Chapter Four: Data Analysis

Reading comprehension is a complex process to define, much less to teach and assess. 

Susan Israel (2005)

In this chapter, the results for both studies will be discussed addressing all the research questions asked for the purpose of this study. The answers to each question will be presented and discussed in the same sequential order as the data collection chapter.

4.1. Study A: Results (The Relationship between Students’ Beliefs and Their Metacognition): Results

4.2. Research Questions

4.2.1. Question 1
Do differences in beliefs about reading relate to differences in metacognitive knowledge about reading?

To answer the first and the second research questions, correlation analyses were used to examine the entire sample for finding out whether there was any relationship between students’ metacognitive knowledge about reading and their beliefs about language learning and reading as well as the possible correlations between the beliefs variables. In table (4.1), the correlation coefficients (Pearson Product Moment) of each of the belief variables and metacognitive knowledge about reading for the entire sample as well as the correlation between the beliefs variables are displayed.
Beginning with the correlation between the beliefs variables, significant correlations were found between participants’ responses to the beliefs questionnaires suggesting that the beliefs about language learning can affect students’ beliefs about reading. It means that students’ attitude to the ways languages are learned can greatly affect their attitudes towards reading in the same language. A significant positive correlation was found between Q50 on

Table 4.1

<table>
<thead>
<tr>
<th></th>
<th>LANGUAGE</th>
<th>APITUDE</th>
<th>NATURE</th>
<th>STRATEGY</th>
<th>BELIEFS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Efficiency</strong></td>
<td>Pearson Correlation</td>
<td>.015</td>
<td>.214</td>
<td>.265**</td>
<td>.269*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.065</td>
<td>.006</td>
<td>.000</td>
<td>.035</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>63</td>
</tr>
<tr>
<td><strong>Difficulty</strong></td>
<td>Pearson Correlation</td>
<td>.070</td>
<td>-.020</td>
<td>.040</td>
<td>-.269*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.302</td>
<td>.004</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>63</td>
</tr>
<tr>
<td><strong>Good Reading</strong></td>
<td>Pearson Correlation</td>
<td>.152***</td>
<td>.006</td>
<td>.018</td>
<td>.406</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.061</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Pearson Correlation</td>
<td>.152**</td>
<td>.006</td>
<td>.018</td>
<td>.406</td>
</tr>
<tr>
<td>Leasuring</td>
<td>Sig. (2-tailed)</td>
<td>.061</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td>Pearson Correlation</td>
<td>.093</td>
<td>.006</td>
<td>.006</td>
<td>.687</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.063</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td><strong>Nature</strong></td>
<td>Pearson Correlation</td>
<td>.091</td>
<td>.006</td>
<td>.006</td>
<td>.687</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.063</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td><strong>Strategy</strong></td>
<td>Pearson Correlation</td>
<td>.089</td>
<td>.006</td>
<td>.006</td>
<td>.687</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.063</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
<tr>
<td><strong>Beliefs</strong></td>
<td>Pearson Correlation</td>
<td>-.130</td>
<td>-.051</td>
<td>.059</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>-.061</td>
<td>.015</td>
<td>.010</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>160</td>
<td>157</td>
<td>162</td>
<td>81</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)
BALLI and Q59 on BAR (r = .325, p = .000), suggesting that students who believed language learning was a matter of learning a great deal of vocabulary tended to believe that for efficient reading in an L2, they need to have a good vocabulary reservoir. There was also a positive correlation between Q50 and Q65 (r = .924, p = .007) indicating that those who believed language learning was a matter of learning a lot of new vocabulary had a tendency to go for word for word reading to make sense of the message. A significant positive correlation was also found between Q51 and Q58 (r = .334) which demonstrated that subjects who saw learning a second language as a matter of learning a great deal of grammar rules tended to believe that they needed to be proficient in the grammatical structure of the language to be able to read effectively. Additionally, there was a negative correlation between Q39 and Q63 (r = -.389, p = .066) which suggested that even though most of the participants considered English to be a language of medium difficulty, still they believed that they needed help from extraneous sources to construct the meaning of an academic text. This means that academic reading was considered to be quite different -if not more complicated- from other types of reading which required greater efforts. Another significant negative correlation was found between Q39 on BALLI and Q64 on BAR (r = -.245, p = .001) indicating that despite finding English a language of medium difficulty, the learners believed it impossible to read between the lines of an academic text without any proper background knowledge. There was also another significant negative correlation between Q53 and Q57 (r = -.416) which indicated that the subjects did not believe in translating from their native language when they were involved in learning a second language and therefore, found no point in being efficient in their native language to be able to read efficiently in a second language. However, no significant correlations were found between the metacognitive questionnaire and those of the beliefs variables.

