

CHAPTER THREE : RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on the research procedure for obtaining data to answer the research questions. The study seeks to explore the effects of collaborative learning on students' individual writing performance as well as how collaborative learning affects learners of varying language proficiencies in their writing. The chapter discusses the research design, the participants and the criteria for the selection of participants, the research instruments, the research schedule and the data analysis procedure. The data comprise the pre and post test essay scores, audio recordings of collaborative learning group discussions, researcher's observations of subjects during the collaborative learning sessions, questionnaires and interviews.

3.2 The Research Design

The present study adopted a mixed methods design which employed quantitative and qualitative research instruments. The data obtained from the pre and post tests scores and the questionnaire were analyzed quantitatively while data gathered through the audio recordings, observations and interviews as well as the essays were studied from a qualitative perspective. Triangulation was used to avoid the limitations of any one particular approach to research and to add validity to the findings (Baker &Boonkit, 2004:304).

3.3 The Sample

The sample consisted of ten Form Six Science students aged 18 to 19 years from an urban co-educational school in Klang. This particular school was chosen as the location was conducive since it is situated away from heavy traffic which makes it ideal for audio recordings. The researcher believed that a conducive setting would provide a better environment for learners to practice their communicative and writing skills. Apart from that, the school administrator, especially the acting principal, was very cooperative and helpful. Besides, the English teacher who taught the Form Six Science classes had volunteered to participate in the study as she was open to the idea that collaborative learning would help learners with regard to the writing component.

Prior to selecting this school as the site for the study, the researcher spent some time investigating some of the schools in Klang. However, these schools which only catered for Form Six students from the Arts stream were found not suitable for this study. The students approached by the researcher were reluctant to speak up as they were conscious of their spoken language, and thus worried about making grammatical mistakes. These learners found it difficult to cope with the lessons due to their low language proficiency in the language. They felt that the standard of MUET was very high as the reading texts were difficult to comprehend. Writing, too, is a skill they worry about as they do not have sufficient vocabulary and linguistic competence to produce a good piece of writing. Furthermore, the listening and speaking tasks are seen as daunting. Being handicapped in all the four skills undermined the students' confidence, and they were reluctant to converse in English as they were afraid of being ridiculed by their peers.

Taking into consideration the problems faced by the arts students, the researcher decided to carry out the study on the science stream students as they are more exposed to the language because the Science subjects such as Physics, Chemistry and Biology as well as Mathematics are taught in English. As English language is used in more than one subject, learners are given more exposure to the language. Therefore, the researcher chose a school which catered for the science stream. There were four science classes in this school. The students in these classes were not streamed according to their proficiency level and each class comprised a mixed ability group.

The researcher chose the first science class for the study as it was located at the end of the first floor in a corner. As the researcher intended to carry out audio recordings, there would be less distraction or noise from the lower form classes during their break as this classroom was relatively isolated. There were a total of nineteen students in this class. The teacher was asked to administer a pre test involving all the students. The test was carried out for grouping purposes and for selection of samples for the grouping of students according to their language proficiency. Learners were placed into two groups – excellent and average - based on their scores from the pre test essays. The researcher selected five students from those who obtained the highest scores to represent the excellent group, and another five based on the lowest scores to represent the average group. Although the latter obtained the lowest scores during the pre test, they were considered as average proficiency students (not low) because they had not failed the test. The reason for categorizing the students into the excellent and average proficiency groups is to see how collaborative learning affects students of differing language

proficiency. For the purpose of the study, those in the excellent category have been labeled as ‘high proficiency learners’ (Group A) while those in the other category are called ‘average proficiency learners’ (Group B).

The subjects were limited to two groups to enable a more in-depth study. These two groups were observed and audio recorded during their collaborative learning discussions. The other students in the class, who constituted representatives from both proficiency levels, were also placed into two different groups. They also engaged in collaborative learning in class, but their discussions were not recorded.

