

CHAPTER 3

RESEARCH METHODOLOGY

The previous chapters presented an introduction and theoretical review of the literature and research related to cohesion and coherence. This chapter focuses on the research methodology of the present study. It includes a description of the subjects of the study, research instruments, data collection procedure and data analysis respectively.

3.1 Subjects of the Study

This study investigated the use of cohesive ties which include reference, conjunction and lexical cohesion and writing quality (coherence) of two sample groups: fourteen second-year medical students at the National University of Malaysia (NUM) in Kuala Lumpur; and fourteen second-year medical students at Prince of Songkla University (PSU), Hat Yai Campus, Thailand. These two groups of second year medical students were selected as respondent subjects of this study for 4 reasons. First, the selection of medical students as representatives of their respective universities and countries comes from the notion that students in this field are the hope of their country. This can be referred to in the Prince of Songkla Faculty's vision of 2007 as "To Be the Nation's Leading Medical School," and as one of the faculty's objectives, namely, "To Be a High-Level Academic Center." Then, the medium of instruction used in these two universities is the national language of each country except for some specific programs such as medical courses which require advanced, intensive and extensive use of English. This is because many of the technical words in the courses taught at the faculty of medicine are not translated into the students first language of Malay or Thai. Next, the second year students were chosen because these medical students had already finished their English course requirements for the program and were using English related to their field at a preclinical level. For example, almost all of their textbooks were in English and very often these groups of

students would use English in their classroom lectures. In addition, the second-year students were not busy with clinical practices, and thus had more time to complete the task given when compared with those at other levels of the same program. Having considered all these reasons, the researcher was confident in the possibility of access to data.

Although the two subject groups shared certain similar characteristics, they differed in terms of linguistic and educational backgrounds. The subjects from the National University of Malaysia: 9 females and 5 males, were native speakers of the following languages: Malay, Chinese, Hindi or other language (unspecified). The average age when they first started their English lessons was 5.7 years and the average length of time studying English was 14.5 years. The subjects from Prince of Songkla University consisted of 12 females and 2 males. They were linguistically homogenous because 100% were Thai native speakers. The Thais' average age when they first began to study English was 7.4, and their average years of studying English were 13.3. With reference to ESL/EFL contexts, the Malaysian respondents had more opportunities to use English outside of their classrooms and to have access to English media in Malaysia in comparison to the Thai respondents.

3.2 Research Instrument

There were two parts of the research instrument used in this study. The first part elicited demographic information on the subjects' education, their exposure to English language education and their English preferences which can be identified in Section 1 of the research instrument. The second part was divided into two sections: Sections 2 and 3 (see Appendix E). Section 2 was a writing test, which required the subjects to write an essay of approximately 250 words in a narrative mode on the topic "My First Year as a Medical Student." In Section 3, the participants were required to write an essay of approximately 250 words in an argumentative mode on the topic "In modern daily life, purchasing food from fast food chains is more convenient than having food prepared at home."

The researcher examined the frequency of cohesive devices in both the narrative and argumentative essays written by the Malaysian and Thai participants.

The data obtained from Section 1, the subjects' first languages and their educational backgrounds, as well as their English language exposure and preferences, were used to explain their use of cohesive devices and their writing performance.

3.2.1 The Pilot of the Instrument

The main purpose of the pilot of the instrument was to examine the validity of the test. The instrument was aimed at eliciting the students' ability in writing narrative and argumentative essays. In other words, the instrument was considered valid provided that the subjects were able to produce 250 word essays of narrative and argumentative modes with the use of different types of cohesive devices (Bacha, 2002 and Henning, 1987).

Prior to data collection in Kuala Lumpur, Malaysia, a letter to explain the research project and to request permission to obtain the data was sent to the Dean of the Faculty of Medicine, National University of Malaysia. After having been granted permission, the researcher went to Kuala Lumpur in order to pilot the research instrument and collect the actual data. After meeting with the professor, the medical lecturer from the Department of Public Health, Faculty of Medicine, at the National University of Malaysia, Kuala Lumpur, who was in charge of the target group, the professor preferred to implement the instrument herself for scheduling convenience. Therefore, the researcher gave the instrument to the professor to pilot the research instrument.

