TIMING OF DECISION TO BECOME PHARMACISTS FOR MALE AND FEMALE PH-1'S

Time Decision Was Made	Male	Female	Total
Before Junior Year of High School	40	5	45
During Junior Year of High School	31	10	41
During Senior Year of High School	38	21	59
During Freshman Year of College	37	12	49
Since Freshman Year of College	49	8	57
Total	195[a]	56	251

$X^2 = 11.75$ (4 d.f.)

[a] Three male PH-1's did not respond to the question.

The data show a significant difference between the time males and females decided to become pharmacists. Nearly 40 percent of the female PH-1's compared to 20 percent of the males decided upon pharmacy during their senior year in high school. About 20

percent of the male respondents compared to nearly nine percent of the females decided before their junior year in high school. A total of 44.1 percent of the male respondents decided on pharmacy since they graduated from high school compared to 35.7 percent of the women. Weaver has reported that 35 percent of the pharmacy students in his study revealed they made their decision to study pharmacy after they had already entered college.[33]

These data show why recruiting should not be confined to high school students. A strong recruitment program for beginning college students could reveal a number of potential pharmacy students. Weaver made the same conclusion in his study.[34]

Influence of Vocational Counseling

The students were asked if they had ever received vocational counseling. The question was phrased differently to each PH-1 class which may have resulted in responses which were not comparable. However, results for the two classes were combined for the analyses.

The 1968-69 PH-1's were asked, "Have you ever received vocational counseling?" In an attempt to define vocational counseling,

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[33] Weaver, Warren E., "M.C.V. Survey Reveals Reasons Used In Choosing Pharmacy Career," The Virginia Pharmacist (LI:12) December 1967, pp. 411, 428.

[34] Ibid, pp. 411, 428.

this question was changed for the 1969-70 PH-1's who were asked, "Have you ever discussed career opportunities with a guidance counselor in your high school, college counseling center, or other counseling agency?" It was still possible that the concept of vocational counseling may have been interpreted in different ways.

The 1969-70 PH-1's who reported having received vocational counseling were asked to select from four choices how influential the vocational counseling had been in their selecting pharmacy as a career. The following analysis was made based on the assumption that students who had received some counseling would be more interested in pharmacy and satisfied with their courses.

SVIB Pharmacist scores were divided into the six SVIB grade levels (see page 19). The number of students scoring in each grade level were divided into those reported having received and not received vocational counseling. Table 14 shows there was not a significant difference in the SVIB Pharmacist scores between these two groups of PH-1's. It might be noted, however, that 73.9 percent of the students reported having received vocational counseling scored B or better on the SVIB Pharmacist scale, compared to 55.2 percent of the noncounseled PH-1's.

TABLE 14

SVIB PHARMACIST SCORE RANGES FOR PH-1'S REPORTED HAVING RECEIVED OR NOT RECEIVED VOCATIONAL COUNSELING

SVIB Pharmacist Score Ranges	Received Counseling	Not Received Counseling	Total
45 and Above (A)	45	23	68
Between 40 and 44 (B+)	30	19	49
Between 35 and 39 (B)	33	17	50
Between 30 and 34 (B-)	17	22	39
Between 25 and 29 (C+)	11	16	27
Less Than 25 (C)	10	10	20
Total	146	107	253[a]

$X^2 = 10.51$ (5 d.f.)

[a] One PH-1 did not respond to the question.

Scores from the Academic Major Satisfaction Blank were divided into various levels of satisfaction. Table 15 shows the distribution of AMSB-1 scores between PH-1's reported having received or not received vocational counseling. Of the students who reported having received vocational counseling, 72.7 percent either "liked" or were "enthusiastic" about pharmacy compared to 58.8 percent of those reported not having received vocational counseling.

TABLE 15

AMSB-1 SCORE RANGES FOR PH-1'S REPORTED HAVING RECEIVED OR NOT RECEIVED VOCATIONAL COUNSELING

AMSB-1 Score Ranges	Received Counseling	Not Received Counseling	Total
Between 24 and 28 (Enthusiastic About Pharmacy)	22	8	30
Between 20 and 23 (Likes Pharmacy)	82	52	134
Between 16 and 19 (Indifferent About Pharmacy)	35	27	62
Between 12 and 15 (Does Not Like Pharmacy)	3	12	15
Between 8 and 11 (Dislikes Pharmacy)	1	3	4
Between 4 and 7 (Hates Pharmacy)	0	0	0
Total	143	102	245[a]

[a] One PH-1 did not answer the question and eight PH-1's did not complete the AMSB the first time.

When the analysis was made using AMSB-2 scores, fewer students reported satisfaction with pharmacy. These data are given in Table 16. The total number of students is less because 37 students did not complete the AMSB the second time. These students had dropped out of pharmacy school either voluntarily or because of poor grades, or could not be contacted to complete the AMSB. Of

the respondents who reported having received vocational counseling, 65.9 percent either "liked" or were "enthusiastic" about pharmacy compared to 53.3 percent of those who reported having not received counseling.

TABLE 16

AMSB-2 SCORE RANGES FOR PH-1'S REPORTED HAVING RECEIVED OR NOT RECEIVED VOCATIONAL COUNSELING

AMSB-2 Score Ranges	Received Counseling	Not Received Counseling	Total
Between 24 and 28 (Enthusiastic About Pharmacy)	15	5	20
Between 20 and 23 (Likes Pharmacy)	68	43	111
Between 16 and 19 (Indifferent About Pharmacy)	37	30	67
Between 12 and 15 (Does Not Like Pharmacy)	4	7	11
Between 8 and 11 (Dislikes Pharmacy)	1	4	5
Between 4 and 7 (Hates Pharmacy)	1	1	2
Total	126	90	216[a]

[a] One PH-1 did not answer the question and 37 PH-1's did not complete the AMSB the second time.

The PH-1's in the 1969-70 class did not show vocational counseling to be important to them in their deciding upon pharmacy as a career. Only this class was asked to evaluate the importance of vocational counseling received. Of the 79 PH-1's who reported having received vocational counseling, only one thought the counseling was the "primary" factor in his selecting pharmacy as a career. Counseling was a "significant" factor to 16 PH-1's, a "minor" factor to 33, and of "no value" to 29.

To determine if having received vocational counseling had any effect on academic performance, analyses were made on admission and PH-1 year first semester GPA's. Tables 17 and 18 show there

TABLE 17

ADMISSION GPA RANGES FOR PH-1'S REPORTED HAVING RECEIVED OR NOT RECEIVED VOCATIONAL COUNSELING

Admission GPA Ranges	Received Counseling	Not Received Counseling	Total
Less Than 2.30	41	32	73
Between 2.30 and 2.49	23	18	41
Between 2.50 and 2.99	48	34	82
Between 3.00 and 3.49	22	14	36
Between 3.50 and 4.00	12	9	21
Total	146	107	253[a]

$X^2 = 0.31$ (4 d.f.)

[a] One PH-1 did not respond to the question.

was no significant difference in grade point averages between PH-1's reported having received or not received vocational counseling. The extremely low calculated chi-square values for Tables 17 and 18 show the lack of relationship between vocational counseling and academic performance.

TABLE 18

PH-1 YEAR FIRST SEMESTER GPA RANGES FOR PH-1'S REPORTED HAVING RECEIVED OR NOT RECEIVED VOCATIONAL COUNSELING

First Semester GPA Ranges	Received Counseling	Not Received Counseling	Total
Less Than 2.00	32	21	53
Between 2.00 and 2.49	46	34	80
Between 2.50 and 2.99	32	24	56
Between 3.00 and 3.49	24	18	42
Between 3.50 and 4.00	12	9	21
Total	146	106	252[a]

$X^2 = 0.70$ (4 d.f.)

[a] One PH-1 did not respond to the question and one did not complete the first semester due to illness.

In summary, vocational counseling appeared to have had an effect on a student's SVIB Pharmacist score and AMSB score. However, counseling was not judged by the students as being an important factor in their selecting pharmacy as a career. Also, counseling had no apparent effect on a student's academic performance.

Influence of High School Graduation Class Size on Academic Performance

The PH-1's were asked to designate the size of their high school graduation class. It was assumed students from the larger high schools would be able to receive a more adequate background in the sciences due to the opportunity to take more science coursework. Therefore, one might expect these students to perform better academically in college science courses. Analyses were made of the academic performances of PH-1's from various graduation class sizes. Grade point averages analyzed were: (1) cumulative freshmen chemistry GPA; (2) cumulative organic chemistry GPA; (3) admission GPA; and (4) PH-1 year first semester GPA. Tables 19, 20, 21, and 22 show there were no significant differences in academic performance between PH-1's from various sized high school graduation classes.[35]

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[35] In Tables 19, 21, and 22, there were a total of six cells with less than five students. Chi-square analyses were performed since there were no empty cells.

TABLE 19

CUMULATIVE FRESHMEN CHEMISTRY GPA RANGES BY RANGES OF HIGH SCHOOL GRADUATION CLASS SIZE

Freshmen Chemistry GPA Ranges	Ranges of High School Graduation Class Size				
	<100	100-300	301-500	>500	Total
Less Than 2.0	3	10	3	7	23
Between 2.0 and 2.4	9	36	12	17	74
Between 2.5 and 2.9	11	16	8	12	47
Between 3.0 and 4.0	15	36	22	37	110
Total	38	98	45	73	254

$X^2 = 8.81$ (9 d.f.)

TABLE 20

CUMULATIVE ORGANIC CHEMISTRY GPA RANGES BY RANGES OF HIGH SCHOOL GRADUATION CLASS SIZE

Organic Chemistry GPA Ranges	Ranges of High School Graduation Class Size				
	<100	100-300	301-500	>500	Total
Less Than 2.0	8	24	10	19	61
Between 2.0 and 2.4	12	41	19	24	96
Between 2.5 and 2.9	8	17	5	11	41
Between 3.0 and 4.0	10	15	11	17	53
Total	38	97	45	71	251[a]

$X^2 = 6.19$ (9 d.f.)

[a] Three PH-1's had not completed the organic chemistry requirements at time of data collections.

TABLE 21

ADMISSION GPA RANGES BY RANGES OF HIGH SCHOOL GRADUATION CLASS SIZE

Admission GPA Ranges	Ranges of High School Graduation Class Size				
	<100	100-300	301-500	>500	Total
Less Than 2.30	11	35	12	15	73
Between 2.30 and 2.49	3	19	7	12	41
Between 2.50 and 2.99	15	29	13	25	82
Between 3.00 and 3.49	7	8	9	13	37
Between 3.50 and 4.00	2	7	4	8	21
Total	38	98	45	73	254

$X^2 = 12.57$ (12 d.f.)

TABLE 22

PH-1 YEAR FIRST SEMESTER GPA RANGES BY RANGES OF HIGH SCHOOL GRADUATION CLASS SIZE

First Semester GPA Ranges	Ranges of High School Graduation Class Size				
	<100	100-300	301-500	>500	Total
Less Than 2.00	8	28	8	9	53
Between 2.00 and 2.49	11	30	13	26	80
Between 2.50 and 2.99	5	21	13	17	56
Between 3.00 and 3.49	9	14	7	12	42
Between 3.50 and 4.00	5	5	4	8	22
Total	38	98	45	72	253[a]

$X^2 = 11.93$ (12 d.f.)

[a] One PH-1 did not complete the first semester of pharmacy school.

These data could be interpreted in different ways. Students from smaller high schools may not receive the same quantity of science courses as students from larger schools, but are able to learn the material in college regardless. Students from smaller high schools may receive more individualized instruction which could make up for any deficiencies in the quantity of science courses offered. In any case, the data show high school graduation class size need not be a factor in recruiting capable pharmacy students.

Comparison of Transfer and Nontransfer Students

The State of Wisconsin has a university system which enables students to transfer to the Madison campus upon completion of the required prepharmacy courses. There are at least 25 schools in Wisconsin, including private schools, at which a student may complete the prepharmacy courses. Many students take advantage of these schools which may be closer to their homes. A total of 61.0 percent of the PH-1's in this study transferred to the Madison campus after completing their prepharmacy courses at other campuses.[36]

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[36] A transfer student in this study is one whose last full academic semester of courses (not including summer session) prior to the PH-1 year was completed at a campus other than the University of Wisconsin-Madison campus. It is possible not all of the prepharmacy coursework was taken at one campus. Thus, some transfer students may have taken earlier coursework on the Madison campus and some nontransfer students may have taken earlier coursework on campuses other than the Madison campus. However, it is doubtful the frequency of this possibility has affected any of the results to a significant extent.

Transfer students may or may not receive prepharmacy coursework of equal or higher quality than that offered to prepharmacy students on the Madison campus. The following analyses were made to determine if there is a difference in the academic performance of transfer students compared to students taking prepharmacy work on the Madison campus. Grade point averages analyzed were: (1) cumulative freshmen chemistry GPA; (2) cumulative organic chemistry GPA; (3) admission GPA; and (4) PH-1 first semester GPA.

TABLE 23

CUMULATIVE FRESHMEN CHEMISTRY GPA RANGES FOR TRANSFER AND NONTRANSFER STUDENTS

Freshmen Chemistry GPA Ranges	Transfer Students	Nontransfer Students	Total
Less Than 2.0	15	8	23
Between 2.0 and 2.4	39	35	74
Between 2.5 and 2.9	33	14	47
Between 3.0 and 4.0	68	42	110
Total	155	99	254

$X^2 = 4.02$ (3 d.f.)

