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ABSTRACT

This paper describes the first part of a study concerned with student success in a practical nursing course offered in the British Columbia Vocational School in Nelson. The study resulted from a concern about the increased number of students who did not complete the training during the year 1969. The procedure involved transfering student data from the school records to computer cards and preparing and analyzing both bivariate tables and a correlation table. These data when reviewed showed that over the five year period there was a definite change in the clientele. The following characteristics varied significantly; age, marital status, sponsorship, number of children, and final grade. It was found that the education and weight of the students were variables which seemed to be related to student success. Significant correlations were found between the class number, age and final grade; between age, education, weight, final mark, and average child age; between height and weight; and finally between average child age and training before termination. Several weaknesses in research methodology were described. Recommendations for a study of student attitudes and the criteria used by the screening committee in selecting canidates were made. (PT)

A REVIEW OF THE CHARACTERISTICS OF PRACTICAL NURSING STUDENTS

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June 1970

ABSTRACT

This study was concerned with 238 women who had enrolled in a Practical Nursing Course at the B.C. Vocational School-Nelson over a five year period commencing in 1964. The procedure involved transferring student data from the school records to computer cards and preparing and analyzing both bivariate tables and a correlation table. These data when reviewed showed that over the five year period there was a definite change in the clientele. The students were older, more often married, reported more children, were more often sponsored by Canada Manpower and scored higher on the final examination. Four-fifths of the students enrolling in the course were successful and completed training. The other forty-seven students were either terminated by the school or quit. There were only two variables which seemed to be related to success and they were education and weight. That the better educated were more successful was not unexpected but that the heavier were was quite unexpected. Analysis of this second variable led to tne hypothesis that the heavier students who stayed on were less mobile occupationally and maritally. The best candidates appeared to be the better educated both young and old and the heavier younger students. The poorer risks were the less educated and the younger lighter students. Three recommendations were made. The first suggested a study of the attitudes of the Practical Nursing student and the second suggested a study into the criteria used by the screening committee in selecting candidates for training. The third recommendation dealt with revamping and standardizing the record keeping procedures for all the Practical Nursing courses.

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CHAPTER ONE

THE STUDY

This paper describes the first part of a study concerned with student success in the Practical Nursing Course offered in the British Columbia Vocational School in Nelson. The study resulted from a concern about the increased number of students who did not complete training during the year 1969. In one class, one-third of the initial intake did not complete training. This large proportion represents a waste of talent, time and money on the part of the students, the school, and the supporting agencies. Therefore, the general objective of the study was to provide information which could be used to lower the drop-out rate. The first specific goals were to describe several characteristics of the student in Practical Nursing, (P.N.), to investigate some of the attitudes that the students possessed about nursing and themselves, to see how these attitudes varied over the training period, and to improve the selection procedure by judging prospective students on only relevant characteristics.

PROCEDURE

The study has been divided into three sections. The first was a review of the characteristics of those students who had enrolled in P.N. between January 6, 1964 and January 6, 1969. The second section is a study of aptitudes and attitudes of students enrolled in the course between January 1970 and September 1970. The final part of the study will be to use a classification technique to see if certain of these factors can be used to better predict success in candidates for P.N. training.

Review of Data

The initial step in the first section of the study was to go through the class records and list all the information that was consistently reported for each class. From this list the following data were selected and recorded for later coding: age, education, height, weight, final mark, marital status, number of children, average age of these children, type of sponsoring agency if any, reason for termination, and length of training before termination. These data were coded and transferred to optical scanning sheets in the school office, and then sent to the Department of Adult Education at U.B.C. An I.B.M. card deck was punched at the University Computing Center and bivariate and correlation tables were produced comparing relevant characteristics.

These tables were produced in three major groups. The first gathered the data from Classes II to XVI into five groups each with

three classes or one year's intake of students. Class I was not included as their data were incomplete. The groups were then compared against the previously mentioned characteristics to see if any changes had occurred over this period of time.

The second set of tables compared student success against the same characteristics. Students were divided into three groups: those who completed the course, those who were terminated by the school, and those who quit training. In the five years under study there was only one student who was not passed on the final examination after completing the rest of the training. Her case is under review at the present time and she was classified as a successful student.

The third set of tables compared related characteristics for successful and unsuccessful students. In this case students who were terminated or quit were classified as unsuccessful students.

Aptitudes and Attitudes

In the second phase of the study three class intakes will be tested on their aptitudes and attitudes. The aptitude quizzes involved are the Differential Aptitude Test Battery. (D.A.T.) This series of tests cover eight areas of aptitudes: Verbal Reasoning, Numerical Ability, Abstract Reasoning, Clerical Speed and Accuracy, Mechanical Reasoning, Spacial Relations, Spelling and Grammar. This battery is administered in the second week of attendance. In the first week of attendance a twenty item semantic differential attitude inventory is administered. The concepts involved in this

semantic differential are related to nursing, motherhood and the student's view of herself. The concepts are rated on twelve adjective pairs, four each from the evaluative, potency, and activity dimensions. The semantic differential is to be administered twice more in the training period, once at the end of the four month in-school training period and finally at the end of the course. The results of these quizzes are to be analyzed with respect to student success and an instructor rating of potential as a P.N.

Classification

The final phase of the study is to gather the data from the first two parts of the study and using classification, cluster, or distance analysis procedures attempt to isolate variables which will increase predictibility of student success.

STATISTICAL TECHNIQUES

This section is included for readers whose knowledge of statistical terms and tests is very limited. Others should skip over to the next section.

The Null Hypothesis

Since a strict cause and effect relationship in social science studies is rare, most studies test proposals by predicting that there will be no differences in individual responses or group responses, while all the while hoping there will be. This is done so that testing results are made easier. It is difficult to say

that one specific factor such as age causes students to do more poorly. But if you state your hypothesis that age will not be a factor affecting student marks, then by this statement you are saying that you expect that two groups of different ages would be normally spread over a range of marks with about the same average mark. There have been tables computed showing what this normal spread would be. However, if as you study the marks, you find that one group has a higher average mark or is spread differently around this average, then you can compare their scores to the normal scores to see if there is a significant difference. If there is, then you can reject your null hypothesis which means you are actually saying that age is a factor affecting the scores. This may seem a round about way of doing it but it is the standard procedure.

Level of Confidence

If given what a normal spread of scores is, one must always be hesitant about making predictions when the scores one has obtained are outside this normal spread. The results could have happened by chance. Tables have been computed showing what the likihood of these events occurring by chance are. When a difference is written significant at the .01 level of confidence this means that you are correct ninety-nine times out of one hundred when you say that the difference can be attributed to something other than to chance. Similarily a significant difference at the .05 level of confidence would mean that you could safely say ninety-five times out of one hundred that the difference from normal can not be attributed to chance.

Degrees of Freedom

The degrees of freedom are related to the number of observations made and the number of restrictions placed on these observations. In reading the tables it usually means that the larger the degrees of freedom the lower the test value required before the difference is significant.

Chi Square Test

The chi square test (X^2) is a test used on most of the tables in this report. Basically the test compares the observed and the expected distributions in the categories under consideration. If the observed distributions vary too greatly from the expected then some factor would appear to be causing this spread and this difference may be significant.