A one-way Anova was conducted to determine whether the variance on the MQ accounted for the variance in the other two beliefs questionnaires; i.e. whether differences in beliefs of the learners relate to differences in their
metacognitive knowledge or not. Tables (4.2) and (4.3) illustrate the results of this analysis.

Table 4.2

Test of Homogeneity of Variances

<table>
<thead>
<tr>
<th>ANOVA</th>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.030</td>
<td>2</td>
<td>467</td>
<td>.358</td>
</tr>
</tbody>
</table>

Table 4.3

<table>
<thead>
<tr>
<th>ANOVA</th>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results obtained from the above table, the Levene test of homogeneity indicates that the variances of the groups are significant at .36 level and the variances are not homogeneous. Moreover, the F=64.172 in the Anova table indicates that the variance is significant enough to reject the null hypothesis. In other words, differences in metacognitive knowledge can be related to the differences in the beliefs of the learners and the beliefs variables interact as a combined belief system in relation to metacognitive knowledge about reading. These variables will probably exert some reciprocal influence on one another and at the same time they interact with other cognitive, affective, and instructional variables to affect the reading performance of the learners.
However, since the variances indicated in the table were significant only at the level of .36 and they were not considered significant at .05 or .01; therefore, the results should be interpreted cautiously. But considering the multitude of factors that can influence strategic reading performance, the relative impact of beliefs as well as the metacognitive knowledge may still be considered a crucial influence. In order to pinpoint exactly where the differences were in a pair-wise way, the following post hoc test was also used to illustrate exactly how the performance of the learners differ in terms of their responses to the three questionnaires and whether performance in questionnaire one differed from performance in the second one and how different performances were in the three cases. Table (4.4) illustrate the results followed by a means plot that demonstrates the differences between the performance of the subjects in the three questionnaires.

Table 4.4

Post Hoc Tests

<table>
<thead>
<tr>
<th>(I) QUES123</th>
<th>(J) QUES123</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig</th>
<th>95% Confidence Interval</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-.4962*</td>
<td>.04392</td>
<td>.000</td>
<td>-.5995</td>
<td>-.3930</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-.2474*</td>
<td>.04353</td>
<td>.000</td>
<td>-.3497</td>
<td>-.1450</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>.4962*</td>
<td>.04392</td>
<td>.000</td>
<td>.3930</td>
<td>.5995</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>.2488*</td>
<td>.04083</td>
<td>.000</td>
<td>.1528</td>
<td>.3448</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>-.2488*</td>
<td>.04083</td>
<td>.000</td>
<td>-.3448</td>
<td>-.1528</td>
<td></td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.
Table 4.5

Homogeneous Subsets

<table>
<thead>
<tr>
<th>QUES123</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>131</td>
<td>2.2568</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>173</td>
<td></td>
<td>2.5042</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>166</td>
<td></td>
<td></td>
<td>2.7530</td>
</tr>
<tr>
<td>Sig</td>
<td></td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 154.337.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Figure 4.1
As can be seen from the above table and the diagram, the greatest difference was found between performance on Questionnaires 2 and 3 (i.e. BALLI and BAR) and 1 and 3 (i.e. MQ and BAR). There was no significant difference between the mean difference of questionnaires 1 and 2 (i.e. MQ and BALLI). That is to say, subjects differed greatly on the basis of their beliefs about language learning and their reading beliefs and their metacognitive knowledge had no impact on their reading beliefs.