TABLE 24

CUMULATIVE ORGANIC CHEMISTRY GPA RANGES FOR TRANSFER AND NONTRANSFER STUDENTS

Organic Chemistry GPA Ranges	Transfer Students	Nontransfer Students	Total
Less Than 2.0	31	30	61
Between 2.0 and 2.4	58	38	96
Between 2.5 and 2.9	24	17	41
Between 3.0 and 4.0	41	12	53
Total	154	97	251[a]

$X^2 = 9.34$ (3 d.f.)

[a] Three PH-1's had not completed the organic chemistry requirements at time of data collection.

TABLE 25

ADMISSION GPA RANGES FOR TRANSFER AND NONTRANSFER STUDENTS

Admission GPA Ranges	Transfer Students	Nontransfer Students	Total
Less Than 2.30	42	31	73
Between 2.30 and 2.49	25	16	41
Between 2.50 and 2.99	53	29	82
Between 3.00 and 3.49	23	14	37
Between 3.50 and 4.00	12	9	21
Total	155	99	254

$X^2 = 0.98$ (4 d.f.)

TABLE 26

PH-1 YEAR FIRST SEMESTER GPA RANGES FOR TRANSFER AND NONTRANSFER STUDENTS

First Semester GPA Ranges	Transfer Students	Nontransfer Students	Total
Less Than 2.00	29	24	53
Between 2.00 and 2.49	49	31	80
Between 2.50 and 2.99	36	20	56
Between 3.00 and 3.49	31	11	42
Between 3.50 and 4.00	9	13	22
Total	154	99	253[a]

$X^2 = 7.56$ (4 d.f.)

[a] One PH-1 did not complete the first semester of pharmacy school due to illness.

Tables 23, 25, and 26 show there were no significant differences between transfer and nontransfer students in grade point averages in freshmen chemistry, admission GPA, and PH-1 year first semester GPA. The only area where a significant difference was noted was organic chemistry (Table 24). Of those PH-1's who transferred to the Madison campus, 26.6 percent had 3.0 or better in organic chemistry while 20.1 percent had less than a 2.0. Only 12.4 percent of the nontransfer PH-1's had 3.0 or better while 30.9 percent earned less than a 2.0 in organic. Thus, the transfer students appeared to have performed somewhat better in organic chemistry. It is possible the organic

chemistry courses on the Madison campus are more difficult than those on the smaller campuses around the state since this was the only academic area studied which showed significant difference between the two groups of PH-1's.

Two other variables studied with transfer and nontransfer students were: (1) AMSB-1 scores; and (2) SVIB Pharmacist scores. Tables 27 and 28 show that in neither case was there a significant difference between the two groups of PH-1's.

TABLE 27

AMSB-1 SCORE RANGES FOR
TRANSFER AND NONTRANSFER STUDENTS

AMSB-1 Score Ranges	Transfer Students	Nontransfer Students	Total
Between 24 and 28 (Enthusiastic About Pharmacy)	19	11	30
Between 20 and 23 (Likes Pharmacy)	81	53	134
Between 16 and 19 (Indifferent About Pharmacy)	35	28	63
Less Than 16 (Less Than Indifferent About Pharmacy)	13	6	19
Total	148	98	246[a]

$X^2 = 1.23$ (3 d.f.)

[a] Eight PH-1's did not complete the AMSB the first time.

TABLE 28

SVIB PHARMACIST SCORE RANGES FOR TRANSFER AND NONTRANSFER STUDENTS

SVIB Pharmacist Score Ranges	Transfer Students	Nontransfer Students	Total
45 and better (A)	44	24	68
Between 40 and 44 (B+)	27	22	49
Between 30 and 39 (B- & B)	56	34	90
Less Than 30 (C & C+)	28	19	47
Total	155	99	254

$X^2 = 1.21$ (3 d.f.)

In summary, there appears to be few distinguishing characteristics which differentiate the transfer from the nontransfer students.

Previous Pharmacy Experience

The PH-1's were asked if they had any experience in pharmacy. The PH-1's did not have enough pharmacy education to have completed any internship time, but they could have worked as non-pharmacist pharmacy personnel. It might be assumed the PH-1's who had some experience working in a pharmacy would be more satisfied with the curriculum as they could relate their coursework to pharmacy practice. As a possible means of determining this, scores on the Academic Major Satisfaction Blank were compared to

those PH-1's with previous pharmacy experience and those with no experience. Table 29 shows there was a significant difference between the two groups of students. Of those who reported having previous experience in pharmacy and who completed the AMSB-1, 22.4 percent scored in the "enthusiastic about pharmacy" category compared to only 7.6 percent of those with no experience. It would appear students who have some experience in pharmacy are more satisfied with their pharmacy courses.

TABLE 29

AMSB-1 SCORE RANGES FOR PH-1'S WITH AND WITHOUT PREVIOUS PHARMACY EXPERIENCE

AMSB-1 Score Ranges	Previous Experience	No Experience	Total
Between 24 and 28 (Enthusiastic About Pharmacy)	17	13	30
Between 20 and 23 (Likes Pharmacy)	37	97	134
Between 16 and 19 (Indifferent About Pharmacy)	16	47	63
Less Than 16 (Less Than Indifferent About Pharmacy)	6	13	19
Total	76	170	246[a]

$X^2 = 10.91$ (3 d.f.)

[a] Eight PH-1's did not complete the AMSB the first time.

It also might be assumed the PH-1's who had some experience working in a pharmacy would be more interested in pharmacy as an occupation. As a possible means of determining this, SVIB Pharmacist scores were compared to those PH-1's with previous experience in pharmacy and those with no experience. Table 30 shows there was no significant difference between the two groups of students. It would appear students' vocational interests in pharmacy are not influenced by whether or not they have experience working in a pharmacy.

TABLE 30

SVIB PHARMACIST SCORE RANGES FOR PH-1'S WITH AND WITHOUT PREVIOUS PHARMACY EXPERIENCE

SVIB Pharmacist Score Ranges	Previous Experience	No Experience	Total
45 and Above (A)	17	51	68
Between 40 and 44 (B+)	23	26	49
Between 35 and 39 (B)	12	39	51
Between 30 and 34 (B-)	12	27	39
Between 25 and 29 (C+)	8	19	27
Less Than 25 (C)	6	14	20
Total	78	176	254

$X^2 = 8.36$ (5 d.f.)

Anticipated Areas of Pharmacy Practice

The PH-1's were asked in what area of pharmacy they planned to practice. First-year pharmacy students are likely to change their minds before graduation about what area of pharmacy they plan to practice following their education. However, career aspirations for students beginning pharmacy school are examined in this study. Follow-up studies on these students as they progress through pharmacy school and as they intern and become licensed pharmacists would allow one to determine reliability of first-year career aspirations.

Career opportunities were classified into the following areas: (1) community pharmacy; (2) hospital pharmacy; (3) industry; (4) other field in pharmacy (such as graduate school); (5) field other than pharmacy (such as medicine or law); and (6) undecided. PH-1's who indicated more than one area were classified as undecided.

Table 31 shows the distribution in the anticipated career areas for male and female PH-1's. The data show 42.4 percent of the males entered pharmacy school planning to practice community pharmacy, compared to 19.6 percent of the females. Hospital pharmacy appears to appeal more to the females as 37.5 percent of them reported planning to practice in this area, compared to only 13.6 percent of the males. There was little difference in undecided plans as 26.8 percent of the males and 32.1 percent of the females were classified in this category.

TABLE 31

ANTICIPATED CAREER AREAS FOR MALE AND FEMALE PH-1'S

Anticipated Career Areas	Males	Females	Total
Community Pharmacy	84	11	95
Hospital Pharmacy	27	21	48
Pharmaceutical Industry	13	3	16
Other Area In Pharmacy	10	0	10
Area Other Than Pharmacy	11	3	14
Undecided	53	18	71
Total	198	56	254

It should be noted there is a great difference in career goals between the 1968-69 PH-1 class and the 1969-70 class. Table 32 shows that in the 1968-69 PH-1 class, 42.0 percent of the students selected community pharmacy and 14.0 percent chose hospital pharmacy. In the 1969-70 PH-1 class, 30.6 percent and 24.3 percent chose community and hospital pharmacy respectively. It is possible these differences are attributable to the method by which the questions were asked in the two questionnaires. The 1968-69 PH-1's were given an open-end question while the 1969-70 PH-1's were given a check list from which to choose the area of pharmacy in which they were interested. The open-end question

resulted in some choices which were difficult to classify, such as sales, dispense drugs, and prescription work. The percentages of students undecided about a specific area of pharmacy was 27.3 percent in the 1968-69 class and 28.8 percent in the 1969-70 class.

TABLE 32

ANTICIPATED CAREER AREAS FOR EACH PH-1 CLASS

Anticipated Career Areas	1968-69 PH-1's	1969-70 PH-1's	Total
Community Pharmacy	61	34	95
Hospital Pharmacy	21	27	48
Pharmaceutical Industry	7	9	16
Other Area In Pharmacy	7	4	11
Area Other Than Pharmacy	8	5	13
Undecided	39	32	71
Total	143	111	254

Reasons For Selecting Pharmacy As A Career:

Pharmacy students interested in practicing various areas of pharmacy may have different reasons for selecting pharmacy for a career. The 1968-69 PH-1's were asked only to give reasons for selecting pharmacy as a career. The 1969-70 PH-1's were asked to rank their reasons by importance, first, second, and third. The question was open-end for both PH-1 classes. This technique resulted in some answers which were vague and could not be categorized

in a meaningful way.[37] Therefore, although rankings of reasons have been made for various groups of PH-1's, a limited analysis of the data has been made.

Many first-year pharmacy students probably do not know why they have selected pharmacy as a career, and some probably are not convinced they want to be a pharmacist. A follow-up study of these PH-1's when they become senior pharmacy students could show how reasons change during one's education.

It is possible the reasons for selecting pharmacy as a career given by these PH-1's are more meaningful than would reasons given by them as second or third-year pharmacy students. Their response in this study represents their own thoughts as they have not been in pharmacy school long enough to know what the "professionally acceptable" responses might be. Continuing studies of these students might show that as third-year pharmacy students, their reasons for choosing pharmacy as a career tend to emphasize the professional aspects of pharmacy. Conversely, less emphasis might be given to economic reasons.

1968-69 PH-1 Class

The 1968-69 PH-1 class gave a limited response for why they selected pharmacy as a career. Of the 143 PH-1's in the class, eight did not respond and 16 gave no reasons which could be

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[37] See Appendix O for a partial listing of the reasons which could not be categorized.

categorized in one of the eight classifications.[38] Only one reason each was reported by 19 PH-1's . In addition, only one reason could be categorized for each of 31 other PH-1's who gave multiple reasons. Because of this limited response, PH-1's in the 1969-70 class were asked to give their three most important reasons for selecting pharmacy as a career in order of their importance.

Table 33 shows the frequencies of reasons for selecting pharmacy as a career for males and females in the 1968-69 PH-1 class.

The three reasons most given by the males in order of frequency were: (1) general interest in the sciences; (2) relative or friend in pharmacy; and (3) opportunity to help people and serve humanity. The three reasons most given by the females in order of frequency were: (1) general interest in the sciences; (2) financial and/or job security; and (3) opportunities and need for pharmacists.

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[38] Responses for the 1968-69 PH-1's were classified into eight categories. These same categories were used in classifying reasons of the 1969-70 PH-1 class.

TABLE 33

REASONS FOR SELECTING PHARMACY AS A CAREER FOR MALES AND FEMALES IN THE 1968-69 PH-1 CLASS

Reasons For Selecting Pharmacy As A Career	Males	Females	Total
General Interest In The Sciences	31	13	44
Financial and/or Job Security	28	9	37
Relative or Friend In Pharmacy	29	6	35
Opportunity to Help People and Serve Humanity	29	4	33
Opportunities and Need for Pharmacists	10	7	17
Previous Experience In Pharmacy	12	4	16
Opportunities for Contact with Medical or Health Profession	9	3	12
Prestige and Respect of Being a Pharmacist	2	1	3

Although the sample size was small, an analysis of differences in reasons for selecting pharmacy as a career was made for PH-1's anticipating careers in community and hospital pharmacy. Table 34 shows this comparison. No great differences were noted between these two groups.

TABLE 34

REASONS FOR SELECTING PHARMACY AS A CAREER BY ANTICIPATED CAREERS IN COMMUNITY AND HOSPITAL PHARMACY FOR THE 1968-69 PH-1 CLASS

Reasons for Selecting Pharmacy As A Career	Community Pharmacy (N=61)	Hospital Pharmacy (N=21)
General Interest In The Sciences	17	7
Financial and/or Job Security	20	3
Relative or Friend In Pharmacy	20	5
Opportunity to Help People and Serve Humanity	22	3

1969-70 PH-1 Class

Students in the 1969-70 PH-1 class were asked to rank their three most important reasons for selecting pharmacy as a career. Response was limited, but not to the extent as with the 1968-69 PH-1 class. Of the 111 PH-1's in the class, only one did not respond and three gave no reasons which could be categorized. In addition, only one reason could be categorized for each of 20 other PH-1's who ranked two or three reasons.

