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The relationship between responses on the Gilmore sentence completion test and first semester grades of 302 nursing students.

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BOSTON UNIVERSITY
SCHOOL OF NURSING

Thesis

THE RELATIONSHIP BETWEEN RESPONSES ON THE
GILMORE SENTENCE COMPLETION TEST
AND FIRST SEMESTER GRADES OF
302 NURSING STUDENTS

Submitted by

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CHAPTER I

INTRODUCTION

Introduction to the Problem

A certain amount of risk is involved on the part of students who enroll in advanced or specialized training courses. The educational institution is also involved in this risk, and society has a strong interest in it. The student who drops out, or withdraws from, a school of nursing, is usually unhappy about it, her social usefulness is impaired, and time has been wasted that might have been more generative in another occupation. From the standpoint of the school, costly facilities have been wasted that might have been at the disposal of a student who would have completed the educational program. In the face of a nation-wide shortage of nurses it has become a social obligation of the nursing profession to use educational facilities as productively as possible.

Thirty-two percent of the students who enter schools of nursing do not complete the educational program.¹ About half of the withdrawals occur during the first semester and approximately one-quarter occur during the second semester.²

¹The American Nurses' Association, "Facts about Nursing," pamphlet, New York, The American Journal of Nursing Company, 1955, p. 82.

²A semester is equal to approximately six months in the educational program.

Altogether, the first year in school accounts for about three-quarters of the withdrawals.³ Nursing educators have long recognized that improved student selection is one way to reduce the waste of human resources represented by withdrawing students.

Nursing school admission committees usually consider applicants on the basis of available evidence which may include high school grades, letters of recommendation, interviews, physical examination, and scores on pre-entrance test batteries. Although high school grades are usually considered the best single predictors of future scholastic achievement, scores on pre-entrance test batteries have shown a marked relationship to the ability of students to do satisfactory work in a school of nursing. Research shows that the higher the composite score on the pre-entrance test, the greater likelihood of the student to graduate and to pass licensure examinations.

Among the many investigations that support this finding is that of Shaycroft who studied League Pre-Nursing and Guidance (PNG) Test Battery scores of 4,416 students accepted by schools of nursing in relationship to their licensure examination scores four or five years later. Table 1⁴ indicates that in the 94-100 percentile, seventy-four percent of the students became licensed nurses and twenty-six percent failed to become licensed nurses. As the percentile of test scores dropped, the percentage of

³Ella A. Taylor, "Withdrawal of Students," pamphlet, New York, National League of Nursing Education, 1951, p. 46.

⁴M. A. Shaycroft, "A Validation Study of the Pre-Nursing and Guidance Test Battery," The American Journal of Nursing, Vol. 51, 1951, pp. 201-205.

Table 1

RELATIONSHIP OF PERCENTILE ON COMPOSITE PRE-NURSING AND GUIDANCE TEST SCORES TO PERCENT OF 4,416 APPLICANTS ADMITTED TO SCHOOLS OF NURSING WHO BECAME (OR FAILED TO BECOME) LICENSED NURSES

Percentile	Percent of Students Who Failed to Become Licensed Nurses	Percent of Students Who Became Licensed Nurses
94 - 100	26%	74%
70 - 93	30%	70%
31 - 69	40%	60%
7 - 30	52%	48%
0 - 6	77%	23%

successful students dropped. In the 0-6 percentile, twenty-three percent of the students became licensed nurses and seventy-seven percent failed to become licensed.

The marked relationship between pre-nursing test scores and licensure has been helpful in the selection of applicants to schools of nursing, but nursing educators have continued to be concerned with the difference between ability and performance that is also indicated by these scores. Twenty-six percent of the most able students failed, whereas twenty-three percent of the least able students succeeded. At all levels there were those who succeeded and those who failed. It is apparent that other than intellectual factors are important in the student who will complete the educational program.

Nurse testing agencies make it clear that their pre-entrance batteries are primarily measures of intellectual or scholastic ability. Shaycroft recognized the chiefly intellectual role of the PNG scores and frequently mentioned the lim-

itations of this relatively exclusive measurement. Among other references to non-intellectual factors in school success, she explained that:

Although these scores are valuable indices of probable success or failure, many other factors besides scholastic ability may play significant roles in determining whether a student will succeed. In fact the combined effect of factors other than those measured by the PNG Battery is perhaps about as important as the test scores . . . For example, perseverance and strong motivation may do much to offset relatively poor scores. Conversely, even an applicant who obtains rather good scores may be a poor risk for admission if other factors are unfavorable . . . for instance if she is not motivated to succeed. . . .⁵

It seems that students who would complete the educational program would be better identified if, in addition to intellectual measures, we could also measure some of the non-intellectual factors that are related to achievement in a school of nursing.

Motivation

The course of educational psychology in the last twenty-five years has increasingly pointed to motivation as the most important variable that has not yet entered statistical predictions. Some psychologists, Fryer, for example, speak of intellectual ability, interest, feelings, habits and motivation as distinct kinds of psychological activity.⁶ Others, including Guthrie, regard motivation as a combination of intellectual and non-intellectual factors that initiate and sustain behavior.⁷

⁵Ibid., p. 202.

⁶Douglas Fryer, The Measurement of Interests, New York, Henry Holt and Company, Inc., 1931, p. 16.

⁷Edwin R. Guthrie, The Psychology of Human Conflict, New York, Harper and Brothers, 1938, p. 286.

Woodworth says that "activities that have got started but are not yet finished" are summed up in the term motivation.⁸ Proceeding from Woodworth's definition and delineation, Muse has described three aspects of motivation in learning: (1) the set, (2) the incentive, and (3) the reinforcement.⁹ She describes "set" as a preparatory adjustment of the organism, a state of tension, or an inner drive; "incentive" as a goal object for which the learner strives; and "reinforcement" as interaction between incentives and related drives. The "set" is therefore an internal condition that can be supplied only by the learner. Incentives may be considered extrinsic to the individual in that they arise primarily from the environment, and intrinsic in that the effect of an incentive is initiated by pre-existing tensions or reaction-tendencies within the individual. For example, some populations are not moved by the presence of head lice that would keep the average American family in an uproar of activity until they were exterminated. The school and the teacher attempt to apply learning incentives, but whether or not these efforts operate as incentives and reinforcement takes place depends upon the internal "set" of the individual.

Although organic conditions like hunger and thirst illustrate some of the aspects of motivation that are unlearned, the well-springs of motivation are generally thought to be in

⁸ Robert S. Woodworth, Psychology, New York, Henry Holt and Company, Inc., 1940, p. 367.

⁹ Maud B. Muse, Guiding Learning Experience, New York, The Macmillan Company, 1950, p. 193.

childhood associative learning. The completely dependent child learns quickly that some actions produce satisfaction and make him feel safe, while others are followed by dissatisfaction and a threat to his safety. He is consequently conditioned to respond to internal tension, as well as to stimuli in family relationships, with certain feelings and patterns of action that are attempts to bring him approval or attention and make him feel secure. He is thus constantly developing defense mechanisms that influence later behavior. In a home where a child is loved and approved as a person, even though some of his actions be disapproved, his need for defense is less, and he develops fewer and less complicated systems of defense. The source of the intensity of individual aspiration and the effort that will be made to achieve these aspirations are at least partly determined by the defense mechanisms of childhood and the integration of these activity patterns into the total personality.¹⁰

Measurement of Motivation

Attempts to measure motivational factors in academic achievement are reviewed in Chapter II. Gilmore's Sentence Completion Test appeared to measure motivation to achieve scholastically (in the sample of five hundred eighty-four Massachusetts Institute of Technology freshmen male students) better than any method reviewed in the literature.¹¹ Would this test measure

¹⁰Thomas G. Andrews, Methods of Psychology, New York, John Wiley and Sons, 1948, pp. 302-308.

¹¹An unpublished study.

motivation to achieve in schools of nursing in a female population of hospital nursing school students?

Purpose

The purpose of this study is to explore Gilmore Sentence Completion Test responses of the students of nursing in the sample for a relationship to satisfactory academic and practical performance in school and hospital during the first semester. In the course of fulfilling the purpose of this study, it will be necessary to:

1. Explore Gilmore Sentence Completion Test responses for answer categories, weigh categories, and develop a scoring key;
2. Determine the relationship between Gilmore Sentence Completion Test responses, as categorized and weighted in this study, to first semester averages of participating students;
3. Suggest further research (or not) with this instrument according to the validity of the tool established in this preliminary study.

Scope and Limitations

This is a preliminary investigation undertaken as a beginning step in the measurement of motivation to satisfactory nursing school performance. The extent to which this study helps to identify students in the sample who will achieve during the first semester may indicate whether or not it will be

desirable to pursue the measurement of motivation to achievement in nursing school with this instrument.

Although the Gilmore Sentence Completion Test was constructed for the purpose of revealing particularly the non-intellectual aspects of motivation to scholarship, some intellectual qualities are undoubtedly included in the measurement. The extent to which intellectual factors are present in responses to items in the Gilmore Sentence Completion Test is not determined.

The participating schools incorporated in their selection processes the best methods that were readily available: high school records and grades, references, interview, physical examination, and test batteries (from more than one nurse-testing agency) that principally measured general scholastic ability and past achievement in some areas.

Some of the participating schools, because of their prestige, attracted more applicants than others and had a wide choice of students. Other schools had a relatively small number of applicants and it is probable that some applicants to these schools were accepted as calculated risks. It is therefore possible, but unlikely, that all participating students in all schools were intellectually capable of becoming licensed nurses. This preliminary study does not attempt to evaluate or compare selection procedures, nor is there an intention to compare the predictive value of the various intellectual measurements of students with the measurement of motivation.

The motivation measured is that which was revealed by actual performance of participating students during the first semester in relationship to their responses to items in the Gilmore Sentence Completion Test. The test was administered to three hundred two freshmen students in seven New England hospital schools between December 13, 1954 and January 21, 1955. All freshmen students were tested who were enrolled in the schools on the school test date, but a few students had withdrawn from schools before the school test date. On the testing day, some students had been in school twelve weeks and others had been in school up to nineteen weeks. The length of the first semester varied from twenty-five to twenty-eight weeks and the semester terminated in March, 1955.

The test was administered by faculty members in the seven participating schools, and although most of the students were requested to write responses within thirty minutes, an undetermined number was permitted extra time to finish. The time allowed for testing was therefore a variable.

A scoring key was developed from the responses of one hundred fifty-one validating group students to items in the Gilmore Sentence Completion Test in relationship to performance during the first semester as indicated by first semester averages. The purpose of the scoring key was to provide objective scoring for the one hundred fifty-one students in the cross-validating group in order to establish an empirical validity for the Gilmore Sentence Completion Test in this sample. In an

effort to appraise the margin of error in the scoring key, it was also used to score validating group tests. Interscorer reliability was not established.

The predictive value of the Gilmore Sentence Completion Test for this group of students is limited to the first semester, or pre-clinical period. It is recognized that students with relatively low test scores may fail or withdraw after the pre-clinical period, and that students with comparatively high test scores may have had difficulty getting started academically and do better work later. The reverse is also a possibility. The present investigation has not attempted to establish validity of the test beyond the first semester, even though performance at the end of eighteen months in the educational program has been cited in a few individual cases.

The participating schools were selected as a cross-section of hospital schools in order to try the instrument under practical conditions.

CHAPTER II

BACKGROUND OF THE STUDY

There has been evidence of a marked relationship between intellectual potential of an individual and grades in nursing school. In an analysis of twenty-two studies made between 1929 and 1949, scholastic aptitude test scores correlated with nursing school performance records for the first six months' educational period to a median correlation of .54.¹ When scholastic aptitude test scores were compared to the quality of the students' work during the second semester and beyond the first year, however, the median coefficients of correlation dropped to .44 and .40 respectively.

Many studies of the predictive value of achievement tests, notably the works of Douglass, Merrill, McCoullough, Feder, E. H. Garrison, K. C. Garrison, Sartain, and Williamson, have indicated that during the first two years in a school of nursing, science achievement test scores may have a correlation up to .63, mathematics up to .48, and reading comprehension up to .48.²

At least two agencies (The Psychological Corporation

¹Dewey B. Stuit (Chairman), Gwendolen S. Dickson, Thomas F. Jordan, and Lester Scholober, Predicting Success in Professional Schools, Washington, D.C., The American Council on Education, 1949, pp. 166-170.

²Ibid., pp. 171-185.

and the National League for Nursing) have combined tests of scholastic aptitude and tests of achievement into batteries with predictive value that exceeds that of the scholastic aptitude test alone. Between Pre-Nursing and Guidance Test Battery scores and composite licensure examination scores for graduates who took licensing examinations, Shaycroft found a correlation of .70. But the correlation was .30 between all entering students and whether or not they became licensed nurses.³

Some Studies Related to Measurement of the Non-Intellectual Aspects of Motivation to Scholarship

Although students of educational measurement are still concerned with tests of intellectual qualities, there has long been increased sensitivity to internal and external conditions that tend to promote or depress the expression of intellect in academic achievement. Some workers have tried to identify non-intellectual variables in motivation to scholarship, and their contributions have been of fundamental value and great interest. This study, however, is primarily concerned with the group of workers that have attempted measurement of motivation to academic achievement by adapting existing tools or devising new ones.

An early example of attempts to investigate motivation is found in a study by May, reported in 1923.⁴ Included among

³Op. cit., p. 204.

⁴M. A. May, "Predicting Academic Success," Journal of Educational Psychology, Vol. 12, 1923, pp. 429-440.

the factors upon which intellectual achievement depended, he listed industry, interest in work, strength of incentive to learn, and motives for being in college. In 1929 Freeman examined, along with I.Q. scores, variables such as interest in work, motivation and habits of study, and maintained that there were "other factors contributing to success or failure, difficult, if not impossible of measurement for the purposes of quantitative analysis."⁵

Between the late 1920's and the early 1940's a great many students of academic prediction looked into non-intellectual aspects of motivation, and some attempted to measure these qualities. Many experiments included an attitudes or interest measure in an effort to improve a several-sided prediction procedure. Most of the survey summaries of problems of student selection referred to a need for better measures in this area. In his review of literature on academic prognosis, from 1930 to 1937, Harris concluded that motivation was second in importance only to scholastic aptitude.⁶

Among the many studies that emphasized the importance of forms of educational motivation like definiteness of college planning, seriousness of purpose in entering college, and absorption in the college program, Crawford's studies showed a

⁵Frank S. Freeman, "Elusive Factors Tending to Reduce Correlations between Intelligence Test Ranks and College Grades," School and Society, Vol. 29, 1929, pp. 784-786.

⁶Daniel Harris, "Factors Affecting College Grades: A Review of the Literature," Psychological Bulletin, Vol. 37, 1940, p. 151.

direct relationship, when I.Q. was partialled out, between degree of scholastic achievement and seriousness of purpose in going to college.⁷ He attempted to assess these non-intellectual factors by comparing groups of low aptitude-high achievement and high aptitude-low achievement students. His conclusion indicated that high aptitude-low achievement students frequently exhibited lack of interest, were often doubtful of the wisdom of coming to college, entered courses without purpose or desire to study, used poor study habits, did not plan time well, and had difficulty adjusting to self-responsibility. In another approach, he found that students on scholarship earned higher grades than students of an otherwise equated group. He suggested that the superiority of the scholarship students derived from an increased drive to maintain scholarship standard.⁸

Many later studies indicated the need for a serious purpose in going to college, while others, notably those of Miner, Mallory and Berdie, suggested that the same frame of mind must continue after the student is in college.⁹

Although interest has been included in the preceding

⁷ Albert B. Crawford, "Incentives to Study," pamphlet, New Haven, Conn., Yale University Press, 1929, No. 69.

⁸ Albert B. Crawford, "Effect of Scholarships: A Study in Motivation," Journal of Personnel Research, Vol. 4, 1925-1926, pp. 391-404.

⁹ James B. Miner, "The Prediction of a Disparity between Scholarship and Intelligence," Journal of Applied Psychology, Vol. 9, 1925, pp. 356-363; E. B. Mallory and H. Olzendam, "Student Estimates of College Courses Considered in Relation to Interest, Amount of Work Performed, and Grades Received," School and Society, Vol. 50, 1939, pp. 30-32; Ralph F. Berdie, "The Prediction of College Achievement and Satisfaction," Journal of Applied Psychology, Vol. 28, 1944, pp. 239-245.

categories, experimental attempts to evaluate the role of interest in scholarship began with Bridges and Dollinger in 1920 when they found a correlation of .25 between college grades and stated interest in courses.¹⁰ In an evaluation of the Bridges and Dollinger study, Thorndike correlated ranks of college grades and interests at .46 and felt that this relationship was lower than the true relationship because of chance errors in grades.¹¹

Some of the other early studies of the predictive value of interest did not reflect Thorndike's enthusiasm, however. Fryer, Mallory and Olzendam, and Langlie found correlations between grades and interests to be .19 to .40.¹²

Later efforts to gauge the value of interest often used measures of interest as research tools. When used alone, the Strong Vocational Interest Blank and the Kuder Preference Record have had low correlations with grades. Among the many studies that produced indifferent results in this area was Hilgard's attempt to predict graduation from a school of nursing.¹³

¹⁰J. W. Bridges and V. M. Dollinger, "The Correlation between Interests and Abilities in College Courses," Psychological Review, Vol. 27, 1920, pp. 308-314.

¹¹Edward L. Thorndike, "The Correlation between Interests and Abilities in College Courses," Psychological Review, Vol. 28, 1921, pp. 374-376.

¹²Douglas Fryer, "Interest and Ability in Educational Guidance," Journal of Educational Research, Vol. 26, 1927, pp. 27-29; Mallory and Olzendam, "Student Estimates of College Courses...", op. cit., pp. 12-15; Theos A. Langlie, "Interests and Scholastic Proficiency," The Personnel Journal, Vol. 9, 1930, pp. 246-250.

¹³Josephine R. Hilgard, "Strong Vocational Interest Test and Completion of Training in a School of Nursing," Psychological Bulletin, Vol. 36, 1939, p. 646.

Healy and Borg compared a group of one hundred forty nursing school students who successfully completed the first year with forty-seven students who withdrew during the first year.¹⁴ Scores on the Guildford-Martin Battery of personality tests and Kuder Preference Record indicated that the greater percent of withdrawing students made extremely low scores in nervousness, depression, cycloid tendencies (emotional fluctuation), and objectivity. In these areas graduate nurses scored highest, which appeared to indicate the importance of these traits to success in nursing. In conclusion, Healy and Borg reported:

Measures of vocational interest, although capable of showing marked differences between nurses and norm groups, appear less likely to be useful in predicting success of nursing school students in the nursing profession. Differences between mean scores of the dropout and successful groups in interest areas considered most related to nursing, was very small.¹⁵

It is recognized, however, that these measures of interest do indicate something important to scholarship, and several studies have shown that they may improve the prediction obtainable from intelligence measures alone. In 1934, Segel's study, using the Strong Vocational Interest Blank, revealed that although the correlation of grades and Strong Engineer interests was low, the correlation of mathematics-marks-minus-history was .61 and an apparently significant negative correlation of -.47

¹⁴Irene Healy and Walter R. Borg, "Personality and Vocational Interests of Successful and Unsuccessful Nursing School Freshmen," Educational and Psychological Measurement, Vol. 12, 1952, pp. 767-775.

¹⁵Ibid., p. 775.

appeared between engineering interest scores and grades in history.¹⁶

Greater success in predicting grades has been obtained with specially constructed keys. A "studiousness" key for the Strong Blank was based on items that seemed to distinguish good and poor achievers. In one of the studies that used this scale, Mosier correlated studiousness scores and grades at .47 for liberal arts students, .24 for engineering students, and at .03 for business administration majors.¹⁷

A similar technique was applied to the Kuder test. By using a series of inter-correlations between a social science interest index, an aptitude test, and a comprehensive examination, Detchen established a final correlation of .51 between achievement in social sciences and the aptitude test plus interests as measured by the Kuder Preference Record. The correlation of achievement with the aptitude test alone was .33, suggesting that interests measured factors in social science achievement not measured by the aptitude test.¹⁸ Dunlap selected interest items that correlated with achievement by subject and devised keys for predicting junior high school

¹⁶ David Segel, "Differential Prediction of Scholastic Success," School and Society, Vol. 39, 1934, pp. 91-96.

¹⁷ C.I. Mosier, "Factors Influencing the Validity of a Scholastic Interest Scale," Journal of Educational Psychology, Vol. 28, 1937, pp. 188-196.