3.2.1.1 Pilot Procedure

The instrument was piloted to 7 second-year Malaysian medical students who were not involved in the main study at the National University of Malaysia. Of these, 4 were females and 3 were males. All of them spoke Malay as their first language. They were randomly selected by their lecturer who administered the pilot of the instrument. These pilot subjects' average age when they began their first English lessons was 6 years and their average length of studying English was 13 years. Six of the pilot subjects perceived English writing as either difficult or most difficult. Only

one of the subjects considered writing in English as moderately difficult. The pilot of the test instrument was held on the August 19, 2006.

3.2.1.2 Results of the Pilot Study

The pilot study indicated that only 1 student gave the information on Section 1 of the instrument, i.e. merely providing information on the demographic characteristics. This might be because it was not convenient for him at that particular time to complete the writing sections. The six remaining subjects wrote approximately 250 words of a narrative mode (Section 2). Of these, only five subjects wrote essays of an argumentative mode (Section 3). With regards to the essays' length, only 1 subject could produce a 250-word essay of an argumentative mode, while the other 4 could produce about 100 words in this section. All the subjects spent less than one hour to finish all the tasks given in the instrument. Moreover, the 100 word essays written by the piloted subjects on the argumentative topic did not fully follow the rhetorical convention of an argumentative mode, which includes: *claim – justification – solution* (Purves, 1988). Instead, they used a *cause – effect* style in their writing. In addition to the results obtained from the three sections of the instrument, it was found that 3 of the piloted subjects wrote some comments on the writing test. They said that the test was too difficult and that it would take too much of their time to complete. They also said that it was only suitable for those who were experts in English. Among them, 2 suggested that “fill-in-the-blank” and “short sentences” would be a better way to test the learners' proficiency.

Based upon the pilot results, the researcher assumed that the subjects of the actual study would do better if some changes were made to the research instrument. Therefore, subsequent to the pilot of the instrument, the researcher made three changes in the research instrument. One change was on the time allocation; the subjects were allowed to complete the instrument in 60 minutes instead of an open time frame. The second change was that the topic of the argumentative section; “Purchasing food from fast food chains is a convenience in modern daily life.” was replaced by “In modern daily life, purchasing food from fast food chains is more convenient than having food prepared at home.” The topic was rewritten for clarity so

that students could better understand the topic and produce an essay in the right direction. The third change was the inclusion of the objectives of the research in the research instrument (see Appendix E); no clear objectives were given on the first version.

Therefore, the pilot of the instrument of this study was very useful in the way that it helped the researcher to revise and improve the instrument so that the allocation of time was appropriate, the instructions were clearer and the number of words produced in each essay was increased to satisfy the research objectives.

After these changes were made, the revised version of the research instrument was given to the medical school professor to administer to the actual research subjects in Malaysia.

As for the Thai subjects, no pilot was conducted due to time limitations and constraints on the subjects' side. By the time the pilot test of the instrument was due to be carried out, the Thai subjects were busy having the university's academic week, mid-term examinations and convocation ceremony. Therefore, the research instrument was piloted only in Malaysia.

3.3 Data Collection

The revised edition of the research instrument was implemented around mid-August 2005 to 20 medical students at National University of Malaysia with the assistance of the same professor. The participants were given Sections 1, 2 and 3 of the research instrument which required them to complete their background information on: age, gender, their exposure to English language, and their opinions and perceptions on their writing skills. The participants were required to write a narrative and an argumentative essay in Sections 2 and 3, respectively. The time allocated for the test was 60 minutes. The test was carried out in the lecture hall. Seventeen of them returned the essays to the professor, who subsequently gave the data to the researcher. Among these 17 subjects, three did not write an answer for the argumentative section; only 14 of them produced essays at the length of the research requirement. Because of this, only 14 cases were used for further evaluation; 3 cases were removed.