3.3.1 Profile of Subjects

For the purpose of this section on the profile of the subjects, the researcher will focus on the information obtained from Section A of the questionnaire which comprises open-ended items on the subjects’ personal particulars, their primary education, results obtained for English language papers in major examinations (Year 6 – UPSR, Form 3 – PMR, Form 5 – SPM), their self-rated proficiency levels in speaking and writing, their reading habits, the usage of English outside the classroom, and finally, the language used at home. Table 3.1 below presents the information provided by the subjects in Section A of the questionnaire.

Table 3.1

Group	Medium of	English Grades	Self Claimed Proficiency Level	Frequency of reading	Frequency of speaking English	Language used at
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	education in primary school	Year 6	Form 3	Form 5	Speaking	Writing	books in English	outside class	home
High Proficiency (Group A)									
A1	Chinese	A	A	1A	Good	Good	Sometimes	Sometimes	Mandarin/English
A2	Chinese	A	A	1A	Good	Good	Sometimes	Sometimes	Mandarin/English
A3	Chinese	A	A	1A	Good	Good	Sometimes	Sometimes	Mandarin/English
A4	Malay	A	A	1A	Good	Good	Always	Always	Mandarin/English
A5	Malay	A	A	1A	Good	Good	Always	Always	Mandarin/English
Average Proficiency (Group B)									
B1	Chinese	A	A	5C	Average	Average	Sometimes	Sometimes	Mandarin
B2	Malay	B	B	4B	Average	Average	Sometimes	Sometimes	Mandarin
B3	Chinese	B	A	4B	Average	Average	Sometimes	Sometimes	Mandarin
B4	Malay	A	B	5C	Average	Average	Never	Never	Mandarin
B5	Chinese	B	A	6C	Average	Average	Never	Never	Mandarin

Profile of Subjects

Key:-

Year 6 – Year Six Assessment (also known as UPSR)

Form 3 – Lower Certificate of Education (also known as PMR)

Form 5 –General Certificate of Education (also known as SPM)

Medium of education in primary school:-

- i. Chinese – Chinese medium school (also known as SJKC / vernacular schools)
- ii. Malay - Malay medium school (also known as SK / national schools)

In section A of the questionnaire there were eight items for the subjects to complete.

Items 1, 2 and 3 required the subjects to indicate their personal particulars such as

gender, age and race. The reason for doing so was to ensure that each group did not comprise solely of one gender or a particular race. (Although these aspects were not taken into consideration as variables in the study, the researcher felt that it would be advantageous not to have subjects who belonged to one race or gender so that the findings are less restricted.) There were six boys and four girls - three boys and two girls in each group; all of them are seventeen years old.

Another reason for ensuring that each group had students of different ethnicities was to discourage students from using a common mother tongue during discussions. However, this hit a snag. In Group A, there were three Chinese (A1, A4 and A5) and two Indian subjects (A2 and A3), but these two Indian students claimed that they spoke in Mandarin and English at home as they were from a Chinese vernacular school; in addition, they were surrounded by Chinese families in their neighbourhood. The situation was similar in Group B, where there were three Chinese subjects (B1, B3 and B5), one Malay subject (B2) and one Indian subject (B4). Subject B2 is from mixed parentage and thus speaks Mandarin at home as he lives with his Chinese grandparents, whereas B4 lives with his foster Chinese parents. Therefore, B2 and B4 also tended to converse in Mandarin at home.

Item 4 required the subjects to indicate their primary education as to whether they were from the vernacular school (SJKC) or the national school (SK). This information was crucial to gauge the subjects' exposure to the English language during their primary school days, which was vastly different.

In national schools (SK), English is taught from the first year of schooling (Year 1). On the other hand, in vernacular schools (SJKC), English is only taught in the third year of schooling (Year 3). Therefore, the relatively short exposure to English and the limited teaching hours devoted to the subject in the vernacular primary schools could be one of the causes for a reduced input in English. Input here refers to the learners' linguistic environment which contributes to language learning. As such, it affects the students' mastery of English, and could thus be a significant cause for the different proficiencies among students from the two types of schools.

