Chapter Three: Data Collection Procedures
3.1. Methodology

Reading is not an assignment but a daily way of looking at the world.

Peck (2002)

This chapter includes a description of the research method including the data collection procedures, the description of participants, the rational for selecting the passages for the think-aloud protocol analysis, and the procedures for analyzing the data.

This study aimed to elicit information about the impact of beliefs on the metacognitive ability of learners and how they might affect the strategic reading performance of the advanced level students from an ESL background. With regard to the purpose of the study which was mentioned earlier in chapter one, this study was divided into two parts (phases) each of which investigated the relevant research questioned asked. Therefore, different data collection procedures were employed to work out the problems under investigation in these phases.

The intent of study A (part one) was to find out whether there existed any relationship between students’ beliefs and their metacognitive awareness, and thus addressed the first two research questions. Study B (part two) investigated whether or not they were related to students’ choice of the reading strategy for processing an academic type text. This part, in fact, addressed the third, fourth and fifth research questions.

3.1.1. Organization of the Investigation

The current investigation, as mentioned earlier, was divided into two separate and distinct studies. Study A (Relation between Beliefs and Metacognitive Knowledge about Reading) addressed the first two research questions. It focused on an investigation of the relationship between students’
beliefs and their metacognitive knowledge about reading. This relationship was first examined within the entire sample. Students were then compared to determine whether they displayed different patterns of beliefs and metacognitive knowledge about reading. In the second phase of the study, study B (The exploration of the reading strategies); the entire sample was divided into two groups based on their metacognitive knowledge (high metacognitive knowledge (HM)/low metacognitive knowledge (LM)) to determine whether individual differences existed in their reading strategies.

Study B (Exploration of Strategic Reading Performance) addressed the third, fourth and fifth research questions by providing a descriptive examination of the strategic reading performance of a subgroup of the students who participated in Study A. These students were randomly selected from the high metacognitive knowledge (HM) and low metacognitive knowledge (LM) groups in the original sample. These students participated in an extensive exploration of strategic reading performance, including comprehension monitoring, strategy use during reading and conceptual understanding of the reading task and their own performance.

The two studies are initially discussed separately in terms of methods, results and discussion. A general conclusion of both studies, including implications for practice and directions for further research will follow.

3.2. Study A (The Relationship between Students’ Beliefs and Their Metacognition)
Method

3.2.1. Subjects

The participants for this section of the study were 200 postgraduate students majoring in English literature and who were selected from Punjab University, DAV College, and Government College. Some of the questionnaires
were not filled completely, therefore were removed from the study leaving 178 subjects. The age of the subjects ranged from 20 to 26. The majority (88.8%) was females and the rest (11.2%) were males. Table 1 and 2 display the information related to the age and sex of the participants. The classes were randomly selected and each of these classes contained subjects from variety of regions with different cultures, backgrounds, English proficiency, and amount of time exposed to English. The information about the background of the participants obtained through the questionnaires used for this part of the study are provided in tables (3.1) and (3.2).

Table 3.1

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3.2.2. Material

Three questionnaires were used for this section of the project. The Metacognitive Questionnaire (MQ) (Carrell, 1989) was used to measure students' metacognitive awareness about their reading strategies. Using a 1-5 Likert Scale (1. strongly agree, 5. strongly disagree), participants judge thirty six statements about silent reading strategies in English. Items on the questionnaire included: a) six statements related to subjects' abilities in reading in English to provide a measure of their confidence as readers in that language; b) five statements pertaining to what they do when they do not understand something, to provide a measure of their repair strategies. c) seventeen statements about what they focus on in order to read more efficiently and about the reading behavior of good readers, to tap their perception of effective strategies; d) eight statements about things which makes reading difficult for them. Additionally, in the last two categories individual items focused on different types of reading strategies: pronunciation, or sound-letter aspects of decoding; word-level aspects of meaning; syntactic decoding; details of text content; text gist or the global aspects of meaning; background knowledge; and textual organization. All of the above-mentioned strategies had been suggested in the literature as reading strategies related to comprehension (Hosenfeld, 1987; Baker & Brown, 1984; Devine, 1984; Block, 1986; Barnett, 1988). This questionnaire has shown good internal consistency (KR20=.87) (Lonberger, 1988).