4.2.2. Question 2
Are there patterns of intra-individual differences in beliefs about reading and metacognitive knowledge?

The second question in this part related to the probable existence of the intra-individual differences in the beliefs and the metacognitive knowledge of learners. In order to find out whether there are any patterns of intra-individual differences, a cluster analysis was conducted to divide the samples into two groups based on their metacognitive knowledge about reading. The two groups were then compared to determine whether they differed with regard to their beliefs system. Table 6 demonstrates some of the demographic variables for the subjects in the high metacognitive knowledge about reading group (HM) and the low metacognitive knowledge about reading group (LM) along with the Chi Square analyses. Chi Square was used merely to estimate that some factors other than chance (sampling error) accounted for the apparent differences.

As demonstrated in Table (4.6), the cluster analysis produced a somewhat smaller group of students with high metacognitive knowledge (HM; n = 54) as compared to the low metacognitive knowledge group LM; n =124). No significant difference was indicated between the groups in terms of the total number in each group in the Chi Square analyses. There was also no significant difference in terms of the percentages of males and females in each group.
Additionally, the mean age of the subjects in the two groups were almost equal (HM = 22; LM = 21).

Table 4.6
Demographic variables and Chi Square Analysis- HM and LM Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>High Metacog. Knowledge (HM)</th>
<th>Low Metacog. Knowledge (LM)</th>
<th>Chi Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects in each group</td>
<td>54 (100%)</td>
<td>124 (100%)</td>
<td>3.600</td>
</tr>
<tr>
<td>Male</td>
<td>2 (3.7%)</td>
<td>18 (14.3%)</td>
<td>.01</td>
</tr>
<tr>
<td>Female</td>
<td>52 (96.3%)</td>
<td>106 (85.4%)</td>
<td>.02</td>
</tr>
</tbody>
</table>

*- p < .05

These two groups were then compared to examine whether they differed in terms of their beliefs. Comparing the groups’ performance on the different beliefs questionnaires, it was indicated that the HM and LM groups did not differ significantly in terms of their beliefs variables. That is the distinction made on the basis of their metacognitive knowledge did not affect their beliefs about language
learning and reading. In other words, the subjects in both groups held similar beliefs about reading and the way a second language is learned. Therefore, it could be concluded that there were no patterns of intra-individual differences between the HM and LM groups.

4.3. Summary of the Findings

In short, through correlational analyses conducted with the entire sample, it was clear that significant positive correlations exist between BALLI and BAR ($r = .393$). In addition, negative correlations were found between MQ and BAR ($r = -.171$) and BALLI ($r = -.204$). Some significant positive correlations were also found between several items in the three questionnaires.

The one-way Anova analyses indicated that the belief variables (BALLI and BAR) accounted for a greater portion of total MQ variance (mean square = .141). That is to say, differences in beliefs explained different performances on the MQ meaning that part of the metacognitive knowledge of the learners is shaped under the influence of beliefs held about second language learning and reading in this particular case. However, the findings cannot be absolute but only relevant to the particular subjects in this study.

A comparison of the subjects’ performance on the metacognitive questionnaire using cluster analysis revealed that the majority of the subjects had low metacognitive awareness and only a small number indicated high metacognitive awareness. Those with high metacognitive knowledge were different from the ones with low metacognitive knowledge in that the HM subjects were highly aware of their thought processes and were quite clear about their choices of strategies in their Metacognitive Questionnaire performance. This means that they knew perfectly well what things caused difficulty in their reading and what strategies they found effective in helping them to read efficiently. In contrast, those with low metacognitive knowledge lacked awareness of what goes on in their mind when they process a text and were quite mixed up in their choices of the “effective” and “difficulty” items in the Metacognitive
Questionnaire. In fact, they could not spell out clearly the things that assisted them in reading effectively or the things that made reading difficult for them.