Item 5 in the questionnaire required the subjects to state their grades obtained in English language in the major examinations in Year 6 (UPSR), Form Three (PMR) and Form Five (SPM). As can be seen from Table 3.1, all five subjects in Group A obtained distinctions for English in all three major examinations. Out of the five subjects, three subjects - A1, A2 and A3 - had their early education in vernacular schools. These three subjects claimed that they spoke Mandarin and English at home. The other two subjects - A4 and A5 - who are from the national schools, also claimed that they spoke Mandarin and English at home. The former claimed that they "sometimes" read books in English, and spoke in English with their friends. Therefore, it can be concluded that despite coming from national schools, one could still be proficient and obtain good grades in the English language by using it in daily interactions.

The three subjects from Group B - B1, B3 and B5 - who were also from the vernacular schools, obtained credits (5C, 4B and 6C) for their English paper in their SPM

examination. The other two subjects - B2 and B4 - who had their early education in national schools obtained credits, too (4B and 5C). One reason for their lower results could be because they spoke only Mandarin at home. Therefore, as mentioned earlier, the exposure to and usage of a language play a role in determining one's proficiency in the language.

Items 6 and 7 required the subjects to categorize their ability in speaking and writing in English by indicating it as either "good", "average" or "weak". The subjects in Group A claimed to be "good" in their proficiency level in both speaking and writing compared to those in Group B who claimed to be of "average proficiency". It is to be noted that the subjects' perception of their abilities in speaking and writing parallel their pre test scores. The five subjects who considered themselves as "good" in their speaking and writing ability belong to Group A (high proficiency) while the other five subjects who considered themselves as "average" belong to Group B (average proficiency). The subjects' perceptions of their speaking and writing ability (good or average) show that they are aware of their own capabilities in using English. Their opinions seems to reflect their self esteem and confidence in using the language.

If we were to study the effect of using English (frequency of reading English books and speaking in English outside the class) on subjects' grades, it appears there is a correlation. Subjects A4 and A5 who claimed they "always" read and spoke in the language obtained straight A's in all three examinations compared to B4 and B5 who stated that they "never" carried out these activities in English. They managed to obtain only poor grades

(5C and 6C). This finding strengthens the view put forward by Davies (2002:96) that “good writing skills usually develop from extensive reading, some specific training and a good deal of practice”. Extensive reading is a prerequisite for the acquisition of new second language vocabulary, and thus improving one’s language proficiency. On the other hand, this explanation does not apply to the other six subjects who all chose “sometimes”, but whose grades varied from 1A to 5C. Perhaps the subjectivity involved in deciding what is “always” or “sometimes” and “never” could have contributed to this muddled state of affairs.

In response to item 9 as to how often the subjects spoke in English with their friends outside their English classes, A4 and A5 claimed that they “always” did so. Students from the national schools (A4, A5, B2, B4) have the opportunity to communicate with their peers in English as they are part of a multi racial community, unlike students from the vernacular schools who claimed they only “sometimes” (A1, A2, A3, B1, B3) or “never” (B5) spoke English outside the class. This could be due to the fact that the majority of students in the SJKC schools are Chinese, and the tendency to use their L1 or mother tongue is rampant.

As mentioned earlier, reading and speaking in English enables students to be more fluent in the language, and thus improve their proficiency level. This will eventually lead them to write essays more effectively as knowledge gained through reading would enable the students to be more expressive in writing.

Item 10 required the subjects to list the languages used at home. All five subjects from Group A claimed that they spoke Mandarin followed by English at home while those from Group B claimed that they only spoke Mandarin at home. The former, who had obtained distinctions (1A) in their English paper in SPM, rated their speaking and writing in English as “good”. On the other hand, the latter rated their speaking and writing skills in English as “average”. All five of them had obtained credits (5C, 4B, 4B, 5C and 6C) in their English papers in the SPM (Form 5) examination. It can, therefore, be assumed that the exposure to the English language outside class, be it reading or speaking, is vital to ensure one’s linguistic competence and language proficiency.