¹⁸ Lily Detchen, "The Effect of a Measure of Interest Factors on the Prediction of Performance in a College Social Sciences Comprehensive Examination," The Journal of Educational Psychology, Vol. 37, 1946, pp. 45-52.

grades in several subjects that correlated with achievement from .50 to .70.¹⁹

Identification and measurement of character factors that contributed to school success occupied the attention of many studies. The works of Pressey, Sangren, Hughes, Flemming, Turney, Steers, and Herriott were some of the efforts made to show the connection between grades and ratings of students on traits like accuracy, conscientiousness, ambition, industriousness and perseverance.²⁰ The rating scales often developed in these studies have been used chiefly for guidance purposes, although in some instances they have appeared to have some predictive value.

Hartson constructed a rating scale that included items on attitude toward school work, habits of study, reliability, and emotional stability. Ratings by teachers, principals and friends correlated with grades of students from .18 to .47.²¹ The rating scale devised by Bennett and Gordon was made up of items selected from the Bernreuter Personality Inventory and the Minnesota Personality Scale for a study of the relationship between personality test scores and success in nursing school. They found correlations up to .24 between the students' scale

¹⁹ Jack W. Dunlap, "Dunlap Academic Preference Blank, Manual of Directions," pamphlet, Yonkers, N.Y., World Book Co., 1940.

²⁰ Goodwin B. Watson, "Character Tests and Their Applications through 1930," Review of Educational Research, Vol. 2, 1932, p. 246.

²¹ Louis D. Hartson, "Further Validation of the Rating Scales Used with Candidates for Admission to Oberlin College," School and Society, Vol. 46, 1937, pp. 155-160.

scores and the means of nursing supervisor ratings.²² A study by Spaney indicated that ratings on desirable nurse traits bore a slight relationship to student nurse survival to the end of the pre-clinical period.²³

The relationship of one specific personality trait to academic achievement has been emphasized in some approaches. Of the several studies of persistence, Ryans' study indicated the greater significance of this trait.²⁴ The grades of his subjects correlated at .48 with scores of a test designed to measure persistence.

Although rating scales and personality tests of the paper-and-pencil variety have made commendable attempts to contribute to a better understanding of human behavior, they have not been particularly helpful in predicting academic achievement. In 1933, Stagner summarized studies that used the Pressey X-O, Laird, Neymann-Kohlstedt, Moss Social Intelligence, and Thurstone Test and Concluded that objective measures of personality show no linear relationship to academic aptitude or to academic achievement.²⁵ Drought reported, in 1938, on the use of the

²²George K. Bennett and H. P. Gordon, "Personality Test Scores and Success in the Field of Nursing," Journal of Applied Psychology, Vol. 28, 1944, pp. 267-268.

²³Emma Spaney, "Personality Tests and the Selection of Nurses," Nursing Research, Vol. 1, No. 3, February, 1953, pp. 4-26.

²⁴David G. Ryans, "A Study of Observed Relationship between Persistence Test Results, Intelligence Indices, and Academic Success," Journal of Educational Psychology, Vol. 29, 1938, pp. 573-580.

²⁵Ross Stagner, "The Relation of Personality to Academic Aptitude and Achievement," Journal of Educational Research, Vol. 26, 1933, pp. 648-660.

Bell Adjustment Inventory and the Stagner Wisconsin Scale of Personality Traits, and concluded that his data showed no relationship between adjustment as measured and relative performance in college.²⁶ In a study of selection of students for a teachers college, Ward and Kirk found that they were not able to differentiate prospective good and poor teachers by using the Bernreuter Personality Inventory, the Bell Adjustment Inventory, the Link Inventory, and the Clark-Thurstone Personality Schedule.²⁷

Several unsuccessful attempts to predict success in schools of nursing employed the Bell Adjustment Inventory, the Bernreuter Personality Inventory, the Minnesota Personality Scale, and the Moss Social Intelligence Test.²⁸ In 1949, Spaney constructed a behavioral rating device, "Personality Estimates," based on a preliminary study of desirable nurse traits, and in addition, used Adams' Personal Audit, and Maller and Glaser's Interest Values Inventory in an attempt to establish a relationship between these personality measurements and nursing school achievement.²⁹ She concluded that her generally negative results were consistent with the results of many other investigations that attempted to validate direct questionnaire

²⁶ Neal E. Drought, "An Analysis of Eight Measures of Personality and Adjustment in Relation to Relative Scholastic Achievement," Journal of Applied Psychology, Vol. 22, 1938, pp. 597-606.

²⁷ Lewis B. Ward and Samuel A. Kirk, "Studies in the Selection of Students for a Teachers College," Journal of Educational Research, Vol. 35, 1942, pp. 665-672.

²⁸ Spaney, "Personality Tests...", op. cit., p. 5.

²⁹ Ibid., p. 23.

personality tests for the selection of student personnel.

The 1940's brought encouragement to several workers who proceeded along the lines of the hypothesis set forth by Thornton, that

Objective personality tests will have value as devices for predicting scholastic achievement in proportion to the degree to which the tests approach in similarity the tasks and social relationships of the actual classroom.³⁰

At Hanover College, Moore designed his "Academic Inclinations Test," a questionnaire in which there were items of multiple choice, check-statement and completion.³¹ His method involved questioning over-achievers and under-achievers about familiarity with the institution's catalogue, financial distractions, recreational preferences, character traits, and health. In a study of one hundred twenty-nine freshmen, his Academic Inclinations Test correlated with first semester rank in grades at .27. But the multiple correlation between first semester rank in grades, and scores on the Academic Inclinations Test plus scholastic aptitude rank, was .76.

In 1947, Barow reported a study at Pennsylvania State College for which he constructed a "College Inventory of Academic Achievement."³² The ninety items in the final form of the

³⁰George R. Thornton, "The Uses of Tests of Persistence in the Prediction of Scholastic Achievement," Journal of Educational Psychology, Vol. 32, 1941, p. 266.

³¹W. Herbert Moore, "Measuring Student Motivation," Journal of Higher Education, Vol. 13, 1942, pp. 269-271.

³²Henry Barow, "The Measurement of Academic Adjustment," Journal of the American Association of Collegiate Registrars, Vol. 22, 1947, pp. 274-286.

questionnaire were divided into six categories of "academic adjustment": curricular adjustment, maturity of goals and level of aspiration, personal efficiency, study skills and practices, mental health and personal relations. The correlation between grades at the end of the freshman year and scores on a local scholastic aptitude test were .49, between grades and inventory test scores, .38, between grades and scholastic aptitude test scores plus inventory test scores, .60. Apparently the inventory accounted for some of the disparity between probable academic potential and actual academic fulfillment.

Woodman devised a rating scale entitled "An Evaluation of Student Opinions," in an attempt to identify students whose attitudes predisposed them to academic success or failure, and administered his test to approximately fifteen hundred college freshmen in 1948.³³ He found a relationship of .30 between first semester grade-point ratios of the students and the American Council on Education Psychological Examination (ACE). The relationship between first semester grades and the rating scale was also .30, but the relationship between first semester grades and the rating scale plus the ACE was .43.

At the University of California, Gough was also interested in attitudes and opinions. In 1953, he reported the results of one study, and the progress of a second study, for

³³Everett M. Woodman, "Description of a Guidance Instrument Designed to Measure Attitudes Related to Academic Success in College," Journal of Educational Psychology, Vol. 12, 1952, pp. 275-294.

which he had constructed an achievement scale composed of items to be marked true or false. Examples of statements marked false by high achievers, more frequently than not, were:

- | | |
|------|---|
| Item | |
| 4 | It is always a good thing to be frank. |
| 8 | Parents are much too easy on their children nowadays. |
| 9 | Teachers often expect too much work from students. |
| 11 | I have often found people jealous of my good ideas just because they had not thought of them first. |
| 14 | For most questions there is just one right answer, once a person is able to get all the facts. |

When the sixty-four item scale was cross-validated with a sample of two hundred thirty-four high school seniors, the scale correlated .44 with grade average. The correlation between intelligence quotient and grade average was .47. But the multiple correlation of the achievement scale plus intelligence quotient with grade average was .62.³⁴

The scale was reduced to thirty-six items for a collegiate study, and a mean correlation of .38 was found between scale and freshmen grades in eleven cross-validating college samples totaling 1,253 cases.³⁵ Although the scale did not appear to predict as well in a large group of college freshmen as it did in the sample of high school seniors, it did appear to measure factors not included in intellectual measurements. Thirty-two of the scale items are included as a sub test in the

³⁴ Harrison G. Gough, "What Determines the Academic Achievement of High School Students?" Journal of Educational Research, Vol. 46, 1953, pp. 321-331.

³⁵ Harrison G. Gough, "The Construction of a Personality Scale to Predict Scholastic Achievement," Journal of Applied Psychology, Vol. 37, No. 5, 1953, pp. 361-366.

California Psychological Inventory; sixteen of the thirty-two items were borrowed with permission from the Minnesota Multiphasic Personality Inventory.

In 1954, Brown, Holtzman and Farqueher reported on administration of their seventy-five item inventory, entitled "Survey of Study Habits and Attitudes," to three hundred fifty-eight men and three hundred twenty-eight women in four Texas colleges.³⁶ At the end of the first freshman semester, they found correlations between inventory and grades ranging from .27 to .66 for the men, and .26 to .65 for the women.

Although many encouraging studies developed motivational measures within the academic background, others met with indifferent results. In 1947, the College Entrance Examination Board began to develop an instrument for measuring non-intellectual factors associated with subsequent academic achievement.³⁷ Three questionnaires, especially designed for this purpose, were developed, pretested and administered to two freshmen classes and one junior class in a women's liberal arts college over a period of three years. Coefficients of correlation of the three questionnaires with achievement index did not change materially during this time. In the 1953 class, they were .12, .14, and

³⁶ William F. Brown, Wayne H. Holtzman, and W. G. Farqueher, "The Survey of Study Habits and Attitudes: A New Instrument for the Prediction of Academic Success," Educational and Psychological Measurement, Vol. 14, 1954, pp. 726-728.

³⁷ Under the general direction of H. S. Conrad, Chief, Research and Statistical Service, U.S. Office of Education.

.13 respectively.³⁸ A more elaborate item selection method provided a questionnaire of higher validity in the group on which the key was based, but upon cross-validation the validity coefficient dropped back to .108.

The more recent use of the projective techniques has provided another avenue of approach to identification and measurement of non-intellectual aspects of scholarship. The projective test uses an unstructured stimulus in order that the subject may bring to it no specific knowledge of how to respond. The Sarah Lawrence College use of the "Inspection Rorschach" test, in combination with the American Council on Education Psychological Examination (ACE) in a three-year study, made interesting contributions.³⁹ The Rorschach ratings showed a negligible correlation with ACE scores, but surprisingly enough, the Rorschach correlated with grades at .49 while the ACE correlated with grades at .39. It appeared that the ACE was better for forecasting superior work, and that the Rorschach was more accurate in predicting failure. Considered separately, a high ACE score was no certain indication of success, nor was a low Rorschach adjustment rating a guarantee of failure. The data seemed to be more meaningful in combination where the errors of one measure often appeared to be compensated in the other.

³⁸ D. G. Shultz and B. F. Green, Jr., "Predicting Academic Achievement with a New Attitude-Interest Questionnaire -- II," Educational and Psychological Measurement, Vol. 13, 1953, pp. 54-63.

³⁹ Ruth Monroe, "Academic Success and Personal Adjustment in College," American Council on Education Studies, Series I of Reports of Committees and Conferences, Vol. 12, 1948, N.32, p.32.

Students above the median Rorschach, on the whole, did better work when ACE scores were also high, and not as well when ACE scores were below the class median. Students with poor Rorschach ratings and low ACE scores were usually poor academic risks. But students with poor Rorschach ratings and high ACE scores were found among the highly successful as well as among the profound failures.

Thompson found a correlation of .52 between thirty-four Rorschach items and psychology grades, and after factor analysis, twenty apparently non-intellective Rorschach factors combined with aptitude test prediction gave a multiple correlation of .74 with psychology grades.⁴⁰

Altus used a general adjustment test, with items related to food aversion, disgusts, activity preferences and controlled associations. This test, combined with a study habits inventory, and a verbal aptitude test, produced a multiple correlation of .76 with semester grades in psychology. The aptitude test alone correlated at .60 with psychology grades, and the adjustment test with psychology grades at .34.⁴¹

Many of the attempts to measure motivational factors in academic achievement, reviewed in the literature, employed small samples and many were based on unselected samples. Some relatively barren efforts used available tests that were not designed

⁴⁰Grace M. Thompson, "Non-Intellective Factors and Grades: The Group Rorschach," The American Psychologist, Vol. 2, No. 10, 1947, p. 415.

⁴¹William D. Altus, "Non-Intellective Factors and Grades; Study Habits and Adjustment Tests," The American Psychologist, Vol. 2, No. 10, 1947, p. 422.

to measure motivation to scholastic achievement. Few of the tests were constructed within a specified theoretical framework and no studies were built upon the psychoanalytic (psychodynamic) theory.

Correlations with grades were often discouragingly low, and indicated the elusiveness of motivation to measurement. But several of the instruments appeared to measure factors in the sample that were not included in intellectual measures. The more recent studies have often indicated that higher correlations with grades result from the use of motivational measures plus intellectual measures, than from either measure used independently.

The Sentence Completion Test

Another projective technic has appeared promising in the area of educational measurement. The sentence completion test, like other projective technics, offers a stimulus to which the subject brings no previous knowledge of how to respond. With this method, the opening words of a sentence are usually provided, and the subject is requested to add other words to complete a sentence.

Although this technic has been used principally by psychologists to diagnose emotional reactions, the stimuli offered in its first recorded use showed a relationship to scholastic achievement. In 1897, Ebbinghaus, a German psychologist in Breslau, administered tests of arithmetic computation, memory span, and sentence completion to school children.⁴² The

⁴²Anne Anastasi, Psychological Testing, New York, The Macmillan Co., 1954, p. 508.⁴

sentence completion test was the only test that showed a clear correspondence with the children's scholastic achievement.

In the early part of the twentieth century, Traub and Kelley introduced the method to this country for the purpose of studying mental capacity and reasoning ability, but found other measures more discriminating.⁴³

In the United States, the first use of the test as a projective technic in personality study is credited to Payne, of the New York Guidance Clinic, in 1928.⁴⁴ He attempted to devise a test that would reveal personal traits by bringing forth inhibited responses for use in vocational guidance with college students. No general publication in the psychological literature described or evaluated his method.

In 1930, Tendler reported on "a test for emotional insight" that he constructed in an attempt to determine trends, fixed attitudes, attachments to persons, conflicting desires, satisfactions and annoyances.⁴⁵ He believed that presentation of verbal stimuli in incomplete sentence form would arouse the particular emotion and yet allow for free response. In his twenty-item test, each item except the first begins with the

⁴³Miller R. Traub, "Completion Test Language Scales," Contributions to Education, No. 77, New York, Bureau of Publications, Teachers College, Columbia University, 1917, pp. 203-211; Truman L. Kelley, "Individual Testing with Completion Test Exercises," Teachers College Record, No. 18, 1917, pp. 371-382.

⁴⁴A. F. Payne, "Sentence Completions," pamphlet, New York, New York Guidance Clinic, 1928.

⁴⁵Alexander D. Tendler, "A Preliminary Report on a Test for Emotional Insight," Journal of Applied Psychology, Vol. 14, 1930, pp. 123-126.

pronoun "I." Item one is "MY HERO IS." Item one is followed by such items as "I LOVE," "I HATE," "I WISH FOR," and "I GET ANGRY WHEN."

Wheeler called his form a similes test.⁴⁶ The subjects were asked to provide original similes for a series of ten adjectives. "AS PATHETIC AS," "AS DANGEROUS AS," and "AS DELIGHTFUL AS" are examples. Responses were analyzed in terms of thematic content, and followed the principles of H. A. Murray's theory of personality, using needs, press, inner states, and goals for which the subject is willing to make sacrifices.

Rohde and Hildreth revised Payne's original test and published a sixty-four-item test in 1941 that is now available at the Psychological Corporation. In 1946, Rohde published a study that described the research that had been going on for some time.⁴⁷ Typical items were: "MY SCHOOL WORK," "I WANT TO KNOW," "MY FATHER," and "I BECOME EMBARRASSED." The test was designed to reveal information about personality. The responses were analyzed in terms of the Murray scheme. They devised a quantitative method of scoring on a one to three point scale according to the vividness and potency with which the variable was expressed. The results of the test were validated with fifty girls and fifty boys against teacher's judgment of the subjects,

⁴⁶Donald R. Wheeler, "Imaginal Productivity Tests," in H. A. Murray, Explorations in Personality, New York, Oxford University Press, Inc., 1938, pp. 545-550 and 680-684.

⁴⁷Amanda R. Rohde, "Explorations in Personality by the Sentence Completion Method," Journal of Applied Psychology, Vol. 30, 1946, pp. 169-181.

experimenter's interview with them, the opinion of school administrators and guidance counselors about the subjects, and school records. The Pearson product correlations for all variables combined were .79 for girls and .82 for boys.

Use of the sentence completion method was greatly accelerated during World War II. Hutt, Holzberg, and Shor have described its use in Army general hospitals.⁴⁸ In 1946, Shor reduced his original test of fifty items to forty. It was this test of forty items that was first used by the Air Forces Psychology Program. Shor's items were arranged in a definite sequence to present a generalization of attitude from immediate human interest to basic human interest and he emphasized the importance of adapting stimuli to current situations and cultural background of the group tested. Although he had no formal scoring method, he recommended investigation of areas of rejection (indicated when there was a refusal to respond), areas of resistance (where there was blocking or evasion by responding with some conventional or impersonal association), and other methods of evasion.

In 1947, Stein reported on the sentence completion test used in the Office of Strategic Services Assessment Program⁴⁹

⁴⁸Max L. Hutt, "The Use of Projective Methods of Personality Measurement in Army Medical Installations," Journal of Clinical Psychology, Vol. 1, 1945, pp. 130-134; J. Holzberg, A. Teicher, and J. L. Taylor, "Contributions of Clinical Psychology to Military Neuro-Psychiatry in an Army Psychiatric Hospital," Journal of Clinical Psychology, Vol. 3, 1947, pp. 84-85; Irving Shor, "Report of a Verbal Projective Technique," Journal of Clinical Psychology, Vol. 2, 1946, pp. 279-282.

⁴⁹Morris I. Stein, "The Use of a Sentence Completion Test for the Diagnosis of Personality," Journal of Clinical Psychology, Vol. 3, 1947, pp. 45-46.

that was described a year later in Assessment of Men.⁵⁰ The test was designed to reveal information about twelve areas considered important for personality evaluation: family, the past, drives, inner states, goals, goals for which subject is willing to make sacrifices, energy, time perspective, reaction to others, reaction of others to subject, reactions to frustrations and failures, and optimism-pessimism. It had one hundred items and was administered in two parts in order to avoid mental set, to minimize fatigue, and to enable a subject who approached the test with misgivings to rid himself of these feelings and cooperate better on the second half. For the first time, two types of stem structure were used. The first type used the proper name of someone. The second type introduced the sentence with the first person pronoun or the third person pronoun.

Rotter and Willerman worked originally with Shor's test in an attempt to devise a group screening tool for the Army Air Forces Program that could be used by relatively untrained scorers and still provide high interscorer reliability.⁵¹ Items were evaluated on a clinical basis for the purpose of avoiding those that brought forth stereotypes, and items that appeared to cut down the range of individual response were restructured.

⁵⁰ United States Office of Strategic Services Staff, Assessment of Men, New York, Rinehart and Co., 1948, pp. 71-75.

⁵¹ Julian B. Rotter and B. Willerman, "The Incomplete Sentences Test as a Method of Studying Personality," Journal of Consulting Psychology, Vol. 11, 1947, pp. 43-48.

Examples of the more unstructured items are: "I _____ SOME-TIMES," "BACK," and "BOYS." The test instructions were changed on the basis of earlier experiences with test instructions that requested the subject to respond as quickly as possible. These experiences indicated that associations were produced, rather than content statements regarding individual attitudes and feelings.

For each item individual scoring standards were illustrated by examples that fell into seven categories of response. All responses were grouped into conflict, neutral, or positive reactions that could be placed on a single numerical scale. The reactions were located on a single dimension so that each test response could be scored plus 3 to plus 1 for conflict responses, 0 for neutral, and minus 1 to minus 3 for positive responses. A scoring booklet was prepared with typical responses for numerical scoring.

The test was administered to two hundred patients with the purpose of distinguishing the fit and unfit for immediate return to duty, as well as those too disturbed for further service in the Army. Scores compared with psychologists' judgment based on initial interview and supplementary data gave a validity correlation of .61. Validity measured against admitting diagnosis produced correlations of .41 and .39. An average interscorer reliability correlation of .89 was determined by having seven psychological assistants score tests. Another correlation of reliability between two scorers was .68.