Around the first week of September 2005, the researcher implemented the revised research instrument that was used in obtaining the data in Malaysia to 24 students at the Faculty of Medicine, at Prince of Songkla University (PSU), Hat Yai, Thailand. As with the Malaysian subjects, the Thai students were allowed to take the test in the classroom within an hour. The test administration was monitored by the researcher using the same test procedure as in Malaysia. The overall results were that the Thai medical students didn't fulfill the research requirement of 250 words for the argumentative topic. Two students didn't write anything on the topic. Three subjects fulfilled the research requirement. Approximately, 15 students wrote about 70 words, yet couldn't follow an argumentative convention in their writing. Therefore, the data was considered inadequate to be used in the analysis. To amend the problem, the researcher contacted her advisor who accordingly advised that for the Thai respondents, the argumentative part of the research instrument be re-implemented along with a brief presentation on how to write an argumentative essay. Thus, the researcher re-implemented the argumentative part (Section 3) of the research instrument for the Thai case study on September 20, 2005. Therefore, the same group of Thai subjects received the argumentative writing test twice.

Fortunately, all 24 essays of the Thai respondents were returned and the researcher randomly selected 14 of them. However, if any data was found incomplete, the researcher replaced with the other. So, ten were removed due to the frequency of irrelevant ideas found in the essays on the argumentative part and due to the required number of the cases to be analyzed being 14, to match the number of the Malaysian counterparts. As a result, 14 responses from Thailand were selected, and the researcher began the data analysis. Finally, as specified by the test requirement, each essay was approximately 250 words and each subject wrote two essays, one narrative and one argumentative. Therefore, the total number of essays was 28 from each group which became 56 all together.

3.4 Data Analysis

The obtained data was first analyzed qualitatively to see how well the students were able to perform on the topics given in terms of coherence and the Test of Written

English Scoring Guide (shown in Table 3.4.1). In other words, the essay quality was assessed based upon such holistic Scoring Guide. Then, the data was quantitatively analyzed for cohesion which involved an examination of the kind and frequency of cohesive ties used by the subjects. In this way, the overall quality of each essay (coherence) was evaluated so as to see if there was a relationship between the physical elements (cohesion) and the writing quality (coherence).

An in depth discussion of the coherence and cohesion analyses herein follows:

3.4.1 Coherence Analysis

Bailey (1998) proposed three different approaches in assessing ESL/EFL students' written texts. These approaches are called holistic, objective and analytic scoring. In this study, holistic scoring was used for the coherence analysis. Therefore, the Test of Written English Scoring Guide (Bailey, 1998) was used in order to find out how well the students were able to write narrative and argumentative essays. The guide has the following range.

Table 3.4.1

Test of Written English Scoring Guide (Holistic Scoring)

6. *Clearly demonstrates competence in writing on both the rhetorical and syntactic levels, though there may be occasional errors.*

A paper in this category:

- is well organized and well developed
- effectively addresses the writing task
- uses appropriate details to support a thesis or illustrate ideas
- shows unity, coherence, and progression
- displays consistent facility in the use of language
- demonstrates a syntactic variety and appropriate word choice

5. *Demonstrates competence in writing on both the rhetorical and syntactic levels, though there may be occasional errors.*

A paper in this category:

- is generally well organized and well developed, though there may be fewer details than does a 6 paper
- may address some parts of the tasks more effectively than others
- shows unity, coherence, and progression
- demonstrates some syntactic variety and range of vocabulary