This is in line with Krashen’s (1978) argument that through interaction, second language acquirers obtain “optimal input”, that is, input which is likely to lead to further acquisition. Reading widely enables learners to widen their knowledge and as Wallace (1993:74) puts it “The more fluently and widely the second language learner reads, the more exposure to the key structures and vocabulary of the second language he or she gains”. Therefore, it can be concluded that a language learner who reads extensively and uses the language for daily interaction will be able to improve his or her proficiency level in the language.

3.3.2 Reasons for Grouping Subjects by Proficiency

For this study, the researcher grouped the subjects into homogeneous groupings, i.e. in terms of language proficiency. According to Green (1997:37) “discussions carried out in a relatively homogeneous group might lead the more introverted students away from his

or her concern with rule obedience and correctness to a more unselfconscious and fluent expression of personal knowledge and views". If learners in the same group of discussions are at various language proficiency levels, a non desirable situation might occur. Students with higher proficiency level will probably speak more as they might be better able to grasp and respond quickly. While the lower proficiency learners are still contemplating what to contribute, the other group members may proceed to the next issue. Or for that matter, when group members disagree on certain issues, the low proficiency students may not get sufficient time to put their ideas together or to convey their point of view regarding the topic. Furthermore, some learners may remain silent due to their low language proficiency level or they may feel intimidated and inferior as they may think they are not on par with their peers.

In previous researches on collaborative learning, participants were grouped according to heterogeneous grouping or mixed ability. As noted earlier, if heterogeneous groups are formed, introverted participants may feel crushed by the more expressive participants. This will eventually cause participants to lose the little confidence they possess, while the confident ones may feel bored and discouraged. Hence, in this study the researcher sought to group learners based on their proficiency level as mentioned above. This design was assumed to increase the likelihood of richness of discussions during collaborative learning.

3.3.3 Size of group

The number of subjects in each group was limited to five as it is easier to assign activities to small groups. Larger groups decrease each member's opportunity to participate actively. In a small group, participants will have greater chances to speak and contribute ideas. The teacher, too, will be able to monitor and observe the subjects in a relatively inconspicuous manner. As subjects work in small groups, they feel free and have less pressure to participate and contribute towards the group effort. Daniels (1994) suggests that for a start, it is preferable to have four members in a group as students will be able to develop their relational skills. Even numbers - two, four or six - are often useful because they allow pairs to share different sub-activities. Groups of four or five members work best, and larger groups decrease each member's opportunity to participate actively. MacDonald *et.al.* (2002) argues that large members in a group can lead to social rather than task talk. The researcher felt that if students are grouped in even numbers, the tendency to work in pairs may arise, and thus defeat the purpose of team work in collaborative learning. Therefore, the researcher decided to assign five students to a group.

3.4 The Research Instruments

The data for the study were gathered from multiple sources which include pre and post test essay scores, audio recordings of collaborative learning, group discussions (transcriptions), and teacher-researcher field notes from observations, questionnaires and

interviews. The different data collection instruments and procedures are discussed below.

3.4.1 Pre and Post Test Scores

A pre test was conducted at the beginning of the study and a post test at the end. As mentioned in Section 3.3, the pre and post test scores serve two purposes. The first was to obtain a sample according to different language proficiency levels. Second, the scores were compared to see if there had been an improvement in students' writing scores after collaborative learning. A total of 19 participants who participated in the pre test were required to write an essay themed 'environment'. All of them were from the same class. The participants were told to write the essay according to the MUET examination format, including its time limit (50 minutes). The test was administered during the English lesson by the English teacher. The scripts were marked by two raters independently after which the marks were averaged to get a score, one of whom was a MUET rater (this will be further discussed in Section 3.7). Scores were given to each subject according to their performance in their essays based on the MUET writing score guide (see Appendix 2).