The Median Test

The median test again compares distributions. In this test the median score of two groups is calculated and the number of observations above and below this group median compared to expected values. This distribution is tested using the chi square test. This test is used when tests which compare means cannot be used because the distribution varies too greatly from normal.

The Product Moment Correlation Coefficient

This score differs somewhat from the others in that it measures the degree of relationship between sets of scores. For example, if you take two sets of scores, one from a general intelligence test

and the other from an arithmetic test, you would expect that people who score higher on the general intelligence test would also score higher on the arithmetic test, while those who scored lower on the general intelligence test would also score lower on the arithmetic test. This would be a positive correlation. If, on the other hand, you were to compare age in adults and their scores on an arithmetic test, you might expect that the older they get the poorer they would do and generally, within education groups, this is the case. This would be a negative correlation. The correlation coefficient varies between +1.00 and -1.00 and a score of zero would show no relationship. Values at either end of this scale can be significant, that is they are unlikely to occur by chance. Also, the more sets of scores available the closer to zero this correlation coefficient can get and still be significant.

Anyone interested in examining these tests and other aspects of statistical techniques in more detail should consult any standard introductory statistical textbook.

PRACTICAL NURSING JOB AND COURSE DESCRIPTION

The Job

The duties and limitations of the Practical Nurse in the hospital have been stated in The Course Outline for Practical Nursing as follows:

> DUTIES AND LIMITATIONS OF THE PRACTICAL NURSE
>
> The scope of the practical nurse's responsibilities includes any authorized task that assists the registered professional

nurse in direct patient care. Through the acquisition of good basic nursing care skill, the practical nurse should be able to give good bedside nursing care to the average type of patient with no grave personality problems or more acute type of disability. The practical nurse is concerned with the needs of the patient within the concept of comprehensive nursing care. Emphasis should be placed on the importance of harmonious and pleasant interpersonal relationships between the practical nurse and her patient, and between the practical nurse and her co-worker. The importance of the proper approach to difficult situations should be emphasized too. It is the duty of the practical nurse to seek guidance if any uncertainty exists at all in any given nursing situation. Some appropriate duties for the practical nurse would be:

Making beds
Giving baths
Feeding patients
Giving bed pans
Admitting and discharging of patients
Taking temperatures, pulses, and respirations
Transporting patients
Exercising patients

The limitations of the practical nurse lie only in the function and in education. Professional personnel should realize that they have a responsibility to protect the public by not delegating to the practical nurse duties which require the competence of a professional nurse. Duties that should not be delegated to a practical nurse include:

Charting on permanent records
Giving medications
Taking blood pressure
Inserting catheters

The Course

The course has been planned to provide classroom and laboratory demonstrations, and supervised practice in a simulated ward. This portion of the course is given in the school during the first four months of training. During this period the students cover the

following subjects:

Block	1 - BEHAVIOUR AND WORKING RELATIONSHIPS	9 hrs.
"	2 - BODY STRUCTURE AND FUNCTION	32 hrs.
"	3 - COMMUNICABLE DISEASE NURSING	12 hrs.
"	4 - DRUGS AND SOLUTIONS	6 hrs.
"	5 - FIRST AID	6 hrs.
"	6 - GERIATRIC NURSING	10 hrs.
"	7 - HOUSEKEEPING SKILLS	4 hrs.
"	8 - INDIVIDUAL AND COMMUNITY HEALTH	10 hrs.
"	9 - MATERNITY NURSING	17 hrs.
"	10 - MEDICAL - SURGICAL NURSING	13 hrs.
"	11 - NURSING OF CHILDREN	21 hrs.
"	12 - NURSING SKILLS	200 hrs.
"	13 - NUTRITION	10 hrs.
"	14 - PSYCHIATRIC ASPECTS OF NURSING IN GENERAL HOSPITALS	8 hrs.
"	15 - PSYCHOLOGY FOR PRACTICAL NURSES	10 hrs.
	TOTAL HOURS	368 hrs.

Upon completion of this four month period the students then commence an eight month clinical training period in a selected regional hospital. During this time the students work under the supervision of the staff of the hospital assisted by an instructor from the school. The students while in the hospital must receive training in the following areas:

Obstetrical Nursing	2 months
Nursing of Children	2 months
Medical-Surgical Nursing	2 months
Geriatric Nursing	I month
Communicable Disease Nursing	I month

At the end of this period of hospital training the students return to the school and write a final comprehensive Provincial examination. If they have satisfactorily met the training requirements in the hospital and pass this examination then they are graduated and can apply for licencing to the British Columbia Council of Practical Nurses.

CHAPTER TWO

CHARACTERISTICS OF THE STUDENTS

The characteristics under consideration in this review of data are necessarily limited to such factors as changes in success ratios, age, height, weight, marital status, sponsorship, education, final mark, reasons for termination, length of training before termination, and data on children. Sex was not considered a variable as of the 240 subjects only two were men. Consequently their records were not considered as part of the sample. Also there will appear to be discrepancies in the sample size between the two tables for each characteristic. This results from the exclusion of the ten students from Class I in the tables of changes in the characteristics over the five year period.

Changes in Success Ratios

This study was started as a result of the increasing percentage of students who were not completing the course. TABLE 0* shows the percentage distribution of student success over the

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*The tables can be found in the Appendix.

five year period. Some 181 women (79.4 per cent) completed training, while twenty-four (10.5 per cent) were terminated and twenty-three (10.1 per cent) quit. The percentage of students completing the course decreased each year from a high of thirty-eight (86.3 per cent) in the first year of operation to a low of thirty-six (70.6 per cent) in the fifth year. The percentage of students who did not complete rose from six (13.7 per cent) in the first year to a high of fifteen (29.4 per cent) in the last year. This distribution when tested produced a chi square value of 4.3 which with four degrees of freedom is not significant at the .01 level of confidence. Thus, even though there is a perfect negative rank order correlation between the years of the study and the rank order of percentage of completion, this distribution could have occurred by chance.

Age

The students enrolled in the course over the five year period were quite young with a mean age of 22.9 years. The mean age ranged from a low of 20.2 years in the second year of operation and gradually increased to a mean age of 26.2 in the fifth year. The youngest students were eighteen, the minimum allowed, while the oldest student was fifty-two.

TABLE I shows the percentage distribution of the class groups by age. The highest proportion of young women in the course occurred in the second year of operation where thirty-nine (81.2 per cent) were under twenty. This proportion dropped to twenty-five (49.0

per cent) in the fifth year. A chi square test of the distribution resulted in a value of 15.1 with four degrees of freedom and this value is significant at the .01 level of confidence. This distribution suggests that the school accepted more older women in the latter part of the study. A correlation co-efficient* was calculated comparing student age and class number and a value ($r = +.227$) was obtained. This value is significant at the .01 level of confidence and is another measure showing the increasing age of the women accepted over the five year period.

The variable of age was also compared with student success and TABLE II shows the percentage distribution of this variable. Similar proportions occurred in each of the age groups, although those in the 40-59 year class had a slightly lower success rate. The obtained chi square value of 4.2 with two degrees of freedom is not significant at the .01 level of confidence.

The characteristic of student age was found to correlate significantly with weight ($r = +.201$), average child age ($r = +.908$), education ($r = -.380$), and final mark ($r = +.169$). These correlations suggest that the older women weighed more, had older children, had less education, and those who completed training scored higher on the final examination. The relationships between student success, score on final examination, education, and age will be examined in more detail later.