A comparison of these groups with respect to their beliefs about language learning and beliefs about reading indicated that subjects' performance on BALLI and BAR was consistent in terms of their beliefs system and reflected those in their performance on the MQ as well. This means that the beliefs have a role to play in the metacognitive knowledge of the learners about reading that dictate to them what strategies to take to approach a reading task but not the other way round. That is, the degree of metacognitive knowledge does not affect their beliefs.
4.4. Study B (The exploration of the reading strategies)

Results

In this section, the last three research questions were answered and discussed based on data obtained through think-aloud task and retrospective questions and semi-structured interview.

4.4.1. Reading Strategies

(Think-aloud Protocols)

As mentioned earlier in chapter three, data for this part of the study was obtained through different tasks including think-aloud task, retrospective questions and semi-structured interviews. And the statements of the subjects were also examined to learn more about the type and frequency of the strategies that learners displayed and to find out the range of individual differences among reading strategies employed by each of the subjects.

The subjects were divided into two groups according to the degree of their metacognitive awareness as HM (high metacognitive knowledge) and LM (low metacognitive knowledge). 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. Having changed the data into percentages for both groups, the following results were obtained:

**Table 4.7**

**Chi-Square Test**

<table>
<thead>
<tr>
<th>CATEG</th>
<th>Observed N</th>
<th>Expected N</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>5.0</td>
<td>-3.0</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>5.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
Both groups demonstrated significant differences in the percentage of strategies that they used to make sense of the text. Considering the total number of strategies used by each subject, the primary strategies happened to be local (text-driven) in which they made use of decoding, summarizing, word recognition, tracking and asking for help. Fewer global (reader-driven) and perspective-taking strategies were observed across the groups and no inferential strategy was noted.

However, when the two groups were compared, they differed in the extent to which they employed each of the observed strategies. The LM group, for instance, tended to display higher percentage of text-driven strategies (85%), and similarly, the HM group demonstrated greater percentage of text-driven strategies, and fewer reader-driven and perspective-taking strategies (62%, 22% and 12% respectively).
Most of these students made similar statements in which they were primarily involved in summarizing the passages. For example, two of the subjects from the LM group stated the following statements:

Example 1

"In this text, it is talking about art, basically about teaching English, how some teachers have their own point of view about it and...”

Example 2

"In French, this class was, eh, well romance was there, but, ok, but they were not (she looks at the text for some seconds and continues), the lower class are not interested because they have to concentrate on their basic needs...”

Example 3

"Ok. Well, this text is talking about the things that can help a student understand a text better.”

Some, however, attempted retelling and using direct quotes from the passage to talk about it.

Example 4

“As the text shows, ‘the courtly French romance drew its ideals partly from feudal notions of service... and was combined with more specifically Christian virtues’."

There were also two students in this group who read the passage loudly and when asked why they did so, one said:

Example 5

“When I read it aloud, I can understand it better”
And another student contented:

**Example 6**

"Reading aloud usually helps me understand a passage better".

As with the word recognition strategies, the subjects in this group made use of sounding out words and they were particularly concerned about the pronunciation as if it could help make sense of the word.

**Example 7**

"Well, I don’t know how this word is pronounced and I try to sound out this word".

**Example 8**

"Maybe this word is pronounced like this... I’m not sure how to sound it out".

Additionally, the students in this group tended to use more tracking using their pens, pencils and even their fingers to try to comprehend the text. In contrast to the LM group, the subjects in the HM group demonstrated some few reader-driven strategies but most of them used text-driven and only one person used perspective-taking strategies to make sense of the text. Interestingly, those who demonstrated a tendency for text-driven strategies demonstrated some slight differences from the ones in the LM group. For example, they used context cues more often to determine words rather than worrying about how to sound them out. In addition, they made more frequent use of note taking to remember some important points in the passage.

**Example 9**
"I prefer to write down this portion in the margin of the text."

**Example 10**

"I need to write down this portion of the text because I believe it is important."

The subjects in this group seemed to comment more frequently on their attempts to make sense of the text as they were reading it. For example, consider the following responses from the subjects in the HM group who were trying to comprehend the passage by monitoring their comprehension and comparing the information from different parts of the passage.