Table 35 shows how these rankings varied between male and female PH-1's.[39] The three highest ranking choices among the male PH-1's were: (1) financial and/or job security; (2) general interest in sciences; and (3) opportunities and need for pharmacists. The three highest ranking choices among the female PH-1's were: (1) general interest in sciences; (2) opportunities for contact with medical or health profession; and (3) opportunities and need for pharmacists. Males ranked "opportunities for contact with medical or health profession" sixth.

The emphasis given "general interest in the sciences" might suggest the respondent did not have a reason related directly to pharmacy. Also, it may reflect little or no prior contact or knowledge with pharmacy. It is possible this emphasis would diminish as the student progresses through the pharmacy curriculum and begins to make plans for the future.

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[39] In determining the rank for each reason, each student's most important reason was given four points, the second most important three points, and third most important two points. The classifiable reasons were scored by the priority given them by the student. In other words, if a student's two most important reasons could not be categorized, but the third most important one could, that reason would be given two points, not four.

TABLE 35

RANKED REASONS FOR SELECTING PHARMACY AS A CAREER FOR MALES AND FEMALES IN THE 1969-70 PH-1 CLASS

Reasons For Selecting Pharmacy As A Career	Males Points	Males Rank	Females Points	Females Rank	Total Points	Total Rank
General Interest In The Sciences	115	2	41	1	156	1
Financial and/or Job Security	130	1	21	4	151	2
Opportunities and Need For Pharmacists	66	3	33	3	99	3
Opportunities For Contact with Medical or Health Profession	50	6	34	2	84	4
Relative or Friend In Pharmacy	59	4	13	6	72	5
Opportunity To Help People and Serve Humanity	49	7	15	5	64	6
Prestige and Respect of Being a Pharmacist	53	5	2	8	55	7
Previous Experience In Pharmacy	30	8	9	7	39	8

Weaver has conducted a survey of pharmacy students for nearly ten years and has noted in every survey the one most important person influencing the choice of pharmacy for new students is the

"nonrelative pharmacist."[40] In this study, the influence of relatives or friends in pharmacy was not a dominant reason for PH-1's selecting pharmacy as a career. However, it should be noted that Weaver asked, "Indicate the extent to which you were influenced to study pharmacy by each of the following," followed by a list of potential influential persons.[41] The questionnaire in this study was an open-end question, "What were the three most significant factors in your selecting pharmacy as a career?" Thus, the results of these two studies are not comparable.

Table 36 shows the differences in reasons for selecting pharmacy as a career between PH-1's with anticipated career plans in community and hospital pharmacy. The three highest ranking reasons among PH-1's interested in community pharmacy were: (1) financial and/or job security; (2) relative or friend in pharmacy; and (3) opportunities and need for pharmacists. The three highest ranking reasons among PH-1's interested in hospital pharmacy were: (1) general interest in sciences; (2) financial and/or job security; and (3) opportunities and need for pharmacists.

A notable difference between the two groups of PH-1's in Table 36 is the importance given to "relative or friend in pharmach" by PH-1's interested in community pharmacy. Students interested in hospital pharmacy ranked this reason next to last. This could be due to hospital pharmacists not being exposed to the public as

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40 Weaver, op. cit., pp. 411, 428.

41 Ibid, p. 411.

are community pharmacists. This might indicate also hospital pharmacists need to make stronger efforts to recruit pharmacy students into their area of pharmacy.

TABLE 36

RANKED REASONS FOR SELECTING PHARMACY AS A CAREER BY ANTICIPATED CAREERS IN COMMUNITY AND HOSPITAL PHARMACY FOR THE 1969-70 PH-1 CLASS

Reasons For Selecting Pharmacy As A Career	Community Points	Community Rank	Hospital Points	Hospital Rank
General Interest In The Sciences	26	4-5	40	1
Financial and/or Job Security	49	1	34	2
Opportunities and Need For Pharmacists	31	3	28	3
Opportunities For Contact with Medical or Health Profession	23	6	26	4
Relative or Friend In Pharmacy	32	2	14	7
Opportunity To Help People and Serve Humanity	26	4-5	15	6
Prestige and Respect of Being a Pharmacist	14	8	20	5
Previous Experience In Pharmacy	20	7	6	8

Students interested in hospital pharmacy ranked "general interest in the sciencès" higher than did PH-1's interested in community pharmacy. This could indicate those students interested in hospital pharmacy did not have specific reasons for selecting pharmacy, and generalized by mentioning their interests in the sciences.

Reasons for selecting pharmacy as a career were ranked by various ranges of admission GPA (Table 37) and of PH-1 year first semester GPA (Table 38). The only notable difference found in these two tables was in Table 38 where PH-1's earning less than a 2.00 their first semester of pharmacy school ranked "prestige and respect of being a pharmacist" second. This choice ranked seventh and eighth in the other two groups. Because students completed the biographical questionnaire within the first two weeks of Fall Semester, no obvious conclusions can be made relating this finding to subsequently earned Fall Semester grades.

TABLE 37

RANKED REASONS FOR SELECTING PHARMACY AS A CAREER BY ADMISSION GPA RANGES FOR PH-1'S IN THE 1969-70 CLASS

Reasons For Selecting Pharmacy As A Career	Admission GPA Ranges < 2.30 Points	Rank	2.30-2.74 Points	Rank	2.75 & up Points	Rank
General Interest In The Sciences	39	2	42	2	75	1
Financial and/or Job Security	47	1	45	1	59	2
Opportunities and Need For Pharmacists	23	3	23	5	53	3
Opportunities For Contact with Medical or Health Profession	18	5	39	3	27	5
Relative or Friend In Pharmacy	22	4	22	6	28	4
Opportunity To Help People and Serve Humanity	9	8	34	4	21	7
Prestige and Respect of Being a Pharmacist	17	6	18	7	20	8
Previous Experience In Pharmacy	12	7	2	8	25	6

TABLE 38

RANKED REASONS FOR SELECTING PHARMACY
AS A CAREER BY PH-1 YEAR FIRST SEMESTER
GPA RANGES FOR PH-1'S IN THE 1969-70 PH-1 CLASS

Reasons For Selecting Pharmacy As A Career	PH-1 Year First Semester GPA Ranges < 2.00 Points	Rank	2.00-2.74 Points	Rank	2.75 & up Points	Rank
General Interest In The Sciences	20	3	74	1	62	1
Financial and/or Job Security	29	1	73	2	49	2
Opportunities and Need For Pharmacists	19	4-5	36	4	44	3
Opportunities For Contact with Medical or Health Profession	19	4-5	49	3	19	7
Relative or Friend In Pharmacy	17	6	31	5	24	5
Opportunity To Help People and Serve Humanity	10	7	28	6	26	4
Prestige and Respect of Being a Pharmacist	22	2	19	7	14	8
Previous Experience In Pharmacy	0	8	18	8	21	6

In summary, "general interest in the sciences" and financial and/or job security" appear to be dominant reasons for selecting pharmacy as a career. The students also were aware of the opportunities and need for pharmacists. The stability of the reasons given by the students could be determined by repeating this analysis when the students are juniors and/or seniors in pharmacy school.

CHAPTER FOUR

SUMMARY AND RECOMMENDATIONS

Students from the two most recent first-year pharmacy classes in the University of Wisconsin School of Pharmacy constituted the sample for this study. The total number of students (PH-1's) was 254, 198 males and 56 females. The following information was collected and analyzed: (1) scores on the Strong Vocational Interest Blank (SVIB); (2) scores on the Academic Major Satisfaction Blank (AMSB); (3) responses to a biographical questionnaire; and (4) past and present grade point averages (GPA), as a measure of academic potential and performance.

Summary of Findings

There was a significant difference in academic performance between male and female PH-1's with the females being the better students. The mean admission GPA for the males was 2.57 compared to 2.95 for the females. The mean PH-1 year first semester GPA for the males was 2.40 compared to 2.69 for the females.

There was no significant difference in academic performance between PH-1's who reported having received or not received vocational counseling. The students in the 1969-70 PH-1 class who reported having received vocational counseling did not rate this counseling to be important in their selecting pharmacy as a career.

The PH-1's were separated into groups based on the size of their high school graduation class. There were no significant differences between these groups for the following: (1) cumulative freshmen chemistry GPA; (2) cumulative organic chemistry GPA; (3) admission GPA; and (4) GPA for the first semester of pharmacy school. The data showed that size of high school need not be a limiting factor in recruiting academically capable pharmacy students.

An analysis was made of the past academic performance of PH-1's who transferred to the Madison campus after completing their prepharmacy courses elsewhere. There was no significant difference between these transfers and nontransfers for the following: (1) cumulative freshmen chemistry GPA; (2) admission GPA; and (3) GPA for the first semester of pharmacy school. The transfers did do significantly better than the nontransfers in the prepharmacy organic chemistry courses.

The correlation between admission GPA and PH-1 year first semester GPA was 0.71 for the two PH-1 classes. However, this same analysis yielded a correlation for PH-1's with admission GPA's of less than 2.50 of only 0.17. The PH-1's with admission GPA's of less than 2.50 showed a 40 percent probability of earning less than a 2.00 their first semester of pharmacy school. Thus, it is this group of PH-1's for which differences should be

found to separate out the students with the most academic potential. Admission GPA did not appear to be a useful predictor of academic performance within this group. It could be that previous academic performance is of less importance than might be thought in determining which of those applicants with marginal admission GPA's should be admitted into pharmacy school.

Scores on the AMSB were obtained at the beginning of Spring Semester for both PH-1 classes. Since these scores probably were related more to the GPA earned for the previous semester than to admission GPA, the PH-1 year first semester GPA was used in the analysis of AMSB scores. There appeared to be a relationship between satisfaction and first semester pharmacy school grades. PH-1's earning less than a 2.00 their first semester of pharmacy school scored lower on the satisfaction scales than did the PH-1's who earned a 2.00 or higher.

There was no significant difference between the PH-1's AMSB score ranges and their SVIB Pharmacist scores. This finding questioned the importance given to occupational satisfaction in the development of an SVIB occupation scale.

A consistency in SVIB profiles between the two PH-1 classes was illustrated. However, there were marked differences in the interest patterns between the male and female PH-1's. Females had greater interests in verbal-linguistic areas and aesthetic-cultural

areas. Males had greater interests in technical supervision and technical and skilled trade areas. There were few differences in interest patterns between anticipated career areas. This analysis was limited by the possible tentative nature of career area selection of first-year pharmacy students.

When the PH-1's were separated into two groups based on admission GPA (less than 2.50 and 2.50 or higher), SVIB profiles for them were nearly identical. The PH-1's with admission GPA's of less than 2.50 were separated into two groups based on PH-1 year first semester GPA (less than 2.00 and 2.00 or higher). There were no significant differences in any of the occupation scores on the SVIB profiles between these two groups. The use of SVIB profiles would be of no assistance to an admissions committee in predicting an applicant's PH-1 year first semester academic performance.

There was no significant difference in SVIB Pharmacist scores between students with and without previous pharmacy work experience. However, those with previous experience did score significantly higher on the AMSB. It appeared from these findings that although vocational interests in pharmacy are not influenced by whether or not students have previous pharmacy work experience, curriculum satisfaction was higher for those who had experience.

There was a significant difference between the time male and female PH-1's decided to become pharmacists. A higher percentage of males decided upon pharmacy after they had graduated from high school than had females. The data showed recruiting should not be confined to high school students as many students beginning college have not decided upon career plans.

There was a difference in anticipated career areas between male and female PH-1's. The percentage of males interested in community pharmacy was more than twice the percentage of females. However, the percentage of females interested in hospital pharmacy was nearly three times the percentage of males. The 1968-69 PH-1 class answered an open-end question, while the 1969-70 PH-1 class was given a list of career areas from which one was to be selected. The 1969-70 PH-1 class had a marked decrease in the percentage of students interested in community pharmacy and a marked increase in the percentage of students interested in hospital pharmacy when compared to the 1968-69 PH-1 class.

Reasons for selecting pharmacy as a career did not differ to a great extent between male and female PH-1's. Eight categories were established for classifying the reasons. In general, the most important reasons were: (1) general interest in science; (2) financial and/or job security; and (3) opportunities and need for pharmacists. Only the 1969-70 PH-1 class was asked to rank

their three most important reasons for selecting pharmacy as a career. Notable differences were: (1) "opportunities for contact with medical or health profession" was ranked second by the female PH-1's, but sixth by the male PH-1's; (2) "general interest in the sciences" was ranked first by PH-1's anticipating careers in hospital pharmacy, but fourth by those interested in community pharmacy; (3) "relative or friend in pharmacy" was ranked second by PH-1's anticipating careers in community pharmacy, but seventh by those interested in hospital pharmacy; and (4) "prestige and respect of being a pharmacist" was ranked second by PH-1's earning first semester GPA's of less than 2.00, but seventh for those earning between a 2.00 and 2.74, and eighth for those earning a 2.75 or higher.

Recommendations

Based on the findings in this study, the following recommendations are made.

(1.) Continued studies should be made of the PH-1's in this study to see how predictive their choice of careers within pharmacy proves to be. It is possible these choices will change for many students before they begin their internship. Once they have begun to practice in particular areas of pharmacy, these PH-1's should be studied again to see what differences, if any, there might be between pharmacists practicing in different areas of pharmacy.