The Beliefs About Language Learning Inventory (BALLI) (Horwitz, 1988) was used to explore the subjects’ beliefs about learning a second language which can in turn influence their beliefs about reading in that language. The original BALLI contained 34 items using a 5 point Likert scale which assessed student beliefs in five major areas: 1) difficulty of language learning; 2) foreign language aptitude; 3) the nature of language learning; 4) learning and communication strategies; and 5) motivations and expectations. An internal consistency of .79 was reported for this questionnaire. A single composite score
is not derived from the BALLI; rather, individual items yield description of
discrete students' conceptions of language learning. A modified version of
BALLI was used for the purpose of this study. This modified version of the
questionnaire included 18 questions from among 34 which were closely related to
the purpose of the investigation.

Beliefs About Reading (BAR) questionnaire was the third one used for
the purpose of this study. It was developed by the researcher since there was not
any specific questionnaire available in the literature to try to tap beliefs about
reading in the certain way intended in this study. In constructing this
questionnaire care was taken to follow the steps required in designing and
constructing an appropriate one so that it would not prejudge the existence of
some beliefs, but would leave the judgment to subjects. It was a 5 point Likert
scale with 12 items which was intentionally kept short in order to be consistent
with and include those beliefs collected from several sources. The questions were
framed clearly so that the respondents could understand what was meant and
provide the relevant information. Additionally, to ensure the clarity and
comprehensiveness of the BAR, it was pilot-tested with a number of students
with appropriate characteristics similar to the intended population. The internal
consistency for the BAR came out to be .67. In fact, an item analysis revealed
that certain questions demonstrated low item-to-scale correlation (.00-.26) and
thus were removed. The construct validity of BAR was also satisfactory since it
was developed in several stages; items resulted from free-recall protocols of ESL
teachers and students. In each case, subjects were asked to identify their own
beliefs about reading as well as other peoples' beliefs. As the main concern of
this phase of the project was to elicit the beliefs of learners about reading in a
second language, it was decided to keep the items in the subjects' own words
wherever possible.
3.2.3. Procedure

The three questionnaires were administered to subjects within a single session of approximately 25 to 30 minutes conducted by the researcher within school hours. The questionnaires were conducted in the following order: MQ, BALLI, and the BAR. All the students were informed about the intention of the study and were given proper instruction before beginning the questionnaires. Then each student was provided a copy of the questionnaires along with a brief explanation clarifying that the questions do not necessarily have clear-cut right or wrong answers and simply intend to get some information about their beliefs about language learning and reading as well as their metacognitive awareness.

3.2.4. Analysis

To address the first two research questions, a multiple correlation analysis was conducted with the entire sample. Particularly, it was important to see the extent to which the belief variables correlated with metacognitive knowledge about reading. It was also of interest to know how the two types of beliefs correlated with one another.

To investigate whether participants demonstrated different patterns of metacognitive knowledge and beliefs, and to determine how much of the variability in metacognitive knowledge about reading was accounted for the variability in beliefs about language learning and beliefs about reading one-way Anova was used.

In order to divide the entire sample into two groups of high metacognitive or low metacognitive knowledge, a cluster analysis (Aldenderfer & Blashfield, 1984) was used. The purpose of this division was to find out whether the two groups displayed significant differences in terms of their reading abilities and their strategic reading performance.
3.3. Study B (The exploration of the reading strategies)

Method

3.3.1. Subjects

As mentioned earlier, the intent of this part of the study was to address the third, fourth and fifth research questions by examining the reading strategies of two subgroups of the same sample. From among the subjects participating in the first phase of the study, 15 subjects were randomly selected. They were divided into two groups of high metacognitive knowledge about reading (HM) and low metacognitive about reading (LM) based on their responses to the metacognitive questionnaire. That is, 8 fell in the high metacognitive category and 7 in the low metacognitive subgroup. Their reading strategy was explored in terms of their abilities to monitor their comprehension, the types of strategies they used and discussed with respect to the texts, and their conceptual understanding of the text and their reading performance. The data for this phase were primarily descriptive and the procedures, materials and methods of analysis were exploratory in nature. In order to make sure that the language proficiency of the participants would not affect the intended results, initially, some thirty-two students were selected from the entire sample, fifteen from the HM group and seventeen from the LM group. Then a test of TOEFL was administered to these students and from among them fifteen were selected with approximately the same language proficiency level so that the choice of reading strategies and their comprehension of the test would be attributed to their metacognitive knowledge and not their language proficiency. Table (3.3) shows the demographic information for these two subgroups.
Table 3.3

Demographic Information of the Two Subgroups

<table>
<thead>
<tr>
<th>Variables</th>
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<th>Low Metacognitive</th>
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</thead>
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<tr>
<td>Mean Age</td>
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<tr>
<td>Female</td>
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</tbody>
</table>

