

Chapter 5

Conclusions and Discussion

In this chapter, the conclusions and discussion are presented. This study aimed (1) to investigate the association in academic achievement with each of several determinants and (2) to construct a model for predicting the academic achievement of graduate students. A cross-sectional study design was used for this study. The target population was graduate students from Prince of Songkla University in Thailand. In this study, the subjects who had graduated during academic year 1993 – 1997 were selected from this population. The reason for this selection is that they comprise the most complete data set. The samples consisted of 294 graduate students selected by a stratified random sampling method. Two-sample *t* tests and one-way analysis of variance were used for testing hypotheses in this study, and stepwise multiple regression analysis was used for fitting the model. In the following sections the results for each of the objectives is described.

Conclusions

1. The association between academic achievement and determinant

The univariate data analysis found that academic achievement is different for faculty, BA GPA, and total number of years of study. These determinants are related to academic achievement. These are the most important determinants, gives highly significant p-value (0, to three decimal places). BA GPA had the highest positive correlation, that is, 0.283. Total years of study had a negative correlation ($r = -0.226$). These determinants are significant correlated with MA GPA.

2. Model for predicting the academic achievement of graduate students

The second objective was to construct a model that can be used to predict the academic achievement of graduate students. Multiple regression analysis using a stepwise procedure, gives a of the most important predictors for predicting the academic achievement of the graduate students. These are marital status, faculty

group, BA GPA, duration from BA to MA, and total number of years of study. Thus the best fitting multiple regression model comprise these variables. The model is as follows:

$$\begin{aligned} \text{Academic Achievement} = & 2.923 - 0.092 \text{ married} + 0.121 \text{ faculty group 3} \\ & - 0.114 \text{ college \& others university} + 0.189 \text{ BA GPA} \\ & + 0.056 \log_2(\text{duration BA to MA} + 1) \\ & - 0.079 \log_2(\text{total years of study}). \end{aligned}$$

Where, faculty group 3 comprise Nursing, Education, Humanities, Natural Resources, and faculty group 2 comprise Agro-Industrial, Engineering, Management Science, and Science & Technology. The other two faculties (Environment Management, Science) belong to group 1.

Discussion

The discussion on this study can be presented in the following topic:

1. The association between academic achievement and the determinant

The value of the standard deviation of grade point average of graduate students (0.27) was used for calculated the sample size (see Chapter 2). This value was based on previous research (Choochom and Sucaromana, 1988 : 45). However, this study found that the standard deviation of grade point average of the graduate students is 0.25. This is nearly the same a 0.27, so that is an appropriate value for estimating the sample size.

The findings from this study show that faculty, total years of study, and BA GPA are related to academic achievement. In particular, BA GPA is consistent with the findings of many researchers (Thani Nongnuch, 1984 : 386, Orapin Choochum and Achara Sukharom, 1988 : 60, Metta Kuning, 1997 : 42, and Montarat Chupinit, 1997 : 90-92). These conclude that grade point average at a lower level of education is a good predictor for performance at a higher level of education.

The graduate students with different sex and ages were not different in academic achievement. This is not in accordance with what Orapin Choochum and Achara Sukharom found, namely, that female students had higher academic

achievement than male students. This could be the result of difference in the outcome used for analysis. That is, the outcome used in that study was the academic achievement of graduate students in each semester while they were studying, whereas in this study the outcome was from those who graduated. In the first semester, the graduate students had to take fundamental courses, which were not in their specific field of study, and could be the cause of lower academic achievement of male students. The graduate students with higher ages tend to have higher academic achievement except for those who over 40 years. This is because the education at the graduate studies level is different from that of the undergraduate studies level in using the ability of critical thinking in analyzing the cases. For this reason, those who gained a lot of experience in working would be able to use logic more effectively.

2. The group of effective predictor in predicting academic achievement

According to this study, BA GPA is the most important predictor, consistent with the theory and many related studies, that learner characteristics are the most important variables of all explaining academic achievement (Klausmeir, 1961, page 28-29). And this also corresponds with some results from the study of Bloom, that there are three groups or variables effecting academic achievement: cognitive behaviours, effective characteristics and teaching quality (Bloom, 1976, page 167-176). This finding is also consistent with other research, which concludes that GPA at a lower level of education is a good predictor for academic achievement at a higher level of education. That is, GPA in upper secondary education is a good predictor for BA academic achievement. And likewise, GPA at the bachelor's degree level is also a good predictor for MA academic achievement. It is remarkable that in considering the admission of graduate students, the university should consider GPA in the bachelor's degree with the marks they got in enrolling in the Master's degree of the university. This BA GPA is positively related to academic achievement of graduate students and has more influence in predicting MA GPA than other predictors. However, the analytical finding shows that the learning institutes in the undergraduate level are colleges and others, except that the regular universities and open universities have a negative relation with academic achievement. That is, the student who

graduated from colleges had lower academic achievement than those who graduated from regular universities and open universities. The other important predictor, duration from BA to MA has a positive effect on academic achievement. This can account for 5.6% of variation in academic achievement. It means that the students with longer duration from BA to MA had higher academic achievement. This is because their working experience in their specialization can be advantageous for their study.

The result of this study can be summarised as follows. Marital status, faculty group, BA GPA, duration from BA to MA, and total number of years of study are important predictor for predicting academic achievement of graduate students. They can explain 26.2% of the variation in academic achievement. Therefore, the other factors, which are not included in this study, could have influential and effects directly or indirectly on academic achievement.

Limitations

This study showed that grade point average at the bachelor's degree was related to academic achievement of graduate students. Secondary data were used. However factors affecting academic achievement are multiple, and include other determinants such as study attitude (respect towards teacher and teaching instruction, and environmental and material for study) and learning behaviours. These data are best obtained by primary data sources (using questionnaires). However, when using questionnaires one should be careful with the answers, because the subject answers may be incomplete and they may not intentionally complete all answers, giving a wrong result. So if you need to collect the data to fill in a questionnaire, you should not get too much data. In addition, entrance examination scores would be useful, but usually there is no record for such data.

Further research, (1) focus on each major of graduate students and additional variables with factors of study attitude and learning behaviours, (2) focus on difficulties faced by students, rather than academic achievement, which difficulties (e.g. failure to complete) are much more important and closely than academic achievement.

Suggestion and application

1. The study founded that grade point average at the bachelor's degree was related to the academic achievement of graduate students This findings should be applied when students are enrolling in the Master's degrees of universities.
2. The results of this study can be used to support administrators and relevant persons in the education of graduates at universities for planning and development.
3. The model from this study can be predicts the academic achievement of graduate students of Prince of Songkla University.

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