- displays facility in language, though there may be more errors than does a 6 paper
4. *Demonstrates minimal competence in writing on both the rhetorical and syntactic levels*
A paper in this category:
 - is adequately organized
 - addresses the writing topic adequately but may slight parts of the task
 - uses some details to support a thesis or illustrate ideas
 - demonstrates adequate but undistinguished or inconsistent facility with syntax and usage
 - may contain some serious errors that occasionally obscure meaning
 3. *Demonstrates some developing competence in writing, but remains flawed on either the rhetorical or syntactic level, or both*
A paper in this category may reveal one or more of the following weaknesses:
 - inadequate organization or development
 - failure to support or illustrate generalizations with appropriate or sufficient detail
 - an accumulation of errors in sentence structure and / or usage
 - a noticeably inappropriate choice of words or word forms
 2. *Suggests incompetence in writing*
A paper in this category is seriously flawed by one or more of the following weaknesses:
 - failure to organize or develop
 - little or no detail, or irrelevant specifics
 - serious and frequent errors in usage or sentence structure
 - serious problems with focus
 1. *Demonstrates incompetence in writing*
A paper in this category will contain serious and persistent writing errors, may be illogical or incoherent, or may reveal the writer's inability to comprehend the question. A paper that is seriously underdeveloped also falls into this category.

The researcher processed the data by making two copies from the original essays (Thai narrative and argumentative and Malaysian narrative and argumentative) and then consulted a native English speaker rater who has a Ph.D. in Cultural Geography and has been teaching ESL with experience in evaluating college level writing in Thailand for several years. There were two raters in this study: one was the

researcher and the other was the native speaker of English. Then, each rater received two sets of data; 28 narratives and 28 arguments of both Malaysian and Thai essays. The scorers employed the Test of Written English Scoring Guide (shown in Table 3.4.1) for assessing the narrative and argumentative texts. The scale was 1-6, 1 being the lowest and 6 the highest. Prior to the actual rating, the two raters discussed and agreed on the definition of coherence, of “the overall discourse-level property of unity and how well a text links together in terms of meaning and flow of ideas” (Bailey, 1998), and the Test of Written English Scoring Guide.

The scoring procedures that were agreed upon were as follows. First, the two scorers rated all essays independently. Second, they were requested to work quickly on rating coherence because of the fact that an increased reading speed can increase rating validity and reliability (McColly, as cited in Charney, 1984). This manner of scoring quality helps avoid associating rating judgments with irrelevant ideas. McColly argued that if the rater was given more time to think about the writing, it can lead to bias, and suggested that a good reading speed should be about 400 words (one essay) per minute. Third, the raters had to bear in mind not to judge only a singular factor (i.e. grammar alone) but rather consider factors as related elements that go together to make a total impression on the evaluators as pointed out by Elliot, Plata & Zelhart (1990). However, in this study both raters spent 1.33 minutes to rate each essay allowing a little more time to look at the essays. This process occurred from October – November 2005.

In order to observe the consistency between the researcher and the co-rater as posed by Bailey (1998) and Henning (1987), the scores of the two raters on narrative and argumentative essays were compared and calculated using SPSS 11.5 for Windows. The agreement between the raters was high; the Cronbach’s alpha coefficient of narrative scoring was 0.97 and that of argumentative scoring was 0.95. This means that the rating of the two raters was statistically consistent and therefore reliable (Henning, 1987).

As research question 4 attempts to investigate if there is a relationship between the frequency of use of cohesive ties and writing quality, it was essential that the high and low performers were identified in order to find out this relationship and see if the high performers’ writing differed from the poor ones. The scores of the qualitative

analysis of writing competency or global coherence were then divided into high and low proficiency based upon the Hughes (1983) technique of top 27% and low 27% of the total participants. By doing this, the researcher employed Flanagan's method (Bailey, 1998) which revealed the following steps. First, the coherence scores of the Malaysian and the Thai narrative essays and of the Malaysian and Thai argumentative essays were ranked from highest to lowest. Then, the top 27% of the narrative and argumentative essays and the bottom 27% of the narrative and argumentative essays were selected. These two subsets of essays were referred to as the high scorers and the low scorers in this study, respectively. In other words, out of the 14 sample subjects of each group, the top four were designated the high scorers and the bottom four the low scorers.

Subsequently, using the high and low scorers, based upon coherence scores, the researcher proceeded to investigate the relationship between textual coherence and the number of cohesive devices therein. Next, the researcher compared these elements within the group (Malay: high & low; Thai: high & low) and between the Malaysian and the Thai groups. Also, the researcher used the students' demographic information from Section 1 of the instrument to discuss the educational backgrounds and experiences as factors affecting participants' writing style and quality. By Examining at all these factors, the researcher found organizational and rhetorical patterns in the compositions of the two groups and determined the similarities and differences between them.