3.3.2. Materials

Three passages from the academic courses of the learners (as well as one outside their syllabus which included some comprehension questions) were selected (see Appendix A) for study B. They were chosen with various reading abilities in terms of lexical density, structural complexity and explicitness of the text. The passages were controlled for content schemata; all three passages were selected from the academic materials required to be studied during their MA education. In addition, the texts were controlled for formal schemata; one was a problem/solution type and the others were argumentative type of organization. Length as well as lexical and syntactic complexity was also controlled; each text was between 334 and 599 words in length and one text was more difficult than the others on readability index which takes word and sentence length into account.
In fact, two passages were selected to provide multiple measures of the strategies and thus improve the reliability of the data. Additionally, since the passages were different with regard to their content, they could provide partial control for interactions between text content and domain-specific knowledge of the participants (Alexander and Judy, 1990). The books from which the passages were selected were related to the academic materials of the students but not exactly the ones in their syllabus. They were approved to be unseen to the participants by their class teachers. Since subjects needed to be trained for the think-aloud procedure, the first passage was used to teach them how to proceed and talk about the things they do when they are engaged in reading a text.

3.3.3. Procedure

For this section of the study three data collection tools were used: 1. verbal (or think-aloud) protocol analysis; 2. retrospective questioning 3. semi-structured interview. The verbal protocol analysis was used for several reasons. First, the think-aloud protocol analysis is a useful tool to gain direct descriptions of reading strategy use by the readers. Second, the think-aloud protocol analysis allows for tapping into higher-level processing strategies including comprehension monitoring during L2 reading. A third advantage of this method is that the think-aloud data provide information on how varying levels of cognitive reading processes contribute to a reader's misunderstanding or adequate understanding of a text. Additionally, the think-aloud data permit the investigation of individual differences in reading strategies used during reading.

3.3.3.1. Think-aloud Procedure

In the first think-aloud procedure, each subject was given a formal introduction to the method. In fact, all participants were met individually and were informed about what to do and what was expected of them. They were also informed that their verbal report would be recorded to be later transcribed. Each subject was then trained about the procedure; this was done because it is believed
that to encourage subjects to report their comprehension processes as much as possible, they need to be trained well (Lin, 1996). Using an example passage as practice, the subjects were instructed as follows:

"In the passage you are going to read, I want you to try to think aloud and tell me what you think about or what goes through your head when you read. I want you to tell me where you stop for a while and why you do it and tell me about whatever it is that is going on your mind. Let's practice this with this short passage."

This task was, in fact, used to provide an on-line measure of strategy use. Since constant verbalization of mental activity would lead to frustration, to reduce this effect students were required to verbalize at natural pauses in the reading. Therefore, subjects were instructed to pause whenever or wherever they wanted to in order to verbalize their reading procedure. If subjects attempted to continue on without providing a verbalization, the researcher reminded them by saying, "What are you thinking about now?" or other prompts such as, "What is going through your head right now?, Is there anything else you can tell me here?" There was no time limit for producing their think-aloud protocol because if the participants were under time pressure, they might not make full use of their repertoire of reading strategies or use different strategies.

All these procedures were audio-recorded and transcribed to allow for inter-rater coding. The task was administered in a single session with each subject in approximately 25 to 30 minutes. This strategic reading task was used to measure the type of strategies that the subjects reportedly used in their reading. One of the passages was followed by some comprehension questions to be answered which was used to elicit any particular strategy learners use to do such a task.
3.3.3.2. Retrospective Questions

This strategic reading task involved a series of questions which were designed to measure the type of strategies that the students used in reading the passage. Subjects’ responses to the retrospective questions were recorded and transcribed to be analyzed carefully later. The questions asked included:

1. What is the general message of the text?
2. How did you know? Which part of the text helped you to recognize it?
3. What do you do when you are reading an academic text like this to help you to understand the passage?
4. What would you do when you are not able to make sense of a part of the text?
5. What do you do with the unfamiliar vocabulary you face in the passage?
6. How do you answer the comprehension questions?