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*A table showing all the correlation coefficients can be found in the Appendix.

Height

The variable of height was considered as it was thought that perhaps very short women would have difficulty completing the course because of the physical requirements involved in the job. TABLE III shows the percentage distribution of height over the five year period.

The mean height reported by the women was 64.0 inches and they ranged from forty-eight inches to seventy-one inches. Some 103 students (42.5 per cent) were under sixty-four inches, sixty-two (27.2 per cent) between sixty-four and sixty-five inches, sixty-three (27.6 per cent) sixty-six inches or taller.

Although TABLE III shows quite large variations in the individual groupings this is due more to the groupings than to actual differences. When comparing those under sixty-five inches in height with those over this height very little difference occurs. A chi square value of 4.4 was obtained with four degrees of freedom and this value is not significant at the .01 level of confidence. Therefore it can be assumed that the heights of the students who were accepted did not change over the five year period.

When considering height as a factor in student success, TABLE IV shows the small variations that occurred in the height groups. Of those students less than sixty-four inches high, eighty-six (78.9 per cent) completed, and of those in the 64-65 inch category fifty-two (80.0 per cent) completed, while of those taller than sixty-five inches, fifty-three (82.8 per cent) completed. The chi square value of 1.4 which was obtained for this distribution with two

degrees of freedom is not significant at the .01 level of confidence. Thus it appears that height is not a factor affecting student success.

Weight

The variable of weight was included in the study as it was felt that very heavy women would have a strain placed on their systems by the amount of standing involved in the job and that this strain would affect their chances of success. The mean weight of the women was 131 pounds and the reported weights ranged from 96 to 223 pounds.

TABLE V shows the percentage distribution of student weight over the five year period. There was no significant difference in the distribution as the obtained chi square value of 2.2 with four degrees of freedom is not significant at the .01 level of confidence. Of the total, 102 (44.8 per cent) weighed between 96 and 124 pounds, ninety-four (41.2 per cent) between 125 and 154 pounds and thirty-two (14.0 per cent) weighed 155 pounds or more. The distributions over the years were very similar, however, one noticeable difference occurred in the fourth year where eleven students (24.4 per cent) weighed 155 pounds or more.

TABLE VI shows the percentage distribution of weight by student success. The proportions vary for successful students from a low of seventy-eight (73.6 per cent) of those who weighed less than 125 pounds to eighty-three (83.9 per cent) of those who weighed between 125 and 154 pounds, to a high of thirty (91.0 per cent) of those students who weighed over 155 pounds. Also of those students who

quit by weight class the highest group was in the less than 125 pound class, where sixteen (15.1 per cent) occurred. The chi square value for this distribution is 6.2 and with two degrees of freedom this relationship while not significant at the .01 level of confidence, is at the .05 level. Thus the pattern would appear to be that lighter girls seemed to be more likely to quit or be terminated than their heavier counterparts. A further indication of this trend is that the median weight of successful students was 129.7 pounds while that of the unsuccessful students was 122.1 pounds. This difference when tested under the null hypothesis of no difference by using the median test produced a chi square value of 8.6 which is significant at the .05 level of confidence with two degrees of freedom.

When compared with other variables, weight was found to be significantly correlated with age (r =+.201), height (r =+.399), and education (r =-.156). This would suggest that the heavier women tended to be older and taller and have less education. Since we have already seen that older women were more poorly educated and weighed more these relationships could be expected.

Marital Status

Marital status proportions changed over the five year period. The proportion of single students varied between forty-five (93.7 per cent) in the second year to thirty-three (64.6 per cent) in the fifth year. (TABLE VII). The average percentage over the period was 79.8 per cent. Similarily the proportion of married students

increased from a low of two (4.2 per cent) in the second year to a high of twelve (23.6 per cent) in the fifth year and averaged 13.2 per cent over the five years. Women in the third category: separated, divorced, or widowed, comprised 7.0 per cent of the total. Their proportions increased from a low of one (2.1 per cent) in the second year to a high of six (11.8 per cent) in the fifth year. A chi square value of 15.6 was obtained on this distribution with four degrees of freedom. This value is significant at the .01 level of confidence. It therefore appears that in the latter part of the five year period fewer single women were accepted into the classes.

When considering the relationship of marital status to student success, no significant difference was found between the groups. TABLE VIII shows that twenty-six (83.9 per cent) of the married women completed the course, while 152 (80.0 per cent) of the single girls completed and thirteen (76.5 per cent) of the women who were either separated, divorced or widowed completed the course. The chi square value of 0.7 obtained for this distribution with two degrees of freedom is not significant at the .01 level of confidence. Thus it can be assumed that the marital status of a student does not appear to affect her chances of successfully completing the course.

Sponsorship

Several agencies: Canada Manpower, Department of Social Welfare, Department of Indian Affairs, and Department of Veterans' Affairs, sponsored students in several ways, either by giving them a living

allowance and/or paying their fees. The other students, who were not in receipt of any funds from these agencies, were classiifed as fee payers. TABLE IX gives the percentage distribution of class groups by sponsorship. The 152 fee payers constituted 66.6 per cent of the five year population. This proportion varied from a high of forty (83.3 per cent) in the second year to a low of twenty-five (49.0 per cent) in the fifth year. There were sixty-seven Canada Manpower sponsored students. They averaged 29.4 per cent of the total over the five year period and increased from a low of six (12.5 per cent) in the second year to a high of twenty-four (47.1 per cent) in the fifth year. The other sponsoring agencies assisted only nine students over the five years for an average percentage of 4.0 per cent. This lowering of the proportion of fee payers as compared to Manpower sponsored students was exhibited in a chi square value of 18.2 which with the four degrees of freedom is significant at the .01 level of confidence.

Student success ratios did not vary significantly with sponsorship. (TABLE X). Fee payers had the highest proportion of successful students with some 128 (82.1 per cent) completing the course. Those students sponsored by Canada Manpower showed a similar proportion with fifty-seven (78.1 per cent) completing, while of the nine students sponsored by other agencies only six (66.7 per cent) completed. These differences are not significant as the chi square value of 1.6 obtained under two degrees of freedom is not significant at the .01 level of confidence. It appears then that sponsored students perform at about the same level as fee payers.

Education

Previous formal education has been a variable used very frequently in predicting student success. In the P.N. sample the range exhibited by the students varied from a low of seven years of school completed to a high of twelve years. TABLE XI shows the differences in the distribution of years of schooling over the five year period. In every year the mode classification was twelve years of schooling, and over the five year period some ninety-two students (40.3 per cent) occurred in this category. The fifty-one students (22.4 per cent) in the Grade 10 category were fairly evenly distributed over the five year period. The twenty-five students (11.0 per cent) who had less than Grade 10 education showed an increasing proportion in each year from two (4.6 per cent) in the first year to eight (15.7 per cent) in the fifth year. This distribution of education over the period was not significantly different than that which could be expected by chance as the chi square value of 4.5 obtained with four degrees of freedom is not significant at the .01 level of confidence.

When considering level of formal education as compared to student success there was a significant difference in the distribution. The median education level, in years of schooling for successful students was 11.65 while that for students who were terminated by the school was 10.73, and that of students who quit was 11.63. When testing the level of formal education using the median test, a chi square value of 2.9 was obtained with two degrees of freedom. This value is not significant at the .01 level of

confidence. Therefore, it could be assumed that the three groups of students came from a similar population with respect to education.