The post test was administered towards the end of the collaborative learning session. The teacher instructed the subjects to write an essay based on a title that was similar to the essay for the pre test. The essays were marked by the same two raters based on the scoring guide for the extended writing of the MUET paper. The scores were then averaged, as was done for the pre test. Both the essays written during the pre and the post test were also analyzed based on the criteria of 'content' and 'language' as contained in

the MUET writing score guide to see if there had been any improvement after collaborative learning.

3.4.2 Audio Recordings

The subjects were first given an essay topic during the English lesson. The teacher discussed the question and briefed students as to the format and content of the essay. After the short briefing, the subjects got into their groups – Group A (high proficiency) and Group B (average proficiency) to work collaboratively. The other students in the class also worked in groups (see Section 3.3).

The discussions that occurred within Groups A and B during collaborative learning were audio recorded. The subjects were briefed beforehand as to the duration of the recordings and the procedures to be observed during collaborative learning. Recordings were carried out simultaneously for the two groups. Each recording lasted for about 15 to 20 minutes, at the end of which the subjects were required to write the essays individually after every writing lesson. The essays were then marked by their English teachers and the scores were recorded to see if there had been an improvement or otherwise. The writing component was normally taught during a double lesson which is about 80 minutes. Therefore, after 20 minutes of collaborative learning discussions, students had about 50 to 60 minutes to write their essays individually.

The recordings for this study were carried over a period of fifteen weeks. To ensure the subjects were comfortable with the idea of being recorded during collaborative learning, the researcher introduced audio recordings in the second week of the study. As mentioned in the Research Schedule (Appendix 5), the teacher explained about collaborative learning and the students were given practice during the experimental sessions which were held in the 6th and 7th week. This was done to enable students to get used to being recorded and listening to their conversations being played back. As the subjects listened to the recordings, they became more aware and conscious of their discussions in terms of language usage and the use of L1 (mother tongue). During collaborative learning, the subjects in each group were seated facing each other, and the recorder was placed in the centre. As soon as they were ready for discussion, one of the subjects would press the record button. Since the groups each had a recorder, the subjects handled the recording sessions by themselves.

The taped discussions during collaborative learning were transcribed and subsequently analyzed using the communicative functions of students' discourse (see Table 3.3). All the recordings were transcribed but due to time constraints, only three recordings were analyzed. The transcribed and analyzed recordings were counter checked by the MUET teacher who has also been conducting the listening and speaking components during the MUET examinations. These communicative functions are replicated from Dale's Conversational Turns of Analysis and Halliday's Communicative Strategies. This analysis was carried out to establish patterns of the communicative functions utilized by subjects from the high proficiency and the average proficiency group and to examine

whether there were any differences in patterns between the two groups of learners of varying levels of proficiency. This will be elaborated in Section 3.7.

3.4.3 Participant Observation

The study employed naturalistic observations of individuals involved in their natural settings. Observations were carried out to view the events which take place in classrooms, and this can provide some insights into the 'internal factors' which may arise during group discussions (Nunan 1992). The subjects were observed during every lesson to see how they carried out their discussions during collaborative learning activities and completed the written tasks given. Field notes were taken during the lessons to record the subjects' involvement in the discussions. Basically, the exercise involved observing the subjects during their discussions. The subjects knew that observations were being made by the researcher. The purpose of the observation was fully explained to all the subjects, and each observation lasted between 15 to 20 minutes during the collaborative learning sessions.

3.4.4 Questionnaires

In previous research studies, one of the most popular research instruments used with regard to collaborative learning was the questionnaire. As Nunan (1992) puts it,

questionnaire data are more quantifiable than discursive data such as free-form field notes, observation notes and interview data. The purpose of the questionnaire is to gain a sense of participants' perception on issues such as whether they had expressed their viewpoints during discussions and whether their points of view had been accepted. As such, the constructs in the questionnaire were meant to elicit responses from participants as to whether and how collaborative learning helped them to gain content and improve language in enabling them to write essays.

