

Chapter 5

Conclusion and Discussion

In this study we have investigated the learning style of high school students in Songkhla province. The study objectives were as follows:

- (1) to study the learning styles of the high school students in Songkhla province;
- (2) to study the relationship between the learning styles of high school students in Songkhla province and demographic and socio-economic factors;
- (3) to study the relationships between the various learning styles.

The sample consisted of 196 high school students selected by a stratified random sampling method. The questionnaire included 42 items and nine determinants. Three steps of analysis were used. First, factor analysis was used to reduce the number of outcome variables. Five factors were thus selected, labeled *Collaborative*, *Like to learn*, *Independent*, *Hate to learn* and *Not creative*. Second, univariate analysis was used to investigate an association between the determinants and outcomes. We used two-sample t-tests and analysis of variance for testing hypotheses in this study. Finally, backward elimination multiple regression analysis was used for fitting the model.

In the following sections the results are summarized for each of the objectives.

5.1 Conclusions

The conclusions from this study can be presented as follows.

- (1) With respect to studying the learning style of the high school students in Songkhla province, these students have the highest scores on the *not creative* learning style (mean=3.79, 95% CI 3.71 – 3.86), and they have the lowest scores on the *independent* learning style (mean = 2.64, 95% CI 2.56 – 2.74).
- (2) With respect to the relationship between the learning styles and the demographic and socio-economic factors, the following results were obtained from the univariate data analysis:

(a) Program of study was a determinant of both the *collaborative* factor and the *hate to learn* factor. Students taking the general program had lower *collaborative* factor scores, while students taking the science-mathematics program had higher scores on the *hate to learn* factor.

(b) Grade was a determinant of the *like to learn* factor. Students in Mattayomsuksa 4 had higher scores on this factor.

(c) GPA and school size were determinants of the *independent* factor. Students with GPA scores of 3 or more had lower scores on this factor, while students in small or large school had lower scores on this factor than students in average and medium to large schools.

(3) With respect to the relationship between the learning styles and the demographic and socio-economic factors, the following results were obtained from the multiple regression analysis.

(a) Program was a determinant of the *collaborative* learning style (p-value 0.022), explained by the model

$$\text{Collaborative} = 3.554 - 0.089 \text{ engl/math} + 0.033 \text{ engl/fren} - 0.267 \text{ general}$$

(b) Grade was a determinant of the *like to learn* factor (p-value 0.034), explained by the model

$$\text{Like to learn} = 3.687 - 0.159 \text{ grade5} - 0.220 \text{ grade6}$$

(c) GPA was a determinant of the *independent* factor (p-value 0.0002), explained by the model

$$\text{Independence} = 2.330 + 0.380 (\text{GPA } 2.0-2.9) + 0.499 (\text{GPA} < 2)$$

(d) Both program and GPA were determinants of the *hate to learn* factor (p-values 0.0028 and 0.040, respectively), explained by the model

$$\begin{aligned} \text{Hate to learn} = & 2.914 - 0.344 \text{ engl/math} - 0.160 \text{ engl/fren} - 0.338 \text{ general} \\ & + 0.214 (\text{GPA } 2.00 - 2.99) + 0.323 (\text{GPA} < 2) \end{aligned}$$

- (4) With respect to the relationships between the various learning styles, the *like to learn* and *collaborative* learning styles have the strongest relationship (correlation coefficient $r = 0.583$) and the *hate to learn* and *collaborative* learning styles have the weakest relationship ($r = -0.057$).

5.2 Discussion

The discussion is focused around the objectives as follows.

- (1) To study the learning style of the high school students in Songkhla province

The high school students have the highest scores in the *not creative* learning style and the lowest scores in *independence* learning. Commenting on the caring of Thai children, Amornviwat (1991) reported that Thai children are taught orally by instruction, warning, deceiving, browbeating, rebuking and forcing them to explain things. Education in Thailand had traditionally adhered to strict regulations and practices, which focus more on rote learning than equipping students for life. (Chinnawat, 2001). This finding may explain our results.

- (2) The relationship between the learning style with the demographic factors and socio-economic factors.

We found that the program was a determinant of the *collaborative* learning style. The students in english-french program had greater *collaborative* learning style than the students in the science-mathematics program, and the students in the english- mathematics and general programs had lower *collaborative* scores than the students in the science-mathematics program. The finding is consistent with the study reported by Suchart (1989).

Grade was found to be a determinant of the *like to learn* learning style. We found that students from mattayomsuksa 4 had a greater desire to learn than students in mattayomsuksa 5 and 6. This finding may be a consequence of the fact that the concepts for learning and the teaching style in the different grades are different. The students in mattayomsuksa 4 have a feeling for applying themselves to new things, and they have the intention of learning. But the students in mattayomsuksa

5 and 6 may have lost this desire to learn because they have encountered difficulties.

Students in the science-mathematics program may have greater hatred of learning than students in other programs because this program is inherently more difficult. This result also might be a consequence of the manner in which science and mathematics are taught in Thailand.

It is not too surprising that the students with $GPA < 3$ have greater hatred of learning than students with $GPA \geq 3$. In fact it is likely that desire to learn is a determinant of GPA, rather than GPA being a determinant of desire to learn. It is likely that students who desire to learn will achieve higher GPA scores.

However, we found that GPA was a determinant of the *independent* learning style. Students with $GPA < 2$ showed greater independence in learning than students with higher GPAs. This finding is consistent with the results obtained by Suchart (1989). A possible explanation is that the Thai education system does not encourage independent thinking.

- (3) The relationships between the various learning styles. We found that the pairwise correlation coefficients between the five learning style factors ranged from -0.07 to 0.58 . The *like to learn* and *collaborative* learning styles had the strongest relationship (0.58), followed by *not creative* and *like to learn* (0.42), *hate to learn* and *independence* (0.38) and *collaborative* and *not creative* (0.34). The other correlation coefficients were all less than 0.1 in magnitude.

5.3 Study limitations

This study investigated the dependence of learning style on demographic and socio-economic factors only. There may be other variables, such as wisdom circumstance, religion, and family situation of students that affect the students' approaches to learning.

Another limitation is that the study was undertaken only in an urban area in one year.