TABLE XII shows the percentage distribution of education by student success. Twenty (80.0 per cent) of the students with less than Grade 10 successfully completed the course. The success rates within the other education groups varied from a low of forty-three students (69.4 per cent) in the Grade 10 education category, to a high of fifty (87.8 per cent) in the Grade 11 category. Of those students who did not complete training those with Grade 10 education or less were more heavily represented in the termination category than the quit category. However, of those with more than Grade 10 education the opposite was true as those who quit were slightly over-represented compared to those who were terminated. The obtained chi square value of 6.3 with three degrees of freedom is significant at the .05 level of confidence. Thus it would appear that there is a significant difference in success rates when considering previous years of schooling. However this difference appears only slight as the median test indicated that the students did not vary significantly on this variable.

Final Mark

The final mark reported here is the score the student obtained on the Provincial objective examination. This examination was developed and administered by the Technical and Vocational Education Branch. All P.N. students must write it and the passing mark is sixty per cent. In earlier classes the mark was on a school examination and a passing mark was fifty per cent. The

Provincial examination was first administered in May 1966 to the class enrolled in May 1965. Consequently this has affected the distribution of marks shown in TABLE XIII. Over the five year period sixteen students (8.8 per cent) scored less than sixty per cent on the examination. Of these sixteen, twelve occurred in the first year when the passing rate was fifty per cent. Only four students scored this poorly in the next four years. All of these were close enough to the sixty per cent passing mark that they either rewrote the examination and passed, or they were recommended. Seventy-five women (41.5 per cent) occurred in the 60-69 per cent category. This proportion varied from a high of sixteen (50.0 per cent) in the third year to a low of ten (27.7 per cent) in the fifth year. Some eighty-six students (47.5 per cent) scored between seventy and seventy-nine per cent on the examination. The proportion varied from a low of eight (21.0 per cent) in the first year to a high of twenty-four (66.6 per cent) in the fifth year. Only four students (2.2 per cent) scored eighty per cent or more on the test and they occurred in the last three years. There appears to be a trend in the table of increasing grades in the latter years. Part of this can be attributed to a different examination in the last four years. A chi square value of 9.7 with three degrees of freedom which was obtained on the last four years is significant at the .05 level of confidence. This suggests that even in the last four years the students did better on the final.

This increasing score on the test was shown by the significant

positive correlation (r =+.423) which was obtained between final mark and class number. Other significant positive correlations occurred between final mark and age (r =+.169) and education (r =+.150). These relationships suggest that older women and better educated students scored higher on the final examination.

Reason for Termination

There were forty-seven students who did not complete the course, of these, twenty-four (51.0 per cent) were terminated by the school and the remaining twenty-three (49.0 per cent) quit training. TABLE XIV shows the five reasons; ability, health, emotional, lack of interest, and personal, given why the students were either terminated or quit. As may be expected the two groups differed significantly on the reasons for leaving the course. In the termination category, twelve students (50.0 per cent) were terminated for ability reasons while in the other category only one (4.3 per cent) left for this reason. The next highest reason for students leaving the course was lack of interest. In the termination category two (8.3 per cent) occurred while in the quit category ten (43.5 per cent) occurred. A third reason, also given for twelve students who did not complete the course, was emotional. Eight (33.3 per cent) of those in the termination category were terminated for this reason while only four (17.4 per cent) of those who quit fell in this category. Health reasons were given by two of those who were terminated and four of those who quit while personal reasons were given by four of those who quit but by none of those terminated.

These variations when tested under the null hypothesis produced a chi square score of 20.75 which with four degrees of freedom is significant at the .01 level of confidence.

Training Before Termination

Those students who left before completion were in training for a median period of 4.6 months. However, variations occurred between the two classifications of unsuccessful students. The median period for those who were terminated was 8.8 months while that of those who quit was 2.3 months. These medians, when tested using the median test, produced a chi square value of 4.5 with one degree of freedom. This value is significant at the .05 level of confidence.

TABLE XV shows the percentage distribution of the periods of time in training by the terminated and quit categories. After the first four months of training, twenty-two students (46.8 per cent) of those who did not complete were no longer being trained. In this period, eight (33.3 per cent) of those who were terminated left this soon compared to fourteen (60.9 per cent) of the students who quit. In the second four months of training seven (29.2 per cent) were terminated and six (26.1 per cent) quit. In the last four months, nine (37.5 per cent) were terminated and three (13.0 per cent) quit. When testing this distribution using the chi square test a value of 4.7 was obtained. This value with two degrees of freedom is not significant at the .01 level but is at the .1 level. Therefore, it would appear that with the median test

significant at the .05 level and the chi square at the .1 level it could be assumed that the girls who quit tended to do so earlier than those who were terminated.

Children

TABLE XVI shows the distribution of women reporting children, the number of children reported, the average age of these children, and the average number of children per woman reporting children. Over the five year period, forty-six women reported having a total of 122 children. The number of women reporting children increased from a low of three in the second year to a high of seventeen in the fifth year. The number of children reported followed a very similar distribution from a low of eight in the second year to a high of forty in the fifth year. The average number of children in each of the years varied only slightly from the average over the five years of 2.67. The average age of the children was 12.5 years and again the distribution in each of the five years was quite similar with the least similar occurring in the first year with a value of 9.5 years. A chi square value of 16.96 was obtained when considering the observed number of children in each year as compared to the expected numbers. This value is significant at the .01 level of confidence with four degrees of freedom and indicates that the distribution was unlikely to occur by chance. It was caused by the increase in married women.

TABLE XVII shows the percentage distribution of student success by the number of children reported. There is very little variation

between the number of children and student success. Of the 190 students who had no children 151 (79.5 per cent) completed training, nineteen (10.0 per cent) were terminated, and twenty (10.5 per cent) quit. Twenty-seven students reported that they had one or two children. Of these twenty-one (77.8 per cent) completed the course while three (11.1 per cent) were terminated and a like number quit. Nineteen (95.2 per cent) of the twenty-one students who reported more than two children completed the course while the other two (4.8 per cent) were terminated by the school. This distribution when tested produced a chi square value of 1.45 which with two degrees of freedom is not significant at the .01 level of confidence. Thus it would seem that the number of children does not adversely affect the chances of success in P.N. training.

SUMMARY

In this chapter it was found that over the five year period the following characteristics varied significantly: age, marital status, sponsorship, number of children, and final grade. It was also found that the education and weight of the student were variables which seemed to be related to student success. Significant correlations were found between the class number, age and final mark; between age, education, weight, final mark, and average child age; between height and weight; and finally between average child age and training before termination.

CHAPTER THREE

ANALYSIS OF RELEVANT CHARACTERISTICS

In the preceding chapter certain variables were found to vary over the five year period, two seemed related to student success and there were ten significant correlations between the characteristics studied. Many of the variables were interrelated and the purpose of this chapter is to discuss these interrelationships.

Sponsorship

Since the P.N. course was initiated perhaps one of the most obvious changes has been the increasing role of the federal agencies, initially Programme 5 and latterly Canada Manpower, in assisting adults in retraining. Many of the women they have been helping are older, not often single, and usually supporting some children.