The questionnaire was created by the researcher and consisted of various statements on the subjects' views pertaining to collaborative learning. There were four sections as can be seen in Table 3.2 below.

Table 3.2
The Distribution of Items in the Questionnaire based on the Constructs

Construct	Question No.
Background information of the subjects	Section A Items 1 – 10
Content in Collaborative Learning	Section B Items 1 – 7
Language in Collaborative Learning	Section C Items 8 – 11
Open ended questions on Collaborative Learning	Section D 12 – 16

As mentioned earlier, Section A consisted of open ended items on the subjects' personal particulars as well as results obtained in major examinations. In this section the participants were also required to rate their ability in speaking and writing in English (*good, average and weak*) as well as and how frequently the English language was used

(always, sometimes and never). In Sections B and C, the subjects had to rate the statements using a five-point Likert scale (1- strongly disagree, 2- disagree, 3- undecided, 4- agree and 5- strongly agree). Section B consisted of statements pertaining to content in writing and how collaborative learning helped the subjects to improve their content in essay writing. Section C was related to the language aspect of writing, and the subjects were required to relate as to what extent collaborative learning enabled them to improve, if at all, in the language component. In section D, open-ended questions were administered. These questions were constructed to gain feedback from the subjects with regard to their overall opinion about collaborative learning and the advantages and disadvantages of collaborative learning.

During piloting, it was found that the questionnaire was too long. This version of the questionnaire contained an additional section asking for the participants' family background and opinion on the importance of the English language. The questionnaire was reviewed, leading to a number of changes to both the format of the questionnaire and the items it contained. The length was reduced and the questions were divided into four main sections. To add internal validity to the questionnaire as had been the case with previous researches in different contexts (Baker & Boonkit, 2004), a number of questions were cross-referenced and negative questions were also used to offset the positive response and any tendencies to simply agree with everything in the questionnaire. The researcher re-worded some of the items in the questionnaire (used for the final data collection procedure) and the questionnaire was modified. A final version was produced and used in the present study (see Appendix 3)

The subjects were administered the questionnaire after the last collaborative session. The researcher explained the objectives of the study and asked the participants' cooperation to complete the questionnaire. The participants cooperated and filled out the questionnaire in the researcher's presence; they took about 20-25 minutes to complete the task. The researcher assisted the participants whenever it was necessary as they were completing the questionnaire.

3.4.5 Interview

The fifth data collection instrument was the interview (see Appendix 4) conducted with the 10 subjects, five from the high proficiency group (Group A) and the other five from the average proficiency group (Group B). The data obtained from the questionnaires were further complemented by the data collected from the interview. Interviewing is an important way for a researcher to check the accuracy or to verify or refute the impressions he or she has gained through observations. The purpose of interviewing is to find out what is on the mind of the subjects, what they think or how they feel about the task (Fraenkel & Wallen 2003).

In the present study, a semi-structured interview was carried out (see Appendix 4). The questions were semi-structured to ensure the reliability of the findings. By not restricting them to a structured interview with a rigid set of questions, the participants were allowed to convey and express issues related to the task more openly.

The subjects were interviewed in groups after the collaborative learning discussions. The reason for group interview is to gain subjects' overall perceptions about collaborative learning after a group discussion. As the interview was carried out immediately after collaborative learning, the subjects were able to provide feedback spontaneously as they were still seated in their groups. The researcher did conduct individual interviews with subjects who abstained from discussions or were very reserved during collaborative learning. This interview session was held after the collaborative discussions and it lasted for five minutes to eight minutes. Due to time constraints, only selected students whom the researcher felt were reserved during observation were selected for the interview. During the interview sessions, the researcher took notes and the data obtained were duly analyzed.

3.5 The Research Schedule

The researcher chose the beginning of the year to introduce collaborative learning as during this time the students are more receptive to being introduced to new approaches and methods of learning. Hence, collaborative learning would become familiar to students and be easily adapted. At the beginning, the researcher explained about collaborative learning and the advantages of working in groups which would be of great help in the long term. Initially the subjects were asked to work in pairs as a bridging mechanism between the old and the new method of learning. The paired work was carried out as a process of transition into collaborative learning where subjects were required to assimilate themselves to work collaboratively with group members.