(2.) The Academic Major Satisfaction Blank should be completed at least once a year by these PH-1's as they proceed through pharmacy school, complete their internship, and begin their practice of pharmacy. It might be possible to find at what time a pharmacy student's satisfaction either increases or decreases. If a decrease is noted at a particular point in time, the reason for this decrease might be determined and necessary changes made to increase satisfaction.

(3.) Continual analyses of semester grade point averages should be made to determine how representative the GPA for the first semester of pharmacy school is in relation to a graduating pharmacy student's total academic performance. All analyses of grade points in this study have used first semester pharmacy school GPA as the criterion of academic success and failure.

(4.) A Pharmacist occupational scale should be developed for the Strong Vocational Interest Blank for Women. The increase in the number of women entering pharmacy school and the differences in interests noted in the study between male and female PH-1's give evidence to the need for this addition to the SVIB-W.

(5.) A group of practicing pharmacists should complete the SVIB-M to see if the Pharmacist occupational scale should be revised. The comparison of the PH-1 male profile with the profile of the pharmacists in the SVIB criterion group showed there were

differences in vocational interests. A reevaluation of pharmacists' interests also would demonstrate how first-year pharmacy students' interests compare to practicing pharmacists. It also is possible the Pharmacist scale should be reclassified in another occupational group, such as Biological Sciences rather than Business and Accounting in which it is now found.

(6.) A study should be made to find some variable or variables in addition to prepharmacy grade point average to serve as criteria for admission into pharmacy school. This study showed GPA upon admission was not a good predictor of differential academic performance among those PH-1's with admission GPA's of less than 2.50.

APPENDIX A

PHARMACY SCHOOLS WHOSE ADMISSION STANDARDS WERE ANALYZED

The following is a list of the sixteen schools of pharmacy whose admission standards were determined from their current catalogues. The years in parentheses beside the school is the dating on their catalogue used for this analysis.

A.A.C.P. District 1:
Massachusetts College (1970-71)
Northeastern University (1969-70)

A.A.C.P. District 2:
Philadelphia College of Pharmacy (1969-70)
Duquesne University (1970-71)

A.A.C.P. District 3:
University of North Carolina (1970-71)
Medical University of South Carolina (1968-69)

A.A.C.P. District 4:
University of Illinois (1969-71)
University of Toledo (1970-71)

A.A.C.P. District 5:
North Dakota State University (1970-72)
Creighton University (1968-70)

A.A.C.P. District 6:
University of Texas (1968-70)
Xavier University (1969-70)

A.A.C.P. District 7:
Oregon State University (1969-70)
University of Wyoming (1969-71)

A.A.C.P. District 8:
University of Southern California (1968-70)
University of New Mexico (1970-71)

APPENDIX B

THE OHIO STATE UNIVERSITY
ADMISSIONS OFFICE
190 NORTH OVAL DRIVE
COLUMBUS, OHIO 43210

THE DIRECTOR

December 3, 1969

Mr. Kenneth Kirk
425 North Charter Street
Madison, Wisconsin 53706

Dear Mr. Kirk:

Please excuse this tardy response regarding a copy of the results of the survey I made of professional colleges.

I am enclosing a summary of the questionnaire results which deals with Colleges of Pharmacy. I hope that it does not come too late to be of use to you.

If you have questions or if I can be of further help, please let me know.

My apologies again for being so late to your request.

Sincerely yours,

Edward E. Rhine

Edward E. Rhine
Associate Director of Admissions

EER:ks

Enclosure

PHARMACY

The American Association of Collegiate Registrars and Admissions Officers is sponsoring publication of an Admissions and Records Officers Handbook. One section of the handbook will deal with professional school admissions. To obtain information for the handbook, a questionnaire was sent to the dean of each college of dentistry, law, medicine, optometry, pharmacy, and veterinary medicine in the United States.

The following summary is based upon data collected from the questionnaires returned from 48 of the 73 pharmacy schools surveyed.

1. Admission policies for schools and colleges of pharmacy are most often formulated by an admissions committee or a faculty committee. Less frequently admission policies are established by an executive committee, a university-wide faculty committee, or by the faculty of the school or college as a whole.

2. Faculty members and administrators for colleges and schools of pharmacy normally make up the admissions committee, although in a limited number of schools the committees are composed entirely of one or the other of these groups. In a very few cases the committee includes student members and occasionally,

university-wide admissions personnel. The average size of admissions committees for colleges of pharmacy is 5 members, with as many as 12 in some cases.

3. In over one-half of the schools and colleges of pharmacy responding the dean has ultimate authority for the admission of students. In a few cases the admissions committee is the final authority. Less frequently, the university-wide director of admissions has ultimate responsibility for the admission of students.

4. Admissions committees meet as the applicant pool necessitates and applicants are notified as soon as the admission decision is reached (rolling admissions).

5. Approximately two-thirds of the colleges and schools of pharmacy indicate that an attempt is made to counsel rejected applicants concerning alternatives. The rejected applicant frequently must request this counsel.

6. The majority of schools admit students for each academic term.

7. Most often, the individual with the primary responsibility for admission of students is either the chairman of the Admissions Committee (who might also be the dean, associate dean, or an assistant dean) or

the university-wide director of admissions. In the large majority of cases, this individual does not devote full-time to admission responsibilities. More often than not, he is a member of the pharmaceutical profession.

8. In order of average importance (with the first being the most important), the criteria considered in the admission of applicants to colleges and schools of pharmacy are: the quality of the undergraduate academic record; aptitude test scores; interview; recommendations; and state residency. Not all of these factors are considered in each case.

9. The applicant's college transcript is required before an admission decision can be made. In many cases the high school transcript and/or aptitude test scores are required. The ACT and SAT are the most frequently used tests. Occasionally a medical examination report or recommendations are required before a decision can be made. A preliminary application for admission generally is not used by colleges of pharmacy. Interviews are either required or recommended by over one-half of the schools and colleges of pharmacy responding to the questionnaire.

10. When an interview is conducted, the applicant usually meets with a single member of the admissions committee. In order of average importance (with the first being the most important) the factors which the committee attempts to assess in the interview are: the applicant's motivation toward the profession; the quality of his preprofessional academic record; appearance (physical factors); intellectual curiosity; and personality and character.

11. More than three-fourths of the schools and colleges of pharmacy require either one or two years of pre-professional study with two years being required in most cases. A few schools accept applicants directly from high school and require no preprofessional college study. An average of 10% of the students in the schools responding obtain the baccalaureate degree before beginning professional study in pharmacy.

12. Although a particular preprofessional major is not prescribed, most colleges and schools of pharmacy consider grades in some subject areas more important than others. In order of average importance (with the first being the most important), these subject areas are: chemistry; biology; mathematics; physics; humanities; and social sciences.

13. Slightly less than one-half of the schools give preference for admission to residents over nonresidents. None hold agreements with other states to accept a certain number of their residents.

14. An average of 20% of the applicants to the schools and colleges of pharmacy responding are women; women make up an average of 22% of the first-year classes.

15. Less than one-fourth of the schools indicated that admission requirements are relaxed for "disadvantaged" applicants. In those cases where requirements are relaxed, less emphasis is usually placed on the applicant's academic record and more is placed on his motivation and probability of completing the program. Approximately one-third of the schools surveyed have active programs for recruiting "disadvantaged" applicants. Some visit Negro junior colleges and high schools to recruit these students.

16. The most common way in which schools and colleges of pharmacy communicate with preprofessional advisors is through publications. In some cases admissions committee members visit undergraduate colleges, and others invite preprofessional advisors to the campus for briefing sessions regarding admission policies. Over 75% of the schools conduct "Career Days" for prospective students and parents.

17. In most cases a letter-grade grading system is employed in the schools responding with a limited number offering some pass-fail opportunities.

18. On the average, 2 out of every 3 applicants are admitted to the schools and colleges of pharmacy responding to the questionnaire.

19. Scholarships, loans, and part-time employment are available to students in professional colleges of pharmacy. Research grants are sometimes available. An average of 36% of the students enrolled in schools and colleges of pharmacy receive financial aid. In nearly all cases, first-year students in pharmacy are eligible for financial aid. More than one-half of the colleges indicated that special financial aid opportunities are available for "disadvantaged" students.

20. Approximately two-thirds of the schools responding charge an admission deposit. If required, this deposit is most often $50.00, but occasionally is as high as $100.00. More often than not it is refundable to a certain date. The time for making the deposit ranges from immediately after admission up to one month after admission.

21. Most colleges and schools of pharmacy are located on or adjacent to the main campus of their parent university. For those which are publicly-supported, less than one-third have a budget separate from the regular university appropriation.

22. Twenty-five percent of the colleges and schools of pharmacy responding hold AACRAO membership.

23. Some colleges and schools of pharmacy are considering a joint admissions system with the other health professions of their respective universities.

THE OHIO STATE UNIVERSITY
ADMISSIONS OFFICE
190 NORTH OVAL DRIVE
COLUMBUS, OHIO 43210

OF THE DIRECTOR

December 11, 1969

Mr. Kenneth W. Kirk
Graduate Student, Pharmacy Administration
School of Pharmacy
425 North Charter Street
Madison, Wisconsin 43706

Dear Mr. Kirk:

I am enclosing the additional information you requested concerning our study on schools of pharmacy. I hope this data will be of assistance in your research project.

I will look forward to receiving the excerpt from your thesis.

Good luck!

Sincerely yours,

Edward E Rhine

Edward E. Rhine
Associate Director of Admissions

EER:ks

Enclosure

1. Is an applicant notified that he may seek counsel concerning alternatives, or is it his responsibility to know this?

We asked the following question on our questionnaire: Is an attempt made to counsel rejected applicants regarding possible alternatives? Of the 48 schools responding, 8 replied that an attempt was made to counsel rejected applicants if the applicant requested counsel; 22 of the schools replied "yes" (an attempt is made to counsel rejected applicants but no mention was made as to whether or not the applicant had to request the counsel); 18 of the schools replied "no" (an attempt is not made to counsel rejected applicants).

2. How many of the schools <u>required</u> an interview?

13 of the 48 schools.

How many schools <u>recommended</u> an interview?

13 of the 48 schools.

3. How many schools required no preprofessional college study?

9 of the 48 schools.

4. How many schools offered some pass-fail opportunities in their grading system?

Two schools reported total pass-fail grading systems; 16 schools noted primarily letter grading systems with limited pass-fail opportunities.

5. What was the range of the number of applicants admitted to the schools of pharmacy?

Thirty-nine of the 48 schools responding to our questionnaire provided figures on total number of applicants and total number admitted. There were a total of 4555 applications for the 1968 first-year classes in the 39 schools. Of this total number of applications, 3115 were accepted for admission. This is a percentage of 68.3. The range varied from a low of 85 admissions for 250 applications (34%) in one school to a high of 65 admissions for 68 applications (95.5%) in another school.

6. How many schools are considering a joint admission system with other health professions of their respective universities?

Two of the 48 schools responded that they already employ a central admissions system in conjunction with the other health professions at their universities; one other school responded that this form of admissions system was under consideration.

APPENDIX C

THE UNIVERSITY OF WISCONSIN
MADISON 53706

SCHOOL OF PHARMACY
Pharmacy Building
425 North Charter Street

November 14, 1969

On November 4, 1969, a conference was held with Mr. Robert E. Miller, Assistant Director of Admissions at the University of Wisconsin. The purpose of the conference was to discuss the admission requirements for some of the academic departments at the University of Wisconsin. These requirements are not published in any school publication because of certain exceptions which may occur in accepting some students.

Mr. Miller stated that the School of Business at the University of Wisconsin has a minimum grade point requirement of a 2.30, on a 4.00 basis, for admission. The Admissions Committee of the School of Business might accept a student if his or her grade point average is between 2.20 and 2.29, providing that all of the prerequisites for entering Business School have been fulfilled satisfactorally.

Mr. Miller also said that the grade point requirement for admission in the School of Education at the University of Wisconsin is a minimum 2.50. This requirement is strictly adhered to for students in Elementary Education. Under rare circumstances, a student might be admitted into Secondary Education with a minimum 2.45 grade point average and permission from the department's Admissions Committee.

Mr. Miller also confirmed that the minimum grade point average for admission into the School of Pharmacy at the University of Wisconsin is a 2.00.

.....

We, the undersigned, agree that the abstract of our conference, as written above, is correctly stated.

Signed:
Robert E. Miller
Robert E. Miller
Assistant Director of Admissions
University of Wisconsin

Signed:
Kenneth W. Kirk
Kenneth W. Kirk
Graduate Student, Pharmacy Administration
University of Wisconsin

APPENDIX D

Form T399

STRONG VOCATIONAL INTEREST BLANK FOR MEN

by EDWARD K. STRONG, JR.

Revised by

Edward K. Strong, Jr.
Stanford University

David P. Campbell
University of Minnesota

Ralph F. Berdie
University of Minnesota

Kenneth E. Clark
University of Rochester

It is possible with a fair degree of accuracy to determine by this inventory whether or not you would like certain occupations. This is not a test of intelligence or special abilities. It does measure the extent to which your interests agree or disagree with those of successful men in a given occupation.

