CHAPTER 3

METHODOLOGY

This chapter presents information in the preliminary and the main study. The preliminary study involved constructing the questionnaires, piloting the Learning Style Questionnaire, and gathering and processing information about students' English learning background. The main study was about the procedures used in the study. It dealt with information about the subjects, research instruments, data collection, and data analysis.

1. Preliminary Study

1.1 Construction of the Learning and Teaching Style Questionnaires

Before the learning and teaching style questionnaires were constructed, one of the subjects' classes was observed by the investigator for three different occasions to uncover what normally took place in the class. It was found that the teacher had the students work in pairs to practice a dialogue, work alone on the exercises, work in groups for a class project. Besides, the teacher had students volunteer to read the sentences to the class, do role-play, summarize what they had learned by themselves, etc. The observed classroom events were then analyzed and two questionnaires were designed to reflect learning and teaching in the classroom. Each questionnaire consisted of 24 items, 2 of which represented each of the students' 12 learning styles and each of the teachers' 12 teaching styles, reflecting the combination of Reid's (1995), Willing's (in Nunan 1991), and Lightbown and Spada's (1999). These styles

were visual, auditory, tactile, kinesthetic, individual, group, analytic, global, reflective, impulsive, tolerant of ambiguity, and intolerant of ambiguity. Both questionnaires had a 5-point-rating scale which represented the levels of students' preference for each learning style and the levels of teachers' practice of each teaching style (see **Appendix A** and **B**).

1.2 The Pilot Study of the Learning Style Questionnaire

After the construction of the two questionnaires, the learning style questionnaire was piloted in the first semester of 1999 academic year to refine items and establish its reliability with 77 students whose language ability and other characteristics were similar to those of the subjects in the main study. The reliability of the questionnaire was 0.83. The format of the questionnaire and some items were adjusted to make it easy to understand. The teaching style questionnaire was then adjusted in parallel to the learning style questionnaire.

1.3 Study of Students' English Learning Background

Attached to the Learning Style Questionnaire were questions asking about the students' English learning background and other personal information. These questions were used to find out about many factors other than learning and teaching styles (e.g. sex, age, religion, hometown, parents' marital status, previous school, first exposure to English, and previous years of learning English), which might influence their English language achievement (see **Appendix C**). The information obtained was computed to find out its correlation with the students' English achievement. The results confirmed that these factors were not varied among the students. That is, the students in this study possessed quite similar characteristics and backgrounds (see **Appendix D**). Thus, the study assumed that these factors were consistent across the

whole group of students. Hence, the congruence or non-congruence between learning and teaching styles which each of the parties brought into the classroom could be assumed to have relationship with the success in the teaching and learning.

2. The Main Study

2.1 Subjects

The subjects in this study were 98 fifth-year students (equivalent to the second year university students) and 2 teachers at Songkhla Business Administration College. The students were taking the English course (01-320-206) in the second semester of 1999 academic year. They were from three classes and the class sizes ranged from thirty-five to forty students. One class majored in Accounting, one in Computer, and the other in Marketing.

2.2 Research Instruments

The instruments used in this study were the Learning Style and the Teaching Style Questionnaires, and the students' scores in two courses.

2.2.1 Two Sets of Questionnaires

2.2.1.1 The Learning Style Questionnaire

The Learning Style Questionnaire with a 5-point rating scale, asking about the students' preferred ways of learning English, was adapted from Reid's (1995) (4 = strongly preferred, 3 = preferred, 2 = moderately preferred, 1 = disliked, 0 = strongly disliked, see **Appendix A**). The questionnaire consisted of 24 items—2 items on each

type of the 12 learning styles which were reflected in the observed classroom events. In other words, the styles emerging in each step of classroom teaching and learning were focused on. They were *visual, auditory, tactile, kinesthetic, individual, group, analytic, global, reflective, impulsive, tolerant of ambiguity,* and *intolerant of ambiguity.*

2.2.1.1 The Teaching Style Questionnaire

The teaching style questionnaire was designed in parallel with the Learning Style Questionnaire, asking about the teachers' teaching styles as perceived by the subjects of the study. It was also a 5-point rating scale (4 = mostly practiced, 3= frequently practiced, 2 = moderately practiced, 1= rarely practiced, and 0 = never practiced, see **Appendix B**).

2.2.2 Students' Scores in Two Courses

Students' scores in two courses—Course 01-320-205 and Course 01-320-206—were used as a measure of the English language achievement in this study. The scores in the Course 01-320-205, the prerequisite course to 01-320-206, were used as a baseline to determine the level of language achievement and the scores in the Course 01-320-206 were used to represent the achievement after the learning during the time of this study.

2.3 Data Collection

The data in this study were the students' perception of their preferred learning styles and their teachers' teaching styles obtained from the Learning Style and the

Teaching Style Questionnaires, and the students' scores in two English courses (the course 01-320-205 and the course 01-320-206).

The Learning and the Teaching Style Questionnaires were used at two different times, to collect data about the students' perception of their preferred learning styles and their teachers' teaching styles. First, the students' perception of their preferred ways of learning English was collected by using the Learning Style Questionnaire in November, 1999, which was the beginning of the second semester and of the study. Then, the students' perception of their teachers' teaching styles was collected by using the Teaching Style Questionnaire, in February, 2000, which was the end of the second semester and also the end of the study. The long lapse of time between the administration of the Learning and the Teaching Style Questionnaires was to ensure that the students' perception on each questionnaire was independent of each other.