An earlier method of scoring this test included a separate consideration of avoidance reactions. An earlier hypothesis that responses which failed to relate the stimuli to self, or responses containing humorous and flippant remarks, might be correlated with maladjustment was quickly dispelled. Answers of this nature seemed to appear with the greatest frequency in the emotionally healthy subjects. It was also thought that omissions indicated great conflict, but again, higher frequency of omissions in the more maladjusted subjects was not found.

Applying the same general method as with Willerman, Rotter and Rafferty adapted the Army test for high school and college students in order to obtain a measure of maladjustment or counseling needs.⁵² Separate objective scoring manuals were developed for male and female. With the aid of specimen responses in the manuals, fairly objective scoring was possible.

In 1950, adaptations of the technic to specific purposes began to appear in the literature. The University of Chicago experimented with a sentence completion test of twenty-seven items to identify the composition of groups. Campbell reported on a sentence completion test used to study intergroup attitudes.⁵³ At Ohio State University, Brown constructed a test to

⁵² Julian B. Rotter and Janet E. Rafferty, "Rotter Incomplete Sentences Blank: Manual," pamphlet, New York, Psychological Corporation, 1950.

⁵³ D. T. Campbell, "The Indirect Assessment of Social Attitudes," Psychological Bulletin, Vol. 47, 1950, pp. 15-38.

reveal attitudes toward Negroes.⁵⁴ About half of the sentence stems were borrowed with permission from the Rotter Incomplete Sentences Blank, and the remainder were composed with reference to Negro-white relations. Examples of the latter include: "SKIN COLOR," "IT SEEMS TO ME THAT SEGREGATION," and "SOME LYNCHINGS."

Lindgren devised a sentence completion test for student evaluation of his psychology course and found that this "non-directive [opinionnaire]" presented a kaleidoscopic view of the course as seen through the prisms of many personalities."⁵⁵ The sentence beginnings suggest a welcome relief from the staid and inevitable questionnaire that usually terminates college courses.⁵⁶ For one stem, test instructions request the student to write in the name of the instructor. Examples of other items are: "CLASS DISCUSSIONS," "SINCE I HAVE TAKEN THIS COURSE," "THIS COURSE HAS HELPED ME TO," and "THIS COURSE HAS KEPT ME FROM."

The construction of sentence completion tests since Rohde and Hildreth has been characterized by an extensive borrowing of stems which makes original authorship of items hard to trace. Several current tests have many common items.

⁵⁴ Shirley W. Brown, "The Use of an Incomplete Sentences Test for the Study of Attitudes toward Negroes," unpublished doctor's dissertation, Ohio State University, Columbus, Ohio, 1950.

⁵⁵ Henry Clay Lindgren, "The Incomplete Sentences Test as a Means of Course Evaluation," Educational and Psychological Measurement, Vol. 12, 1952, p. 217.

⁵⁶ Ibid., pp. 217-225.

Sentence beginnings, however, can be tailored to fit any particular situation, using language familiar to any group. The method's flexibility has been described by Anderson and Anderson:⁵⁷

It seems a feasible method for investigation of a variety of situations in industry, for the study of group attitudes and opinions, and for special experimental problems in the field of personality. The fact that it can be administered to a group and still retain many of the individualistic advantages of the projective tests, suggests that it can be profitably employed in many areas as yet untapped.

A Review of the Gilmore Studies

In 1947, Gilmore⁵⁸ and co-workers at Boston University and the Massachusetts Institute of Technology (M.I.T.) began experimentation with a sentence completion test. Earlier studies appeared to indicate a relationship between academic achievement and the content of responses to some items. Encouraged by this, items were sought that would produce content indicative of motivation to academic achievement.

On the hypothesis that motive to achieve scholastically is directly associated with the quality of relationships the child has with his parents and with parental attitudes toward learning, attempts were made to incorporate items that would measure the quality of parent-child relationships.

The original test of seventy-five items was increased to

⁵⁷ Harold H. Anderson and Gladys L. Anderson, An Introduction to Projective Techniques, New York, Prentice Hall, Inc., 1951, p. 720.

⁵⁸ John V. Gilmore is Associate Professor of Psychology at Boston University.

one hundred. In 1949, it was revised again and increased to one hundred thirty items. Continued revaluation of items that seemed to differentiate high achievers and low achievers reduced the test to its present form of forty items.

Several small pilot studies at M.I.T. preceded the revaluation of items.⁵⁹ Two of the later projects are summarized here under the titles Project A and Project B.

Project A. Fifteen high achieving students with a cumulative scholastic rating of 5.0, or near that, were compared with fifteen low achieving students who were on the scholastic margin or had become disqualified. As a means of diagnosing emotional adjustment and defense mechanisms, a diagnostic battery of tests was given to all thirty students. This battery consisted of the one-hundred-thirty-item sentence completion test, the Draw-a-Person Test, certain cards of the Thematic Apperception Test, and a Health Record on which physical complaints could be checked that might be psychosomatic in origin. Careful scrutiny of the results of the diagnostic test battery reflected some differences between high achievers and low achievers.

Project B. The number in each of the two groups was then increased to thirty-five. The high achiever cumulative scholastic rating was 4.0, or above. The low achiever cumulative scholastic rating was 2.65, or below. Comparison of results from the same diagnostic test battery again indicated

⁵⁹ John V. Gilmore, "A New Venture in the Testing of Motivation," The College Board Review, New York, College Entrance Examination Board, November, 1951, pp. 221-226.

differences between high achievers and low achievers.

Although responses had a tendency to overlap, a few of the differences between superior students and inferior students may be illustrated by responses in three items.⁶⁰

When the word father was used in the middle of a sentence, the superior student was identified with these kinds of responses: "I admire my father very much for his quiet understanding and friendly way." "I would like to earn enough money so that my father could take it easy for awhile." "My father is a good example." "My father is one of the most brilliant men I have ever met." "I like my father because he always trusts me." The inferior student made statements like the following: "I don't think a father will approve." "I often wonder what my father thinks of his life." "I wish my father would give me a break." "I would like to be a lot closer to my father than I am today."

With the introduction of the incomplete sentence "HE IS DEPENDENT UPON," the high achieving student gave answers like these: "He is dependent upon personal success for meaning in life"; "his job"; "the whims of his boss"; "his parents for support"; "her sympathy"; "her bank account"; "his own resources." The low achieving student made responses like these: "He is dependent upon other people"; "his emotions to over-great extent"; "his parents even at his age of twenty-five"; "his father and mother for financial, mental and spiritual help."

⁶⁰
Ibid.

The incomplete sentence "I WOULD LIKE TO BE" produced from the superior student responses such as: "I would like to be a really good mathematician"; "a physicist or mathematician"; "a successful architect"; "able to have a 4.0 point average when the term ends." The inferior student wrote responses such as: "I would like to be happy in life"; "more perfect than I am"; "married"; "able to earn a good living."

The application of a scoring system that weighted items on a scale from plus two to minus two resulted in the elimination of items that did not show a statistically significant difference between high academic achievers and low academic achievers. By this method the sentence completion test was reduced to forty items.

Although the following study in the Gilmore series has not been reported in the literature, it appears to offer considerable encouragement to students of motivation.

An unpublished study. The forty-item Gilmore Sentence Completion Test was administered to five hundred eighty-four freshmen students at M.I.T. during the first week of September, 1951. At the end of the first term, on the basis of first term grades, the five hundred eighty-four tested students were divided into high achievers, average achievers and low achievers. Students who withdrew from college before earning first term grades did not enter the statistics.

About half of the high achievers, average achievers and low achievers were placed in an experimental group of two hundred

ninety-one, and the other half in a control group of two hundred ninety-three.

Responses to the forty items in the sentence completion test were copied for the two hundred ninety-one students in the experimental group. Responses to each item were categorized. Responses with the same content, or sometimes with the same wording, constituted a category. Some items had thirty categories.

According to first term grades of students making responses in each category, the category was weighted by means of a formula devised for this test by Bryan of the Massachusetts Institute of Technology.⁶¹ Categories that did not statistically differentiate high achievers, average achievers and low achievers received no assigned weight.

A test score was obtained by the following procedure. Positive weights were added. Negative weights were added. When the smaller sum was subtracted from the larger sum, a minus or plus difference was found. This difference was divided by the number of weighted responses in the test. The score obtained was on a scale of plus ten to minus ten.

Both experimental and control groups were scored on the basis of category weights established by item responses in the experimental group. The correlation between experimental group test scores and first term grades was .68. A correlation of .54

$$^{61} S = \sqrt{3(\sum p^2) - \sum p^2} \qquad \frac{p1 - p3}{S} = K$$

$$K(p1 - p3) = \text{Weight}$$

between control group test scores and first term grades indicated the empirical validity of the test.

The hypothesis, that motive to achieve scholastically is directly related to the quality of relationships the child has with his parents and with parental attitudes toward learning, was supported by sub-scores of parent items in the sentence completion test correlated with first term grades that revealed a relationship of .54 in the experimental group, and .40 in the control group.

Table 2

PREDICTIONS OF ACADEMIC ACHIEVEMENT COMPARED IN
GILMORE'S STUDY OF FIVE HUNDRED EIGHTY-FOUR
M.I.T. FRESHMEN IN 1952

Group	Number	Correlations		
		UPR and FTG	SCT and FTG	SCT plus UPR and FTG
Validating	291	.50	.68	.74
Cross-validating	293	.51	.54	.62

Key: UPR....University predictive rating
FTG....First term grades
SCT....Gilmore sentence completion test

Table 2 compares the sentence completion test and the University Predictive Rating as predictors of academic achievement according to first term grades earned by participating students.

The University Predictive Rating is a composite score assembled on each student by the admissions office from four

predictor variables that include: rank in high school class, principal's recommendation, high school grades in three courses (English, Mathematics, and Physics), and scores on the Scholastic Aptitude Test.

The University Predictive Rating correlated with first term grades was .50 for the experimental and .51 for the control group. The slightly higher value of the sentence completion test as a predictor of academic achievement in this group may be noted.

Students who withdrew from the university before earning first term grades did not enter into the correlations with the sentence completion test or with the University Predictive Rating.

CHAPTER III

METHOD

The Sample

The subjects in the present investigation were three hundred and two freshmen nursing students in seven hospital schools of nursing. Five of the schools are located in or near Boston, Massachusetts, one school is in southern New Hampshire and one is in Rhode Island. The schools accept women students over seventeen years of age who have graduated from high school, or have passed equivalency examinations administered by state departments of education. All seven schools prefer students who have satisfactorily completed some specified subjects in the high school curriculum. Some schools require that specified subjects be completed.

The participating schools incorporated the best methods readily available in their selection processes. Candidates were chosen by means of high school records and grades, references, interview, physical examination, and test batteries that principally measured general academic ability and past achievement in science, mathematics and reading comprehension.

Hospital schools offering a three year educational program leading to a diploma were asked to participate because approximately eighty-five percent of our professional nurses

are products of these schools.¹

An attempt was made to include a cross-section of hospital schools in New England. One hundred thirty-four students (44%) were in schools fully accredited by the National League for Nursing Accreditation Service. One hundred forty-two (47%) were in schools that were temporarily accredited or received temporary accreditation shortly thereafter. Twenty-six students (9%) were in a school approved by the state in which it was located, although the school was not nationally accredited.

The participating schools represented four types of hospital control. One hundred four students (35%) were in non-sectarian general hospitals, eighty-nine (29%) were in a general hospital under religious auspices, eighty-three (27%) were in general hospitals loosely connected with religious organizations, and twenty-six (9%) were in a mental hospital controlled by the state government.

All freshmen students enrolled in participating schools on the date that the Gilmore Sentence Completion Test was administered in the school were included in statistical data for this study. The earliest test date was December 13, 1954, in School A, where fifty-one students were tested during their fourteenth week of school. The latest test date was January 21, 1955, for the forty students enrolled on that date in the nineteenth week of classes in School C. Although the participating classes in all seven schools were admitted to their schools in late August

¹The American Nurses' Association, op. cit., p. 55.

or September of 1954, there was a variation of twenty-three days in admission dates. School E admitted the earliest autumn class on August 29, 1954, and School F had the latest admission date on September 20, 1954. March, 1955 marked the end of the first semester in all seven schools with School E terminating on the third of March, and School C twenty-four days later on the twenty-seventh.

Administration of the Gilmore Sentence Completion Test

Between December 13, 1954 and January 21, 1955, in the twelfth to the nineteenth week of school, the Gilmore Sentence Completion Test was administered to the freshman class by a member of the school faculty in each of the seven participating schools. To avoid causing undue concern about the test, method of test introduction was left to the discretion of the administering faculty member.

From the list of code numbers assigned to the school for this test, the faculty member assigned one to each student. A record of the code number was placed on the student's permanent record by the faculty member, and the code number was written on the test paper by the student.

The instructions printed on the face sheet of the test were not used in entirety. (A copy of the test may be seen in Appendix A.) The instructions given by faculty members to participating classes were:

In this test you are to finish the sentence from the suggested word or phrase. Make a good complete sentence but do not work too long making it perfect. If the suggested

word occurs in the middle of the line, you may place it wherever you wish in your sentence. Put down the first thing you think of, or the second or the third, it does not matter. It will be necessary to keep working in order to finish within the session. The tests will be collected in thirty minutes.

The test was timed because thirty minutes was deemed adequate, and testing time had to be arranged in already filled class schedules. Some faculty members allowed some students more than thirty minutes to finish the test, however, and the time allowed for the test is admitted as a variable.

First Semester Averages

At the end of the first semester, the seven schools reported final grades in all subjects for each participating student according to code number. Grading systems and grading standards are not the same in any two schools. Some of the variations in the meaning of grades in the seven participating schools are listed in the following table.

Table 3

SOME VARIATIONS IN THE MEANING OF GRADES

School	Passing Grade	Number of Subjects Graded	Number of Weeks in First Semester
A	75	7	25
B	68	6	25
C	75	9	28
D	75	10	25
E	75	13	27
F	75	12	25
G	75	8	25

In Table 3 it may be noted that one school had a passing grade of sixty-eight, and the others, passing grades of seventy-five. The number of subjects graded ranged from six to thirteen. The length of the first semester extended from a favored twenty-five weeks to twenty-eight weeks.

First semester grades in all subjects were averaged for each student. Schools that used letter grades were asked for numerical equivalents, and letter grades were translated into digits by using the midpoint of the scale allowed for the letter. Grades for each student were averaged without consideration for number of hours in courses. The range of first semester averages at this point was from 75 to 93. This average was attached to the code number for each student in the project.

Withdrawals

Twenty-three of the three hundred two tested students had withdrawn from school between the testing date and the end of the first semester. Fourteen withdrawing students earned no first semester grade in any subject. The remaining eight students earned a final grade in from one to all of the subjects offered by the schools in which they had been enrolled.

The reason for withdrawal was not determined for this project. The purpose of this study is to help identify students who will achieve in nursing school. Withdrawing students do not achieve in nursing school, but in order to enter them in a statistical study of school of nursing achievement, it appeared necessary to classify them as low achievers. All withdrawing

students, even those who earned high grades before withdrawal, were classified as low achievers in keeping with the purpose of this study.

A first semester average was necessary for each student for the purpose of statistical measurement. Because withdrawing students were, in the final analysis, the lowest of low achievers, all withdrawing students were arbitrarily assigned a first semester average of 73.

The low point of the range of first semester averages was consequently dropped from 75 to 73 to include withdrawing students. The range of first semester averages entering the statistics in this study was therefore from 73 to 93.

High Achievers, Average Achievers and Low Achievers

On the basis of first semester scholastic averages, students in each school were divided into three groups: high achievers, average achievers, and low achievers. The low achiever group included withdrawing students.

First semester averages in each school approximated a normal distribution, and an effort was made to place the upper 15.87% of the distribution in the high achiever group, the middle 68.26% in the average achiever group, and the lower 15.87% in the low achiever group. This method of distribution was applied to each school, bearing in mind that the total distribution of all three hundred two students should approximate these percentages.

Table 4 lists the number and percent of students in each

category according to school. It may be noted that the size of the average achiever group is as small as 59.6% in School E, and as large as 67.5% in School B. The variation from school to school in the size of achiever categories may be explained by the necessity to place students from one school with equivalent averages in the same achiever category. In School E, for example, eleven students had a first semester average of 87. If these eleven students were placed in the average achiever group, only ten students in a class of eighty-nine students (12%) would remain in the high achiever group. Although this would have been permissible, the same problem occurred in the other schools. When these eleven students were included with the high achievers, the school had 23.6% of its students in the high achiever group instead of the optimum 15.87%.

Table 4
ACHIEVER GROUPS ACCORDING TO SCHOOL

School	No.	Achiever Groups					
		High		Average		Low	
		No.	%	No.	%	No.	%
A	51	8	15.7	33	64.7	10	19.6
B	40	7	17.5	27	67.5	6	15
C	43	8	18.6	29	67.4	6	14
D	28	5	17.8	17	60.8	6	21.4
E	89	21	23.6	53	59.6	15	16.8
F	26	3	11.5	17	65.3	6	23.
G	25	3	12	16	64	6	24
TOTAL	302	55	18.2	192	63.6	55	18.2

Table 4 also indicates that the total distribution of the three hundred two students, adopted for the purposes of this

study, placed fifty-five (18.2%) in the high achiever group, one hundred ninety-seven (63.6%) in the average achiever group, and fifty-five (18.2%) in the low achiever group.

The distribution of grades in each school resulted in variations from school to school in the achiever placement of averages. Table 5 assembles the first semester averages included in achiever groups according to school. Two examples illustrate these variations. A student with a first semester average of 81 in School D was placed with low achievers, whereas an 81 average in the other six schools meant an average achiever. A first semester average of 86 meant a high achiever in Schools A and B, and an average achiever in the other five schools.

Table 5

FIRST SEMESTER AVERAGES INCLUDED IN ACHIEVER GROUPS

School	Achiever Groups		
	High	Average	Low
A	86 and above	80-85	79 and below
B	86 and above	79-85	78 and below
C	90 and above	80-89	79 and below
D	89 and above	82-88	81 and below
E	87 and above	81-86	80 and below
F	89 and above	81-88	80 and below
G	89 and above	81-88	80 and below

Validating and Cross-Validating Groups

Approximately half of the distribution of high achievers, average achievers and low achievers in each school was placed in a validating group of one hundred fifty-one students, and the other half was placed in a cross-validating group of one hundred

fifty-one.

The mean of the validating group was 83.3 and the standard deviation, 12.5. The cross-validating group mean was 83.2 and the standard deviation was 12.9. It is interesting to note, however, that if withdrawals were excluded, the number in the validating group would become one hundred forty, the mean, 84.12, and the standard deviation, 8.7. If withdrawals were excluded from the cross-validating group, the number would become one hundred thirty-nine, the mean, 84.12 and the standard deviation, 8.5.

Item Responses Categorized

Responses to the forty items in the sentence completion test were copied for the one hundred fifty-one students in the validating group. Each item was considered separately by placing answers to the item side by side for comparison of content and wording. Responses with the same content became a category. Some responses not only had the same content but used the same words, and responses that were identical in content and wording constituted a category. Each item stimulated some completions that appeared to be individual in content, and these answers, naturally, were not categorized.

Statistically Significant Categories

When the validating group responses to each test item had been placed in categories, the student's first semester average was attached to each response. Each category was then copied with achiever groups arranged together. The number of

low achiever, average achiever, and high achiever responses was counted and recorded.

There were two criteria for statistically significant categories. The first criterion was a 3% or more monotonic increase of percentage value of responses in a category, from high achiever through average achiever to low achiever. If the highest percentage of responses occurred in the high achiever group, the category weight was positive. If the highest percentage occurred in the low achiever group, the weight of the category was negative.

The percentage value of achiever group responses within a category was determined by the following method:

$$\text{Percent} = \frac{\text{No. achiever group responses in category}}{\text{No. in total experimental achiever group}}$$

An example may illustrate the procedure. In Item 6, THE MOST IMPORTANT THING TO ME, one category was composed of completions like "finish training," or "finish my nursing course." Five students made responses like these, but no high achiever answered this way. Three responses were for average achievers and two were for low achievers.

According to the procedure for determining percentage value of responses, the two low achiever completions in this category were divided by the twenty-seven low achievers in the validating group and a value of seven percent obtained. When the three average achiever responses were divided by the ninety-seven average achievers in the validating group, the value of

average achiever answers in this category was found to be three percent. Since no high achiever responded in this category, the value of the high achiever response was zero. Thus, the number, percent, and rank of achievers in this category was:

	<u>High Achievers</u>	<u>Average Achievers</u>	<u>Low Achievers</u>
Number	0	3	2
Percent	0	3	7
Rank	low	medium	high

The category in this example satisfied the first criterion for statistical significance by a monotonic increase in percentage value of achiever group responses, from zero, to three percent, to seven percent. The highest percentage was in the low achiever group; therefore the weight of the category was negative.