Some of your instructions for completing this inventory may be given orally; pay close attention. Then read the following directions carefully:

1. With this question booklet, you should have a **special answer sheet or cards** on which to record your responses. **Make no marks at all on this booklet;** it will be used again by other people.

2. There are 399 items, or questions, in this booklet. Be sure there are spaces for only 399 items on your answer sheet or cards. (Older answer sheets had 400 question spaces; they should not be used with this booklet.)

3. If you have been given a special pencil, use it. If not, mark with any soft, black, lead pencil. **Make a heavy, dark mark**—not a cross or check mark.

4. If you make a mistake or change your mind, **erase carefully and thoroughly.** Do not fold or crease your answer sheet in any way.

5. **You should make one mark for each of the 399 questions.** If you omit items, or make more than one mark, your test cannot be scored. If you are not familiar with a particular item, guess how you might feel about it and mark accordingly.

6. The instructions change somewhat from part to part; read the instructions for each part carefully.

7. Read the instructions on your answer sheet or card. And be sure to fill in your name and the other information requested on your answer sheet or card. In some cases, it is necessary to code your name by marking spots representing each letter.

8. Work quickly; first impressions usually give the best results with this inventory.

STANFORD UNIVERSITY PRESS
Stanford, California

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Part I. Occupations. For each occupation listed below, indicate whether you would like that kind of work or not. Don't worry about whether you would be good at the job or about your lack of training for it. Forget about how much money you could make or whether you could get ahead in it. Think only about whether you would like the work done in that job.

Mark on the answer sheet in the space labeled **"L"** if you **like** that kind of work.
Mark in the space labeled **"I"** if you are **indifferent** (that is, don't care one way or another).
Mark in the space labeled **"D"** if you **dislike** that kind of work.

Work fast. Put down the first thing that comes to mind. Answer every one.

1 Actor
2 Advertising Man
3 Architect
4 Military Officer
5 Artist

6 Astronomer
7 Athletic Director
8 Auctioneer
9 Author of novel
10 Author of technical book

11 Auto Salesman
12 Auto Racer
13 Auto Mechanic
14 Airplane Pilot
15 Bank Teller

16 Designer, Electronic Equipment
17 Building Contractor
18 Buyer of merchandise
19 Carpenter
20 Cartoonist

21 Cashier in bank
22 Electronics Technician
23 Chemist
24 Civil Engineer
25 City or State Employee

26 Minister, Priest, or Rabbi
27 College Professor
28 Foreign Service Man
29 Dentist
30 Draftsman

31 Editor
32 Electrical Engineer
33 Employment Manager
34 Geologist
35 Factory Manager

36 Income Tax Accountant
37 Farmer
38 Labor Union Official
39 Art Museum Director
40 Foreign Correspondent

41 Governor of a State
42 Hotel Manager
43 Interior Decorator
44 Interpreter
45 Inventor

46 Photographer
47 Judge
48 Labor Arbitrator
49 Laboratory Technician
50 Landscape Gardener

51 Lawyer, Criminal
52 Lawyer, Corporation
53 Librarian
54 Life Insurance Salesman
55 Locomotive Engineer

56 Machinist
57 Magazine Writer
58 Manufacturer
59 High School Principal
60 Professional Baseball Player

61 Mining Superintendent
62 Musician
63 Music Teacher
64 Psychologist
65 Office Manager

66 Orchestra Conductor
67 Pharmacist
68 Public Relations Man
69 Physician
70 Playground Director

71 Poet
72 Politician
73 Printer
74 Private Secretary
75 Radio Announcer

76 Rancher
77 Real Estate Salesman
78 Reporter, General
79 Reporter, Sports page
80 Retailer

81 Sales Manager
82 School Teacher
83 Scientific Research Worker
84 Sculptor
85 Manager, Chamber of Commerce

86 Secret Service Man
87 Computer Operator
88 Shop Foreman
89 Social Worker
90 Specialty Salesman

91 Statistician
92 Stockbroker
93 Surgeon
94 Toolmaker
95 Traveling Salesman

96 Travel Bureau Manager
97 Funeral Director
98 Watchmaker
99 Wholesaler
100 Worker in Y.M.C.A.

Part II. School Subjects. Show as you did in Part I your interest in these school subjects, even though you may not have studied them.

101 Algebra
102 Agriculture
103 Arithmetic
104 Art
105 Bookkeeping

106 Botany
107 Calculus
108 Chemistry
109 Civics (government)
110 Dramatics

111 Economics
112 English Composition
113 Geography
114 Geology
115 Geometry

116 History
117 Languages, ancient
118 Languages, modern
119 Literature
120 Mathematics

121 Industrial Arts
122 Mechanical Drawing
123 Military Drill
124 Bible History
125 Nature Study

126 Philosophy
127 Physical Education
128 Physics
129 Psychology
130 Physiology

131 Public Speaking
132 Shop Work
133 Sociology
134 Spelling
135 Typewriting

136 Zoology

Part III. Amusements. Show in the same way as you did before whether or not you like these ways of having fun. Work rapidly. Do not think over various possibilities. Record your first feeling of liking, indifference, or disliking.

137 Golf
138 Fishing
139 Hunting
140 Tennis

141 Sketching pictures of wild animals
142 Hiking
143 Boxing
144 Chess
145 Poker

146 Bridge
147 Bird watching
148 Solving mechanical puzzles
149 Religious music
150 Camping out

151 Drilling in a military company
152 Playing the piano
153 Amusement parks
154 Picnics
155 Sight-seeing trips

156 Stag parties
157 Jazz concerts
158 Conventions
159 Formal dress affairs
160 Electioneering for office

161 Going to church
162 Horseback riding
163 Art galleries
164 Leading a Boy Scout troop
165 Writing a one-act play

166 Science fiction magazines
167 Symphony concerts
168 Night clubs
169 Church young people's group
170 Biographies

171 Sports pages in newspapers
172 Poetry
173 Detective stories
174 Skiing
175 Planning a large party

176 Telling jokes
177 Business methods magazines
178 Travel magazines
179 Weekly news magazines
180 Popular mechanics magazines

181 Reading the Bible
182 Educational movies or TV
183 Magazines about art and music
184 Social problem movies
185 Making a radio or hi-fi set

Part IV. Activities. Indicate your interests as before.

186 Repairing a clock
187 Adjusting a carburetor
188 Repairing electrical wiring
189 Cabinetmaking
190 Operating machinery

191 Handling horses
192 Giving "first-aid" assistance
193 Raising flowers and vegetables
194 Decorating a room with flowers
195 Arguments

196 Interviewing men for a job
197 Interviewing prospects in selling
198 Interviewing clients
199 Making a speech
200 Organizing a play

201 Starting a conversation with a stranger
202 Teaching children
203 Teaching adults
204 Calling friends by nicknames
205 Being called by a nickname

206 Meeting and directing people
207 Taking responsibility
208 Making statistical charts
209 Adjusting difficulties of others
210 Drilling soldiers

211 Pursuing bandits in a sheriff's posse
212 Doing research work
213 Acting as cheer-leader
214 Being a forest ranger
215 Writing reports

216 Looking at things in a hardware store
217 Bargaining ("swapping")
218 Looking at things in a clothing store
219 Buying merchandise for a store
220 Displaying merchandise in a store

221 Expressing opinions openly, regardless of what others say
222 Competitive activities
223 Methodical work
224 Regular hours for work
225 Continually changing activities

226 Developing business systems
227 Saving money
228 Contributing to charities
229 Raising money for a charity
230 Living in the city

231 Climbing along the edge of a precipice
232 Discussing the purpose of life
233 Looking at a collection of antique furniture

Part V. Types of People. Show your feeling about these different kinds of people. Do not think of various possibilities or of exceptional cases. "Let yourself go" and record the feeling that comes to mind as you read each item.

234 Progressive people
235 Conservative people

236 Energetic people
237 Military men
238 Aggressive people
239 Beachcombers
240 Optimists

241 Pessimists
242 People who are natural leaders
243 People who assume leadership
244 Ballet dancers
245 People who have made fortunes in business

246 Emotional people
247 Thrifty people
248 Spendthrifts
249 Famous chefs
250 Religious people

251 Irreligious people
252 Easygoing people
253 Artistic men
254 Public opinion interviewers
255 Foreigners

256 Physically sick people
257 Babies
258 Very old people
259 Women athletes
260 Outspoken people with new ideas

261 Musical geniuses
262 People who daydream a lot
263 Prominent artists
264 Outstanding scientists
265 Acrobats

266 Democrats
267 Prohibitionists
268 Republicans
269 Men who perform on TV
270 People who insist on having everything in its proper place

271 Fashionably dressed people
272 Carelessly dressed people
273 People who don't believe in evolution
274 Socialists
275 Nonconformists

276 Independents in politics
277 Men who live dangerously
278 Prominent businessmen
279 Prominent labor union men
280 Athletic men

Part VI. Order of Preference of Activities. Here are ten things you could do. **First read all ten.** Then select the **three things** you think you would like **most** to do, and mark them in the **first row** on the answer sheet, next to their numbers. Select the **three things** you would like **least** to do, and mark them in the **third row.** Then **mark the remaining four items in the middle row** where no marks have been made so far. (Some answer sheets use columns instead of rows.)

281 Develop the theory of operation of a new machine (for example, an auto)
282 Operate (manipulate) the new machine
283 Discover an improvement in the design of the machine
284 Determine the cost of operation of the machine
285 Supervise the manufacture of the machine
286 Create a new artistic effect (that is, improve the beauty of the machine)
287 Sell the machine
288 Prepare the advertising for the machine
289 Teach others the use of the machine
290 Interest the public in the machine through public addresses

Show in the same way the three things that mean the most to you in a job; then the three least important things. Mark the four items left over in the middle row.

291 Salary received for work
292 Steadiness and permanence of work
293 Opportunity for promotion
294 Courteous treatment from superiors
295 Opportunity to make use of all one's knowledge and experience.
296 Opportunity to ask questions and to consult about difficulties
297 Opportunity to understand just how one's superior expects work to be done
298 Certainty that one's work will be judged by fair standards
299 Freedom in working out one's own methods of doing the work
300 Co-workers—congenial, competent, and adequate in number

Show in the same way the three occupations you would like most; then the three you would like least. Mark the remaining four in the middle row.

301 Plant scientist—develops new vegetables and flowers
302 Opera singer
303 Inventor
304 Manufacturer
305 Nationally known artist
306 Banker, financier
307 General of the Army
308 Member of the Supreme Court
309 Author of "best seller"
310 Manager of large department store

Show in the same way the three offices you would like most to hold in a club or society; then mark the three you would like least to hold. Mark the four offices left over in the middle row.

311 President of a Society or Club
312 Secretary of a Society or Club
313 Treasurer of a Society or Club
314 Member of a Society of Club
315 Chairman, Arrangements Committee
316 Chairman, Educational Committee
317 Chairman, Entertainment Committee
318 Chairman, Membership Committee
319 Chairman, Program Committee
320 Chairman, Publicity Committee

Please check to see that in each set of ten questions you have three marks in the first row, three in the third row, and four in the middle row.

Part VII. Preference between Two Items. Show here which of two different kinds of work or ways of doing things you like better. If you prefer the items on the **left,** mark in the **first** row; if you prefer the items on the **right,** mark in the **third** row. If you like **both the same** or if you **can't decide** which one you like better, mark in the **middle** row. Work rapidly. Make one mark for each pair.

321	Airline pilot	Airline ticket agent
322	Policeman	Fireman (fights fire)
323	Taxicab driver	Policeman
324	Head waiter	Lighthouse keeper
325	Take dancing lessons	Take singing lessons
326	Selling things house to house	Gardening
327	Repaint autos	Grease autos
328	Develop plans	Execute plans
329	Do a job yourself	Tell somebody to do the job
330	Talk others into doing something	Order others to do something
331	Deal with things	Deal with people
332	Plan for immediate future	Plan for five years ahead
333	Activity that produces tangible returns	Activity that is enjoyed for its own sake
334	Taking a chance	Playing safe
335	Definite salary	Commission on what is done
336	Work for yourself	Carry out program of superior who is respected
337	Thrilling, dangerous activities	Quieter, safer activities
338	Work in a large corporation with little chance of becoming president until age 55	Work for self in small business
339	Selling something for less than others sell it	Selling something for more than others sell it
340	Travel alone and make own preparations	Travel with someone else who makes all the decisions
341	Work with few details	Work with many details
342	Outside work	Inside work
343	Work in which you move from place to place	Work where you stay in one place
344	Great variety of work	Similarity in work
345	Physical activity	Mental activity
346	Work in an import-export business	Work in a research laboratory
347	Technical responsibility (in charge of 25 people doing scientific or technical work)	Supervisory responsibility (in charge of 300 people in typical business work)
348	Present a report in writing	Present a report verbally
349	Listening to a story	Telling a story
350	Playing baseball	Watching baseball
351	Amusement where there is a crowd	Amusement alone or with one or two others
352	Music and art events	Athletic events
353	Reading a book	Watching TV or going to a movie
354	Plumber	Electrician
355	A few close friends	Many acquaintances
356	Superintendent of hospital	Warden of a prison
357	Vocational counselor	Public health officer
358	Travel to outer space	Explore bottom of ocean
359	Dog trainer	Juvenile parole officer
360	Appraise real estate	Repair, restore antiques

Part VIII. Your Abilities and Characteristics. Show here what kind of person you are and the kinds of things you do. If the item really describes you, mark in the first row (**Yes**); if the item does **not** describe you mark in the third row (**No**); and if you are not sure mark in the second row (**?**). (Be frank in pointing out your weak points, because these are as important as your strong points in choosing a career.)