**Example 11**

"This passage starts with a sentence in old English, Shakespearian English I may say, and I did not understand it at first, but here this sentence helped me make sense of it."

**Example 12**

"First of all, these words, 'thou', 'thee', ... are familiar to me, it is archaic English, and I know what they mean so it's fine, but I don't understand this part, so I continue reading and finish the passage, now some points in the passage help me understand the first sentence."

**Example 13**

"This first sentence is talking about an important point, but the idea is not clear to me yet. I think that the following sentence clarifies it a bit and as I follow the other sentences add to the clarification of the meaning. This sentence, for example ..."
There were also some statements about the recognition of comprehension as a sign of metacognitive awareness which was found more often in the HM group.

Example 14

“This portion summarizes some information that I didn’t understand at first, so I read it again more carefully and spent more time on making sense of the message it is giving”.

Example 15

“Here, I’m going back, because I didn’t get what the sentence said. So I reread the sentence as well as the sentences before and after it to try to work out the meaning.”

Therefore, it can be concluded here that the HM group subjects’ think-aloud statements included comments on their attempts to make sense of textual information while more of the statements of the LM group centered on describing the text itself. In other words, it appeared that the subjects in the HM group demonstrated a slightly greater tendency to monitor for meaning and compare part of the text for clarification, whereas, the subjects in the LM group were more willing to summarize the text and pay particular attention to the details.

**Figure 4.2** displays the distribution of the strategic responses of the subjects in the think-aloud task regardless of the HM/LM categorization. It can be clearly seen that the dominant strategy among the subjects is the text-driven or the local strategies as Carrell (1989b) calls them and the reader-driven or global strategies are the second widely used strategies and a few of the subjects have demonstrated the use of a third strategy which is called perspective-taking due to the certain processes used for comprehension.
4.5. Research Questions

In this part, the three research questions related to study B will be discussed.

4.5.1. Question 3
Do intra-individual differences in beliefs and metacognitive knowledge, if they exist, relate to strategic reading performance?

First of all, since the results of study A indicated that there were no patterns of intra-individual differences between the subjects in the HM and LM groups, therefore, it is apparent that this distinction cannot predict any strategic reading performance of the readers on the basis of their HM/LM categorization.
Thus, the hypothesis that even if there exist some intra-individual differences in beliefs and metacognitive knowledge, they do not relate to strategic reading performance, is supported in this study. That is to say, the strategic reading performance of the subjects acts independently from their metacognitive knowledge.

4.5.2. Question 4
Are there noteworthy differences in the range of reading strategy between advanced level L2 readers with high metacognitive knowledge and those with low metacognitive knowledge?

Figure 4.2 clearly indicated that the two groups demonstrated some similarities in term of the types of strategies they used. In fact, the two groups were similar in the use of text-driven and reader-driven strategies regardless of the percentages of the subjects using them and were different only in the use of perspective-taking strategies which were used only by the subjects in the HM group.

Therefore, it was quite clear that differences in the metacognitive knowledge cannot be related to strategic reading behavior of the learners.

4.5.3. Question 5
Do L2 readers in general rely on one type of reading strategy, or utilize both types of strategies, reader-driven and text-driven, interactively?

In order to answer the last research question, a closer look at the strategic reading performance of the readers and its comparison to their responses to the metacognitive questionnaire was felt necessary. To begin with, a closer look at the subjects' responses to the MQ indicated that the more the subjects in the HM group tended to disagree with statements about particular types of strategies as being effective for reading, the better their reading performance. For example, if
they tended to disagree with the statements such as when reading silently in English, the things I do to read effectively are: to focus on “mentally sounding out words”, “the grammatical structures”, “understanding the meaning of each word”, “the details of the content”, they tended to be more reader-driven. Additionally, these subjects (HM) tended to disagree that sound-letter information, grammatical structures or word meaning made reading difficult for them. Moreover, they agreed with the statements that they are able to recognize the differences between main points and the supporting details. They also agreed with the statements that they are able to question the significance or the truthfulness of what the author says.