A more careful analysis of the sponsored students confirms these generalities. The median age of sponsored students was 21.95 years while that of fee payers was 18.92. This difference

when tested under the null hypothesis using the median test proved to be significant at the .01 level of confidence as a chi square value of 22.5 was obtained with one degree of freedom. This means that the hypothesis that the fee payers and sponsored students came from the same population with respect to age can be rejected. Therefore, it may be accepted that the sponsored students were older.

The generalization that a higher proportion of the sponsored students were married, separated, widowed or divorced was reinforced in this study and the distribution is shown in TABLE XVIII. Of the eighty-two sponsored students forty-five (54.9 per cent) were single, twenty-one (25.6 per cent) were married, and sixteen (19.5 per cent) were classified in the other category. The fee payers, on the other hand, were far more likely to be single as 145 (93.0 per cent) of the 156 students occurred in that category. Ten women (6.4 per cent) were married and only one (0.6 per cent) was classified in the other category. These distributions varied significantly at the .01 level of confidence as a value of 48.6 with one degree of freedom was produced.

This significant difference was also mirrored in the number of children that the sponsored women reported as compared to the fee payers. The eighty-two sponsored women reported a total of ninety-nine children whereas the 156 fee payers only reported twenty-six children. This difference is shown in TABLE XIX where 146 fee payers (93.6 per cent) reported no children while only forty-four (53.6 per cent) of the sponsored women did.

Six of the fee payers (3.8 per cent) reported one or two children while twenty-one (25.6 per cent) of the sponsored students did. In the category of three or more children, this trend of more children in the sponsored group was continued as only four fee payers (2.6 per cent) reported this many children as compared to seventeen (20.8 per cent) in the sponsored group. This distribution when tested produced a chi square value of 53.7 which with one degree of freedom is significant at the .01 level of confidence. Therefore it could be assumed that the changes in age, marital status, and number of children over the years of the study can be attributed to the increased involvement of the sponsoring agencies, especially Canada Manpower.

Age - Education - Weight

Since it was shown that the average age of the students increased with the increased involvement of the sponsoring agencies, this variable will indirectly affect other variables with which it is related. Age was shown to be significantly correlated with education, weight, final mark and average child age. The last of these is obvious and will not have to be discussed but the others pose interesting relationships.

Age and education are negatively correlated, which means that the older women had less education. This relationship has been shown in almost every study of adults and stems from the increasing level of education available to the youth of today. Since education was a variable which seemed to affect student success, the

interrelations between age and education and student success should be looked at. TABLE XX shows the percentage distribution of the variables of age and education against student success. Although the distribution is not significantly different from one that could have occurred by chance, a pattern does seem to be there. Those with Grade II education or better in both the older and younger students had higher completion proportions than those with Grade I0 or less education. The biggest difference occurs in the older group as the better educated have the highest completion percentage while the less educated have the lowest. Thus it could be that the older better educated are a better risk than the younger women and the older less educated are a poorer risk than the younger students.

Age was shown to be positively correlated with weight and this does not seem unreasonable. When considering the effect of age and weight on student success, again no significant difference was found. From TABLE XXI it can be seen that the only variation in success patterns occurred in the younger heavier group of students, where they had a much higher completion percentage than the older students and the younger lighter students. Thus it would seem that the heavier younger girls are a better risk than the older students and the younger lighter.

These two statements of better risk are very tenuous and should not be considered without considering the relationships between education and weight and student success. TABLE XXII shows

this distribution and it is significantly different from what could be expected by chance as both weight and education seem related to success. The better educated had higher completion ratios in both weight categories and the heavier had better ratios in both education categories. The lighter less educated students had the lowest level of success as only twenty-one (67.8 per cent) completed the course. The most successful category was that of the heavier better educated students where the level of completion was 93.4 per cent. Therefore it would appear that the heavier and the better educated students were better risks than the lighter and the less educated.

Generalizing from the preceding would lead one to say that when selecting candidates, the older better educated women and the younger, heavier, better educated women seem to be better risks as successful candidates. It could also be generalized that the less educated and especially the older less educated and the lighter less educated are poorer risks with respect to completion.

That the better educated are generally more successful students is not unexpected. The skills that allowed them to complete more formal education are very similar to the skills necessary to succeed on the P.N. course. The relationship between student weight and success is a much more difficult one about which to hypothesize. The high completion ratios occurred in two weight categories, the heavier better educated women and the heavier younger women. What is there about these heavier women that makes them more likely to

succeed? Or to phrase the question another way what is there about the heavier women that makes them less likely to drop out? This second way of phrasing the question is perhaps the better as it allows one to search for possible hypotheses among those who dropped out and see how they differed from the heavier women.

TABLE VI shows the percentage distribution of weight by student success. Of the forty-seven students who did not complete training, forty-four of them weighed less than 155 pounds. Weight does not seem to play an important role in causing students to be terminated as almost identical percentages, 11.3 and 11.1, occurred in the less than 125 pounds category and in the 125 to 154 pound category. On the other hand, in the quit category approximately three times as many students occurred in the less than 125 pound category than in the 125 to 154 pound category. Therefore, it would appear that the lighter women were far more likely to quit than the heavier women, but they were terminated at about the same rates.

If we now look at TABLE XIV which shows reasons for not completing the course, it can be seen that the most common category for quitting was a lack of interest. Ten women (43.5 per cent) occurred in this category. A very similar category to lack of interest was personal reasons and four women (17.4 per cent) occurred in this category. Personal reasons usually meant that they were pregnant. Thus it could be said that the most common reason for quitting was a lack of interest in the training and the occupation as a P.N.

TABLE II shows the distribution of age by student success and

again a marked difference between those who were terminated and those who quit. Of those students who were terminated, thirteen (54.1 per cent) were under twenty, while of those who quit seventeen (74.0 per cent) were this young. Thus it seems that the younger are more likely to quit than the older.

Another factor that could be considered in this difference between the persons who quit and those who were terminated is education. As shown in TABLE XII, of those who did not complete the course, the better educated were more likely to quit while the less educated were more likely to be terminated.

Summarizing the last four paragraphs then of the forty-seven students who did not complete the course, the younger, lighter, and better educated students were more likely to quit than be terminated and the reason most often reported was lack of interest.

The question now raised is why are the younger, lighter, better educated girls more likely to quit than their heavier counterparts. It could be assumed that the lack of interest in P.N. would be evenly spread over the weight categories. If this is the case then it would be expected that the heavier girls would be as likely to quit as the lighter. But since they do not quit at the same rate there must be some factor holding the heavier girls in training when they lose interest.

When any of the young ladies quit training as a P.N. then she is faced with the problem of getting a new job or finding some other form of support, perhaps a husband. Perhaps it could be that

there are fewer opportunities for the heavier, older, less educated girls in either the job or marital field. If this is so and if the heavier women are aware of this then perhaps they are more likely to put up with some of the problems that face them in the course and stay on rather than quit. This hypothesis is put forward rather tenuously and I would welcome any others that the reader could suggest.