Eventually, the researcher continued with collaborative learning during the writing lessons which were held as a double lesson once a week (see Appendix 5).

3.6 The Teacher

The English teacher who participated had more than 17 years' experience teaching the English language. The teacher had been teaching MUET ever since it was introduced in 1999. She had attended numerous courses in MUET, and conducted workshops in schools at district and state levels. The researcher briefed the teacher about collaborative learning and explained the steps involved (as mentioned in 3.4.2). While the teacher was conducting the writing lessons using the collaborative learning method, the researcher observed and audio recorded the subjects' discussions.

3.7 Data Analysis Procedures

The first step in the analysis of the data concentrated on comparing the scores obtained in the pre and post tests essays. In order to see how collaborative learning helped the subjects in writing essays individually, the scores obtained by subjects in the pre and posts tests were analyzed. The essays were scored on the two criteria used in MUET essay grading, namely content and language.

The pre and the post test essay papers were assessed and marked independently by two raters (referred to as Rater 1 and Rater 2) from the same school. The raters were

experienced teachers, with each having almost eight years of teaching MUET in Form Six, and they were well accustomed to the setting and marking of essays written by Form Six learners. In fact, one of them was a MUET examiner. The essays written by the subjects during the pre and post test were photocopied and given to the teachers to assess. The raters were given copies of essays with the names removed; each essay was identified only by a number. The teachers marked the essays in accordance with the MUET scoring guide for extended writing.

After the two raters had marked the scripts, the researcher transferred the scores onto a score sheet. The researcher prepared the score sheet such that it was clearer and more convenient to average the scores given by the two raters, and for easy reference during the analysis (refer Appendix 6). The marks awarded by the raters were averaged in order to obtain the standard score for each of the subjects. This was done to moderate the marking and to establish inter-rater reliability. This procedure was conducted for both the pre and post tests. The researcher analyzed the scores given by the two raters to determine if there were any significant differences between the two scores. The results were analyzed to see if there was an improvement in the writing scores. The difference in scores obtained during the pre and the post-test were used as a yardstick to see if there were differences in the subjects' writing ability.

The data collected from the subjects' questionnaires on their overall perception of collaborative learning were analyzed. The subjects were asked to respond to items on a five-scale Likert measure from "strongly disagree" to "strongly agree" as mentioned in Section 3.4.4. The items in Section A gave an overall view about the subjects'

background. The items in Section B were analyzed based on the subjects' perceptions of collaborative learning and how collaborative learning helped or did not help them in improving their content in writing skills while Section C was focused on the language aspect related to writing. The subjects' responses were quantified using frequencies and percentages.

As explained in Section 3.4.2, the taped discussions were transcribed and coded as shown in Table 3.3 using Halliday's functional approach and an adapted version of Dale's unit of (conversational) analysis. Halliday's functional approach (1989, cited in Kumpulainen & Kaartinen 2003) emphasizes the social functions of language. The social functions are relevant to this study as skill is an ability to perform an action through language. Some of the functions take a more interpretive or cognitive perspective (eg. informative, argumentative, reasoning, evaluative and organizational), or a social perspective (eg. responding, agreeing or disagreeing) on the analysis of interaction during collaborative learning. Dale's study (1994) also used turns depicting functional purposes such as to elaborate, clarify and to evaluate. As such, for the purposes of this study, the researcher has adopted Halliday's functional approach, and adapted and used Dale's conversational turns as the unit of analysis for communication skills. The coded interactions were then analyzed to study the patterns of interaction among the high proficient and average proficient learners. These communication functions and strategies will be further explained with samples from the extracts obtained from the transcribed audio recordings during collaborative learning discussions.

