CHAPTER X

DISCUSSION

This study examined the magnitude of relationship between the dependent (IFEs) and independent variables. The independent variables were identified from entrance requirement for certificate level of nursing program, which comprised of fourteen variables.

The result of the first step of analysis indicates that significant relationship exists between predictor variables and performance on IFEs. Although it was statistically significant, and six predictor variables entered into the regression equation, even the strongest relationship accounted for only 11 % of variance in first year IFE. The data analysis disclosed two variables like English and Mathematics which were predictive of achievement on both first year and third year IFEs. The another variable, SLC total score was also repeatedly identified. Since the sample size was rather large, the probability was $p = 0.001$ of finding a R^2 of .05 by chance. With the large samples, even the modest relationships may be statistically significant and the magnitude of relationship may have little practical value (Polit, D. 1978). It does not mean that the study

result has no association and practical value. The amount of R^2 limits the precise interpretation. R^2 indicates the strength of association. The amount by which the prediction error variance is reduced is directly related to square of a correlation coefficient. The square of a correlation coefficient tells us how strong the relationship between variables is. It is also very likely that the correlations are prevented from being higher due to the phenomenon of restriction of range. In other words, when the full range of score is not permitted to enter computation of correlation coefficient, the size of correlation is artificially lower and then predictability lessened. This may occur in nursing programs since the applicants with low scores are not admitted.

Furthermore, this study also investigated the relationship among potential predictors and all subjects of three IFEs. Thirteen predictor variables out of fourteen were found to be correlated. They all made a significant contribution as predictors of various subjects of IFEs. Five subjects of first year IFE fell in higher rank (R^2 .15 - .27). None of the subjects of second year IFE fell in this rank. This indicates that there is more gains in predictability of subjects of first year and third year IFEs. The stepwise multiple regression yielded that maximum predictability was achieved by Science, Mathematics, total SLC score, age,

resident, previously earned academic certificate, previous work experiences related to nursing, SLC division I, and attended campuses (R^2 .15 - .27) for first year IFE. For third year IFE, the maximum predictability was achieved by English, Mathematics, marital status, SLC division I, parents' occupation-business and all campuses except UMN campus. It is noteworthy that the subjects of third year IFE which fell in higher rank were all practicum subjects.

The cross-validation result showed shrinkage in first and second year IFEs and increment in third year IFE. The differences were little bit large in second and third year IFEs. Some of the predictor variables of group 1 did not appear in group 2. This may be due to sampling variation. It may be due to the fact that, when a random hold-out sample was used for cross-validation, the sampling distribution of scores differences between the validation and various hold-out samples may vary from very small to very large. It is likely, if random fluctuation is large, and it occurs with important predictor variable, then the reliability of validation regression equation would be weakened. The result of cross-validation will show relatively large amount of shrinkage.

The stepwise multiple regression analysis was employed which provides possibility of checking variables at each step for continued importance. For instance,

other methods like in forward selection, once a variable enters the model it stays. The stepwise method removes unimportant and retains important variable. This usually occurs when the two predictor variables related to each other (Milton, J. S. et al 1990).

Among three compulsory subjects required by admission criterion, Mathematics and English emerged as contributing significantly to prediction of three IFEs (R^2 .02 - .06). There was no significant correlation noted for Science. The reliability of validation regression equation is not weakened by shrinkage.

The literature review revealed various studies concerning with students' academic achievement. These results are different from this study in various aspects like educational standard, grading system, pre-admission criteria, student achievement indicators and licensing examinations. The investigator was unable to find other studies describing the performance on IFEs and hesitated to draw conclusions based on different type of results.

As with any other correlational study, a problem exists when studying a restricted sample, because we evaluated only those students who were successful in being admitted to nursing education programs. We do not know how the rest of the applicants pool might have done in our programs. The sample was restricted further to those who had completed the prescribed course and

graduated, and did not include those who failed and dropped out of the program. Thus, the result may be considered as conservative estimates of predictive validity.

CONCLUSION

This study has concentrated on the relative importance of various variables required by the admission criteria for the certificate level nursing program in predicting students' performance on IFE. Thus, this paper contributes to the study of the predictive validity of entrance requirement widely used in nursing campuses. The result of the analysis of total group indicates it is considerably useful in predicting first year IFE. The useful variables are: SLC total score, SLC division I, English, Mathematics,, parents' occupation-business, and Pokhara campus. The analysis of individual subjects of IFE reveal that the relatively strongest relationship was among the practicum scores of third year IFE and predictors. They are: Midwifery 'A' - practicum, Midwifery 'B' - practicum, Midwifery 'C' - practicum and Ward Management - practicum. Here, the presence of significant relationship between pre-admission variables and practicum performance on these subjects is noteworthy. In addition, the strongest relationship was also found with five subjects of first year IFE. This analysis did not yield higher relationship with second year IFE.

It was apparent that R^2 declined from group 1 to group 2. The lone exception is third year IFE. The shrinkage is not large. The three compulsory subjects

alone were low to permit prediction. Although the amount of variance explained by three compulsory subjects is low, Mathematics is found to be consistent predictor. Furthermore, the result of this investigation indicates that combination of three compulsory subjects and other variables function much better in predicting IFEs. When the three compulsory subjects were entered into a regression model in conjunction with other predictor variables, the explained variance of IFE scores increased 3 - 6 % except in third year IFE of group 1. This suggests that other variables have contribution in predicting IFEs.

On the whole, identified predictor variables of admission criteria made a significant contribution to the prediction of success on IFEs. It was also noted that the actual correlation coefficients were not particularly high. Based on present empirical evidence, admission criteria of certificate level of nursing program alone is not sufficient in predicting students' performances on IFEs. However, it may serve as base line data for additional research.

Since this study focused on admission criteria only so the stated predictor variables are limited. Thus, this alone is not sufficient evidence. There may be other potential predictor variables related to performance on IFEs. Thus, further studies are needed to gain knowledge of importance of other predictor

variables. It is suggested to explore and build a maximum model containing the important predictor variables for further clarification of predictive ability of those factors. In other words, additional research should delineate new sets of variables which are related to IFEs. In addition, nursing education programs may develop and cross-validate the prediction equations in predicting IFE scores, primarily for students selection purposes.