CHAPTER IX

RESULT

The study involved those students who had completed the certificate level program in nursing and graduated from all nursing campuses in Nepal. These students were in the graduating classes of 1986 - 1989. Thus, the subjects were students who entered five nursing campuses. The total number of students who entered into nursing campuses were 657 including those students who were admitted in 1981 but graduated in 1986. Of these, 111 students failed IFE and 32 students dropped from the program. So 514 subjects were remained for the study. Of the 514, 7 with missing information were eliminated. Finally the study analysed the data for 507 graduates.

Stepwise multiple regression was performed to assess the relative importance of each independent variable in determining the institute final examination (IFE) scores. There are three IFEs: first, second and third year IFEs. These are computed at first step of analysis process. Table 9.1 reports the result of the study. Six predictor variables accounted for 11 percent of the variance in first year IFE scores ($P < .04$). Their correlations with first year IFE scores are: school

leaving certificate (SLC) total score (p =.04); SLC division I (p =.01); English (p = .001); Mathematics (p =.003); parent occupation-business (p =.01) and Pokhara campus (p =.04). Other remaining variables were not statistically significant. (See Table 5.1). With regard to regression analysis, the two predictors account for a small, but statistically significant at the 0.001 level, percentage of variance in second year IFE total scores (5%). These two predictor variables are SLC total score and Pokhara campus. The amount of variance explained in third year IFE scores (8%) by five predictor variables: Mathematics, English, parents' occupation - business, Maharajgunj campus and Science. All are statistically significant (p <.04). Among those predictors, the most frequently identified were SLC total score, Mathematics, English, Pokhara campus and parents' occupation - business. The six variables equation has higher R^2, than two and five variables equation. The six variables equation appeared in first year IFE. Five variables appeared in third year IFE and two in second year IFE.

STEPWISE MULTIPLE REGRESSION OF ALL PREDICTOR VARIABLES AND IFE SCORES:

VARIABLES	R	R^2	ADJUSTED R^2	P LEVEL
1. FIRST YEAR IFE SCORES				
SLC TOTAL SCORES	.20	.04	.04	.041
SLC DIVISION I	.25	.06	.06	.008
ENGLISH	.27	.07	.07	.001
MATHEMATICS	.29	.09	.08	.003
PARENT OCCUPATION-B	.31	.10	.09	.008
POKHARA CAMPUS	.33	.11	.10	.042
2. SECOND YEAR IFE SCORES				
POKHARA CAMPUS	.16	.03	.02	.001
SLC TOTAL SCORES	.22	.05	.04	.001
3. THIRD YEAR IFE SCORES				
MATHEMATICS	.18	.03	.03	.000
ENGLISH	.23	.05	.05	.003
PARENT OCCUPATION-B	.25	.07	.06	.012
MAHARAJGUNJ CAMPUS	.27	.08	.07	.014
SCIENCE	.29	.08	.08	.036

TABLE 9.1

The first year IFE, second year IFE and third year IFE scores serve as student achievement indicators. These examinations comprise of various subjects. During the second step of data analysis process, these criterion variables were computed. There are ten subjects in first year IFE. These all subjects entered into the regression model. Similarly. there are seven and twelve subjects in second year IFE and third year IFE respectively. All these subjects entered into regression equation too.

There were fourteen independent variables identified from admission criterion and information. (Please see Table 5.1). These all independent variables were stepped into the regression equation sequentially in the order which produces the greatest increments to R^2. Each predictor variable was entered into the regression model. The result of regression analysis is presented in Table 9.2. Multiple R and R^2 ranged from .19 to .52 and .04 to .27 respectively. Percentile rank was computed to indicate relative standing of the dependent variables. The percentile rank was computed at 33.30, 66.70 and above level. According to the percentile rank, R^2 .04 - .07 fall into lower one-third of the percentile rank. R^2 .08 - .14 and .15 - .27 fall into middle and upper one-third respectively. The following were significantly ($p < .04$) related to predictor variables that fell in lower part of percentile rank: two subjects of first year IFE - Community I (R^2 .04) and Human biology (R^2 .05); four subjects of second year IFE - Adult nursing - practicum (R^2 .04); Community II - practicum (R^2 .05); Nutrition (R^2 0.05) and Adult nursing II (R^2 .06) and four subjects of third year IFE - Midwifery 'A' - theory (R^2 .05); Child nursing - theory (R^2 .06); Midwifery 'B' - theory (R^2 0.07) and Community III (R^2 .07). Middle one-third of percentile rank involved following variables on first year IFE: Fundamental of nursing - theory (R^2 .10), English (R^2 .10) and Microbiology (R^2 .10); on second