The second criterion for a statistically significant category was a large percentage of responses in the high and low achiever groups, with a comparatively small percentage in the average achiever group. Categories in this criterion had a fixed value of zero.

Application of the Formula

A formula devised for this test by Bryan² was applied to each statistically significant category in the first criterion to determine the weight of the category in a test score.

In the following formula, the achiever group with the highest percentage value became p₁, average achievers were

²Dr. Joseph G. Bryan of the Massachusetts Institute of Technology.

always p_2 , and the achiever group with the lowest percentage value was p_3 .

$$S = \sqrt{3(\sum p^2) - \sum p^2} \quad \frac{p_1 - p_3}{S} = K \quad K(p_1 - p_3) = \text{Weight}$$

The example that was used to illustrate the procedure for determining statistically significant categories in the first criterion may be continued to demonstrate application of the formula.

It may be recalled that the weight of this category was negative because the highest percentage of responses was in the low achiever group. According to the formula, the low achiever group became p_1 for the same reason.

The first equation in the formula is solved:

p_1	7	p_1^2	49
p_2	3	p_2^2	9
p_3	0	p_3^2	0
$\sum p$	10	$\sum p^2$	58
$\sum p^2$	100	$\times 3$	174
		$3(\sum p^2)$	174
		$\sum p^2$	- 100
		74	

$$\sqrt{74} = S \text{ or } 8.602$$

p_1	7
p_3	- 0
$7 \div$	$S \text{ or } 8.602 = K \text{ or } .813$

p_1	7
p_3	- 0
$7 \times K \text{ or } .813$	$= \text{Weight} - 5.69$

Thus, when Item 6 in one test read, "The most important

thing to me is to finish training," the weight of Item 6 in that test was -5.69.

The Scoring Key

After temporary weights had been established for statistically significant categories, a scoring key was assembled in which the categories in each item were listed with weight, and some illustrative responses. The scoring key developed by this study may be seen in Appendix B.

In the scoring key, the illustrative responses in quotation marks are sentence completions selected as category samples from the one hundred fifty-one experimental group students participating in this study. The responses used were proof-read for spelling and, for brevity, some apparently unimportant words were deleted.

Categories introduced by "references to" are indicative of content, and specific examples of content are frequently quoted. For example, in Item 19, I AM HELD BACK FROM DOING WHAT I WANT BECAUSE, the category with the highest positive weight is listed and illustrated:

References to lack of time: "I don't have enough time," "the days are too short." /10.60

Categories listed by descriptive words, such as "alone" or "my best," are not further illustrated because these answers not only have the same content, they also contain the same words. In Item 19, the category with the lowest negative weight is listed:

Not held back

-12.23

All responses in this category, therefore, contained the words "not held back."

The weights in the scoring key are designated as temporary weights because they were obtained from a validating group of one hundred fifty-one students, based on their first semester averages. While the number of students, and the time included in achievement, may be adequate for a preliminary study, it is reasonable to assume that more categories and weights of greater significance would be obtained from a larger group studied in relationship to graduate nurse licensure examinations.

Five categories of statistical significance were omitted from the scoring key. Four of the categories were omitted because they contained fewer than five answers distributed in achiever groups so that the weights were about three points or less. Four of the omitted categories were: references to taking care of animals or children in Item 1, THE BEST THING THAT I; references to being necessary in Item 25, TO ME PEOPLE; references to appreciations of girls, such as "interesting," or "cute," in Item 29, I THINK THAT GIRLS; and references to a vocation other than nursing in Item 37, I WOULD LIKE TO BE.

The fifth category omitted from the scoring key contained ten responses and had a statistical weight of $\frac{1}{12}$. To Item 34, PAIN, references were made to the religious benefits of pain in answers like these: "brings us closer to God," "the

offering up of pain is an aid to salvation," and "pain is a blessing from God." This category was omitted from the scoring key because all responses were from School E, and seemed to be out of proportion to answers given by students in other schools.³

Scoring

Each statistically significant response outlined in the scoring key received its assigned weight and became a part of the test score.

Tests were scored by assigning the appropriate weight to all significant Item 1 responses in the cross-validating group. When all significant Item 1 answers in this group had received weights, the responses to Item 2 in each cross-validating group test were considered. This procedure was repeated until all significant items in the cross-validating group tests were weighted.

Final scores were determined by the difference between the sum of the positive weights and the sum of negative weights divided by the number of weighted responses in the test.

The same procedure was then followed to score validating group tests.

³At a later date, when cross-validating group tests were scored, a tabulation of responses in this category revealed three cross-validating group answers; two were average achievers and one was a low achiever.

CHAPTER IV

RESULTS

Correlations were found between Gilmore Sentence Completion Test scores and first semester averages, and between two groups of items and first semester averages, after which, the significance of high and low test scores in this sample was considered.

The Pearson product moment coefficient of correlation between test scores and first semester averages of one hundred fifty-one students in the validating group was .76.¹ A correlation of .58 was found between first semester averages and test scores of one hundred fifty-one students in the cross-validating group.

Because the influence of family relationships and attitudes in childhood on the achieving adolescent is particularly emphasized by the psychodynamic psychological theory (the theoretical framework of the Gilmore Sentence Completion Test), correlations were established with first semester averages of students between five family items and six level-of-aspiration items.

The coefficient of correlation between five family items

1

$$\frac{\sum xy}{N\sigma_x\sigma_y}$$

selected for subscores was found to be .42 in the validating group and .27 in the cross-validating group. The five family items selected for subscores were: Item 4, AT HOME WE; Item 8, FATHER; Item 13, MOTHER; Item 27, ONE'S PARENTS; and Item 30, MY FAMILY.

The six level-of-aspiration items selected for subscores were: Item 7, I THINK MY FUTURE; Item 10, I AM DETERMINED; Item 16, WHEN I SUCCEED; Item 20, ALL MY LIFE I; Item 26, WHEN I THINK OF MY FUTURE; and Item 37, I WOULD LIKE TO BE. Subscores of the six level-of-aspiration items correlated with first semester averages at .46 in the validating group and at .32 in the cross-validating group.

Thirty students (20%) of the one hundred fifty-one students in the validating group had sentence completion test scores of $\frac{1}{2}$ 2. and above. Twenty-four of the thirty students in this score range (84%) had first semester averages of 84 and above. The remaining six students (16%) had first semester averages between 79 and 83.

Twenty-two (15%) of the one hundred fifty-one students in the cross-validating group had test scores of $\frac{1}{2}$ 2. and above. All twenty-two students (100%) had first semester averages of 84 and above.

Thirty-two (21%) of the one hundred fifty-one students in the validating group had Gilmore Sentence Completion Test scores of -1.5 or less, and all thirty-two (100%) had first semester averages of 85 or less. Twenty-one of the students in

this score range (65%) were apparently poor risks because eleven withdrew from school during the first semester and the remaining ten had first semester averages between 75 and 80. Eleven validating group students in this score range (35%) had first semester averages ranging from 81 to 85.

Twenty-seven (18%) of the cross-validating group students had sentence completion test scores of -1.5 or less and all twenty-seven (100%) had first semester averages of 84 or less. Thirteen of the twenty-seven students (48%) appeared to be poor risks. Eight withdrew from school by the end of the first semester, and five had first semester averages between 75 and 80. Fourteen of the cross-validating group students in this test score range (52%) had first semester averages ranging from 81 to 85.

CHAPTER V

ANALYSIS OF RESULTS

Correlation

The correlations between Gilmore Sentence Completion Test scores and first semester averages of .76 for the validating group and .58 for the cross-validating group represented a highly significant relationship. The higher relationship in the validating group was expected because category weights had been determined by validating group responses.

Subscores of six level-of-aspiration items, correlated with first semester averages at .46 in the validating group and .32 in the cross-validating group, appeared to be more closely related to school-of-nursing achievement than the subscores of five family items for which correlations of .42 and .27 were found in the validating and cross-validating groups respectively.¹

The Gilmore unpublished study of M.I.T. male freshmen found a correlation between sentence completion test scores and first term grades of .68 for the two hundred ninety-one students

¹ Six level-of-aspiration items selected for subscores were: Item 7, I THINK MY FUTURE; Item 10, I AM DETERMINED; Item 16, WHEN I SUCCEED; Item 20, ALL MY LIFE I; Item 26, WHEN I THINK OF MY FUTURE; and Item 37, I WOULD LIKE TO BE. Five family items selected for subscores were: Item 4, AT HOME WE; Item 8, FATHER; Item 13, MOTHER; Item 27, ONE'S PARENTS; and Item 30, MY FAMILY.

in the validating group and .54 for the two hundred ninety-three students in the cross-validating group. Subscores for level-of-aspiration items were not determined in Gilmore's study, but the correlation between family item subscores and first term grades was .54 in the validating group and .40 in the cross-validating group.

In the present investigation, the slightly higher relationship between nursing student test scores and achievement may be explained on the basis of the sample. The nursing students had made a vocational choice and were generally a more homogeneous group, all were women, and the categories of response were different.

Distribution of Test Scores

There was a greater spread of test scores in the validating group than in the cross-validating group. It may be noted in Table 6 that the validating group had a total score

Table 6

GROUP DISTRIBUTION OF SENTENCE COMPLETION TEST SCORES
ACCORDING TO RANGE, MEAN, AND STANDARD DEVIATION

No.	Group	Range		Mean	Standard Deviation
		Low	High		
151	Validating	-5.2	5.2	4.21	6.32
151	Cross-validating	-4.9	4.7	4.29	4.84

range of -5.2 to ~~5.2~~ with a standard deviation of 6.32. The cross-validating group ranged from -4.9 to ~~4.7~~ with a standard

deviation of 4.84. The means of both test score ranges were positive, with the mean of the cross-validating group somewhat higher than the mean of the validating group. The validating group appeared to differentiate achievers better than the cross-validating group, and this observation was substantiated by the higher validating group correlation with first semester averages.

The distribution of test scores in the seven participating schools varied considerably. Table 7 lists the mean, median, mode and score range according to numbers of students in the validating and cross-validating groups in each school. School B, in the validating group, and School E in both groups, had no favored score interval, and therefore no single mode.

Table 7

DIFFERENCES IN MODE, MEDIAN, MEAN AND RANGE OF
SENTENCE COMPLETION TEST SCORES IN SCHOOLS

Validating Group							Cross-Validating Group						
School	No.	Range		Mode	Median	Mode	No.	Range		Mode	Median	Mode	
		Low	High					Low	High				
A	26	-5.2	4.4	1.5	1.5	1.07	25	-4.8	2.7	1.	1.5	1.02	
B	19	-4.9	5.1		1.5	1.33	21	-2.3	4.7	1.5	1.	1.	
C	22	-3.	5.2	1.	1.	1.	21	-3.	3.5	2.	1.5	1.94	
D	14	-4.4	4.	-1.	-.5	-.16	14	-2.4	2.9	1.	1.5	1.39	
E	43	-5.2	4.5		1.5	-.03	46	-4.3	3.9		0	-.04	
F	14	-5.	4.2	-.5	-.5	-.57	12	-3.9	3.	1.	0	1.01	
G	13	-4.	4.1	-.5	-.5	1.16	12	-2.1	1.5	1.5	1.5	1.17	

In the validating group, School B had the greater range and School G the lesser. School C had the high mode of 1., and School D had the low mode of -1. School C had the high median score of 1. Low median scores in the -.5 interval were found

in Schools D, F, and G. The high mean was $\bar{1}$. in School C and the low mean was $-.57$ in School F. It may be noted that School C had mean, median and mode of $\bar{1}$., and appeared to have the most highly motivated students in the validating group. The most poorly motivated validating group students seemed to be in Schools F and D.

In the cross-validating group, the wider range of test scores was found in School E and the narrower range was again in School G. School C again had the high mode, $\bar{2}$., and School G the low mode in the $-.5$ interval. The high median score of -1.5 was in School C again, and low median scores were found in the zero interval in Schools E and F. School B had the high mean of $\bar{1}$. and School E the low mean of $-.04$. School B appeared to have the best motivation in this group, and School E, the least.

The high test score in both validating and cross-validating groups was made by students with 92 averages, although there were two students in each group with averages of 93. (In Appendix C may be found the list of sentence completion test scores with code numbers arranged according to first semester average of each student participating in this study.) In the validating group, a student in School D had the high test score of $\bar{5.2}$, followed by a School B student with $\bar{5.1}$. In the cross-validating group, the high score was $\bar{4.7}$ in School B, and the next high score of $\bar{3.9}$ was in School E.

In the validating group there were three low scores of

-5.2 made by students who withdrew from Schools A and E. Two scores of -5.1 were earned by students who withdrew from Schools E and F. In the cross-validating group, the low score of -4.8 represented a student who withdrew from School A, and the next low score, -4.3, was made by a School E student with a first semester average of 83. At the end of the first clinical year,² however, an average of 79 (twelve D's and one C) was reported for this student.

Test Scores of 72. and Above

Thirty students (20%) of the one hundred fifty-one students in the validating group had sentence completion test scores of 72. and above. Twenty-four of the thirty students in this score range (84%) had first semester averages of 84 and above. The remaining six students (16%) had first semester averages between 79 and 83. The test scores for these six students were then considered in relationship to their grades at the end of the first clinical year. Table 8 indicates that at the end of the first clinical year, the average of one student (representing 2% of the validating group score range) had dropped from 82 to 79, but five of the aberrant students (14% of the validating group score range) had raised their averages

²The first clinical year begins at the end of the first semester and ends when the student has completed approximately eighteen months, or one-half, of the educational program. Six of the seven participating schools reported grades at the end of the first clinical year. Although it is not within the scope of this study to attempt an evaluation of the relationship of motivation as measured by the Gilmore Sentence Completion Test to grades beyond the first semester, in some cases information about some individual test scores is offered in terms of grades at the end of the first clinical year.

Table 8

A COMPARISON OF SENTENCE COMPLETION TEST SCORES,
FIRST SEMESTER AVERAGES, AND FIRST CLINICAL
YEAR GRADES FOR SIX ABERRANT STUDENTS

School	Test Score	First Semester Average	Grades, First Clinical Year
B	3.5	79	84.5
B	2.8	80	85
C	2.	81	84
E	3.5	82	79
B	2.	82	86
B	2.5	83	85.6

to 84 or more, and offered some justification for high test scores. It may be noted that four of the five students with increased achievement were in an apparently highly motivated class in School B.

It may be recalled that twenty-two (15%) of the one hundred fifty-one students in the cross-validating group had test scores of ~~2.~~ and above, and all twenty-two (100%) had first semester averages of 84 and above.

Test Scores of -1.5 or Less

Thirty-two (21%) of the one hundred fifty-one students in the validating group had sentence completion test scores of -1.5 or less, and all thirty-two (100%) had first semester averages of 85 or less. Twenty-one of the students in this score range (65%) were apparently poor risks because eleven withdrew from schools during the first semester and the remaining ten had first semester averages between 75 and 80. Eleven validating

group students in this score range (35%) had first semester averages ranging from 81 to 85. Additional information about the students in this category was found in grades that had been reported for the first clinical year.

A comparison of test scores, first semester averages, and first clinical year grades for the eleven validating group students with test scores of -1.5 or less and first semester averages between 81 and 85 is found in Table 9. It may be noted that at the end of the first clinical year one student (9%) had not been reported. Three scores (27%) were misleading for students who increased averages between 1.4 and 4.4 points, and one of these three increased her average in spite of a test score of

Table 9

TEST SCORES OF -1.5 OR LESS WITH FIRST SEMESTER
AVERAGES RANGING FROM 81 TO 85

Validating Group			Cross-Validating Group		
Test Scores	FSA	Grades FCY	Test Scores	FSA	Grades FCY
-3.	85	77	-1.9	85	83.8
-1.8	84	*	-2.2	85	77
-2.3	84	83	-3.4	85	83
-2.6	84	83	-1.6	85	W
-1.5	84	88.4	-1.5	85	84
-4.8	83	84.4	-2.4	84	W
-2.	83	83	-2.1	83	78.4
-1.5	83	83	-2.2	83	82.5
-3.1	82	80.6	-4.3	83	77.5
-4.4	81	W	-2.	83	88.4
-3.2	81	83.3	-1.5	82	80.6
			-3.	82	80.6
			-1.6	81	81
			-2.1	81	88

Key: FSA...First semester average
 FCY...First clinical year
 *...Not reported
 W...Withdrew

-4.8. Four of the scores (36%) were significant for lower grades, although three of the four were lower by only one point. One score (9%) of -4.4 was highly significant for a student who withdrew during the first clinical year.

When all thirty-two validating group students with test scores of -1.5 or less were considered, twenty-one (65%) were low achievers during the first semester: eleven withdrew from schools, and ten had averages between 75 and 80. By the end of the first clinical year, however, test scores in this range were of some significance for four more students (12.5%) who had lowered grades, highly significant for one student (3%) who withdrew, of no significance in two cases (6%) where averages remained the same, misleading with three students (12.5%) who had increased averages, and one student (2%) had not been reported.

Twenty-seven (18%) of the cross-validating group students had sentence completion test scores of -1.5 or less and all twenty-seven (100%) had first semester averages of 84 or less. Thirteen of the twenty-seven students (48%) appeared to be poor risks in that eight withdrew from school by the end of the first semester, and five had first semester averages between 75 and 80. Fourteen of the cross-validating group students in this test score range (52%) had first semester averages ranging from 81 to 85. Table 9 reveals that, by the end of the first clinical year, test scores appeared to be misleading for two students (14.3%), one of whom had a score of -2.1 and increased

her average from 81 at the end of the first semester to 88 at the end of the first clinical year. Scores were of some significance, however, for nine students (63%) with lower grades, and highly significant for two students (14.3%) who withdrew from schools.

Therefore, when all twenty-seven cross-validating group students with scores of -1.5 or less were considered, thirteen (48%) were low achievers during the first semester: eight students withdrew from school, and five had averages between 75 and 80. By the end of the first clinical year, these test scores were significant for lowered grades in nine more students (34%), highly significant for two students who withdrew from school (7%), of no significance for one student (4%), and misleading with two students who increased averages (7%).

Withdrawals

Twenty-three students withdrew from participating schools between the day the test was administered and the end of the first semester. A random sampling of withdrawals from schools placed eleven students in the validating group and twelve in the cross-validating group.

No first semester grades were reported for six withdrawing students in the validating group, but the remaining five withdrawing students had completed two or more subjects for which grades were available. One student with a sentence completion test score of -1.5 had a first semester average of 91 for two completed subjects out of the eight subjects offered

in School G. Two School F students, with sentence completion test scores of -3.6 and -5.2, had averages of 80 for two subjects completed out of the twelve offered. A student in School B with a sentence completion test score of -4.9 had an average of 80 for five completed subjects out of six, and one student with a sentence completion test score of -5.1 had an average of 76 for all seven subjects offered in School A.

No grades were reported for eight of the twelve cross-validating group students who withdrew from schools during the first semester, but the remaining four students had earned grades in one or more subjects. A School G student, with a sentence completion test score of -2.1, completed all eight subjects offered with an average of 91. One student who had a sentence completion test score of -.6 received a grade of 86 for one subject out of the eight subjects offered in School G. One student in School F who had a sentence completion test score of -2.1 had a first semester average of 86 in ten of the twelve subjects she completed, and one School G student with a sentence completion test score of -.2 finished four of eight subjects with an average of 77.

The sentence completion test scores of twenty-three students who withdrew from schools during the first semester are listed in Table 10 where it may be noted that all scores are in the negative scale with the exception of one School E student who had the lowest possible positive score of $\sqrt{.1}$. Test scores in the validating group ranged from -1.5 to -5.2 with

over half of the scores below -4.5. Cross-validating group scores ranged from $\cancel{7}.1$ to -4.8, with more than half the scores at -2. or below.

Table 10

FIRST SEMESTER WITHDRAWALS ACCORDING TO
SENTENCE COMPLETION TEST SCORES

Validating Group		Cross-Validating Group	
Test Scores	School	Test Scores	School
-1.5	G	$\cancel{7}.1$	E
-3.5	A	- .2	G
-3.6	F	- .3	E
-3.6	E	- .6	C
-4.4	E	-1.8	D
-4.9	B	-2.	A
-5.1	A	-2.1	G
-5.1	E	-2.1	F
-5.2	E	-2.3	E
-5.2	F	-3.	A
-5.2	A	-3.2	E
		-4.8	A

All of the validating group scores appeared to suggest low achievement or withdrawal, with ten (90%) of the eleven scores highly significant. In the cross-validating group, the four scores in tenths are probably of negligible significance, but eight (66%) of the twelve scores may be considered highly significant.