361 Usually start activities of my group
362 Make decisions immediately, not after considerable thought
363 Win friends easily
364 Usually get other people to do what I want done
365 Usually liven up the group on a dull day

366 Keep detailed records of expenses
367 Prefer working alone to working on committees
368 Have mechanical ingenuity (inventiveness)
369 Have more than my share of novel ideas
370 Can prepare successful advertisements

371 Am concerned about philosophical problems, for example, religion, meaning of life, etc.
372 My grades in high school were a fairly accurate reflection of my abilities
373 Am always on time with my work
374 Remember faces, names, and incidents better than the average person
375 Can correct others without giving offense

376 Am able to meet emergencies quickly and effectively
377 Do my best work early in the morning
378 Can write a concise, well-organized report
379 Have good judgment in appraising values
380 Plan my work in detail

381 Follow up subordinates effectively
382 Put drive into the organization
383 Stimulate the ambition of my associates
384 Can be firm and show I mean it
385 Am slow-going and sure rather than quick-moving

386 Can smooth out tangles and disagreements between people
387 Have patience when teaching others
388 Discuss my ideals with others

For each question, choose from the three phrases the one that **best** describes you. Then mark your choice on the answer sheet: **first** row if your choice is (1), **middle** row for (2), or **third** row for (3).

389 Pay attention to details	(1) Very little	(2) Somewhat	(3) Very much
390 Worry about mistakes	(1) A good deal	(2) Very little	(3) Never
391 Lend money to	(1) Acquaintances	(2) Only certain people	(3) Hardly anyone
392 When it comes to taking orders from others and carrying them out	(1) I dislike to	(2) I don't care	(3) I do it cheerfully
393 When caught in a mistake, I make excuses	(1) Usually	(2) Seldom	(3) Practically never
394 Speak	(1) More slowly than others	(2) About average	(3) Faster than others
395 Complaints annoy me	(1) Rarely	(2) Sometimes	(3) Quite a bit
396 In my family, I am the	(1) Oldest (or only) child	(2) Youngest	(3) Neither oldest nor youngest
397 At a large conference, I prefer a seat	(1) In first 3 rows	(2) Halfway back	(3) In rear of room
398 My advice is asked for	(1) By many	(2) By few	(3) By almost nobody
399 Make bets	(1) Often	(2) Sometimes	(3) Rarely

NOTE: If your answer sheet has room for 400 items, fill in ALL THREE answers to item number 400; then write very plainly somewhere on the edge of the answer sheet, "I used Booklet Form T399."

A NOTE TO PROFESSIONAL USERS OF THE SVIB

The following comments are directed to counselors, personnel workers, and research psychologists.

In 1966, this revised version of the SVIB was published to bring the questions in the inventory up to date. Many items were slightly reworded, and some were changed substantially. During the revision, several occupational scales were added to the profile, and the scoring system was changed.

The revised scales correlate highly with the older scales, and the reliabilities and validities of the revised scales are essentially the same as those of the older scales.

A complete discussion of this revision can be found in the 1966 Manual for the Strong Vocational Interest Blank.

The revised booklet is designated Form T399 and contains 399 items. (The older booklet contained 400 items.) Instructions in this booklet emphasize that a 399-item answer sheet should be used with Form T399 to prevent confusion.

Unless specifically requested otherwise, scoring services will use the revised scales for all answer sheets. Under certain conditions, inventories completed before 1966 can be scored on both the old and the revised scales. Inventories completed after 1966—with the revised booklet—can be scored on the revised scales only. More detailed information is available in the Manual for the SVIB. If questions arise, consult your scoring service or the publisher.

SEE THE BACK SIDE OF THIS ANS SHEET BEFORE STARTING

MALE

LAST NAME (PLEASE PRINT) | FIRST | AGE | DATE | OCCUPATION

SCHOOL OR AGENCY | SCHOOL YR | ADDRESS

L I D

1 2 3 4 5 — PART I — 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 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90

91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120

PART II

121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150

PART III

151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180

181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210

PART IV

211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240

PART V

241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270

271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300

MARK 3 YOU ENJOY MOST HERE
MARK REMAINING 4 HERE
MARK 3 MOST IMPORTANT HERE
MARK REMAINING 4 HERE
PART VI
MARK 3 YOU ENJOY LEAST HERE
MARK 3 LEAST IMPORTANT HERE

| | | |

Hankes Answer Sheet For

Strong Vocational Interest Inventory

by Edward K. Strong Jr.

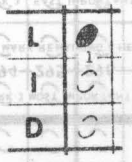
Instructions

1. All answers are to be marked on this answer sheet -- do not write in the test booklet.

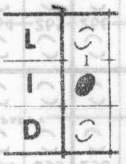
2. Answer spaces, three squares in vertical position, are numbered to correspond to the numbering of the items in the test. You are to decide how you wish to answer the question, then make a mark in the answer space that corresponds to this answer.

   Example: 1. Actor

   Mark the upper square (the row marked "L") of number 1 if you like that kind of work.

   Mark the middle square (the row marked "I") of number 1 if you are indifferent to that kind of work.

   Mark the lower square (the row marked "D") of number 1 if you dislike that kind of work.

3. Use a soft lead pencil, No. 2, No. 1 or electrographic, to mark the oval you select.

   Make sure your marks completely fill the oval and are solid black -- thus

   Erase your first mark if you change your mind and mark another square.

   Make sure your marks are carefully made -- thus 

4. Be sure to read the instructions in the booklet as they vary from part to part.

This answer sheet for use with the STRONG VOCATIONAL INTEREST BLANK FOR MEN, by Edward K. Strong, Jr. Copyright 1938 by the Board of Trustees of the Leland Stanford Junior University. Copyright renewed 1965 by Margaret H. Strong. Copyright © 1945, 1964, 1965, and 1966 by the Board of Trustees of the Leland Stanford Junior University.

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TESTSCOR 2312 Snelling Ave. Minneapolis, Minn. 55404, U.S.A.

APPENDIX E

SEE OTHER SIDE FOR EXPLANATION

LAST NAME [redacted] FIRST [redacted] DATE

HANKES REPORT FORM FOR

STRONG VOCATIONAL INTEREST BLANK-MEN

GROUP	OCCUPATION	STD. SCORE
I	DENTIST	38
	OSTEOPATH	44
	VETERINARIAN	29
	PHYSICIAN	48
	PSYCHIATRIST	33
	PSYCHOLOGIST	25
	BIOLOGIST	28
II	ARCHITECT	27
	MATHEMATICIAN	10
	PHYSICIST	17
	CHEMIST	42
	ENGINEER	24
III	PRODUCTION MANAGER	25
	ARMY OFFICER	32
	AIR FORCE OFFICER	42
IV	CARPENTER	22
	FOREST SERVICE MAN	20
	FARMER	35
	MATH-SCIENCE TEACHER	42
	PRINTER	34
	POLICEMAN	34
V	PERSONNEL DIRECTOR	12
	PUBLIC ADMINISTRATOR	25
	REHABILITATION COUNSELOR	23
	Y.M.C.A. SECRETARY	36
	SOCIAL WORKER	26
	SOCIAL SCIENCE TEACHER	20
	SCHOOL SUPERINTENDENT	-02
	MINISTER	10
VI	LIBRARIAN	29
	ARTIST	30
	MUSICIAN (PERFORMER)	46
	MUSIC TEACHER	22
VII	C.P.A. (OWNER)	12
VIII	SENIOR C.P.A.	24
	ACCOUNTANT	20
	OFFICE WORKER	32
	PURCHASING AGENT	23
	BANKER	09
	PHARMACIST	37
	MORTICIAN	24
IX	SALES MANAGER	19
	REAL ESTATE SALESMAN	24
	LIFE INSURANCE SALESMAN	17
X	ADVERTISING MAN	20
	LAWYER	24
	AUTHOR-JOURNALIST	24
XI	PRESIDENT-MANUFACTURING	11

SUPPLEMENTARY OCCUPATIONAL SCALES	STD. SCORE
CREDIT MANAGER	26
CHAMBER OF COMMERCE EXEC.	27
PHYSICAL THERAPIST	51
COMPUTER PROGRAMMER	31
BUSINESS EDUCATION TEACHER	23
COMMUNITY RECREATION ADMIN.	25

NON-OCCUPATIONAL SCALES	SPECIALIZATION LEVEL	OCCUPATIONAL LEVEL	MASCULINITY FEMININITY	ACADEMIC ACHIEVEMENT		
	36	45	50	46		

C C+ B- B B+ A — LETTER GRADE

0 10 20 30 40 50 60 70

10-68

TESTSCOR, INC., 2312 SNELLING AVE., MINNEAPOLIS, MINNESOTA 55404

APPENDIX F

M 10-14-69

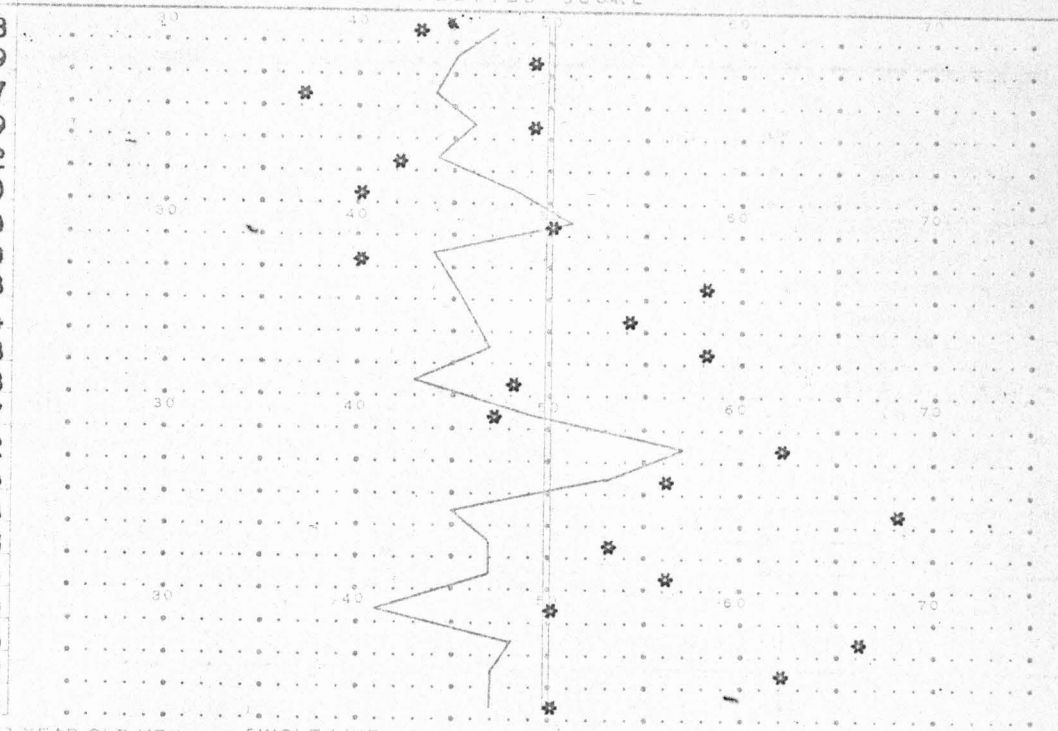
FORM T399

NCS PROFILE — STRONG VOCATIONAL INTEREST BLANK — FOR MEN

BASIC INTEREST SCALES

SCALE	STD. SCORE
PUBLIC SPEAKING	43
LAW, POLITICS	49
BUSINESS MANAGEMENT	37
SALES	49
MERCHANDISING	42
OFFICE PRACTICES	40
MILITARY ACTIVITIES	50
TECHNICAL SUPERVISION	40
MATHEMATICS	58
SCIENCE	54
MECHANICAL	58
NATURE	48
AGRICULTURE	47
ADVENTURE	62
RECREATIONAL LEADERSHIP	56
MEDICAL SERVICE	68
SOCIAL SERVICE	53
RELIGIOUS ACTIVITIES	56
TEACHING	50
MUSIC	66
ART	62
WRITING	50

PLOTTED SCORE



DOUBLE LINE = AVERAGE SCORE FOR 650 52 YEAR OLD MEN. SINGLE LINE = AVERAGE SCORE FOR SAME MEN WHEN 18 YEARS OLD.