year IFE - Adult nursing I (R^2 .08), Community II (R^2 0.09), Social psychology (R^2 .12) and on third year IFE - Midwifery 'C' - theory (R^2 .08), Community III - practicum (R^2 .12), Ward management - theory (R^2 .14) and Child nursing - practicum (R^2 .14). All are statistically significant ($p < .04$). The higher percentile rank involved five subjects of first year and four subjects of third year IFEs. The subjects of second year IFE did not fall in this rank. The five subjects of first year IFE which ranked higher are as follows: Pharmacology (R^2 .15), Fundamental of nursing - practicum (R^2 .17), Applied science (R^2 .17), Nepali (R^2 .19) and Nepal parichaya (R^2 .21). The four subjects of third year IFE ranked higher are: Midwifery 'C' - practicum (R^2 0.17), Midwifery 'B' - practicum (R^2 .22), Midwifery 'A' - practicum (R^2 .23) and Ward management - practicum (R^2 0.27). These all are statistically significant ($p < .02$). Out of fourteen predictor variables, thirteen variables contributed in increment of R^2. Only one variable, SLC division II, did not enter into the regression model. The most frequently identified predictor variables in higher percentile rank are as follows: Pokhara campus, SLC division I, Mathematics, Maharajgunj campus, Birgunj campus, and Biratnagar campus (Frequency ranged from 3 - 6). In the moderate rank, following seven predictor variables entered into regression model: total SLC score, Science, SLC division I, Mathematics, Birgunj campus, UMN campus and Pokhara campus (Frequency 3 - 6). SLC

division I, total SLC score, Science, Pokhara campus and Birgunj campus were identified in lower rank (Frequency 3 - 4). This result is summarized in Table 9.2.

Provision of cross-validation evidence is important to demonstrate the stability of prediction equations. Upon repetition of the study to new sample, in this case the correlation initially obtained becomes smaller or disappears, which is known as shrinkage. In other words, the tendency for predictive validities to decrease when the experiment is repeated is referred to as shrinkage (Kleinbaum, D. G. et al 1988). The total sample was split randomly into group 1 and group 2. Group 1 was used as a validation group and group 2 was used for cross-validation. The same set of predictor variables were applied to both groups. The cross-validation result is presented in Table 9.3. Using a same set of predictors, the first and second year IFEs showed significant, but declining R^2. While the R^2 of first year IFE was .11 for the group 1, the R^2 for first year dropped to .10 for group 2. Subsequently R^2 for second year IFE was decreased from .09 to .05. For group 1, R^2 for third year IFE was .02 but for group 2 R^2 was 0.05. It is increased. Among those variables, SLC total score entered in regression model while others did not.

The final step of analysis used the three compulsory subjects of admission criteria of nursing

education program to determine the strength of association between admission criteria and IFE scores. This set of predictor variables (English, Math, Science) were applied to both groups. Mathematics and English accounted for 5% and 6% of variance in first year IFEs for group 1 and group 2 respectively. English and Mathematics accounted 3% of variance in second year IFE for group 1. The amount of variance explained in second year IFE for group 2 was 2% for mathematics alone. For the third year IFE, Mathematics accounted for 3% and 2% of variance for group 1 and group 2 respectively. These two predictor variables account for a small, but statistically significant, percentage of variance in IFEs. Science did not appear in the regression equation.

SUMMARY OF STEPWISE MULTIPLE REGRESSION FOR PREDICTING IFE SCORES:

PERCENTILE RANK	R^2	FIRST YEAR CRITERION VARIABLES	FIRST YEAR PREDICTORS	SECOND YEAR CRITERION VARIABLES	SECOND YEAR PREDICTORS	THIRD YEAR CRITERION VARAIBLES	THIRD YEAR PREDICTORS
	.04-.07	1.COMMUNITY I** 2.HUMAN BIOLOGY**	4, 11, 14.1,1, 2, 7.1.	1.ADULT NSG.(PR.)* 2.COMMUNITY II(PR.)* 3.NUTRITION** 4.ADULT NURSING II*	3,4, 5,11, 13,14.3, 14.4.	1.MIDWIFERY 'A'(TH.)* 2.CHILD NSG.(TH.)** 3.MIDWIFERY 'B'(TH.)** 4.COMMUNITY III*	1,3, 4,7.3, 8,7.2, 10,11, 13,14.1, 14.2,14.3, 14.5.
33.30	.08-.14	1.FUND. OF NSG.(TH.)* 2.ENGLISH** 3.MICROBIOLOGY**	2,3, 9,10, 11,7.3, 14.1,14.4, 14.5.	1.ADULT NSG. I** 2.COMMUNITY II* 3.SOC. PSYCHOLOGY*	2,3, 4,13, 7.1,14.3, 14.4,14.5, 14.1.	1.MIDWIFERY 'C'(TH.)* 2.COMMUNITY III(PR.)** 3.WARD MGT.(TH.)** 4.CHILD NSG.(PR.)**	1,2, 3,5, 6,7.3, 10,11, 14.3,14.4, 14.1,14.2.
66.70	.15-.27	1.PHARMACOLOGY** 2.FUND.OF NSG.(PR.)*** 3.APPLIED SCIENCE* 4.NEPALI** 5.NEPALI PARICHAYA**	2,3, 4,5, 8,9, 10,11, 14.1,14.2, 14.3,14.4, 14.5.			1.MIDWIFERY 'C'(PR.)* 2.MIDWIFERY 'B'(PR.)* 3.MIDWIFERY 'A'(PR.)** 4.WARD MGT.(PR.)*	1,2, 6,11, 7.3,14.2, 14.3,14.4, 14,5.

P < .05*
P < .01**
P < .001***

TABLE 9.2

THE NUMBERS USED TO IDENTIFY PREDICTOR VARIABLES FOLLOW THE VARIABLES IDENTIFICATION TABLE 5.1.

STEPWISE MULTIPLE REGRESSION OF ALL PREDICTOR VARIABLES AND IFE SCORESA:

CROSS-VALIDATION RESULT:

VARIABLES	R	R^2	ADJUSTED R^2	P LEVEL
GROUP 1.				
1. FIRST YEAR IFE SCORES				
SLC TOTAL SCORE	.21	.04	.04	.011
PARENT OCCUPATION-F	.26	.07	.06	.003
SLC DIVISION I	.29	.08	.07	.008
MAHARAJGUNJ CAMPUS	.33	.11	.10	.009
2. SECOND YEAR IFE SCORES				
PARENT OCCUPATION-F	.18	.03	.03	.003
POKHARA CAMPUS	.25	.06	.05	.009
SLC TOTAL SCORES	.29	.09	.08	.009
3. THIRD YEAR IFE SCORES				
MATHEMATICS	.15	.02	.02	.014
GROUP 2.				
1. FIRST YEAR IFE SCORES				
SLC TOTAL SCORES	.27	.07	.07	.000
PARENT OCCUPATION-B	.31	.10	.09	.008
2. SECOND YEAR IFE SCORES				
SLC TOTAL SCORES	.18	.03	.03	.004
ENGLISH	.22	.05	.04	.028
3. THIRD YEAR IFE SCORES				
PREVIOUS WORK EXP.	.18	.03	.03	.000
ENGLISH	.27	.05	.04	.027

TABLE 9.3

STEPWISE MULTIPLE REGRESSION OF THREE COMPULSORY SUBJECTS OF ADMISSION CRITERION AND IFE SCORES:

VABIABLES	R	R^2	ADJUSTED R^2	P LEVEL
GROUP 1.				
1. FIRST YEAR IFE SCORES				
MATHEMATICS	.14	.02	.02	.002
ENGLISH	.21	.05	.04	.008
2. SECOND YEAR IFE SCORES				
ENGLISH	.14	.02	.01	.005
MATHEMATICS	.18	.03	.02	.044
3. THIRD YEAR IFE SCORES				
MATHEMATICS	.17	.03	.02	.006
GROUP 2.				
1. FIRST YEAR IFE SCORES				
MATHEMATICS	.19	.03	.03	.000
ENGLISH	.25	.06	.05	.009
2. SECOND YEAR IFE SCORES				
MATHEMATICS	.13	.02	.01	.032
3. THIRD YEAR IFE SCORES				
MATHEMATICS	.15	.02	.02	.014

TABLE 9.4