Final Mark

The last variable to be discussed in this chapter is the final mark. Final mark was positively and significantly correlated with class number, age and education. Part of the correlation between final mark and class number can be attributed to the change in examination format and passing mark. However even when the change in examination was controlled it was shown that the students had obtained higher marks in the latter years. Since the level of education did not rise over the five year period nor was weight significantly correlated with this variable ($r = +.043$), both of these variables can be eliminated as factors affecting this rise in final mark. Age, on the other hand, is both significantly and positively correlated with final mark and class number. This suggests that the older women even though they have poorer educations ($r = -.380$) scored better on the examinations. Since there were more older women in the last years of the study then this factor can account for part of this increase. It would be very dangerous to suggest that this accounts for a large proportion of the increase

as there were relatively few older women over the period of the study as compared to the younger girls. Also why the older women did better on the final examination even though their education is less is an interesting question. It probably has something to do with maturity and work habits but this hypothesis cannot be checked in this study.

A second proposal is that some of this increase is due to the familiarity on the part of the instructors with the course content and the type of questions on the examinations. If this is the case then they would be able to better prepare their students for the examination. A third proposal could be that the instructors are becoming more demanding in the levels of achievement produced by the students during the year, and are weeding out the weaker students. Whatever the case, more students are leaving before the course is completed, they are probably the weaker students, and thus the marks could be expected to rise.

CHAPTER FOUR

SUMMARY

The Study

This paper reports on the first part of a three part study on the Practical Nursing students who received training at B.C.V.S.-Nelson. It was a review of the characteristics of the 238 women who had taken training between the years 1964 and 1969. The procedure involved reviewing the individual records on file at the school and transferring the data to I.B.M. data cards. This deck of cards was then run at U.B.C. and bivariate and correlation tables were produced comparing most of the variables and characteristics. There were three main sets of bivariate tables produced. The first compared the student characteristics over the five year period, the second compared the same characteristics against student success, and the final compared various related characteristics.

Several weaknesses were discovered in the study after it was well underway. The first was the sample selection. In an

attempt to include as many students as possible all sixteen classes were included, even though some of the information was not reported for the first class. This led to different sample sizes for the two major sets of tables. Also the variable of final mark changed over the period of the study as a new set of examinations was administered to the later classes. These two faults caused some problems in reporting the results of the tables. A third weakness was the end of the study that a source of such a mark was located. Perhaps at a later date a study of how this variable related to the other characteristics can be made and added to this study.

The Characteristics

Over the five year period the percentage of students completing training decreased each year from a high of 86.3 per cent in the first year to a low of 70.6 per cent in the fifth year. Of the 238 women in the study 191 completed training, twenty-four were terminated by the school and twenty-three quit training.

The average age of the women was 22.9 years and ranged from a low of eighteen to a high of fifty-two. Over the five year period the average age of the classes increased. There was no apparent relationship between age and student success although, the older women who wrote the final examination scored higher than the younger.

Height, the second of the three physical characteristics, did not appear to vary over the five year period nor did it appear to be related to student success. The average height reported by the women was sixty-four inches and they ranged from forty-eight to

seventy-one inches tall.

Weight, the third characteristic, was found to be related to student success but did not appear to change over the five year period. The average weight was 131 pounds and the women reported weights that ranged between 96 and 223 pounds. The heavier students appeared to be more likely to complete training than the lighter students as only 73.6 per cent of those under 125 pounds completed training as compared to 91.0 per cent of those who weighed 155 pounds or more. When analyzed considering other variables it was found that it was not just heavier women but the younger, better educated heavier women who were more successful.

It was also found that the highest proportion of students who quit occurred in the group of students who weighed under 125 pounds. An hypothesis was proposed linking this relationship of weight and success to occupational and marital mobility.

More students were sponsored by Canada Manpower in the later years than in the earlier years. Some sixty-seven students were sponsored by Manpower and nine by other agencies. The percentage of fee payers dropped from a high of 83.3 to a low of 49.0. There was no apparent relationship between sponsorship and student success although the fee payers were slightly more likely to pass than the sponsored students.

There were fewer single girls enrolled in the classes over the study period. Although approximately four-fifths of the students were single, the percentage decreased from 93.7 to 64.6. The increase in married, separated, widowed and divorced women was attri-

buted to the increased involvement of Canada Manpower. There was no apparent difference in success ratios between the various categories of marital status.

The median education of the students was 11.56 years and there was very little variation over the five years. There were twenty-five students who had less than ten years of schooling and the proportions of these students increased slightly over the years. When comparing years of schooling with student success it was found that the better educated were slightly more successful than those with Grade IO education or less. Of the students who wrote the final examination there was a positive correlation between their mark and their schooling.

The marks obtained by the students on the final province-wide objective examinations increased over the years. Part of this was attributed to the change in examination, part to the better preparation for the tests, and part to the increased drop-rate of weaker students. It was also noted that older and better educated students did better on these final examinations.

The unsuccessful students who did not complete the course, were either terminated by the school or quit training. Those who were terminated were most often dismissed for reasons of ability, while of those who quit the most common reason was lack of interest. The median period of training for those who quit was only 2.3 months while that of those who were terminated 8.8 months. It was noticed that those who quit were better educated and lighter than their counterparts who were successful. The women in the later classes

reported more children than those in the earlier classes although the average number of children per reporting woman only varied slightly from the group average of 2.67. The average age of these children was 12.5 years. The number of children a woman had did not seem to adversely affect her chances of success.

Conclusions

The main objective of this study was to review the characteristics of the students who had enrolled in the P.N. course during the five year period between January 1964 and January 1969. This very limited objective has been at least partially attained, but there was really not much discriminating power provided by the easily measured characteristics. What it has done on the other hand, is opened a whole set of new problems. How important are age and education? How was weight related to more successful students? Why did the older women although having less education do better on the final examination?

These questions pose two areas for investigation. The first should identify and examine the attitudes of the students towards Practical Nursing. This study is under way at the present time as the second phase of the larger study. This will take time and reports cannot be expected until 1971. The second area for investigation which perhaps could be initiated soon is a study of the criteria used by the screening committees in accepting or rejecting students for training. Assuming the Nelson procedure to be fairly typical, the screening committee is doing a good job.

Probably most of the judgements are made on an intuitive basis on an overall evaluation of the girl's potential. But what in fact are we measuring? What weight are we placing the physical appearance of the applicant? What weight on her education? Her age? Are the weights we are assigning correct? These are questions which if answered would assist the screening committees to do an even better job than they are doing.

Another problem that this study has brought to light is the form of record keeping adopted by this school. It appears that we are probably holding too much useless information and that we are storing it uneconomically. There should be a consensus reached among the five provincial schools as to what information to keep and how to store it. I make this recommendation for two reasons. First there is no reason to keep useless information which only takes up space. Second if a larger study were to be attempted in this field the difficulty of comparing information from the various schools could be large enough to prevent such a study from being successful.

APPENDIX

TABLE 0

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY
BY STUDENT SUCCESS

	Total		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
COMPLETED	181	79.4	38	86.3	40	83.3	32	80.0	35	77.8	36	70.6
TERMINATED	24	10.5	5	11.4	1	2.1	5	12.5	5	11.1	8	15.7
QUIT	23	10.1	1	2.3	7	14.6	3	7.5	5	11.1	7	13.7
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$X^2 = 4.3$ d.f.= 4
Not significant at .01 level of confidence.