OCCUPATIONAL SCALES

	OCCUPATION	STD. SCORE	C	B−	B	B+	A
I	DENTIST	51					
	OSTEOPATH	53					
	VETERINARIAN	40					
	PHYSICIAN	40					
	PSYCHIATRIST	22					
	PSYCHOLOGIST	11					
	BIOLOGIST	28					
II	ARCHITECT	33					
	MATHEMATICIAN	11					
	PHYSICIST	21					
	CHEMIST	31					
	ENGINEER	30					
III	PRODUCTION MANAGER	40					
	ARMY OFFICER	36					
	AIR FORCE OFFICER	41					
IV	CARPENTER	38					
	FOREST SERVICE MAN	27					
	FARMER	33					
	MATH-SCIENCE TEACHER	41					
	PRINTER	40					
	POLICEMAN	42					
V	PERSONNEL DIRECTOR	8					
	PUBLIC ADMINISTRATOR	14					
	REHABILITATION COUNS.	17					
	YMCA STAFF MEMBER	25					
	SOCIAL WORKER	2					
	SOCIAL SCIENCE TEACHER	21					
	SCHOOL SUPERINTENDENT	7					
	MINISTER	9					

	OCCUPATION	STD. SCORE	C	B−	B	B+	A
VI	LIBRARIAN	24					
	ARTIST	34					
	MUSICIAN PERFORMER	46					
	MUSIC TEACHER	24					
VII	C. P. A. OWNER	19					
VIII	SENIOR C. P. A.	39					
	ACCOUNTANT	30					
	OFFICE WORKER	46					
	PURCHASING AGENT	28					
	BANKER	30					
	PHARMACIST	37					
	FUNERAL DIRECTOR	36					
IX	SALES MANAGER	25					
	REAL ESTATE SALESMAN	27					
	LIFE INS. SALESMAN	21					
X	ADVERTISING MAN	25					
	LAWYER	18					
	AUTHOR-JOURNALIST	27					
XI	PRESIDENT-MFG.	21					

SUPP. OCCUPATIONAL SCALES

	STD. SCORE	C	B−	B	B+	A
CREDIT MANAGER	33					
CHAMBER OF COM. EXEC.	28					
PHYSICAL THERAPIST	56					
COMPUTER PROGRAMMER	40					
BUSINESS ED. TEACHER	31					
COMMUNITY REC. ADMIN.	22					

NON-OCCUPATIONAL SCALES

AACH	AR	DIV	MFD	MO	OIE	OL	SL
47	38	62	49	34	49	50	33

ADMINISTRATIVE INDICES

TR	UNP	FC	CP	IP	OP
398	7	12	36	35	29

SCORED BY NATIONAL COMPUTER SYSTEMS, INC., 4401 WEST 76TH ST., MINNEAPOLIS, MINN.

APPENDIX G

Answers to the questions in this blank are used to obtain a quantitative index of your satisfaction with your present academic major. Please be perfectly frank and truthful. All answers will be held in confidence.

NAME:_____ DATE:_____

I. Choose the ONE of the following statements which best tells how well you like your academic major. Place a check mark in front of that statement:

1. _____I hate it.
2. _____I dislike it.
3. _____I don't like it.
4. _____I am indifferent to it.
5. _____I like it.
6. _____I am enthusiastic about it.
7. _____I love it.

II. Check one of the following to show HOW MUCH OF THE TIME you feel satisfied with your academic major:

8. _____All of the time.
9. _____Most of the time.
10. _____A good deal of the time.
11. _____About half of the time.
12. _____Occasionally.
13. _____Seldom.
14. _____Never.

III. Check ONE of the following which best tells how you feel about changing your academic major:

15. _____I would quit this major at once if I could find any other field in which to major.
16. _____I would major in almost any other field in which I would have as good job possibilities as I will have with my present major.
17. _____I would like to change both my major and my general field of preparation.
18. _____I would like to exchange my present major for another major in the same general field of preparation.
19. _____I am not eager to change my major, but I would do so if I could find a better major.
20. _____I cannot think of any major for which I would exchange mine.
21. _____I would not exchange my major for any other.

IV. Check one of the following to show how you think you compare with other students.

22. _____No one likes his major better than I like mine.
23. _____I like my major much better than most students like theirs.
24. _____I like my major better than most students like theirs.
25. _____I like my major about as well as most students like theirs.
26. _____I dislike my major more than most students dislike theirs.
27. _____I dislike my major much more than most students dislike theirs.
28. _____No one dislikes his major more than I dislike mine.

APPENDIX H

BIOGRAPHICAL QUESTIONNAIRE

1. General Information

Name:_____ Age:_____ Date:_____

Sex: ____ Male ____ Female Marital Status ____Single ____ Married

Have you ever received vocational counseling? ____Yes ____No

Name of high school graduated from city state

Size of High School Graduation Class: _____

2. Family Information

Give the following data about your parents as completely as possible: (Indicate step-parents)

Relationship	Age (if living)	Education (Draw circle around highest year completed) 12345678 1234 12345 Grades H.S. College	Present Occupation (Use specific occupational title such as "Life Insurance Salesman" rather than "Sales.")
Father		12345678 1234 12345 Grades H.S. College	
Mother		12345678 1234 12345 Grades H.S. College	

How many brothers and sisters do you have? (Indicate step-brothers and sisters) _____

Age of youngest: _____

Age of oldest: _____

3. Career Information

When did you decide to become a pharmacist?

_____ before my junior year in high school

_____ during my junior year in high school

_____ during my senior year in high school

_____ during my freshman year at college

_____ since my freshman year at college

What field of pharmacy or other occupation do you plan to enter upon becoming a pharmacist? _____

Briefly discuss your reasons for selecting this field of pharmacy or other occupation. _____

_____

_____

Describe any previous work experience you may have had in pharmacy.

_____

_____

Please list any of your relatives who may be working or may have worked in some area of pharmacy.

Relationship	Briefly describe their job
_____	_____
_____	_____
_____	_____
_____	_____

What were the most influential factors in your entering pharmacy?

_____

_____

Approximately how many hours per week do you spend studying? ___hrs.

Approximately how many hours per week, if any, do you spend at a paying job during the school year? ___hrs.

Please list your leisure time activities. _____

_____

_____

APPENDIX I

BIOGRAPHICAL QUESTIONNAIRE

1. General Background Information:

   a. Name: _____

   b. Sex: _____ Female
      _____ Male

   c. Marital Status: _____ Single
      _____ Married

   d. _____
      Name of High School Graduated From City State

   e. Check the size of high school graduating class:

      _____ Less than 100
      _____ 100-199
      _____ 200-299
      _____ 300-399
      _____ 400-499
      _____ 500 or more

   f. Please give the name of the college or university last attended for a full academic semester (do not include last summer semester).

      _____

2. Family Information (indicate step-parents if applicable):

   a. Father: _____ Living _____ Deceased Mother: _____ Living _____ Deceased

   b. If both parents are living, are they: _____ Living Together _____ Separated or Divorced

   c. Draw a circle around the highest year of education completed by each parent.

      Father: 12345678 Grades 1234 H.S. 12345678(more than 8) College

      Mother: 12345678 Grades 1234 H.S. 12345678(more than 8) College

   d. Describe in 10 words or less the type of occupation parents have, if employed. (Use specific occupational titles such as "Life Insurance Salesman" rather than "Salesman.")

      Father: _____

      _____

      Mother: _____

      _____

3. Career Information:

a. When did you decide to become a pharmacist?

_____ before junior year in high school
_____ during junior year in high school
_____ during senior year in high school
_____ during freshman year at college
_____ since freshman year at college

b. Have you ever discussed career opportunities with a guidance counselor in your high school, college counseling center, or other counseling agencies? _____ Yes
_____ No

If Yes, how influential was the counseling in your selecting pharmacy as a career?

_____ Was the primary factor for selecting pharmacy
_____ Was a significant factor in selecting pharmacy
_____ Was a minor factor in selecting pharmacy
_____ Was of no value in choosing pharmacy

c. What field of pharmacy or other occupation do you plan to enter upon becoming a pharmacist?

_____ Community pharmacy
_____ Hospital pharmacy
_____ Industry or Research
_____ Undecided
_____ Other (please specify): _____

d. What were the three (3) most significant factors in your selecting pharmacy as a career? (Please list them in order of importance)

1st: _____

_____

2nd: _____

_____

3rd: _____

_____

4. Pharmacy Background Information:

a. Have you had previous work experience in any area of pharmacy?

_____ Yes
_____ No

If Yes, please describe the type of experience.

_____

_____

b. Please list any of your relatives who may be working or may have worked in some area of pharmacy. (Relative does not necessarily have to be a pharmacist.)

Relationship	Briefly describe his or her job
_____	_____
_____	_____
_____	_____
_____	_____

5. Current Information:

a. Approximately how many hours per week do you spend studying?

_____ hours/week

b. Do you have a paying job during the school year? _____ Yes
_____ No

If Yes, approximately how many hours per week do you work?

_____ hours/week

APPENDIX J

VARIABLES ENTERING - GROUP 1

STANDARD ERROR OF ESTIMATE	.4950
COEFFICIENT OF DETERMINATION	.4986
MULTIPLE CORRELATION COEFF.	.7061

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 249 DEG. FREEDOM	PARTIAL F VAL WITH 1 AND DEG. FREEDO
	CONSTANT	-.19237	.17184		-.071	-1.11944	1.25315
1 GPAADM	GROUP 1	1.00136	.06364	.7061	.706	15.73544	247.60398

A N A L Y S I S O F V A R I A N C E S U M M A R Y T A B L E

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FREEDOM	MEAN SQUARE
LINEAR REGRESSION	60.68108	1	60.68108
RESIDUALS FROM REGRESSION	61.02320	249	.24507
CORRECTED TOTAL	121.70428	250	

F-RATIO = 247.60 WITH 1 AND 249 DEG. FREEDOM

SIGNIFICANCE LEVEL OF F-RATIO = .0000

CORRECTION FOR MEAN	1527.03110	1
UNCORRECTED TOTAL	1643.73540	251

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGAN2 06/06/70 RUN 1 PA

PH1 GPA CORRELATED WITH OTHER FACTORS, MAY, 1370

MODEL 6 PA

DEPVAR 4 BE

D E S C R I P T I O N O F T H E M O D E L (MODEL 6)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 First Semester GPA)

INDEPENDENT VARIABLES

GROUP 1 1 GPAADM (Admission GPA)

E E Q U A T I O N

TANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 249 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 249 DEG. FREEDOM	SIG. LEVEL
	-.071	-1.11944	1.25315	.2640
.7061	.706	15.73544	247.60398	.0000

I A N C E S J M M A R Y T A B L E

M OF SQUARES	DEG. FREEDOM	MEAN SQUARE
60.68103	1	60.68103
61.02320	249	.24507
121.70428	250	

D 249 DEG. FREEDOM

.0000

1527.03110 1

1643.73540 251

PROGRAM REGANZ 06/06/70 RUN 1 PAGE 14

.1370

MODEL 6 PAGE 1

DEPVAR 4 BEGIN

E L (MODEL 6)

First Semester GPA)

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRA
PHI GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

B A S I C R E G R E S S I O N S T A T I S T I C S

VARIABLES ENTERING - GROUP 1

STANDARD ERROR OF ESTIMATE	.4307
COEFFICIENT OF DETERMINATION	.5114
MULTIPLE CORRELATION COEFF.	.7151

V A R I A B L E S I N T H E E Q U A T I O N

	VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATIO COEFFICIEN
		CONSTANT	-.14525+000	.17375+000		-.053
1	GPAADM	GROUP 1	.83663+000	.11867+000	.5900	.409
2	CHEMFR	GROUP 1	.31813-002	.59238-001	.0036	.003
3	CHEMOR	GROUP 1	.16387+000	.64864-001	.1605	.159

A N A L Y S I S O F V A R I A N C E S U M M A R

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FR
LINEAR REGRESSION	62.23923	
RESIDUALS FROM REGRESSION	59.46505	24
CORRECTED TOTAL	121.70428	25

F-RATIO = 86.17 WITH 3 AND 247 DEG. FREEDOM
SIGNIFICANCE LEVEL OF F-RATIO = .0000

CORRECTION FOR MEAN	1527.03110	
UNCORRECTED TOTAL	1648.73540	25

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGAN2
PHI GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

D E S C R I P T I O N O F T H E M O D E L (MODEL 2)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 Year First Semester GPA)

INDEPENDENT VARIABLES

GROUP 1
1 GPAADM (Admission GPA)
2 CHEMFR (Freshmen Chemistry GPA)
3 CHEMOR (Organic Chemistry GPA)

O N S T A T I S T I C S

E E Q U A T I O N

STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 247 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 247 DEG. FREEDOM	SIG. LEVEL
	-.053	-.83598	.69886	.4040
.5900	.409	7.04968	49.69797	.0000
.0036	.003	.05370	.00288	.9572
.1605	.159	2.52639	6.38263	.0122

I A N C E S U M M A R Y T A B L E

M OF SQUARES	DEG. FREEDOM	MEAN SQUARE
62.23923	3	20.74641
53.46505	247	.24075
121.70428	250	

D 247 DEG. FREEDOM
.0000

1527.03110	1
1648.73540	251

(MODEL 2)

First Semester GPA)

PA)
)

APPENDIX K

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REG
PH1 GPA CORRELATED WITH OTHER FACTORS,MAY,1970

B A S I C R E G R E S S I O N S T A T I S T I C S

VARIABLES ENTERING - GROUP 1
STANDARD ERROR OF ESTIMATE .4591
COEFFICIENT OF DETERMINATION .4791
MULTIPLE CORRELATION COEFF. .6922

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT
	CONSTANT	-.65812	.31033		-.178
1 GPAADM	GROUP 1	1.15121	.10255	.6922	.692