Some Differentiating Items

Sentence completion test responses revealed definite and measurable differences between high achievers and low achievers. The highest score that theoretically might have

been earned by a high achiever was $\neq 10.3$, while the highest score actually earned by a high achiever was $\neq 5.2$. The lowest possible score for a low achiever was -10.1 , and the lowest score received by a low achiever was -5.2 . It may be seen that there was a considerable overlapping of answers, with no high achiever writing only high achiever responses, and no low achiever giving only low achiever responses.

Although the following items stimulated some undistinguishing responses, they are examples of items with category weights that differentiated high and low achievers by seventeen to forty-two points.

In Item 10, I AM DETERMINED TO, there were undistinguishing responses distributed throughout the achiever groups. These responses often referred to marriage, without mention of home or family, or they reflected a determination to be happy, or to improve personal characteristics, or to try to fulfill the expectations of others. An unqualified "I am determined to do my best" was a common undifferentiating answer.

The following responses, however, were more characteristic of one group than another. The high achiever far more frequently said that she was determined to be a good nurse, or she wanted to be a good nurse, wife and mother. She had made up her mind to do well in theory and practice. Sometimes she did not mention nursing at all. She often said that she was determined to get married and have a family, or that she expected to live a full life by giving and receiving many satisfactions.

On the other hand, the low achiever was determined to get better marks or to pass her subjects. Perhaps she had made up her mind to be capped, or to become a nurse (or a registered, graduate or professional nurse). She was often determined to make something of herself, or to be successful in nursing.

Item 17, WHAT BOTHERS ME MOST, revealed a general and undistinguishing concern with grades and examinations, the opinions of others, and the attitudes of instructors and head nurses. Throughout the achiever groups, students were bothered by some of their personal characteristics, or by physical changes such as increase in body weight.

The high achiever, however, was frequently bothered most because she felt she didn't study enough, or didn't have time to do the things she should do. She didn't like her general feelings of inferiority, and wished she could resolve her questions about life after death. Sometimes it appeared hard for her to be away from home.

The low achiever seemed to be anxious and insecure with answers that most frequently contained fear of failure or worry about the future. She was concerned about being capped, or wondered if she would ever get through the school of nursing. She was often upset by unhappiness, pain or distress in others, or fearful about world conditions. She was repelled by some characteristics, attitudes and opinions of others. For example, she said she was bothered by noisy or sloppy people, or those with body odor. She often referred to gossips, the narrow-

minded, or those who "gripe," "cheat," "don't finish things," "think they know it all," or "try to act better than they are."

Item 26, WHEN I THINK OF MY FUTURE, stimulated common but undistinguishing answers such as "I think of nursing" or "I see myself married with a home and a family." In all achiever groups there were those that said thoughts of the future made them dream, or feel excited, or made them want time to go faster.

The high achiever most often said that thoughts of the future made her wonder, or she expressed qualified optimism by saying something like "I don't know what will happen but it's bound to be interesting." Sometimes she thought of being a good nurse, or of nursing plus marriage, home and family. Sometimes she did not respond at all.

The low achiever, on the other hand, often said that thoughts of the future filled her with pleasurable feelings. She "glowed inside," or felt happy, or content and secure. Sometimes it made her more ambitious and then she wanted to work hard, and sometimes it made her fearful and discouraged. Some low achievers said they hoped to become nurses, and others said the future seemed "far away," or thoughts of the future made them want to "hope and pray."

Responses common to all achiever groups in Item 28, THE MAIN DRIVING FORCE IN MY LIFE, included many references to God, faith or religion, as well as to parents, or family and friends. In all achiever groups there were those who said their drive

came from a desire to please or repay others, or to help others.

The high achiever frequently referred to her ambition, determination, or to some inner force. Sometimes she said her drive was supplied by thoughts of the future, or desire for happiness or love, or by her desire to be a mother, or a mother and a nurse.

The low achiever often said that the main driving force in her life was to become a nurse, or to better herself, or to be successful. Sometimes she made no response to this item. Some low achievers referred to the desire for marriage, or nursing plus marriage, while others said that they wanted to "be like others," or "feel secure."

In Item 27, ONE'S PARENTS, there were a few students in all three achiever groups that did not respond. In general, responses common to all achiever groups indicated a strong sense of duty. Students said that parents should be loved, respected or appreciated, and that parents tried to guide, teach and advise their children. The high achiever, however, often said that parents were an important influence, or that they were loved by their children, or that they were friends, and helpful and understanding in times of stress. The low achiever often made answers indicating that children cannot get along without parents, or that parents make children grow up to be what they are. These students often said that parents should try to help their children, should try to guide and should try to encourage. Sometimes they were ambivalent and said that while parents were

wonderful, they should not be so bossy; and sometimes they were critical and said that parents should not fight with each other, or did not always know what was best.

Item 13, MOTHER, brought forth common but undistinguishing responses that referred to the friendliness, kindness or understanding of mother, as well as praise, admiration or respect for her. But the high achiever most frequently said, "mother is a wonderful woman," or "is the best in the world." She often said that she "loved mother," or referred to mother as helpful, or interested, or encouraging. Some referred to domestic activities such as being a "good cook," or "raising five children," and others expressed concern about mother's health or welfare.

The low achiever often said that she missed her mother, or that she looked or acted like mother. Sometimes she referred to the authority of mother with answers like "Did you call, mother?" Some indirect references were made, such as "she should respect her mother." Some students referred to activities shared with mother, and others described mother in responses like "mother has curly hair."

In Item 8, when the word FATHER was given in the middle of a sentence, common but undistinguishing responses referred to father's friendship, his understanding, or kindness, or generosity. Students in all achiever groups often said that father was "wonderful."

The superior student frequently said her father was "tops," or "one of the best," or she told of doing things with

father. Sometimes she said that father "worked hard," or she associated him with material goods in responses like "bought a new television set." Some superior students were factual about father, others referred to his interest in their activities, and still others referred to their respect for father, or indicated expectation of pleasing him.

The inferior student referred to father as an authority figure with answers such as "I will be right in, father," or "my father desires obedience." She often said that she loved father, or that he was dear or important to her. Sometimes she referred to father indirectly or ambivalently in responses like "Margie swept out the car while her father went to get some water to wash it," and "my father says things that hurt but I think he really has my interest at heart." Some low achieving students mentioned unsuccessful efforts of father, some named father's vocation, and others said they looked or acted like father.

Characteristics of High Achievers and Low Achievers

Exploration and analysis of sentence completion test responses indicated differences between the kinds of responses made by superior and inferior students of nursing in the sample.

High Achievers. The high achiever was a young woman who usually indicated a positive faith in God and appeared to come from a family where religion was actively practiced. She was more interested in other people than in herself, concerned with their happiness, and sensitive to her obligations to others.

She liked to be with friends, enjoyed patients as people, found most people "wonderful," and appeared to cooperate with others and receive cooperation. She had a friendly, somewhat detached attitude toward boys, and appreciated their helpfulness as well as their moral and intellectual qualities.

She usually had positive relationships with one or both parents. Although her family may have been separated geographically, or in interests, she appeared to like them and they liked and were proud of her. At home the family worked together and members helped one another. Although she missed her family, she seemed to have the emotional maturity to take it in her stride.

She was generally optimistic, but also a realist. She was happy most of the time, and expected to be happy. She intended to succeed, but she tried to do many things and sometimes failed. She did not like to fail in anything but accepted some failures as a part of living. She was relatively objective about herself and life situations, and recognized limitations more often than not.

She was ambitious and seemed to feel a need for achievement. Her goals were frequently continuous and long term. She wanted to do well in school, be a good nurse and also a wife and mother, and then a grandmother.

Her sentence completions were usually shorter, often qualified, but more definite, specific and positive.

Low Achievers. The low achiever more frequently spoke of God as a demanding Being, but often turned to Him for solace.

She frequently indicated poor relationships with one or both parents, and at times referred to one or both parents as authority figures. She was anxious to please and appease her family, appeared to be extremely devoted to them, but revealed an overdependence upon their approval and emotional support.

She was subjective and somewhat passive in life situations, tended to take things personally, and often had her feelings hurt. She had relatively strong emotional fluctuations, frequently appeared to reflect the happiness or distress or others and seemed to need their advice, encouragement and good opinion. Although emotionally dependent on others, and often extremely concerned with opinions of others about herself, she frequently appeared to expect a great deal of her friends and of other people. She tended to be critical of the actions and attitudes of others, and although she tried to like people, she was often repelled by characteristics in others that she felt were undesirable. She had a strong desire to help others, often in order to lessen personal anxiety and as a means to establish more secure relationships. She frequently said that girls should be careful of the way they act. She had reservations about being friendly with boys, but appreciated "good looks" and "nice clothes."

She was more unsure, indecisive and overly critical of herself. She worried over her personal characteristics and her moral qualities, and often seemed to allay uneasiness by attaching importance to doing things at a certain time or in a

certain way. She did not want to be different from others. She did not want to be pointed out, or to be the first or last one.

Her goals were frequently more immediate, diffuse and indefinite. She was anxious about success, worried about passing, and was fearful of failure. She often spoke of failure as a disgrace to herself, her family and friends. She wanted to be a nurse and get married. Although she less frequently referred to being a mother or a grandmother, she sometimes appeared to seek reflected superiority from these states.

Mental activity often tired her. She frequently appeared impractical, and did not take most of the responsibility for her own actions. She appeared to be an immature, anxious, dependent young woman. From her current frame of reference she looked backward with nostalgia, described her childhood as "happy and carefree," and looked to the future for personal and financial security.

Sentence completions of the low achiever tended to be longer, more vague and more negative. They were frequently unqualified except by "can," "should," "try," or "hope."

Emotional Health and Achievement

Although generalizations about the achieving nursing student appeared to describe many of the attributes of an emotionally healthy person, it does not follow that the superior student is inevitably a well-adjusted individual. Sentence completions of high achievers revealed many emotional problems. The regimentation and authoritarianism of some hospital schools

appeared to be accepted by some superior students as necessary (if annoying) accoutrements to nursing education; while for other superior students this environment seemed to provide enough security, personal interest and emotional support to release achievement. Among the high achievers as a group, school-of-nursing achievement gave them satisfaction, or was at least an area relatively free from anxiety.

The low achiever presented a less healthful emotional adjustment. Some emotional problems appeared deeper and more diffuse, although in individual cases the adjustment appeared to equal that of some superior students. The important factor was, however, that at least some of the emotional involvement of the inferior student blocked the path to nursing school achievement.

She seemed less secure, and more vulnerable to authoritarian directives, criticism, or any other form of environmental dynamics that might be subjectively interpreted as rejection. Rejection aroused her multitude of defense mechanisms and generated anxiety. A person does not work as productively in an area where there is anxiety as in an area that is relatively free from anxiety. Because she was preoccupied with defensiveness, she was not receptive to learning situations; and because of her tendency to hold on to everything as a means of defense, probably found it difficult to give back learnings that she did receive. Being a rigid person, she assimilated learning more slowly and adjustments in her behavior occurred more slowly.

To the low achiever go sympathy and support of the group, as well as increased attention from faculty members. Being a dependent, passive person, the low achiever was not motivated to get good grades that would set her apart from the group, deprive her of group sympathy and support, and increase her self-responsibility. Although complete failure may or may not have been subconsciously desired, the steps toward it were satisfying. Even complete failure was sometimes less threatening than achievement.

Limitations of the Study

The current preliminary investigation was confined to an exploration of Gilmore Sentence Completion Test responses for measurable relationship to achievement during the first semester in the nursing schools in the sample. The Gilmore Sentence Completion Test was administered to three hundred two freshmen women in seven New England hospital schools of nursing between December 13, 1954, and January 21, 1955. On the day the test was administered, some students had been in school twelve weeks, and others had been in school up to nineteen weeks.

The scoring key was constructed from statistically differentiating responses of one hundred fifty-one students who represented approximately half of the distribution of first semester averages in each school. Five statistically significant categories were omitted from the scoring key. Four of the categories were omitted because they contained fewer than five answers distributed in achiever groups so that the weights were

approximately three points or less. The fifth category omitted from the scoring key was in Item 24 and referred to the religious benefits of pain. Although it contained ten responses and had a statistical weight of $\frac{1}{12}$, it was omitted because all responses were from School E, and seemed to be out of proportion to answers given by students in other schools. Further investigation may reveal, however, that the weight of this category had real significance.

The scoring key was constructed in order to establish the validity of the sentence completion test in the sample investigated, and therefore no inter-scorer reliability was established.

CHAPTER VI

SUMMARY

The correlation between first semester averages and Gilmore Sentence Completion Test scores of one hundred fifty-one cross-validating group students was .58. This marked relationship indicated the empirical validity of the test in the sample.

A correlation of .76 was found between first semester averages and test scores of one hundred fifty-one validating group students. The higher relationship in the validating group was expected because category weights had been determined by validating group performance in relationship to test responses.

Subscores obtained from five items that brought forth content related to family relationships were compared with first semester averages with the resulting correlations of .42 in the validating group and .27 in the cross-validating group.¹

The subscores of six items that stimulated statements of aspiration correlated with first semester averages at .46 in the validating group and .32 in the cross-validating group.² It

¹The five family items used may be seen in Appendix A as Items 4, 8, 13, 27, and 30.

²The six level-of-aspiration items may be seen in Appendix A as Items 7, 10, 16, 20, 26, and 37.

appeared that level-of-aspiration items were more significant than family items, but that neither group of items was nearly so significant as the whole test.

The distribution of test scores indicated a wider spread in the validating group than in the cross-validating group, and a variation from school to school. The high test scores in both groups were made by students with averages of 92 for the first semester. In the validating group, a student in School C had the high score of $\nearrow 5.2$, followed by a School B student with $\nearrow 5.1$. In the cross-validating group, the high score was $\nearrow 4.7$ in School B, and the next high score of $\nearrow 3.9$ was in School E. Low scores in the negative scale were -5.2 made by three validating group students who withdrew from Schools A and E. In the cross-validating group, the low score of -4.8 represented a student who withdrew from School A.

When test scores and first semester averages were compared for achieving students, a test score of $\nearrow 2$. and above appeared to be highly significant. Twenty-two (15%) of the one hundred fifty-one students in the cross-validating group had test scores of $\nearrow 2$. and above, and all twenty-two (100%) had first semester averages of 84 and above. Thirty students (20%) of the one hundred fifty-one students in the validating group had test scores of -2 . and above, and twenty-four of the thirty students in this score range (84%) had first semester averages of 84 and above. The remaining six students (16%) had first semester averages between 79 and 83, but by the end of the first

clinical year the test scores of ≥ 2 . and above earned by these six aberrant students were significant for five of them (14%) who had raised averages to 84 or more, and misleading for one student (2%).

In the negative scale, all students in both groups with test scores of -1.5 or less (100%) had first semester averages of 85 or less.

Thirty-two (21%) of the one hundred fifty-one validating group students were in this score range, and this relatively low score appeared to indicate low achievement in twenty-one of the thirty-two (65%) because eleven withdrew from school and ten had first semester averages between 75 and 80. Eleven validating group students in this score range (35%) had first semester averages ranging from 81 to 85. By the end of the first clinical year, however, test scores in this range were significant for withdrawal in one case and for lower grades in four cases (15.5%), of no significance for two students (6%) whose averages remained the same, misleading for three students (12.5%) who had increased averages, and one student had not been reported (2%).

Twenty-seven (18%) of the cross-validating group students had test scores of -1.5 or less and thirteen of the twenty-seven (48%) appeared to be poor risks in that eight withdrew from school by the end of the first semester, and five had first semester averages between 75 and 80. Fourteen of the cross-validating group students in this test score range (52%)

had first semester averages ranging from 81 to 85, but by the end of the first clinical year their test scores of -1.5 or less became significant for withdrawal in two cases and for lowered grades in nine cases (41%), of no significance for one student (4%), and misleading with two students who increased averages (7%).

When test scores of twenty-three withdrawing students were examined, all of the validating group scores appeared to suggest low achievement or withdrawal, with ten of the eleven scores of -3.5 or less (91%) highly significant. In the cross-validating group, four of the twelve scores seemed to be of no significance, but the eight scores of -1.8 or less (66%) appeared to be highly significant.

Conclusions

1. Gilmore Sentence Completion Test responses, as categorized and weighted in this study, correlated with first semester averages of participating students at .76 in the validating group and at .58 in the cross-validating group indicating a marked relationship.

2. A test score of ≥ 2 and above was made by fifty-eight (19%) of the participating students. It indicated first semester averages above 84 for 100% of the validating group and for 84% of the cross-validating group in this score range.

3. A test score of -1.5 or less was made by fifty-nine (19.5%) of the students in the sample, and all students in this score range (100%) had first semester averages under 85.

4. For 65% of the validating group and for 48% of the cross-validating group, test scores of -1.5 or less were related to withdrawal or first semester averages under 80.

5. Test scores of withdrawing students appeared to be highly significant for 91% of the withdrawing students in the validating group and for 66% of the withdrawing students in the cross-validating group.

6. The cross-validating group correlation of .58 between Gilmore Sentence Completion Test responses and first semester averages indicated an empirical validity which suggests that further investigation of motivation to achievement in schools of nursing may establish a selection tool that, combined with current pre-entrance test batteries, may help to choose candidates who are not only able to achieve, but motivated to achieve.

Recommendations for Further Study

It is recommended that further studies, based on data accumulated in the present investigation, be undertaken by the Boston University School of Nursing in collaboration with Gilmore.

Further investigation should indicate the relationship of Gilmore Sentence Completion Test Scores of all tested students to averages after eighteen months in the schools' educational programs, and later, to composite scores on licensure examinations. Then, test responses might be reevaluated and the scoring key revised to include statistically significant response categories with long-range weights determined on the basis of

scores in licensure examinations. When inter-scorer reliability had been determined, it would then be possible to suggest the predictive value of Gilmore Sentence Completion Test scores in terms of licensed nurses graduated by the participating schools.

Because the tests in this study were administered during the twelfth to the nineteenth week of the first semester, the content of many responses seemed to be influenced by the presence of the student in the individual school. It is therefore recommended that research be undertaken with the purpose of helping schools of nursing, collegiate as well as diploma, select students with adequate motivation to graduate and become licensed nurses.

To accomplish this purpose, at least one method seems to be promising. If the Gilmore Sentence Completion Test were administered to a large number of applicants to schools of nursing in relatively representative parts of the United States, weights established for test responses on the basis of performance of all entering students during the first semester, and inter-scorer reliability sought, it appears that schools of nursing might have a valuable selection tool in that most withdrawals take place by the end of the first semester. If the investigation were continued, and the value of test responses were related to licensure examination scores, it is possible that a long-range measurement of motivation indicated by responses to items in the Gilmore Sentence Completion Test might

prove to be a valuable addition to pre-entrance test batteries.

It is recommended that a desirable composition of pre-entrance test batteries be investigated when a comparatively valid measure of motivation to achievement in nursing school is included. It is possible that an intellectual measure plus a measure of motivation would yield correlations with actual nursing school performance as high as would be found if achievement tests in science, mathematics, and reading comprehension were included.

It is recommended that Gilmore Sentence Completion Test responses of students in schools of nursing be investigated from the guidance viewpoint. It would be interesting to know to what extent students who appear to be poorly motivated, in relationship to performance and to the distribution of test scores in the individual school, would increase their level of performance and their test score with intensified guidance.

BIBLIOGRAPHY

Books

- Anastasi, Anne, Psychological Testing. New York: The Macmillan Co., 1954. Pp. 682.
- Anderson, Harold H., and Anderson, Gladys L., An Introduction to Projective Techniques. New York: Prentice Hall, Inc., 1951. Pp. 720.
- Andrews, Thomas G., Methods of Psychology. New York: John Wiley and Sons, 1948. Pp. 426.
- Cronback, Lee J., Essentials of Psychological Testing. New York: Harper and Brothers, 1949. Pp. 475.
- Fryer, Douglas, The Measurement of Interests. New York: Henry Holt and Co., Inc., 1931. Pp. 488.
- Guthrie, Edwin R., The Psychology of Human Conflict. New York: Harper and Brothers, 1938. Pp. 408.
- Muse, Maud B., Guiding Learning Experience. New York: The Macmillan Co., 1950. Pp. 617.
- Stuit, Dewey B. (Chairman), Dickson, Gwendolen S., Jordan, Thomas F., and Scholoberg, Lester, Predicting Success in Professional Schools. Washington, D.C.: The American Council on Education, 1949. Pp. 186.
- United States Office of Strategic Services Staff, Assessment of Men. New York: Rinehart and Co., 1948. Pp. 541.
- Woodworth, Robert S., Psychology. New York: Henry Holt and Co., Inc., 1940. Pp. 546.

Articles and Pamphlets

- Altus, William D., "Non-Intellective Factors and Grades; Study Habits and Adjustment Tests," The American Psychologist, 2, 10:422, 1947.

The American Nurses' Association, "Facts about Nursing." New York: American Journal of Nursing Company, 1955.