3.4.2 Cohesion Analysis

The analysis of cohesion was adapted from Halliday and Hasan's (1976) concept of a text as a semantic unity which is expressed through the use of cohesive elements. Halliday and Hasan used the term "tie" to refer to a single instance of a cohesive relation between sentences. Ties were categorized into 2 kinds: syntactic ties and semantic ties. Syntactic ties refer to the use of references and conjunctions while semantic ties refer to the use of lexical cohesion through either reiteration and/or collocation.

By using Halliday and Hasan's (1976) framework, a number of researchers like Neuner (1987), Purves (1988), and Johnson (1992) implemented a quantitative analysis of cohesion, and investigated the use of syntactic and semantic ties in the writing of their research subjects. Following their frameworks, this study examined the frequency of syntactic and semantic ties in the Malaysian and Thai narrative essays and argumentative essays. This covered an examination of three types of reference (personal, demonstrative & comparative), eight types of conjunction (causative, comparative, contrastive, objective, effect, additive, exemplified and temporal), and two types of lexical cohesion (reiteration and collocation).

This study examined cohesive ties mentioned earlier using a range of statistical analyses (frequencies, mean, standard deviation and percentage of cohesion). In addition, a t-test was also employed in this study through SPSS 11.5 for Windows in order to compare between the mean frequency of cohesive ties used in the Malaysian and Thai, Malaysian high and low-rated, and Thai high and low-rated, narrative and argumentative essays. Apart from that, the SPSS was also used to compute inter-rater reliability between the scores given by the two raters on the coherence marking (Holistic Scoring). Only then, was the researcher able to see the statistical differences in the use of cohesive devices between these two writer groups, and see how reliable the rating of the essays was.

Cohesive ties were first identified as referential, conjunctive, or lexical, followed by a counting for each category. The analysis of cohesion was carried out by two raters: the researcher and a native speaker of English. The two sample groups wrote a total of 56 essays: 28 narratives (14 from the Malaysians & 14 from the Thais) and 28 arguments (14 from the Malaysians & 14 from the Thais) which were analyzed according to the above-mentioned framework. The analysis at this level was purely linguistic; that is, the types and number of cohesive ties used in the essays of each subject group were counted. Comparative data were analyzed for the Malaysian & Thai narrative essays and then for the Malaysian and Thai argumentative essays.

Before proceeding to the cohesion and coherence analysis procedures, the four research questions need to be restated in this section.

1. Between Malaysian and Thai learners, which group uses more cohesive devices in their essays?

2. What types of cohesive devices are most prominent in essays written by Malaysian and Thai students?
3. What are the similarities and differences of frequencies and types of cohesion and coherence in essays written by Malaysian and Thai students?
4. Is there a relationship between the number of cohesive devices used and the text coherence in the compositions written by Malaysian and Thai students?

Based upon the above research questions, the followings steps were developed for analysis of the types and frequency of cohesion and coherence.

- 1) The ties were first identified as reference, conjunction or lexical cohesion and counted for each category so as to answer research questions 1 & 2.
- 2) The ties were then summed and averaged across the narrative and argumentative essays of each sample group. In order to answer research questions 3 and 4, the mean frequency of cohesive ties were used to compare the essays written by the two groups considering the following aspects:
 - 2.1) The mean frequency of cohesive ties across narrative essays written by Malaysian and Thai students
 - 2.2) The mean frequency of cohesive ties across argumentative essays written by Malaysian and Thai students
 - 2.3) The mean frequency of cohesive ties across narrative essays written by Malaysian high & low scorers (essays)
 - 2.4) The mean frequency of cohesive ties across narrative essays written by Thai high & low scorers
 - 2.5) The mean frequency of cohesive ties across argumentative essays written by Malaysian high & low scorers
 - 2.6) The mean frequency of cohesive ties across argumentative essays written by Thai high & low scorers