3.3.3.3. Semi-structured interview

In order to focus on the information about the participants’ personal background, their English language learning experiences, and their attitudes towards reading academic texts, their personal opinions about important factors in L2 reading and difficulties of L2 reading, the semi-structured interview was conducted with each subject before the think-aloud procedure. The questions asked were mostly centered around the following points: their reading experiences, the problems they faced in reading academic texts, the influence of school and their parents on their reading experiences, their attitude towards reading in general, their purpose for reading and how it can influence their reading strategies, the things that make comprehension possible, and the characteristics of good readers as well as the difficulties and problems associated with academic reading.
3.3.4. Analysis

For this part of the study, data from the subjects’ responses were examined in terms of strategy use mentioned by the participants before, during and after the reading. In case of the strategic responses of the subjects, their transcripts were examined for evidence of strategy use in the think-aloud protocols, as well as the strategies reported during retrospective questions. Analysis of strategic responses was done through first examining their transcript by the researcher and a second rater for determining the existence of certain strategies. The ratings provided by the two raters were compared and based on inter-rater agreement criteria were set for identifying specific strategies. Some seventeen distinct strategies were found to be used by all the participants through their think-aloud tasks and retrospective questions.

Additionally, in order to determine the type and frequency of certain strategies, the transcripts of the subjects were examined by the researcher and the second rater. In doing so the inter-rater reliability of those specific strategies was determined.

In order to discover global differences in their approach towards the text, their strategic responses were categorized. The strategies were initially categorized as text-driven or reader-driven which were adopted from Carrell’s (1989b) distinctions between local, bottom-up, decoding types of strategies and global, top-down types of reading strategies (p.125). However, later some other categories of metacognitive strategy were taken into account which could not easily be classified into one or the other of these. Therefore, for the categorization process three criteria were taken into consideration: a) the extent to which the participants used strategies in a purposeful manner, b) the extent to which they brought into play their own thoughts and experiences to comprehend the text, and c) the extent to which they demonstrated certain awareness of the interaction between textual information and their own thoughts and experiences.
Based on these criteria, the participants’ responses were divided into four categories given below:

1. **Local (text-driven) Strategies.** These strategies were considered text-driven basically because they involved the use of textual interaction including:
   - Summarization: that of paraphrasing information from the text
   - Retelling: that of direct reference to the text
   - Rereading: that of rereading either the entire text or some portions of it
   - Rehearsal: that of repeatedly reviewing parts of the text
   - Modality: that of reading silently versus reading aloud
   - Word recognition: that of using strategies to determine specific words such as sounding out words, and using context cues
   - Tracking: that of keeping track of the text with the help of a pen or finger, etc.
   - Getting help from others: that of asking for clarification of words or the meaning of some parts of the passage
   - Note taking: that of jotting down portions of the text to remember important details

2. **Inferential Strategies.** These strategies were referred to as inferential because of the reader using some of his/her own thoughts to get the information that was not mentioned directly in the text. These inferential strategies were supposed to include:
   - Prediction: predicting what would happen in the text
   - Inference: making inferences about the characters’ feeling, actions or thoughts not mentioned in the text
   - Confirmation or negation: confirming or negating previous predictions based upon subsequent information in the text
   - Hypothesizing: making some hypotheses about certain things happening in the text
- Questioning for information: asking some questions about the things that are not stated in the text

3. **Perspective-taking Strategies.** These strategies involve the use of more explicit references made by the reader to his/her own perspective based upon his/her thoughts, feelings and experiences to make sense of the text which includes:
   - Assessing background knowledge or experience: this can involve making references to specific knowledge or experiences to try to make sense of the events in the text
   - Evaluating possibilities: which includes attempts to interpret the message through possible perspectives

4. **Global (Reader-driven) strategies.** In fact, all of the strategies used by the reader have the overall purpose of making meaning; however, these strategies mainly refer to the explicit references to monitoring one’s comprehension and trying to deal with comprehension failure which include:
   - Monitoring: an awareness of when they understand or not understand a text
   - Consistency Building: recognizing portions of the text that were not consistent with the rest or lack coherence and efforts to make sense of the text despite those portions
   - Questioning: questioning certain portions of the text in an effort to identify inconsistencies
   - Retrospection: going back in the text in order to evaluate the coherency of the text
   - Text structure: making explicit comments about some specific parts of the text and the role they play in the consistency. For example, referring to a particular sentence or paragraph, etc. to compare or examine their role in the text.
- Text features: making explicit comments about some specific features of the text and the role they play in its coherency
- Moving in the text: Making explicit comments about moving back and forth in the text in order to determine or examine coherency
- Revising comprehension: this happens when the student comes across some new information that causes him/her to change his/her previous thoughts about the meaning of the text.

The frequency of responses in each strategic category (Text-driven, Inferential, Perspective-taking, Reader-driven) on the think-aloud protocol task, were presented graphically to illustrate the general nature of the subjects’ responses and also the responses of the subjects in each group of LM and HM. In addition, the frequency of strategies was converted into percentages and was then analyzed through using Chi-square to analyze the possible differences between the categories and between groups.