TABLE I
PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY AGE

AGE IN YEARS	TOTAL		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
18 - 19	146	64.0	32	72.7	39	81.2	26	65.0	24	53.3	25	49.0
20 - 29	43	18.9	9	20.5	7	14.6	5	12.5	10	22.2	12	23.5
30 - 59	39	17.1	3	6.8	2	4.2	9	22.5	11	24.5	14	27.5
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$X^2 = 15.1$ d.f.= 4
Significant at .01 level of confidence.

TABLE II

PERCENTAGE DISTRIBUTION OF AGE
BY STUDENT SUCCESS

STUDENT SUCCESS	Total		<20		20-29		30-39		40-59	
	No.	%	No.	%	No.	%	No.	%	No.	%
COMPLETED	191	80.2	123	80.4	37	82.3	17	81.0	14	73.7
TERMINATED	24	10.1	13	8.5	6	13.3	2	9.5	3	15.8
QUIT	23	9.7	17	11.1	2	4.4	2	9.5	2	10.5
TOTAL	238	100.0	153	100.0	45	100.0	21	100.0	19	100.0

$X^2 = 4.2$ d.f. = 2
Not significant at .01 level of confidence.

TABLE III

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY HEIGHT

HEIGHT IN INCHES	TOTAL		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No	%	No	%	No	%	No	%	No	%	No	%
less than 64	103	42.5	16	36.3	27	56.2	18	45.0	21	46.6	21	41.2
64-65	62	27.2	19	43.2	8	16.7	10	25.0	8	17.8	17	33.3
66-71	63	27.6	9	20.5	13	27.1	12	30.0	16	35.6	13	25.5
TOTAL	228	[illegible]	[illegible]	[illegible]	[illegible]	100.0	40	100.0	45	100.0	51	100.0

X^2 = 4.[illegible] d.f. = 4

Not significant at .01 level confidence

TABLE IV

PERCENTAGE DISTRIBUTION
OF HEIGHT BY STUDENT SUCCESS

STUDENT SUCCESS	Total		Height inches: Less than 64		64-65		66 and over	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	191	80.2	86	78.9	52	80.0	53	82.8
TERMINATED	24	10.1	10	9.2	9	13.8	5	7.8
QUIT	23	9.7	13	11.9	4	6.2	6	9.4
TOTAL	238	100.0	109	100.0	65	100.0	64	100.0

$X^2 = 1.4$ d.f.= 2
Not significant at .01 level of confidence.

TABLE V

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY WEIGHT

	Total		2,3,4,		5,6,7		8,9,10		11,12,13		14,15,16	
WEIGHT IN LBS.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
95 - 124	102	44.8	20	45.5	23	48.0	20	50.0	16	35.6	23	45.1
125 - 154	94	41.2	21	47.7	20	41.6	13	32.5	18	40.0	22	43.1
155 +	32	14.0	3	6.8	5	9.4	7	17.5	11	24.4	6	11.8
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$X^2 = 2.2$ d.f.= 4
Not significant at .01 level of confidence.

TABLE VI

PERCENTAGE DISTRIBUTION
OF WEIGHT BY STUDENT SUCCESS

STUDENT SUCCESS	Total		Less than 125		125-154		155 & over	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	191	80.2	78	73.6	83	83.9	30	91.0
TERMINATED	24	10.1	12	11.3	11	11.1	1	3.0
QUIT	23	9.7	16	15.1	5	5.0	2	6.0
TOTAL	238	100.0	106	100.0	99	100.0	33	100.0

$X^2 = 6.2$ d.f. = 2
Not significant at .01 level of confidence.
Significant at .05 level of confidence.

TABLE VII

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY MARITAL STATUS

MARITAL STATUS	TOTAL		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No	%	No	%	No	%	No	%	No	%	No	%
SINGLE	182	79.8	39	88.7	45	93.7	31	77.5	34	75.6	33	64.6
MARRIED	30	13.2	3	6.8	2	4.2	6	15.0	7	15.5	12	23.6
SEPARATED,DIVORCED WIDOWED	16	7.0	2	4.5	1	2.1	3	7.5	4	8.9	6	11.8
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$X^2 = 15.6$ d.f. = 4

Significant at .01 level of confidence

TABLE VIII

PERCENTAGE DISTRIBUTION
OF MARITAL STATUS BY STUDENT SUCCESS

STUDENT SUCCESS	Total		Single		Married		Other	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	191	80.2	152	80.0	26	83.9	13	76.5
TERMINATED	24	10.1	18	9.5	3	9.7	3	17.6
QUIT	23	9.7	20	10.5	2	6.4	1	5.9
TOTAL	238	100.0	190	100.0	31	100.0	17	100.0

$X^2 = 0.7$ d.f.= 2
Not significant at .01 level of confidence.

TABLE IX

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY SPONSORSHIP

Sponsorship	TOTAL		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No	%	No	%	No	%	No	%	No	%	No	%
Fee Payers	152	66.6	31	70.5	40	83.3	29	72.5	27	60.0	25	49.0
Canada Manpower & Program 5	67	29.4	10	22.8	6	12.5	10	25.0	17	37.8	24	47.1
Department of Social Welfare Indian Affairs Veteran's Affairs	9	4.0	3	6.7	2	4.2	1	2.5	1	2.2	2	3.9
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$x^2 = 18.2$ d.f. = 4

Significant at .01 level of confidence

TABLE X

PERCENTAGE DISTRIBUTION
OF SPONSORSHIP BY STUDENT SUCCESS

Student Success	Total		Sponsorship					
			Fee Payers		Manpower		Other	
	No.	%	No.	%	No.	%	No.	%
Completed	191	80.2	128	82.1	57	78.1	6	66.7
Terminated	24	10,0	13	8.3	10	13.7	1	11.1
Quit	23	9.7	15	9.6	6	8.2	2	22.2
TOTAL	238	100.0	156	100.0	73	100.0	9	100.0

$x^2 = 1.6$ d.f.=2
Not significant at .01 level of confidence.

TABLE XI

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY EDUCATION

EDUCATION IN YEARS	TOTAL		2,3,4		5,6,7		8,9,10		11,12,13		14,15,16	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
less than 10	25	11.0	2	4.6	3	6.3	5	12.5	7	15.5	8	15.7
10	60	26.3	14	31.8	11	22.9	8	20.0	12	26.7	15	29.4
11	51	22.4	9	20.4	15	31.2	10	25.0	7	15.6	10	19.6
12	92	40.3	19	43.2	19	39.6	17	42.5	19	42.2	18	35.3
TOTAL	228	100.0	44	100.0	48	100.0	40	100.0	45	100.0	51	100.0

$X^2 = 4.5$ d.f. = 4

Not Significant at .01 level of confident

TABLE XII

PERCENTAGE DEISTRIBUTION OF YEARS OF SCHOOLING BY STUDENT SUCCESS

STUDENT SUCCESS	Total No.	%	10 No.	%	10 No.	%	11 No.	%	12 No.	%
COMPLETED	191	80.2	20	80.0	43	69.4	50	87.8	78	83.0
TERMINATED	24	10.1	4	16.0	11	17.7	3	5.2	6	6.4
QUIT	23	9.7	1	4.0	8	12.9	4	7.0	10	10.6
TOTAL	238	100.0	25	100.0	62	100.0	57	100.0	94	100.0

$X^2 = 6.3$ d.f.= 2
Significant at .05 level of confidence.