A N A L Y S I S O F V A R I A N C E S U M M A R Y T

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FREEDOM
LINEAR REGRESSION	26.55987	1
RESIDUALS FROM REGRESSION	28.87497	137
CORRECTED TOTAL	55.43484	138

F-RATIO = 126.02 WITH 1 AND 137 DEG. FREEDOM
SIGNIFICANCE LEVEL OF F-RATIO = .0000

CORRECTION FOR MEAN	1088.19250	1
UNCORRECTED TOTAL	1143.62740	139

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGAN2
PH1 GPA CORRELATED WITH OTHER FACTORS,MAY,1970

D E S C R I P T I O N O F T H E M O D E L (MODEL 6)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 Year First Semester GPA)

INDEPENDENT VARIABLES -

GROUP 1 1 GPAADM (Admission GPA)

O N S T A T I S T I C S

E E Q U A T I O N

STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 137 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 137 DEG. FREEDOM	SIG. LEVEL
	-.178	-2.12073	4.49751	.0357
.6922	.692	11.22568	126.01580	.0000

I A N C E S U M M A R Y T A B L E

UM OF SQUARES	DEG. FREEDOM	MEAN SQUARE
26.55987	1	26.55987
28.87497	137	.21077
55.43484	138	

ND 137 DEG. FREEDOM
= .0000

1088.19250	1
1143.62740	139

E L (MODEL 6)

ear First Semester GPA)

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM RE
PH1 GPA CORRELATED WITH OTHER FACTORS,MAY,1970

B A S I C R E G R E S S I O N S T A T I S T I C S

VARIABLES ENTERING - GROUP 1
STANDARD ERROR OF ESTIMATE .531
COEFFICIENT OF DETERMINATION .0306
MULTIPLE CORRELATION COEFF. .1749

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT
	CONSTANT	.78290	.68472		.108
1 GPAADM	GROUP 1	.57185	.30694	.1749	.175

A N A L Y S I S O F V A R I A N C E S U M M A R Y

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FREED
LINEAR REGRESSION	.98033	1
RESIDUALS FROM REGRESSION	31.06666	110
CORRECTED TOTAL	32.04700	111

F-RATIO = 3.47 WITH 1 AND 110 DEG. FREEDOM
SIGNIFICANCE LEVEL OF F-RATIO = .0651

CORRECTION FOR MEAN	473.06100	1
UNCORRECTED TOTAL	505.10799	112

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGAN2 05
PH1 GPA CORRELATED WITH OTHER FACTORS,MAY,1970

D E S C R I P T I O N O F T H E M O D E L (MODEL 6)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 Year First Semester GPA)

INDEPENDENT VARIABLES

GROUP 1 1 GPAADM (Admission GPA)

N S T A T I S T I C S

E Q U A T I O N

ANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 110 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 110 DEG. FREEDOM	SIG. LEVEL
	.108	1.14339	1.30733	.2554
.1749	.175	1.86310	3.47113	.0651

I A N C E S U M M A R Y T A B L E

OF SQUARES	DEG. FREEDOM	MEAN SQUARE
.98033	1	.98033
31.06666	110	.28242
32.04700	111	

110 DEG. FREEDOM
.0651

473.06100 1
505.10799 112

(MODEL 6)
First Semester GPA)

APPENDIX L

CALCULATION OF CORRELATION DATA FOR AMSB SCORES

The following correlation calculations did not involve the use of a computer. The necessary data to determine the linear correlation coefficients and the coefficients of determination are listed below.

The formula for determining the linear correlation coefficient (r) is

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{N\Sigma X^2 - [\Sigma X]^2 \times N\Sigma Y^2 - [\Sigma Y]^2}}$$ [a]

Correlation data for 1968-69 PH-1 AMSB Scores:

$\Sigma X^2 = 47,438$ $\Sigma Y = 2,260$

$\Sigma Y^2 = 44,914$ $\Sigma XY = 45,697$

$\Sigma X = 2,326$ $N = 117$

$r = 0.6252$

r^2 (coefficient of determination) $= 0.3909$

Correlation data for 1969-70 PH-1 AMSB Scores:

$\Sigma X^2 = 43,659$ $\Sigma Y = 2,048$

$\Sigma Y^2 = 43,024$ $\Sigma XY = 42,855$

$\Sigma X = 2,073$ $N = 100$

$r = 0.4645$

r^2 (coefficient of determination) $= 0.2158$

N = number of PH-1's who completed the AMSB both times.

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[a] Stockton, John R., Introduction To Business and Economic Statistics, Southwestern, Chicago, 1966, p. 586.

APPENDIX M

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM ON
PHARMACY1,1969-70
MALES VERSUS FEMALES

CALCULATION RESULTS FOR DEPENDENT VARIABLE NUMBER 62 ← Code

GROUP SUMMARY INFORMATION

TREATMENT GROUP ID	NUMBER	NUMBER OF OBSERVATIONS USED	MISSING	GROUP MEAN	DEVIATION OF GROU MEAN FROM GRAND ME
Males	1	87	0	•57977+02	-•21218-00
Females	2	24	0	•58958+02	•76914-00

THE GRAND MEAN IS •58189+02

Mean scores are 20 points
20 points were added to
PH-1 so that negative oc
positive to facilitate co

ANALYSIS OF VARIANCE TABLE

SOURCE	SUM OF SQUARES	MEAN SQUARE	DEGREES OF FREEDOM
BETWEEN GROUPS	•18109375+02	•18109375+02	1
WITHIN GROUPS	•87149160+04	•79953358+02	109
CORRECTED TOTAL	•87330253+04		110
CORRECTION FOR MEAN	•37584397+06	•37584397+06	1
UNCORRECTED TOTAL	•38457700+06		111

ARIABLE NUMBER 62 ← Code No. For Pharmacist Scale

N

UP AN	DEVIATION OF GROUP MEAN FROM GRAND MEAN	GROUP VARIANCE	GROUP STANDARD DEVIATION
977+02	-.21218-00	.70255+02	.83818+01
958+02	.76914-00	.11622+03	.10780+02

Mean scores are 20 points higher than actual mean scores. 20 points were added to each occupational score for each H-1 so that negative occupational scores could be made positive to facilitate computer calculations.

LE

	DEGREES OF FREEDOM	F-RATIO	SIGNIFICANCE LEVEL
	1	.226	.635
	109		
	110		
	1		
	111		

APPENDIX N

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM RE
PHI GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

B A S I C R E G R E S S I O N S T A T I S T I C S

VARIABLES ENTERING - GROUP 1

STANDARD ERROR OF ESTIMATE	.6933
COEFFICIENT OF DETERMINATION	.0152
MULTIPLE CORRELATION COEFF.	.1235

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT
	CONSTANT	.28186+001	.18464+000		.695
5 SVIBRX	GROUP 1	-.92011-002	.46870-002	-.1235	-.123

A N A L Y S I S O F V A R I A N C E S U M M A R Y

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FREED
LINEAR REGRESSION	1.85491	1
RESIDUALS FROM REGRESSION	119.84937	249
CORRECTED TOTAL	121.70428	250

F-RATIO = 3.85 WITH 1 AND 249 DEG. FREEDOM
SIGNIFICANCE LEVEL OF F-RATIO = .0507

CORRECTION FOR MEAN	1527.03110	1
UNCORRECTED TOTAL	1648.73540	251

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGAN2
PHI GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

D E S C R I P T I O N O F T H E M O D E L (MODEL 9)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 Year First Semester GPA)

INDEPENDENT VARIABLES:

GROUP 1 5 SVIBRX (SVIB Pharmacist Score)

O N S T A T I S T I C S

H E E Q U A T I O N

STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 249 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 249 DEG. FREEDOM	SIG. LEVEL
	.695	15.26526	233.02812	.0000
-.1235	-.123	-1.96310	3.85377	.0507

R I A N C E S U M M A R Y T A B L E

SUM OF SQUARES	DEG. FREEDOM	MEAN SQUARE
1.85491	1	1.85491
119.84937	249	.48132
121.70428	250	

AND 249 DEG. FREEDOM
= .0507

1527.03110	1
1648.73540	251

D E L (MODEL 9)

Year First Semester GPA)

t Score)

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REG
PH1 GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

B A S I C R E G R E S S I O N S T A T I S T I C S

VARIABLES ENTERING - GROUP 1
STANDARD ERROR OF ESTIMATE .6321
COEFFICIENT OF DETERMINATION .0127
MULTIPLE CORRELATION COEFF. .1126

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	D
	CONSTANT	.30773+001	.21723+000		.771	
5 SVIBRX	GROUP 1	-.75054-002	.56565-002	-.1126	-.113	

A N A L Y S I S O F V A R I A N C E S U M M A R Y T

SOURCE OF VARIATION	SUM OF SQUARES	DEG. FREEDOM
LINEAR REGRESSION	.70333	1
RESIDUALS FROM REGRESSION	54.73150	137
CORRECTED TOTAL	55.43484	138

F-RATIO = 1.76 WITH 1 AND 137 DEG. FREEDOM
SIGNIFICANCE LEVEL OF F-RATIO = .1866

CORRECTION FOR MEAN	1088.19250	1
UNCORRECTED TOTAL	1143.62740	139

DEPENDENT VARIABLE IS PH-1 Year First Semester G

INDEPENDENT VARIABLE IS SVIB Pharmacist Score

I O N S T A T I S T I C S

H E E Q U A T I O N

STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 137 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 137 DEG. FREEDOM	SIG. LEVEL
	.771	14.16587	200.67180	.0000
-.1126	-.113	-1.32685	1.76053	.1868

R I A N C E S U M M A R Y T A B L E

SUM OF SQUARES	DEG. FREEDOM	MEAN SQUARE
.70333	1	.70333
54.73150	137	.39950
55.43484	138	

AND 137 DEG. FREEDOM
0 = .1868

1088.19250
1143.62740

139

PH-1 Year First Semester GPA

IS SVIB Pharmacist Score

UNIVERSITY OF WISCONSIN COMPUTING CENTER PR
PH1 GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

B A S I C R E G R E S S I O N S T A T I S T I

VARIABLES ENTERING - GROUP 1
STANDARD ERROR OF ESTIMATE .5398
COEFFICIENT OF DETERMINATION .0000
MULTIPLE CORRELATION COEFF. .0020

V A R I A B L E S I N T H E E Q U A T I O N

VARIABLE	TYPE	REGRESSION COEFFICIENT	STD. ERROR OF REGRESSION COEFFICIENT	STANDARDIZED REGRESSION COEFFICIENT	PART CORREL COEFFI
	CONSTANT	.20505+001	.22995+000		.6
5 SVIBRX	GROUP 1	.11604-003	.56652-002	.0020	.0

A N A L Y S I S O F V A R I A N C E S U M M

SOURCE OF VARIATION	SUM OF SQUARES	DEG
LINEAR REGRESSION	.00012	
RESIDUALS FROM REGRESSION	32.04687	
CORRECTED TOTAL	32.04700	

F-RATIO = .00 WITH 1 AND 110 DEG. FREEDO
SIGNIFICANCE LEVEL OF F-RATIO = .9837

CORRECTION FOR MEAN	473.06100
UNCORRECTED TOTAL	505.10799

UNIVERSITY OF WISCONSIN COMPUTING CENTER PROGRAM REGANZ
PH1 GPA CORRELATED WITH OTHER FACTORS, MAY, 1970

D E S C R I P T I O N O F T H E M O D E L (MODEL 9)

DEPENDENT VARIABLE IS 4 GPASEM (PH-1 Year First Semester

INDEPENDENT VARIABLES

GROUP 1 5 SVIBRX (SVIB Pharmacist Score)

MODEL 9 PAGE 2
DEPVAR 4 GROUP 1

O N S T A T I S T I C S

E E Q U A T I O N

STANDARDIZED REGRESSION COEFFICIENT	PARTIAL CORRELATION COEFFICIENT	T-VALUE WITH 110 DEG. FREEDOM	PARTIAL F VALUE WITH 1 AND 110 DEG. FREEDOM	SIG. LEVEL
	.648	8.91716	79.51570	.0000
.0020	.002	.02048	.00042	.9837

I A N C E S U M M A R Y T A B L E

JM OF SQUARES	DEG. FREEDOM	MEAN SQUARE
.00012	1	.00012
32.04687	110	.29134
32.04700	111	

ND 110 DEG. FREEDOM
= .9837

473.06100	1
505.10799	112

PROGRAM REGANZ 05/29/70 RUN 1 PAGE 46
Y, 1970

MODEL 9 PAGE 1
DEPVAR 4 BEGIN

E L (MODEL 9)

ear First Semester GPA)

Score)

APPENDIX O

REASONS FOR SELECTING PHARMACY AS A CAREER WHICH COULD NOT BE CATEGORIZED

No language requirement

I am convinced God wants me in pharmacy

I picked it out of thin air

Seemed to fit in with all the subjects I had taken

Nothing else sounded good

For some reason I always wanted to be a pharmacist

Self-interest

I was not accepted into medical school

I like it

A five-year draft exemption

Pure chance

Personal desires and wants

I had to choose something, it looked like a good profession

I simply decided to be a pharmacist

Working conditions

Close to my interests

I like drugs

Can use the background for other careers

Higher math not required

I feel I am suited for pharmacy

Easy work

Interested in pharmacy

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