The difference in the students' scores in Course 01-320-205 (a course completed prior to the study) and those in Course 01-320-206 (a course completed at the end of the study) was used to represent an increase in their English achievement at the end of the investigation. These two sets of scores were compared to find if any increase in achievement existed and if there was, the differences in the increase would be related to the congruence between learning and teaching styles.

2.4 Data Analysis

The analysis of learning and teaching styles in this study was done in three main steps. First, 12 learning and teaching styles were identified. Second, learning and teaching styles were grouped into four correlates based on Willing's types of learners. The four correlates of learning and teaching styles are analytic, concrete, communicative, and authority-oriented. Third, the correlates of learning and teaching styles were presented in form of learning and teaching style profiles.

The following sections describe the analysis of learning and teaching styles, the congruence between them, and the relationship of their congruence to the English language achievement.

2.4.1 Analysis of learning styles

The students' perception of their learning style preference was analyzed to establish their English learning style profile following these steps. The statistical technique used in this stage was arithmetic mean.

1) Level of the students' preference for each item in the Learning Style Questionnaire was computed for the item preference mean.

The criteria used to determine the levels of item preference mean were as follows.

3.21 - 4.00	= strongly preferred
2.41 - 3.20	= preferred
1.61 - 2.40	= moderately preferred
0.81 - 1.60	= disliked
0.00 - 0.80	= strongly disliked

2) To establish the students' English learning styles, the preference means of items representing the same style were summed up and averaged for the style preference mean and then ranked in order of preference.

3) To establish correlates of students' learning styles, the preference mean of each learning style in the same correlate was summed up. Then, all the preference means of all the learning styles in the same correlate were averaged for the correlate preference mean. Each correlate of learning styles consists of a learning style or a group of learning styles shown below in brackets.

Correlate 1: Analytic (analytic, reflective, and individual styles)

Correlate 2: Concrete (visual, global, auditory, and tactile styles)

Correlate 3: Communicative (group, kinesthetic, impulsive, and tolerant of

ambiguity styles)

Correlate 4: Authority-oriented (intolerant of ambiguity style)

4)   To establish the students' learning style profile, the means of four correlates of their learning styles were summed up to make the total mean of the learning style profile, which was then converted into 100%. Then, the percentage was used to compute the share of each correlate in the learning style profile.

2.4.2 Analysis of Teaching Styles

The students' perception of their teachers' teaching style practice was analyzed to establish the teachers' teaching style profile following these steps. The statistical technique used in this stage was arithmetic mean.

1) Level of the teachers' practice of each item in the Teaching Style Questionnaire was computed for the item practice mean.

The criteria used to determine the levels of item practice mean were as follows.

3.21 - 4.00	= mostly practiced
2.41 - 3.20	= frequently practiced
1.61 - 2.40	= moderately practiced
0.81 - 1.60	= rarely practiced
0.00 - 0.80	= never practiced

2)   To establish the teachers' English teaching style, the practice means of items representing the same style were summed up and averaged for the style practice mean and then ranked in order of practice.

3)   To establish correlates of teachers' teaching styles, the practice mean of each teaching style in the same correlate was summed up. Then, all the practice means of all the teaching styles in the same correlate were averaged for the correlate practice

mean. Each correlate of teaching styles consists of a teaching style or a group of teaching styles shown below in brackets.

Correlate 1: Analytic (analytic, reflective, and individual styles)

Correlate 2: Concrete (visual, global, auditory, and tactile styles)

Correlate 3: Communicative (group, kinesthetic, impulsive, and tolerant of ambiguity styles)

Correlate 4: Authority-oriented (intolerant of ambiguity style)

4) To establish the teachers' teaching style profile, the means of four correlates of their teaching styles were summed up to make the total mean of the teaching style profile, which was then converted into 100%. Then, the percentage was used to compute the share of each correlate in the teaching style profile.

2.4.3 Comparison of the Students' Learning Styles and Their Teachers' Teaching Styles

In this stage, two sets of comparison were discussed. First, the students' preference mean for each learning style was compared with the teachers' practice of each teaching style. Second, the mean of each correlate in the learning profile was compared and discussed with the mean of each correlate in the teaching style profile.

2.4.4 Analysis of the Congruence between the Learning and Teaching Styles

Three sets of computation were involved. First, the coefficient of the correlation between the students' levels of preference for each learning style and their teachers' levels of practice of each teaching style was computed. Second, the coefficient of the overall correlation between the students' levels of preference for learning styles and the teachers' levels of practice of teaching styles was computed.

Third, the coefficient of the overall correlation between each student's levels of preference for learning styles and their teacher's levels of practice of teaching styles was computed. All of these correlation coefficients were then classified into congruence groups based on the following criteria for categorizing three levels of matching between learning and teaching styles. Then, the number of students in each congruence group was counted.

Table 1 Levels of Matching between Learning and Teaching Styles

Correlation Values	Level of Matching
0.400 - up	High match
0.100 - 0.399	Moderate match
below - 0.099	Low match

2.4.5 Analysis of the Relationship of the Congruence between Learning and Teaching Styles to the English Language Achievement

In this stage, the students' language achievement as reflected through the differences of scores in Course 01-320-205 and Course 01-320-206 was used to assign the students into four groups. The students were classified into four achievement groups by the difference in their achievement as shown below.

Table 2 Achievement Levels

Achievement Groups	Differences in Scores between Course 01-320-205 and 01-320-206 (points)
A	17-25
B	9-16
C	1-8
D	-7-0

Then, the number of the students in each achievement group was counted. Last, the Chi-square was employed to find out the relationship of the congruence between learning styles and teaching styles to the English language achievement. The data used in this computation was the number of students in each achievement group and the number of the students in each congruence group.