TABLE XIII

PERCENTAGE DISTRIBUTION OF CLASS GROUPS BY FINAL MARK

MARK	Total No.	%	2,3,4 No.	%	5,6,7 No.	%	8,9,10 No.	%	11,12,13 No.	%	14,15,16 No.	%
50 - 59	16	8.8	12	31.6	1	2.5	2	6.2	0	0.0	1	2.8
60 - 69	75	41.5	18	47.4	17	42.5	16	50.0	14	40.0	10	27.8
70 - 79	86	47.5	8	21.0	22	55.0	13	40.7	19	54.3	24	66.6
80 - 89	4	2.2	0	0.0	0	0.0	1	3.1	2	6.7	1	2.8
TOTAL	181	100.0	38	100.0	40	100.0	32	100.0	35	100.0	36	100.0

For five years of study:
$X^2 = 25.1$ d.f.= 4
Significant at .01 level of confidence.

For years with Provincial examination:
$X^2 = 9.7$ d.f.= 3
Significant at .05 level of confidence.

TABLE XIV

PERCENTAGE DISTRIBUTION OF REASONS FOR NOT COMPLETING COURSE BY UNSUCCESSFUL STUDENT CLASSIFICATION

REASON	Total		Terminated		Quit	
	No.	%	No.	%	No.	%
ABILITY	13	27.7	12	50.0	1	4.3
HEALTH	6	12.8	2	8.3	4	17.4
EMOTIONAL	12	25.5	8	33.3	4	17.4
LACK OF INTEREST	12	25.5	2	8.3	10	43.5
PERSONAL REASONS	4	8.5	0	0.0	4	17.4
TOTAL	47	100.0	24	100.0	23	100.0

$X^2 = 20.75$ d.f.= 4
Significant at .01 level of confidence.

TABLE XV

PERCENTAGE DISTRIBUTION OF STUDENTS
WHO DID NOT COMPLETE BY LENGTH OF TIME IN COURSE

Length of Time in months	Total		Terminated		Quit	
	No.	%	No.	%	No.	%
Less Than 4	22	46.8	8	33.3	14	60.9
4 - 7	13	27.6	7	29.2	6	26.1
8 - 11	12	25.6	9	37.5	3	13.0
TOTAL	47	100.0	24	100.0	23	100.0

$X^2 = 4.7$ d.f.= 2
Not significant at the .01 level of confidence.

TABLE XVI

DISTRIBUTION OF CHILDREN, THEIR AVERAGE AGE, AND WOMEN REPORTING CHILDREN BY CLASS GROUPS

CLASS GROUPS	Number of Women Reporting Children	Number of Children	Average Child Age (yrs.)	Average No. of Children per Reporting Women
2,3,4	5	14	9.5	2.80
5,6,7	3	8	12.5	2.67
8,9,10	8	28	13.1	3.50
11,12,13	13	32	13.3	2.46
14,15,16	17	40	12.2	2.36
TOTAL	46	122	12.5	2.67

Number of children observed - expected
$X^2 = 16.96$ d.f.= 4

Significant at .01 level of confidence.

TABLE XVII

PERCENTAGE DISTRIBUTION OF NUMBER OF CHILDREN BY STUDENT SUCCESS

STUDENT SUCCESS	Total No.	%	0 No.	%	1-2 No.	%	3 or more No.	%
COMPLETED	191	80.2	151	79.5	21	77.8	19	95.2
TERMINATED	24	10.1	19	10.0	3	11.1	2	4.8
QUIT	23	9.7	20	10.5	3	11.1	0	0.0
TOTAL	238	100.0	190	100.0	27	100.0	21	100.0

X^2= 1.45 d.f.= 2
Not significant at .01 level of confidence.

TABLE XVIII

PERCENTAGE DISTRIBUTION OF MARITAL STATUS
BY SPONSORSHIP

	Total		Fee Payers		Sponsored	
	No.	%	No.	%	No.	%
Single	190	79.9	145	93.0	45	54.9
Married	31	13.0	10	6.4	21	25.6
Other	17	7.1	1	0.6	16	19.5
TOTAL	238	100.0	156	100.0	82	100.0

$X^2 = 48.6$ d.f.= 1
Significant at .01 level of confidence.

TABLE XIX

PERCENTAGE DISTRIBUTION OF NUMBER OF CHILDREN BY SPONSORSHIP

	Total		Fee Payers		Sponsored	
	No.	%	No.	%	No.	%
0	190	79.9	146	93.6	44	53.6
1 - 2	27	11.3	6	3.8	21	25.6
3 or more	21	8.8	4	2.6	17	20.8
TOTAL	238	100.0	156	100.0	82	100.0

$X^2 = 53.7$ d.f. = 1
Significant at .01 level of confidence.

TABLE XX

PERCENTAGE DISTRIBUTION OF AGE AND EDUCATION BY STUDENT SUCCESS

	Less than 30				30 or more			
	Grade 10 or less		Grade 11 or better		Grade 10 or less		Grade 11 or better	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	44	73.4	116	84.0	19	70.4	12	92.4
DID NOT COMPLETE	16	26.6	22	16.0	8	29.6	1	7.6
TOTAL	60	100.0	138	100.0	27	100.0	13	100.0

$X^2 = 6.0$ d.f.= 3
Not significant at .01 level of confidence.

TABLE XXI

PERCENTAGE DISTRIBUTION OF AGE AND WEIGHT BY STUDENT SUCCESS

	Less than 30				30 or more			
	< 140		>140		<140		>140	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	120	78.5	40	89.0	14	77.8	17	77.3
DID NOT COMPLETE	33	21.5	5	11.0	4	22.2	5	22.7
TOTAL	153	100.0	45	100.0	18	100.0	22	100.0

$X^2 = 2.6$ d.f.= 3
Not significant at .01 level of confidence.

TABLE XXII

PERCENTAGE DISTRIBUTION OF EDUCATION AND WEIGHT BY STUDENT SUCCESS

	Grade 10 and less				More than Grade 10			
	Less than 125		125 or greater		Less than 125		125 or greater	
	No.	%	No.	%	No.	%	No.	%
COMPLETED	21	67.8	42	75.0	57	76.0	71	93.4
DID NOT COMPLETE	10	32.2	14	25.0	18	24.0	5	6.6
TOTAL	31	100.0	56	100.0	75	100.0	76	100.0

$X^2 = 13.4$ d.f. = 3
Significant at .01 level of confidence.

TABLE XXIII
CORRELATION COEFFICIENTS FOR ALL P.N. STUDENTS

	CLASS NUMBER	AGE	EDUCATION	HEIGHT	WEIGHT	FINAL MARK	NUMBER OF CHILDREN	AV. CHILDREN'S AGE	TRAINING BEFORE TERMINATION
CLASS NUMBER	1.00								
AGE	.227	1.00							
EDUCATION	-.079	-.380	1.00						
HEIGHT	.013	.086	-.033	1.00					
WEIGHT	.106	.201	-.156	.399	1.00				
FINAL MARK	.423	.169	.150	-.048	.043	1.00			
NO. OF CHILDREN	-.095	.207	.126	.006	.112	.247	1.00		
AV. CHILDREN'S AGE	.111	.908	-.164	.212	.200	.161	.157	1.00	
TRAINING BEFORE TERMINATION	.077	-.264	.150	.035	.121	.000	.161	-.811	1.00

Values significant at .01 level; at .05 level of confidence.