Barow, Henry, "The Measurement of Academic Adjustment," Journal of the American Association of Collegiate Registrars, 22:274-286, 1947.

Bennett, George K., and Gordon, H. P., "Personality Test Scores and Success in the Field of Nursing," Journal of Applied Psychology, 28:267-268, 1944.

Berdie, Ralph F., "The Prediction of College Achievement and Satisfaction," Journal of Applied Psychology, 28:239-245, 1944.

Bridges, J. W., and Dollinger, V. M., "The Correlation between Interests and Abilities in College Courses," Psychological Review, 27:308-314, 1920.

Brown, Shirley W., "The Use of an Incomplete Sentences Test for the Study of Attitudes toward Negroes," unpublished Doctor's dissertation, Ohio State University, Columbus, Ohio, 1950.

Brown, William F., Holtzman, Wayne H., and Farqueher, W. G., "The Survey of Study Habits and Attitudes: A New Instrument for the Prediction of Academic Success," Educational and Psychological Measurement, 14:726-728, 1954.

Campbell, D. T., "The Indirect Assessment of Social Attitudes," Psychological Bulletin, 47:15-38, 1950.

Crawford, Albert B., "Effect of Scholarships: A Study in Motivation," Journal of Personnel Research, 4:391-404, 1925-1926.

_____, "Incentives to Study." New Haven, Connecticut, Yale University Press, No. 69, 1929.

Detchen, Lily, "The Effect of a Measure of Interest Factors on the Prediction of Performance in a College Social Sciences Comprehensive Examination," The Journal of Educational Psychology, 37:45-52, 1946.

Drought, Neal E., "An Analysis of Eight Measures of Personality and Adjustment in Relation to Relative Scholastic Achievement," Journal of Applied Psychology, 22:597-606, 1938.

Dunlap, Jack W., "Dunlap Academic Preference Blank, Manual of Directions," Yonkers, N.Y., World Book Co., 1940.

- Freeman, Frank S., "Elusive Factors Tending to Reduce Correlations between Intelligence Test Ranks and College Grades," School and Society, 29:784-786, 1929.
- Fryer, Douglas, "Interest and Ability in Educational Guidance," Journal of Educational Research, 26:27-29, 1927.
- Gilmore, John V., "A New Venture in the Testing of Motivation," The College Board Review, College Entrance Examination Board, New York, 221-226, November, 1951.
- Gough, Harrison G., "The Construction of a Personality Scale to Predict Scholastic Achievement," Journal of Applied Psychology, 37, No. 5:361-366, 1953.
- _____, "What Determines the Academic Achievement of High School Students?" Journal of Educational Research, 46:321-331, 1953.
- Harris, Daniel, "Factors Affecting College Grades: A Review of the Literature," Psychological Bulletin, 37:151, 1940.
- Hartson, Louis D., "Further Validation of the Rating Scales Used with Candidates for Admission to Oberlin College," School and Society, 46:155-160, 1937.
- Healy, Irene, and Borg, Walter R., "Personality and Vocational Interests of Successful and Unsuccessful Nursing School Freshmen," Educational and Psychological Measurement, 12:767-775, 1952.
- Hilgard, Josephine R., "Strong Vocational Interest Test and Completion of Training in a School of Nursing," Psychological Bulletin, 36:646, 1939.
- Holzberg, J., Teicher, A., and Taylor, J. L., "Contributions of Clinical Psychology to Military Neuro-Psychiatry in an Army Psychiatric Hospital," Journal of Clinical Psychology, 3:84-85, 1947.
- Hutt, Max L., "The Use of Projective Methods of Personality Measurement in Army Medical Installations," Journal of Clinical Psychology, 1:130-134, 1945.
- Kelley, Truman L., "Individual Testing with Completion Test Exercises," Teachers College Record, No. 18, 371-382, 1917.
- Langlie, Theos A., "Interests and Scholastic Proficiency," The Personnel Journal, 9:246-250, 1930.

- Lindgren, Henry Clay, "The Incomplete Sentences Test as a Means of Course Evaluation," Educational and Psychological Measurement, 12:217, 1952.
- Mallory, E. B., and Olzendam, H., "Student Estimates of College Courses Considered in Relation to Interest, Amount of Work Performed, and Grades Received," School and Society, 50:12-15, 30-32, 1939.
- May, Mark A., "Predicting Academic Success," Journal of Educational Psychology, 12:429-440, 1923.
- Miner, James B., "The Prediction of a Disparity between Scholarship and Intelligence," Journal of Applied Psychology, 9:356-363, 1925.
- Monroe, Ruth, "Academic Success and Personal Adjustment in College," American Council on Education Studies, Series I of Reports of Committees and Conferences, 12:32, 1948.
- Moore, W. Herbert, "Measuring Student Motivation," Journal of Higher Education, 13:269-271, 1942.
- Mosier, Charles I., "Factors Influencing the Validity of a Scholastic Interest Scale," Journal of Educational Psychology, 28:188-196, 1937.
- Payne, A. F., "Sentence Completions." New York Guidance Clinic, New York, 1928.
- Rohde, Amanda R., "Explorations in Personality by the Sentence Completion Method," Journal of Applied Psychology, 30:169-181, 1946.
- Rotter, Julian B., and Rafferty, Janet E., "Rotter Incomplete Sentences Blank: Manual." New York, Psychological Corporation, 1950.
- Rotter, Julian B., and Willerman, B., "The Incomplete Sentences Test as a Method of Studying Personality," Journal of Consulting Psychology, 11:43-48, 1947.
- Ryans, David G., "A Study of Observed Relationship between Persistence Test Results, Intelligence Indices, and Academic Success," Journal of Educational Psychology, 29:573-580, 1938.
- Segel, David, "Differential Prediction of Scholastic Success," School and Society, 39:91-96, 1934.
- Shaycroft, Marion F., "A Validation Study of the Pre-Nursing and Guidance Test Battery," The American Journal of Nursing, 51:201-205, 1951.

Shor, Irving, "Report of a Verbal Projective Technique," Journal of Clinical Psychology, 2:279-282, 1946.

Shultz, D. G., and Green, B. F., Jr., "Predicting Academic Achievement with a New Attitude-Interest Questionnaire -- II," Educational and Psychological Measurement, 13:54-63, 1953.

Spaney, Emma, "Personality Tests and the Selection of Nurses," Nursing Research, 1, No. 3:4-26, February, 1953.

Stagner, Ross, "The Relation of Personality to Academic Aptitude and Achievement," Journal of Educational Research, 26: 648-660, 1933.

Stein, Morris I., "The Use of a Sentence Completion Test for the Diagnosis of Personality," Journal of Clinical Psychology, 3:45-46, 1947.

Taylor, Ella A., "Withdrawal of Students. New York, National League of Nursing Education, 1951. Pp. 47.

Tendler, Alexander D., "A Preliminary Report on a Test for Emotional Insight," Journal of Applied Psychology, 14: 123-126, 1930.

Thompson, Grace M., "Non-Intellective Factors and Grades: The Group Rorschach," The American Psychologist, 2, No. 10: 415, 1947.

Thorndike, Edward L., "The Correlation between Interests and Abilities in College Courses," Psychological Review, 28: 374-376, 1921.

Thornton, George R., "The Uses of Tests of Persistence in the Prediction of Scholastic Achievement," Journal of Educational Psychology, 32:266, 1941.

Traub, Miller R., "Completion Test Language Scales," Contributions to Education, No. 77, New York, Bureau of Publications, Teachers College, Columbia University, 1917.

Ward, Lewis B., and Kirk, Samuel A., "Studies in the Selection of Students for a Teachers College," Journal of Educational Research, 35:665-672, 1942.

Watson, Goodwin B., "Character Tests and Their Applications through 1930," Review of Educational Research, 2:246, 1932.

Wheeler, Donald R., "Imaginal Productivity Tests," in Murray, H. A., Explorations in Personality. New York: Oxford University Press, Inc., 1938. Pp. 692

Woodman, Everett M., "Description of a Guidance Instrument Designed to Measure Attitudes Related to Academic Success in College," Journal of Educational Psychology, 12:275-294, 1952.

EXPERIMENTAL COPY

Name _____

Date _____

GILMORE SENTENCE COMPLETION TEST

In this test you are to finish the sentence from the suggested word or phrase. Make a good complete sentence but do not work too long making it perfect. If the suggested word occurs in the middle of the line, you may place it wherever you wish in your sentence. The test is not timed but it is necessary to keep working in order to finish within the session. Allow about 7 minutes to a page.

1. The best thing that I
2. Fellows
3. Teachers who
4. At home we
5. I do not like to be
6. The most important thing to me
7. I think my future
8. father
9. Quizzes and examinations
10. I am determined
11. The most important influence in my life
12. I want to know

13. mother

14. What pleased me most

15. I think that life is

16. When I succeed

17. What bothers me most

18. I am happy when

19. I am held back from doing what I want because

20. All my life I

21. When things are against me

22. What keeps me going

23. time

24. If I could only

25. To me people

26. When I think of my future

27. One's Parents

28. The main driving force in my life

29. I think that girls

30. My family

31. When I am 65

32. I get tired

33. It is impossible

34. pain

35. I am dependent upon

36. If I fail

37. I would like to be

38. I dream of the time

39. I try

40. When I was a child

Acknowledgment is hereby made to the pioneer works of Dr. A. F. Payne, Miss Amanda R. Rhode, Miss Gertrude Hildreth, Dr. Morris I. Stein, Dr. Julian B. Rotter, Mrs. Dorothy King and others for their contributions to the field of Sentence Completion Testing.

APPENDIX B

SCORING KEY, GILMORE SENTENCE COMPLETION TEST

(Temporary weights obtained on validating group in present study)

	<u>Temporary Weight</u>
ITEM 1. THE BEST THING THAT I	
<u>High Achiever</u>	
References to a particular phase of nursing: "Working on the wards," "giving an enema."	/12.
References to something specific: "have read was Gone with the Wind," "like on T.V., is the George Gobel Show."	/11.27
Reading in general	/ 5.69
Sewing	/ 5.27
Be an R.N.	/ 3.19
Friends, being with people	/ 3.19
Sleep	/ 3.19
References to religion, philosophy: "possess is salvation," "religion," "know is to love one another."	/ 2.4
<u>Average Achiever</u>	
References to athletic skills: "can do is swim."	
References to knitting, relaxing, eating	
References to nursing education: "ever did was to enter this school of nursing," "like is school."	0
<u>Low Achiever</u>	
References to helping others: "can do is to get my R.N. and serve humanity," "like is to do good for others."	- 5.28
Cooking: "can do is cook."	- 5.
Music: "like is music," "like to do is listen to music."	- 3.26
References to negative attitudes: "have done is not good enough," "have learned is to forget wrongs done to me."	- 3.26
References to week-ends, vacation, freedom, fun	- 3.19
References to being outdoors: "enjoy is the outdoors," "like is outdoor activities."	- 3.19
Parties, dancing	- 2.91

ITEM 2. FELLOWS

Temporary
WeightHigh Achiever

Intellectual observations: "went to my high school," "was a writer," "are good patients." / 8.7

Moralizing statements, positive or negative: "who are polite are well-liked," "who go to church regularly seldom misbehave," "who fool around all the time will be sorry." / 6.98

Descriptive of fact: "were rowing down the Charles," "in service are often lonely," "that live near us have families of their own." / 5.28

Are friends, companions (not "can be") / 5.27

References to helpfulness: "are good and give you anything they can," "help me to feel secure," "are helpful." / 3.26

Fun / 2.12

Average Achiever

Positive qualities related to personality or intellect that appeal to writer: "who act like gentlemen are nice to go out with," "who are quiet are the nicest," "who are talkative impress me the most."

Derogatory remarks: "are fools," "bore me."

References to scarcity: "seldom seen in our parlor." 0

Low Achiever

Factual with reference to sports: "play sports," "who play football must be in good condition." - 8.12

Positive physical characteristics or fashions that appeal to writer: "who dress nicely are appealing," "who are short are the most fun," "who are tall and strong appeal to me." - 5.53

Nice - 3.26

ITEM 3. TEACHERS WHO

High Achiever

Like, are interested in students / 8.98

References to strict, demanding teachers: "demand attention seem to teach the most," "are strict get the most back in exams," "are perfectionists are not well liked." / 8.68

References to age of teacher: "are older are crabby," "are young in heart and up to date, are the best," "about our own age are nice." / 5.27

References to other personality traits: "show no leadership are hard to respect," "act human are my favorites," "have a nice way." / 3.26

References to friendly, understanding teachers / 2.82

Temporary
Weight

Average Achiever

References to teachers who do explain, do not explain

References to teachers who yell at students

References to manner of speech: "talk softly are hard to hear," "dry talkers, bore me."

0

Low Achiever

Complaints about unfair teachers: "have pets are annoying," "take out a bad mood on student are unfair."

- 5.28

Praise for firm, understanding teachers

- 5.27

References to quizzes and examinations

- 3.19

References to sarcastic teachers, smiling teachers and those with a sense of humor

- 3.19

References to teachers who like to teach, or to knowledge of or preparation of subject

- 2.12

ITEM 4. AT HOME WE

High Achiever

References made to doing things together:

"work together," "get together in the evening."

/ 8.68

Work and relax together

/ 3.26

Watch T.V.

/ 3.19

Help each other, cooperate

/ 3.19

Eat

/ 3.19

No answer

/ 3.19

References to differences from school: "don't have to get up at 5 A.M."

/ 2.91

Have fun

/ 2.12

Average Achiever

Factual description: "like to play games,"

"pop corn in the fireplace," "pick apples."

Happy

0

Low Achiever

References to celebrating or not celebrating holidays.

- 5.69

Eating or not eating at a certain time.

- 5.53

Eat and sleep: "eat and sleep."

- 5.27

References to talking about experiences

- 3.26

Do things at a certain time: "go to bed at

11 P.M.," "go to church every Sunday," do, or don't do things in a certain way: "never eat

without a prayer first," "always plan and schedule for the coming week."

- 3.26

Relax

- 2.91

ITEM 5. I DO NOT LIKE TO BE

Temporary
WeightHigh Achiever

References to physical sensations: "cold," "tickled."	/ 5.69
References to forced activity: "pushed into things," "forced to do something."	/ 5.27
Watched.	/ 5.
Unprepared: "called on when I don't know the lesson," "handle work unless I know it well."	/ 3.26
Idle, inactive, lazy.	/ 3.26
Embarrassed before others, yelled at: "cor- rected in front of a group of people," "repri- manded in public," "screamed and hollered at."	/ 2.40

Average Achiever

Alone, late, bossed	0
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Low Achiever

References to mental states or traits displeas- ing to writer: "a pessimist," "angry," "selfish"	- 6.27
Hurried	- 5.27
No answer	- 5.
Away from home	- 3.19
Different, pointed out in a crowd, the last one or the first one	- 2.91

ITEM 6. THE MOST IMPORTANT THING TO ME

High Achiever

References to the happiness of others	/ 8.87
Being a good nurse	/ 8.43
References to personal happiness: "is to have a happy life."	/ 5.27
References to religion or philosophy: "my Lord, Jesus Christ," "my church," "my faith in God," "my salvation."	/ 3.19
Goal, purpose in life	/ 2.83
References to education: "my studies," "getting a good education."	/ 2.12

Average Achiever (no characteristic responses)Low Achiever

Finish training	- 5.69
Nursing: "is to be a nurse," "is nursing."	- 5.53
References to moral qualities in self: "to love everyone," "to become a better person."	- 5.27
Graduation: "is to graduate."	- 4.95
References to boy friend or fiancé	- 3.19

Temporary
Weight

ITEM 7. I THINK MY FUTURE

High Achiever

Optimistic, conditional: "has possibilities of being pretty good," "has a hopeful outlook," "will be happy if I succeed."	÷ 9.74
Contingent on self: "lies within myself," "depends on what I do now," "what I make it."	÷ 8.68
In Divine hands: "is known only to God," "will be as God wills."	÷ 5.53
Exciting, fun	÷ 3.19
No answer	÷ 3.19

Average Achiever

Conditionally optimistic with reference to nursing: "will be happy if I can be an R.N.," "will hold a lot if I keep my marks up."	0
---	---

Low Achiever

Bright, promising	- 8.97
References to being undecided, vague: "quite indefinite," "seems miles away."	- 8.13
Important	- 5.28
References to negative attitudes: "not in nursing," "will make me tired."	- 3.26
Secure: "assured by becoming a nurse," "well planned."	- 3.19

ITEM 8. FATHER

High Achiever

Positive comparison: "one of the best," "tops."	÷ 5.69
References to shared activities: "takes us fishing," "and I worked together," "and I, went Christmas shopping."	÷ 5.53
Factual: "has brown hair," "is named _____."	÷ 5.28
Associated with material goods: "bought a new car."	÷ 3.19
References to pleasing father: "will be proud of me if I am an R.N.," "was pleased with the letter from school."	÷ 2.91
Industrious, hard worker	÷ 2.91
References to interest shown by father	÷ 2.83
References to father as a teacher, respect father	÷ 2.83

Average Achiever

Understanding, friend, kind	
Wonderful, generous, sense of humor	
References to mother and father	0

Low Achiever

References to father as an authority figure	-11.27
Love father, very dear	- 8.87
Indirect references (may employ "his" or "hers"): "a father can be a big help," "her father called for her"	- 5.69

	Temporary Weight
Ambivalent references	- 3.26
Identification, look or act like father	- 3.19
Non-affect: "died in 1949."	- 3.19
Important	- 2.83
Efforts of father not always successful	- 2.83
References to a specific vocation: "was in the navy," "owns a plumbing shop," "is a lawyer," "wanted to be an M.D."	- 2.4

ITEM 9. QUIZZES AND EXAMINATIONS

High Achiever

Necessary, but annoying or difficult: "have their place but they are a pain."	≠ 12.
References to being a problem, annoyance: "bother me."	≠ 7.38
Helpful to student	≠ 6.
Tend to be, usually, or often are worrisome, frightening, trying	≠ 5.69
Of doubtful value: "seem unnecessary," "are not always a computation of ability."	≠ 5.53
Worrisome under specific conditions: "when I should know the material and don't."	≠ 5.
Do not bother me.	≠ 2.12

Average Achiever (no characteristic responses)Low Achiever

Factual: "are tests of knowledge," "are in abundance in nursing school," "are necessary for teaching."	- 12.23
Unqualified and direct references to being frightening, worrisome, upsetting: "make me nervous," "scare me."	- 8.71
Difficult, hard.	- 5.69
Unpleasant: "are not to my liking," "are things nobody looks forward to."	- 3.19
Frequency recommended.	- 5.
Important (unqualified)	- 2.82

ITEM 10. I AM DETERMINED

High Achiever

To be a good nurse.	≠ 20.15
References to doing "my best" in nursing: "do the best I can while I'm in training," "do my best in my studies."	≠ 5.53
References to nursing plus marriage, home, family: "to be a good nurse, wife and mother," "to fin- ish training and then get married."	≠ 3.19

	Temporary Weight
References to living a full life: "put enough into life to get a lot out of it," "give and receive many pleasures and satisfactions in life."	✓ 3.19
References to motherhood: "to have a family of 6 boys and 6 girls."	✓ 2.83
Graduate	✓ 2.12
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to passing: "to pass my subjects."	- 8.98
References to being successful: "win," "make something of myself," "reach my goal in life."	- 8.91
References to increasing learning skills: "get better marks," "read more than I do now."	- 8.87
References made to success in nursing: "to become a successful nurse," "study hard to be successful in nursing."	- 5.53
To be capped, a nurse, a registered, or professional nurse.	- 3.19

ITEM 11. • THE MOST IMPORTANT INFLUENCE IN MY LIFE

<u>High Achiever</u>	
References to environment: "has been my surroundings," "is not one thing, but my complete environment."	✓ 5.69
References to father: "was my father's friendship"	✓ 3.26
References to one activity: "working as a nursing aide," "reading."	✓ 3.19
References to "myself": "my determination to do well," "my ambition."	✓ 3.19
Unknown: "isn't any few things," "is not known to me."	✓ 3.19
References to family plus religion: "my family and my religion," "my parents and my Catholic school training."	✓ 2.12
<u>Average Achiever</u>	
References to parents, home, family.	0
References to mother: "is my mother."	0
<u>Low Achiever</u>	
Friends: "are my friends."	- 8.43
References to a specific friend: "is my roommate," "was my high school biology teacher," "my boy friend."	- 5.28
References to a religious person or persons: "the minister of my church," "Father _____," "religious people."	- 3.19
References to nursing, nursing school, career: "is my instructors," "is becoming a nurse," "is my career in nursing."	- 2.12