The table below is a sample of the communicative functions used to analyze the conversation during collaborative learning in this study. The coding scheme was designed to analyze the interactions that occurred during collaborative learning among the subjects.

Table 3.3
Categories Describing the Communicative Functions of Students' Discourse

Category	Code	Description
Providing Information	IF	Provides information
Asking for clarification	AC	Reasons in language
Elaborating	EL	Expansion of ideas
Arguing	AR	Justifies information, opinions
Organizing	OR	Organizes or controls behavior
Interrogating	IN	Poses questions
Responding	RS	Replies to questions
Repeating	RP	Repeats spoken language
Agreeing	AG	Expresses agreement
Disagreeing	DA	Expresses disagreement

The categories describing the communicative functions of interaction emerged from the interaction data of this study. They are:

- providing information
- asking for clarification
- elaborating
- arguing

- organizing
- interrogating
- responding
- repeating
- agreeing, and
- disagreeing

Each function in this framework is regarded as reflecting the social cognitive discourse actions of the participants as they verbally interacted in their social activity. The ‘providing information’ mode implies providing information pertaining to the essay topic. ‘Asking for clarification’ occurs when learners request their group members to further clarify their point of view. ‘Elaborating’ occurs when a member provides information and further expands and gives examples related to the information, and ‘arguing’ implies constructive interaction in which learners negotiate their differing understandings in a rational way by giving judgements and justifications. This process often leads to a shared understanding of the situation. The ‘interrogating’ and ‘responding’ modes occur when members in the group ask and answer questions pertaining to the discussion. ‘Repeating’ occurs when members are not clear of what is mentioned by peers, or highlighting what a particular member had just mentioned. ‘Agreeing’ is one mode of accepting another member’s point of view while ‘disagreeing’ gives members an opportunity to express their viewpoint by objecting to other members’ ideas. If a member disagrees with a certain idea, he or she has to give reasons for disagreeing, and provide alternative options.

A sample of the features of communication skills found in this study is shown below.

Categories Describing the Communicative Functions of Students' Discourse.

(The samples below are taken from Excerpt 1A and 1B. See Appendix 7-1A (Excerpt 1A) and 7-1B (Excerpt 1B).

i. Informative (IF) – Providing Information

Line 13 A2: Senior citizens are persons who are 55 years and above.

Line 35 A5: Parents bring us to this world.

Line 46 B1: We can organize senior citizen's day.

ii. Asking for clarification (AC) – Reasons in language

Line 119 A3: I want to ask, old folks home is considered facility ah....

Line 245 A2: What kind of celebration?

iii. Elaborating (EL) - Expansion of ideas

Line 75 A5: By providing better facilities we mean by better transportation

iv. Arguing (AR) - Justifies information, opinions

Line 220 A4: Yeah, but we have special hospitals for small kids.....

v. Organizing (OR) – Organizes or controls behavior

Line 18 A1: Ok. Let's come to a consensus

vi. Interrogating (IN) – Poses questions

Line 184: A4: Some more what social activity?

vii. Responding (RS) – Replies to question

Line 185 A3: Dating.....

viii. Repeating (RP) - Repeats spoken language

Line 62 A5: Yeah, they are dying very fast

Line 63 A2: Yeah, they are dying very very fast

ix. Agreeing (AG) - Expresses agreement

Line 40 B4: Yeah I also quite agree with you guys

x. Disagreeing (DA) – Expresses disagreement

Line 14 A1: I don't agree with what Loi has said.....

The interaction during collaborative learning was coded using the above mentioned conventions (see Table 3.3) before looking for the kinds of communicative skill used during collaborative learning. Frequency analysis was used to quantify participants' use of communicative skills in the process of discussion during collaborative learning. The findings from this set of data would determine whether there were any differences in the use of communicative functions between the two differing proficiency groups so as to answer the second research question.

3.8 Conclusion

The chapter attempted to present a detailed overview of the conceptual and methodological framework for the current study. It is hoped that this will provide the background for the discussion regarding data analysis and interpretation of results which follows in Chapter 4.