ITEM 12. I WANT TO KNOW

Temporary
WeightHigh Achiever

References to general information restricted in scope: "more than I do now," "exactly what I am supposed to do," "quite a few things."	÷ 5.69
References to general information about nursing: "all I can about nursing," "how to be a good nurse."	÷ 5.69
References to the social sciences, psychology or psychiatry: "why people have urges and inclinations," "how to treat people who are ill."	÷ 5.53
References to knowing more about life or the world.	÷ 5.53
References to knowing more about self: "the rights and wrongs of my personality."	÷ 3.19
References to becoming a nurse: "if I'll ever be a nurse," "if I'm capable of becoming a good nurse."	÷ 2.91
References to opinions of others about self: "what people think of me," "if Peter will write to me."	÷ 2.91

Average Achiever

References to school policies or regulations: "why we can't have heat on the third floor," "why we can't watch T.V. until 11 P.M. on Friday nights."	0
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Low Achiever

References to unlimited general information: "about everything in the world."	- 9.74
References showing concern with nursing achievement: "if I'll ever get through this course," "if I will ever get accustomed to my new floor."	- 8.68
Personal questions: "where I can find my notebook," "when we are going to move."	- 5.69
References containing criticism of actions or attitudes of others: "why some people are so two-faced," "why some teachers yell at us."	- 3.19
References inquiring about the future: "what lies ahead for me," "who my future husband will be," "if I'll be capped."	- 2.91
Religious references: "more about the Bible," "how to follow the commandments," "how to be a better person."	- 2.40

ITEM 13. MOTHER

High Achiever

Wonderful: "is a wonderful woman," "is wonderful"	÷ 12.05
Positive comparison: "is the best in the world."	÷ 8.87

	<u>Temporary Weight</u>
References to concern about mother: "I am worried about mother," "should see a doctor," "has had a serious operation."	+ 5.69
Domestic activities: "is the best cook around," "has raised five children."	+ 5.53
Love mother, very dear	+ 5.27
Factual: "is named _____," "shops in town," "was born in Michigan."	+ 3.26
References to a helpful, encouraging or interested mother	+ 2.82
<u>Average Achiever</u>	
Praise, admiration, respect for mother	
References to mother and father	0
<u>Low Achiever</u>	
Resemble mother	- 5.69
Miss mother: "I wish my mother were near here."	- 5.53
References to approval or authority of mother: "is pleased with my grades so far," "Did you call, mother?"	- 5.53
Shared activities: "and I enjoy being together," "and I work well together," "and I went to the movies."	- 5.53
Physical description: "looks years younger than she is," "has curly hair," "is very attractive."	- 3.26
Indirect references: "her mother is pretty."	- 2.40

ITEM 14. WHAT PLEASED ME MOST

<u>High Achiever</u>	
References to vacation or travel: "was my trip to Washington, D.C.," "was my vacation in Wisconsin"	+ 8.43
Specific references to family affairs: "was seeing my sisters on Christmas morning," "was the day I got a baby sister."	+ 5.69
References to liking nursing: "not being disappointed in nursing," "starting training and finding that I really enjoy it."	+ 3.26
Helping others: "was helping the patients," "was talking to patients and helping them."	+ 3.19
References to the cooperation or helpfulness of others: "at work was cooperation," "about the hospital was the way the patients wanted to help"	+ 3.19
<u>Average Achiever (no characteristic responses)</u>	
<u>Low Achiever</u>	
No answer	- 8.12
References to the happiness, pleasure or comfort of others: "was when my family went on a vacation last week," "was to see a patient comfortable."	- 5.53
References to boy friend or fiancé.	- 5.53

	Temporary Weight
References to material goods including pets:	
"my red formal," "the puppy my brother gave me."	- 4.95
Passing	- 3.19
References to pleasing others, making them proud:	
"was having them proud of me," "was her happiness when she learned of my decision."	- 2.91

ITEM 15. I THINK THAT LIFE IS

High Achiever

Qualified references to worth living, wonderful, or beautiful: "beautiful if lived correctly," "worth living when one has a goal."	/ 8.68
Factual: "the life of any student."	/ 4.10
Important, precious, dear	/ 3.26
References to being a preparation for death: "is a trial run before heaven," "a way to gain your place in heaven."	/ 3.26
References to being a challenge: "unknown situations to be conquered."	/ 3.19

Average Achiever

References to being hard or serious, but worth it.	0
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Low Achiever

References to being what you make it: "will give back what you put into it," "what you make it."	- 6.27
Interesting (not qualified)	- 5.53
Wonderful, fun, or exciting: unqualified	- 4.95
Wonderful, fun, or exciting used with the qualifying words: "can be," "should be," "sometimes," "often," "usually."	- 3.26
References to a sense of humor needed: "taken with a smile."	- 3.19
No answer.	- 2.91
References to being confusing, or complicated: "complex which makes it interesting," "confusing, but wonderful when you can figure it out," "complicated."	- 2.12

ITEM 16. WHEN I SUCCEED

High Achiever

References to helping or repaying others: "I want to help others do the same," "I want to repay those who have helped me," "help my brother thru college."	/ 12.05
Travel references: "want to go out west."	/ 8.68
References, in the present tense, to feeling good, happy: "it gives me a glow," "I'm very pleased with myself."	/ 5.28

	<u>Temporary Weight</u>
References to personal characteristics: "will probably get conceited," "hope I don't get high-browed."	/ 3.26
References to competition or authority: "I want to be on top," "shall discard many nurses who do sloppy work."	/ 3.19
References to working in a specific nursing field: "in becoming an R.N., I would like to be an O.R. nurse."	/ 3.19
References to making people happy or having friends.	/ 3.19
References to fulfilling expectations of others: "my parents will be proud," "it will please my family."	/ 3.19
No answer	/ 2.12
<u>Average Achiever</u>	
References to marriage, home, family: "I would like to be married," "I'll think about marriage and a family."	0
<u>Low Achiever</u>	
Future tense references to becoming happy when success comes in general nursing: "in nursing, I will be happy."	- 8.87
References to setting a new goal: "in one task, I look for another," "I still want to do more."	- 8.68
References to finishing school or completing part of a course: "in getting capped, I'll be relieved," "in giving my first needle, I'll feel that I have accomplished something."	- 5.69
References to a continuation of learning, further education: "I shall continue in search of more knowledge," "I will further my education and get a degree."	- 5.69
References to help from others: "it will be through the efforts of many," "I want to show my appreciation to those who helped."	- 5.69
References to security: "I hope to settle down," "want security."	- 3.19

ITEM 17. WHAT BOTHERS ME MOST

<u>High Achiever</u>	
Studying: "not studying enough," "the large number of subjects we study in a short time," "my aversion to studying."	/20.51
References to lack of time: "is so little time to do things I enjoy."	/ 8.68
General feelings of inferiority: "my feeling of dependency," "my self-consciousness."	/ 5.53

	Temporary Weight
Home and family: "being away from my home town," "about home is that so many of the high school kids drink."	+ 5.27
Religion: "the facts about life after death."	+ 3.26
Specific courses or specific scholastic activi- ties: "dissecting cats," "this course in English."	+ 3.19
Financial references.	+ 2.83
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to failure, or fear of failure: "is to get poor results from hard work," "is having my grades go down," "is flunking tests."	-17.93
Criticism of actions or attitudes of others: "is people who gripe," "is the way some people never finish anything."	- 9.41
Insecurity about the future: "is the thought of the future," "is worrying about being capped," "is if I'll be an R.N."	- 5.69
Unhappiness, pain, distress in others: "is one person being unkind to another," "is to see pain and not be able to help," "is to see others unhappy."	- 5.69
No answer or incomplete answer	- 4.95
Factual: "untidiness," "body odor."	- 3.26
Noise	- 3.19
World conditions	- 3.19

ITEM 18. I AM HAPPY WHEN

High Achiever

References to being with friends: "when I'm with people who have the same interests as I," "with the people I like best."	+ 8.87
Have succeeded, done something worthwhile, done well, accomplished something: "have something to show for my time," "feel that I have not just wasted my time."	+ 8.68
References to working on the wards: "working with patients."	+ 5.28
References to specialized nursing: "I'm working with infants."	+ 3.19
References to positive health: "I'm feeling well"	+ 3.19
<u>Average Achiever</u>	
References to being with a preferred person: "I'm with my boyfriend," "with Jim."	0
References to an activity that is enjoyed: "I'm dancing," "working to please myself."	

	<u>Temporary Weight</u>
<u>Low Achiever</u>	
References to having passed tests or completed assignments: "I get my homework done," "I pass"	-11.82
With people, with happy people, or when others are happy.	- 9.74
References to helping others	- 8.87
Most of the time, usually	- 3.19
References to being alone: "listening to the radio," "by myself in quietness."	- 3.19
References to being busy: "I'm doing something," "don't have time on my hands."	- 3.19
ITEM 19. I AM HELD BACK FROM DOING WHAT I WANT BECAUSE	
<u>High Achiever</u>	
References to lack of time: "I don't have enough time."	/10.60
References to consideration of others: "I have a family that needs me," "my obligations to others."	/ 5.69
References to conscience: "of my sense of right and wrong," "it is not the best thing to do."	/ 2.12
References to insufficient knowledge: "it takes time to learn," "my knowledge is limited."	/ 2.12
References to the necessity of continuing education: "I have to finish training first," "my education has not been completed."	/ 2.12
<u>Average Achiever</u>	
References to inferiority: "self-conscious," "lack drive," "lack ambition," "little initiative," "poor ability," "no will-power," "can't make up my mind."	
References to lack of funds: "don't have enough money."	0
<u>Low Achiever</u>	
Not held back	-12.23
References to parental domination: "my parents won't let me," "I didn't do as I was told."	- 7.78
References to not being good for writer: "it is not for my own good."	- 3.19
Too young: "I'm not old enough."	- 3.19
References to a physical handicap: "of a bad heart condition."	- 2.83
ITEM 20. ALL MY LIFE	
<u>High Achiever</u>	
References to having practiced or having enjoyed the humanities or the arts: "I have enjoyed reading good books," "I have painted pictures."	/ 8.46

	<u>Temporary Weight</u>
References to personal characteristics: "I have been taller than most people," "I have been talkative at the wrong time," "I have achieved good grades with little effort."	÷ 5.86
Travel references: "I have moved from city to city," "I have wanted to go to Europe."	÷ 5.53
References to pleasing others or making them proud: "I have wanted to make my parents proud," "I have wanted to be liked."	÷ 5.27
References to liking, or being interested in, people: "I have enjoyed being with people."	÷ 3.19
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to nursing: "I have wanted to be a nurse," "a good nurse," "a nurse or teacher."	-12.71
Help others	-10.20
References to nursing plus marriage, home, or family	- 3.19
References to general success: "I have wanted to prove I could achieve something worthwhile."	- 3.19

ITEM 21. WHEN THINGS ARE AGAINST ME

<u>High Achiever</u>	
Cry.	÷ 8.87
Qualified references to being sad, discouraged, worried: "I usually feel depressed," "am discouraged but try to keep going," "often feel blue," "sometimes get moody."	÷ 5.72
References to attempts to overcome them: "I try a little harder," "fight back."	÷ 5.72
No answer	÷ 3.19
<u>Average Achiever</u>	
Turn to God, prayer, religion, or philosophy	
Turn to parents, family or friends	0
<u>Low Achiever</u>	
Unqualified references to being sad, discouraged, worried: "I am miserable," "I can't stand it," "I'm in the dumps."	-11.57
References to attempts at optimism: "I think of all the good things that have happened," "try to think of something pleasant."	- 7.78
References to looking for fault within self: "I reason things out to see what I've done," "I wonder if I'm to blame."	- 3.19
Reference to avoidance: "I pretend they are not there."	- 2.40
References to anger or rebellion: "I get mad," "I sulk for a while," "I lose my temper."	- 2.40

Temporary
Weight

ITEM 22. WHAT KEEPS ME GOING

High Achiever

References to determination or will to succeed:

"is my drive to graduate," "is my determination to be an R.N."

/ 5.69

References to an unspecified goal: "is my goal,"

"is my desire to reach the end."

/ 5.69

References to faith in self or belief in self:

"is knowing I'm doing the best thing for me,"

"is me."

/ 5.53

Coffee or food.

/ 5.

Average Achiever (no characteristic responses)Low Achiever

References to wanting or hoping to graduate, finish training, or be a nurse, a good nurse, an R.N.-12.35

References to God, religion, or philosophy: "is my love for Christ," "is my faith in God," "is prayer."

- 8.98

Optimistic references or future reward: "is looking forward to tomorrow," "knowing that better things are to come."

- 5.66

References to being inexplicable or vague: "is beyond me," "is questionable," "is something I'd like to know."

- 5.28

Love

- 3.19

ITEM 23. TIME

High Achiever

References to specific situations: "in my spare time I like to knit," "there will be times when you feel you aren't accomplishing anything," "capping time is not far away."

/ 8.82

Non-affective references: "youth is the time of life," "now is the time for all good men to come to the aid of the party."

/ 5.69

References to time taken up by school: "a lot of time is spent on homework," "I don't have enough free time."

/ 5.69

Does not wait: "time and tide wait for no man."

/ 5.28

References to valuable: "Time is precious."

/ 4.95

References to time being annoying: "Time schedules tire me," "Consciousness of time sometimes ruins a good evening."

/ 3.19

Average Achiever

Time flies.

0

Temporary
Weight

Low Achiever

References to other descriptions: "Only time will tell," "time fixes worries."	- 5.69
References to the relativity of time: "Time goes fast when you are having fun," "goes quickly when I like what I'm doing."	- 5.53
Authoritarian statements: "Now is the time to study, not when it is too late."	- 3.19

ITEM 24. IF I COULD ONLY

High Achiever

Descriptions of aspirations: "do procedures skillfully," "have a date for the prom so I could wear my new dress."	÷ 8.86
References to having more ability: "be smart," "get good marks without studying so hard," "remember everything I'm supposed to."	÷ 5.66
Athletic aspirations: "skate better," "go swimming."	÷ 5.27
Go home: "go home oftener," "go home for vacation."	÷ 3.26

Average Achiever

Self-appraisal or self-criticism: "get over my self-consciousness," "stay in better moods."	0
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Low Achiever

References to helping others: "make the world a better place," "take pain from my sick father."	- 8.68
References to passing or improving grades: "get better marks," "pass all my examinations," "get my grades up."	- 8.68
Have more time, do more things	- 4.95
Be or do what I wish	- 3.19
References to boy friend: "see more of Bob," "be loved and advised by a certain person."	- 3.19
References to working faster: "do things quickly."	- 2.91

ITEM 25. TO ME PEOPLE

High Achiever

Interesting, qualified: "changeable and interesting," "for the most part, interesting."	÷ 8.12
References to being hard to understand: "strange and funny," "complex," "hard to figure out."	÷ 5.69
Wonderful, or wonderful, qualified: "are wonderful," "are wonderful when you get to know them."	÷ 3.19
References to qualified praise: "are usually good and kind," "are nice if you are nice to them."	÷ 2.12

Average Achiever (no characteristic responses)

Temporary
Weight

Low Achiever

Criticisms of people: "try to run my life,"
"are critical and pessimistic," "are poor
individuals." -11.57
No answer - 5.53
Nice - 3.19
References to being wonderful plus: "wonderful
and pleasant to work with," "wonderful and the
spice of life." - 3.19

ITEM 26. WHEN I THINK OF MY FUTURE

High Achiever

References to wondering: "I wonder what will hap-
pen," "I have a lot of things I'd like to know." /19.
A good nurse: "I think of being a good nurse." / 5.
References to qualified optimism: "I don't know
what to expect but it's bound to be interesting,"
"am happy and pray that everything turns out all
right." / 3.26
Reflect on the past: "think of the past." / 3.19
No answer. / 2.12
References to nursing plus marriage, home or
family: "I think of marriage after a few years
of nursing," "I think of nursing and raising a
family." / 2.12

Average Achiever

References to being eager, excited, want time to
pass quickly: "I get thrilled," "I can hardly
wait," "I wish it were here."
References to marriage, home, or family: "I think
of marriage," "I think of a home with Bill, and
several children." 0

Low Achiever

References to pleasant feelings: "it pleases me,"
"I glow inside," "I am happy," "I feel content
and secure." -11.82
References to concern with preparation: "I want
to work harder," "I become more ambitious," "it
reminds me I must do better." -11.27
References to hope: "I hope to succeed," "hope
it will be good." - 5.69
References to worry or fear: "I am discouraged,"
"I get ill," "I am uncertain and anxious." - 5.53
Hope and pray. - 3.26
References to hoping it will be in nursing: "I hope
I will be an R.N.," "I hope I become a nurse." - 3.26
Vague, indefinite, hazy: "seems far away." - 2.4

Temporary
Weight

ITEM 27. ONE'S PARENTS

High Achiever

References to influence: "are a determining factor in one's life," "play an important part in the development of their children." +17.62

References to being friends, understanding or wonderful: "are considerate of our feelings," "are our best friends." +11.82

References to being helpful in time of stress: "Are an enormous help when one is low," "are wonderful about helping when you are discouraged." + 5.69

References to being loved or being very dear to children: "are precious to their children." + 3.26

Factual statements: "are hereditary." + 2.91

Average Achiever (no characteristic responses)

Low Achiever

References to adult dependency of child: "are the closest friends in the world," "should be the most important thing in life," "make a person what he is," "mean everything to one." -25.13

Unqualified references to being important or necessary: "are essential," "mean a lot to a child." - 8.87

Qualified references to being helpful: "should help a student," "try to help." - 5.69

Ambivalent references: "are wonderful, but discouraging at times," "guide one but should not be bossy." - 5.69

Criticism: "do not always know what is best," "generally fight a lot." - 5.69

Qualified references to guide, teach or advise: "should guide one in early life," "should encourage one." - 3.26

ITEM 28. THE MAIN DRIVING FORCE IN MY LIFE

High Achiever

References to an inner force, ambition, or determination: "is my will power," "is myself," "is something inside me." +17.58

References to motherhood, or nursing and motherhood: "is to be a successful nurse, wife and mother," "is to get married and have a family." + 5.53

References to happiness or love: "is my desire for love." + 3.26

The future: "my future hopes," "my thoughts of the future." + 3.19

	Temporary Weight
References to learning or education: "my thirst for knowledge."	÷ 2.83
References to family plus religion: "my parents and my religion."	÷ 2.83
<u>Average Achiever</u>	
References to God, faith, or religion.	0
<u>Low Achiever</u>	
References to nursing: "is to become a nurse," "be a good nurse," "an R.N."	-14.72
References to general success: "wanting to make good."	- 8.48
No answer	- 6.46
References to marriage, or nursing plus marriage: "is to marry," "is my longing to be a nurse and wife."	- 3.26
Better myself.	- 3.19
References to security: "is to do things right," "is to get ahead and be like others," "is to feel secure."	- 3.19

ITEM 29. I THINK THAT GIRLS

<u>High Achiever</u>	
Factual statements: "like new clothes and hair-do's," "are like other humans with good and bad points."	÷ 5.86
Should be feminine, or ladylike.	÷ 5.69
References to advice about mental attitudes: "are more respected when they respect themselves," "should be more interested in the nursing profession," "who want to be nurses, should be mature."	÷ 5.69
Fun, wonderful	÷ 5.69
References to education, career or goal to be sought or not before marriage takes place: "should have vocational training before marriage," "should not go to college because they just get married anyway."	÷ 5.53
References to being friends, or companions, understanding	÷ 4.95
References to being selfish, silly, fickle, or cruel: "are giddy and childish," "flirtatious"	÷ 3.26
Factual with reference to boys: "grow up faster than boys."	÷ 3.19
Nice	÷ 2.91
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
No answer	- 8.98
References to being careful in action: "should be careful who they go out with," "should not smoke in public just to impress boys," "should choose friends carefully."	- 5.69

	Temporary Weight
Catty, gossip.	- 5.27
References to being hard to understand: "are complex individuals," "are peculiar at times."	- 5.27
References to other criticisms of girls: "overdo things," "use each other."	- 3.26
References to praise for girls in comparison to boys: "are better than boys," "more mature than boys at any age."	- 3.26
Important.	- 2.83

ITEM 30. MY FAMILY

High Achiever

Wonderful	/12.35
Separated in interests or geographically	/ 5.69
No answer	/ 5.53
References to pleasing or fulfilling expectations of family: "looking forward to my achievements in school," "proud that I am in nursing."	/ 4.95
Religious references: "is devoted to God," "is very religious."	/ 3.19
References to being important, or dear: "their happiness is important to me," "means a lot to me," "is dear to me."	/ 2.12

Average Achiever (no characteristic responses)Low Achiever

Happy: "is happy," "is very happy one."	-11.12
References to dependency of adult child: "means the world to me," "is indispensable to me," "is the most important thing in my life."	- 6.27
Ambivalent references: "is close, sometimes too close," "is wonderful usually, but we have our differences."	- 5.69
References to being good to writer: "has done everything to make me happy," "is very good to me."	- 5.53
References to positive comparison: "is the best," "is unsurpassed."	- 5.28
Average.	- 5.
References to sharing activities: "has always spent Christmas at home," "loves to do things together."	- 3.26
References to helpfulness or emotional support: "is behind me in everything I do," "has helped me with many problems."	- 2.82

ITEM 31. WHEN I AM 65

High Achiever

References to family or grandchildren: "will be a grandmother," "hope to have many grandchildren."	/17.93
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	Temporary Weight
Useful	/ 3.26
References to looking forward to living longer: "hope to be in good health so I can live another 65 years," "I'll just be starting to live!"	/ 3.19
References to retiring and doing some specific work: "would like to retire and do art work," "will retire and write a novel."	/ 3.19
Dead	/ 3.19
References to hopes for success, having accom- plished or done something: "I hope I will have done something for mankind," "I hope I shall have led a full and interesting life," "I hope to have succeeded in life."	/ 2.82
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to reflected superiority from family or grandchildren: "I want a family to be proud of," "I hope to have a fine family raised in high standards."	-10.60
References to collecting a pension: "I hope to collect social security," "I will be on old age."	-5.27
References to general activity: "I want to re- tire but give help when necessary," "do things that I do as a pastime now."	- 3.19
Alive	- 3.19
Good health	- 2.12

ITEM 32. I GET TIRED

<u>High Achiever</u>	
Qualified references to studying or reading: "when I stay up too long to study," "when I study the same subject too long," "when I read for a long time."	/12.23
Complaints about routine, monotony: "doing the same things over and over again," "of daily routine."	/ 8.87
Sitting.	/ 5.69
References to listening to specific things: "listening to people who bore me," "to things that are beyond me," "to monotonous lectures."	/ 5.53
Classes: "of eight hours of classes," "of a merry-go-round of classes."	/ 3.19
References to getting tired seldom, "but not easily."	/ 3.19
Sitting in class.	/ 2.91
<u>Average Achiever</u>	
References to idleness or boredom.	0

	<u>Temporary Weight</u>
<u>Low Achiever</u>	
General references to mental activity: "when I read," "studying," "think."	-11.82
Easily or often.	-11.42
References to forced activity: "when I have to do something I don't want to do," "of having so many things to do."	- 8.87
References to physical reasons: "from running," "when I'm on my feet for a long time," "when I'm hungry."	- 5.53
References to actions or attitudes of others: "of people who complain," "of being told what to do."	- 4.95
References to depression: "when I'm depressed," "when I'm unhappy," "discouraged."	- 3.19

ITEM 33. IT IS IMPOSSIBLE

<u>High Achiever</u>	
References to obvious facts: "draw a square circle," "cure everyone who is sick."	+10.95
References to the impossibility of being perfect: "to do everything right all the time," "to always be right."	+ 8.43
References to having enough time: "to do everything in the short time we have," "to do all that should be done in one day."	+ 8.43
Learn, know or remember everything	+ 7.95
Nothing is impossible, or very few things	+ 2.91
<u>Average Achiever (no characteristic responses)</u>	

<u>Low Achiever</u>	
References to achieving the impossible: "to do the impossible," "to have everything."	- 5.53
References to passing, or getting good grades: "to pass all my tests," "to get an A in sciences."	- 5.
References to self-appraisal, or personal characteristics: "for me to be serious," "for me to show appreciation," "for me to dress sloppily."	- 3.19
References to refusing help: "to say no when someone needs help."	- 3.19

ITEM 34. PAIN

<u>High Achiever</u>	
References to not knowing, or not understanding about pain: "I have never had any real pain," "I do not really understand much about pain."	+ 8.12
References to the realistic or inevitable aspects of pain: "I associate pain with sickness," "pain hurts."	+ 3.19

	Temporary Weight
References to judgments that pain should be endured: "is something to be borne with a grin."	✓ 3.19
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to "my pain": "I have a pain in my leg," "I can stand very little pain because I've seldom experienced it."	- 8.87
References to other people's pain: "We gave him codeine to relieve his pain," "when my mother had an operation, the pain was tremendous."	- 3.19
References to a relationship between pain and mental attitude: "A person in pain doesn't act as he normally would," "some people think pain is imaginary."	- 2.12
ITEM 35. I AM DEPENDENT UPON	
<u>High Achiever</u>	
References to many people: "no one, yet everyone," "many people for many things."	✓ 8.68
References to parents, or parents and others for financial support: "my family for support and encouragement," "my parents to a great extent."	✓ 2.12
No answer.	✓ 2.12
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to self and others: "myself, family and friends," "my own resources more than my parents."	- 5.69
Nobody, or no one.	- 3.26
References to being dependent upon someone too much: "my family and must grow out of it," "my mother and father too much."	- 3.19
References to school, instructors or education: "this school of nursing," "my teachers for my education."	- 2.82
Myself	- 2.40
ITEM 36. IF I FAIL	
<u>High Achiever</u>	
References to a specific alternative: "I will join the air-force," "I will work in an office."	✓ 8.12
References to factual acceptance: "I've chosen the wrong profession," "I fail."	✓ 7.78
Will not fail.	✓ 3.19
References to indecision: "don't know what I'd do."	✓ 3.19
References to feeling shame: "would be ashamed."	✓ 3.19
No answer	✓ 3.19

	<u>Temporary Weight</u>
References to feeling personal disappointment but will do something about it: "I will be discouraged but will try again," "I would feel terrible, but I would try to do something else."	/ 2.91
<u>Average Achiever</u>	
General references to personal disappointment: "I'd be heart-broken," "I won't know where to turn."	0
<u>Low Achiever</u>	
References to being a disappointment to others: "I would be a disgrace to my family," "I could not show my face in front of my friends."	-17.16
Will try again, keep on trying, start over.	-15.16
References to personal disappointment in relationship to nursing or nursing school: "nursing, I will be unhappy," "my final exams, I will feel awful," "to get capped, I'll feel terrible."	- 5.28
References to disappointing God: "I will have failed my Savior," "He will be grieved."	- 3.26
Qualified references to not failing: "(which I won't), I'll probably try again at another hospital."	- 3.19

ITEM 37. I WOULD LIKE TO BE

<u>High Achiever</u>	
A nurse and mother	/14.95
A good nurse	/ 9.41
Registered, professional or graduate nurse.	/ 5.53
References to personal characteristics: "a little more confident," "understandable and easy to get along with," "a better person."	/ 5.27
References to physical qualities: "a little taller."	/ 2.83
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
A nurse	-12.17
No answer	-12.15
References to being bright, a good student.	- 5.53
Married	- 3.26
References to being in another place: "outdoors," "on the wards instead of here," "in a warmer climate."	- 3.26
References to pleasing others, or being like another person: "like my mother," "well-liked," "admired by others."	- 3.19
References to being a married nurse: "a good nurse and wife," "a registered nurse and a good wife."	- 2.83
References to material possessions: "the owner of a Jaguar."	- 2.83

ITEM 38. I DREAM OF THE TIME

Temporary
WeightHigh Achiever

No answer	/ 5.69
References to travel: "go back to Canada for a visit."	/ 5.69
References to repaying those who have helped: "when I am earning my own money and can repay my parents," "when I will be able to help my parents, and my aunt and uncle, who have helped me so much."	/ 5.53
References to economic self-support: "earning my own pay," "be able to support myself."	/ 3.26
References to complaints about nursing school: "when I can work in the hospital without some supervisor yelling at me," "when I won't have nursing school regulations."	/ 3.19
References to descriptions of a professional nurse: "when I'll wear white uniforms," "when I'll have a black band on my cap."	/ 3.19
Retire	/ 3.19
References to religious achievements: "when I can go into the mission fold."	/ 3.19
References to competency in nursing: "I can really give complete nursing care," "when I am a good nurse."	/ 2.91

Average Achiever (no characteristic responses)Low Achiever

References to being an R.N., or professional nurse: "when I will graduate and become an R.N.," "when I will be a registered professional nurse."	-12.23
References to capping: "when I'll be capped," "when I can wear that little white cap."	- 5.66
References to the past: "when our house burned," "when my grandmother used to sing to me."	- 5.53
References to R.N. or graduation, plus marriage: "when I will graduate and get married," "when I'll have an R.N. after my name and a Mrs. before."	- 5.27
References to life after death: "when my Lord will call me home," "when I'll be in heaven."	- 3.26
References to release from study: "when I have no homework."	- 3.26
References to further study: "when I have my R.N. and B.S."	- 3.19
References to world betterment: "when war will be over forever."	- 2.91

Temporary
Weight

ITEM 39. I TRY

High Achiever

References to getting good marks, or doing well in school: "to do a good job in both theory and practice," "to keep my marks right up on top." / 8.12

Understand people
References to developing, or avoiding, specific characteristics: "to be reasonable," "not to be ungrateful." / 5.69

References to fulfilling the expectations of others, or doing things the right way: "to follow directions given by my superiors," "to do things the right way and be a credit to my school" / 5.27

References to doing or not doing something specific: "read a newspaper every day," "get eight hours of sleep each night." / 3.26

References to general activities that are enjoyed: "at the things I like," "to do what I enjoy doing." / 3.19

References to relationships with others in the categories of "fair," "agreeable," "honest," and "understanding": "to be pleasant at all times," "to get along with everyone." / 2.12

Average Achiever

Do my best.

0

Low Achiever

References to helping others: "to be a help to my mother," "make things easier for people I love." - 5.53

References to being friendly, or liking people: "to be friends with everyone," "to like everybody." - 5.53

Please others: "to please patients," "to please people." - 3.19

References to difficulties with studying
References to acting in a certain way: "to act very carefree," "to be a social butterfly." - 3.19

References to trying part of the time: "to do my best while on the wards," "but not to my fullest extent, because I love to knit and sometimes let my studies go." - 2.91

References to general improvement: "to do better each day." - 2.83

ITEM 40. WHEN I WAS A CHILD

High Achiever

References to childhood games and activities:

	Temporary Weight
"I played," "I liked to climb trees," "we always had snowball fights."	+12.02
Positive or negative references to nursing:	
"I didn't think that someday I would be in nursing school," "I wanted to be a nurse."	+ 8.87
Variations on the Biblical quotation from the first book of Corinthians, 13:11: "When I was a child, I spake as a child, I understood as a child, I thought as a child: but when I became a man, I put away childish things."	+ 5.69
Tomboy.	+ 5.69
References to psychological characteristics:	
"I was very shy," "had a will of my own."	+ 2.82
<u>Average Achiever</u> (no characteristic responses)	
<u>Low Achiever</u>	
References to fun, or to being happy or carefree:	
"I had a lot of fun," "I was happy and gay."	-18.94
References to positive parental relationships:	
"my parents loved and wanted me," "my parents gave me nearly anything I wanted."	- 5.28
References to fighting, mischievousness, or being spoiled, a brat, or a nuisance: "I irritated people," "I used to throw rocks at the kids at school."	- 4.95
References to comparisons of attitudes in self:	
"I was happy, but now there are times when things are difficult," "I did not know all that I know now."	- 4.95
References to liking, or taking care of, animals:	
"I liked animals," "I loved to nurse sick animals."	- 3.19

APPENDIX C

Validating Group Scores and First Semester Averages

No.	Code	Av.	Score	No.	Code	Av.	Score	No.	Code	Av.	Score
1.	22A	93	/3.9	31.	227E	87	/3.	61.	148G	84	-1.8
2.	126F	93	/4.3	32.	263C	87	/1.4	62.	178E	84	/1.1
3.	63D	92	/2.9	33.	38A	86	/4.4	63.	185E	84	-2.3
4.	235E	92	/2.9	34.	60D	86	/2.	64.	189E	84	/1.5
5.	247E	92	/2.3	35.	77D	86	-1.2	65.	195E	84	-1.5
6.	269C	92	/5.2	36.	102F	86	/ .03	66.	206E	84	/ .4
7.	324B	92	/5.1	37.	152G	86	/ .4	67.	221E	84	-2.6
8.	79D	91	/4.	38.	169E	86	/1.4	68.	234E	84	/ .2
9.	137B	91	/3.2	39.	191E	86	/ .9	69.	255C	84	/1.
10.	267C	91	/2.9	40.	224E	86	/1.6	70.	262C	84	/ .2
11.	64D	90	/4.	41.	248E	86	- .8	71.	282C	84	/1.3
12.	153G	90	/4.1	42.	254C	86	/1.	72.	321B	84	/ .4
13.	277C	90	/3.7	43.	305B	86	/2.4	73.	343B	84	/2.9
14.	294C	90	/4.4	44.	9A	85	/2.4	74.	25A	83	/ .03
15.	338B	90	/4.7	45.	30A	85	/ .5	75.	31A	83	/ .4
16.	34A	89	/1.6	46.	40A	85	/ .9	76.	45A	83	/ .2
17.	145G	89	/4.1	47.	68D	85	/ .6	77.	71D	83	-1.
18.	242E	89	/4.5	48.	83D	85	- .3	78.	114F	83	/1.7
19.	284C	89	/ .8	49.	124F	85	- .3	79.	128F	83	/1.
20.	295C	89	/ .6	50.	133G	85	- .3	80.	164E	83	-4.8
21.	101F	88	/ .2	51.	151G	85	/ .06	81.	181E	83	- .3
22.	120F	88	/ .5	52.	176E	85	- .04	82.	186E	83	- .05
23.	223E	88	/4.3	53.	192E	85	/1.6	83.	200E	83	-1.5
24.	52A	87	/3.5	54.	220E	85	-3.	84.	216E	83	- .6
25.	112F	87	/ .8	55.	241E	85	/2.7	85.	225E	83	-2.
26.	135G	87	/1.1	56.	266C	85	/1.	86.	265C	83	/1.4
27.	165E	87	/3.5	57.	291C	85	/3.4	87.	314B	83	/2.5
28.	194E	87	/2.5	58.	19A	84	/ .4	88.	320B	83	-1.
29.	202E	87	/2.3	59.	65D	84	-1.	89.	332B	83	/ .5
30.	212E	87	/1.	60.	111F	84	-1.4	90.	11A	82	- .4

<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>
91.	13A	82	/ .3
92.	21A	82	/ 1.1
93.	27A	82	/ 1.6
94.	37A	82	/ .3
95.	53A	82	/ 1.3
96.	66D	82	-3.1
97.	73D	82	- .5
98.	168E	82	/ 1.9
99.	197E	82	/ 3.5
100.	211E	82	/ .3
101.	215E	82	/ .6
102.	278C	82	/ .2
103.	290C	82	/ .5
104.	311B	82	/ 2.
105.	328B	82	/ 1.
106.	2A	81	/ 1.3
107.	16A	81	- .9
108.	43A	81	/ .5
109.	75D	81	- .1
110.	85D	81	-4.4
111.	110F	81	- .6
112.	130F	81	- .4
113.	141G	81	-1.3
114.	144G	81	- .04
115.	174E	81	/ .8
116.	243E	81	- .4
117.	288C	81	/ 2.
118.	307B	81	/ .1
119.	310B	81	/ .2
120.	330B	81	-3.2
121.	32A	80	/ .09
122.	80D	80	-3.5
123.	140G	80	-1.2
124.	146G	80	-4.
125.	170E	80	-3.7

<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>
126.	231E	80	/ .6
127.	271C	80	/ .4
128.	274C	80	- .9
129.	331B	80	/ 2.8
130.	4A	79	-3.8
131.	33A	79	-2.8
132.	293C	79	-3.
133.	317B	79	/ 3.5
134.	344B	79	- .4
135.	190E	78	-3.5
136.	258C	78	-2.3
137.	313B	78	-1.4
138.	281C	77	-3.
139.	318B	76	-1.
140.	122F	75	-4.9
141.	6A	W	-5.2
142.	17A	W	-5.2
143.	48A	W	-3.5
144.	103F	W	-3.6
145.	125F	W	-5.1
146.	139G	W	-1.5
147.	172E	W	-5.1
148.	203E	W	-5.2
149.	207E	W	-4.4
150.	244E	W	-3.6
151.	336B	W	-4.9

Cross-Validating Group Scores and
First Semester Averages

<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>	<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>	<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>
1.	39A	93	2.5	31.	232E	87	1.7	61.	173E	84	1.4
2.	279C	93	2.6	32.	1A	86	1.6	62.	180E	84	1.5
3.	204E	92	3.9	33.	61D	86	1.1	63.	188E	84	1.6
4.	236E	92	2.7	34.	60D	86	1.6	64.	198E	84	1.4
5.	257C	92	2.6	35.	86D	86	2.9	65.	201E	84	1.1
6.	337B	92	4.7	36.	134G	86	1.3	66.	218E	84	1.5
7.	67D	91	2.6	37.	150G	86	1.5	67.	229E	84	1.9
8.	131F	91	3.1	38.	187E	86	1.8	68.	239E	84	1.1
9.	246E	91	1.7	39.	222E	86	1.4	69.	259C	84	2.1
10.	285C	91	1.1	40.	233E	86	1.4	70.	272C	84	1.1
11.	72D	90	2.4	41.	260C	86	2.9	71.	292C	84	2.2
12.	182E	90	1.5	42.	308B	86	2.4	72.	326B	84	1.7
13.	275C	90	1.4	43.	341B	86	3.2	73.	20A	83	1.8
14.	335B	90	2.3	44.	24A	85	1.1	74.	29A	83	2.1
15.	14A	89	1.2	45.	35A	85	1.7	75.	46A	83	1.1
16.	115F	89	1.1	46.	42A	85	1.6	76.	81D	83	1.4
17.	208E	89	2.6	47.	74D	85	1.8	77.	82D	83	1.9
18.	261C	89	2.1	48.	117F	85	1.1	78.	123F	83	1.9
19.	287C	89	3.1	49.	132F	85	1.1	79.	156G	83	1.3
20.	50A	88	2.7	50.	132G	85	1.5	80.	167E	83	1.5
21.	107F	88	1.1	51.	162E	85	2.2	81.	175E	83	1.5
22.	163E	88	1.2	52.	183E	85	3.4	82.	217E	83	2.2
23.	264C	88	3.5	53.	210E	85	1.9	83.	230E	83	1.1
24.	62D	87	1.8	54.	228E	85	1.3	84.	240E	83	4.3
25.	131G	87	1.3	55.	253C	85	2.1	85.	273C	83	1.3
26.	161E	87	1.1	56.	268C	85	1.5	86.	319B	83	1.2
27.	177E	87	1.9	57.	339B	85	1.1	87.	322B	83	1.5
28.	199E	87	1.2	58.	70D	84	2.4	88.	329B	83	1.6
29.	209E	87	1.3	59.	119F	84	1.6	89.	342B	83	1.2
30.	226E	87	1.1	60.	138G	84	1.6	90.	12A	82	1.8

<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>
91.	18A	82	/ 1.4
92.	23A	82	- .5
93.	28A	82	/ .3
94.	47A	82	/ .8
95.	51A	82	-1.2
96.	87D	82	-1.5
97.	136G	82	/ .5
98.	179E	82	-2.
99.	193E	82	-1.3
100.	213E	82	-1.4
101.	219E	82	/ .01
102.	283C	82	-3.
103.	304B	82	/ .8
104.	316B	82	/ 1.9
105.	10A	81	/ .8
106.	36A	81	- .4
107.	49A	81	/ .3
108.	76D	81	- .5
109.	78D	81	-1.
110.	105F	81	-1.6
111.	113F	81	- .1
112.	142G	81	/ .4
113.	154G	81	/ .3
114.	166E	81	/ 1.7
115.	184E	81	-2.1
116.	276C	81	-1.
117.	306B	81	/ .07
118.	315B	81	/ .1
119.	325B	81	- .4
120.	340B	81	/ 1.8
121.	8A	80	/ .05
122.	118F	80	-3.9
123.	147G	80	/ 1.4
124.	196E	80	-1.3
125.	238E	80	/ 1.8

<u>No.</u>	<u>Code</u>	<u>Av.</u>	<u>Score</u>
126.	249E	80	/ .2
127.	270C	80	/ .5
128.	280C	80	/ 1.8
129.	333B	80	/ 1.7
130.	7A	79	/ 1.6
131.	171E	79	-1.8
132.	256C	79	-2.8
133.	327B	79	/ .6
134.	5A	78	/ 1.
135.	289C	78	- .5
136.	309B	78	-2.3
137.	312B	78	-1.8
138.	109F	77	-1.6
139.	334B	75	-1.2
140.	3A	W	-4.8
141.	41A	W	-2.
142.	44A	W	-3.
143.	84D	W	-1.8
144.	129F	W	-2.1
145.	143G	W	- .2
146.	155G	W	-2.1
147.	205E	W	- .3
148.	214E	W	-2.3
149.	234E	W	/ .1
150.	245E	W	- .6
151.	286C	W	- .6