Quite interestingly, in both the HM and LM groups, the subjects disagreed with the statement that they give up and stop reading when they do not understand something. Additionally, in the category of what makes reading in a second language difficult, sentence syntax emerged as significant for creating difficulty in reading a second language for both HM and LM groups.

In contrast, those subjects who tended to disagree with the statement that relating the text to what they already know (background knowledge) caused them difficulty in reading in a second language fell under the text-driven category of readers. However, interestingly most of the reader-driven subjects from the HM group agreed that word-meaning and sentence syntax were effective for reading in a second language.

To find out whether all the subjects relied on one particular type of strategy or used them interactively, each group of subjects (HM/LM) was divided into subgroups on the basis of their responses to the effective and difficulty items on the MQ questionnaire and then were compared to their reading strategies they used during think-aloud task. In fact, of the seventeen items on the ‘effectiveness’ of strategies, the eleven items relating to sound-letter, word-meaning, sentence-syntax, and text details were classified as “local” or text-driven items; the remaining six relating to background knowledge, text gist, and textual organization were classified as “global” or reader-driven items. In the same way,
of the eight items on the “difficulty” of strategies, the five relating to sound-letter, word-meaning and sentence syntax were classified as “local” items; the remaining three items relating to background knowledge, text gist and textual organization were classified as “global” items.

Participants’ responses to these subgroups of items were averaged and then compared to their on-line measures of their strategic reading behavior. Subjects whose average responses to ‘effective’ items of the MQ showed that they agree to a greater extent that global rather than local strategies were effective were classified as reader-driven or in Carrell’s (1989) term “global strategizers”; otherwise, they were classified as text-driven or “local strategizers”. Similarly, subjects’ average responses to ‘difficulty’ items were considered and those who disagreed to a greater extent that the global strategies as opposed to local strategies caused them difficulty were classified as reader-driven; otherwise, they were classified as text-driven in their approach to the text.

In the same way, any strategic behaviors in the thin-aloud task which proceeded from the incoming printed data in the passage to higher-level processing were put under the text-driven processing strategies. In contrast, reading behaviors such as bringing contextual information and making hypotheses were put under the reader-driven strategy category. According to the criteria set for the classification of the strategies, another type of strategy was also identified as perspective-taking which was evident only through the think-aloud procedure and could not be traced in the responses of the subjects.

When the subjects’ responses were compared to their think-aloud protocols, some discrepancies were found. That is to say, some of the subjects who used more text-driven strategies to comprehend the passages during the thin-aloud task, demonstrated a mixed type of strategies in their responses to the metacognitive questionnaire. It means that in both the ‘effective’ and ‘difficulty’ category, subjects responded to items supporting both categories and this particularly was more evident in the responses of the subjects belonging to the LM group. This can be explained in two ways: a) this might be interpreted with
regard to the degree of their metacognitive awareness which indicates that the LM subject groups were not aware of their own thought processes and could not make out the differences between different text processing strategies, and b) this can be explained with reference to the fact that they might be interactive in their reading processes. However, no discrepancies were found between HM group subjects’ responses and their strategic reading performance in the think-aloud task meaning that they were aware of the things going on in their mind. Generally, there seemed to be more tendency to approach the text in a text-driven manner as the think-aloud protocols of the subjects and their responses to the MQ items indicated.

In addition, there were other strategies that did not include in the criteria and involved some degree of metacognitive awareness and interestingly they were used by subjects in the HM group. They were, in fact, some strategic reading behaviors which indicated that readers (especially, reader-driven ones) are aware of what they think and do to monitor their comprehension. For example, the statements about the recognition of comprehension were indicative of these metacognitive strategies.

Furthermore, in order to examine whether subjects sustain their strategies when asked to perform a specific task, say for example answer some comprehension questions, and also to find out whether subjects in the HM group differed significantly from the ones in the LM group, one passage was used to examine this case. Some comprehension questions were added to the end of the passage and subjects were told to read and answer the questions that appeared at the end of the passage. In fact, on the first two passages, the subjects were asked to read them and perform the think-aloud to talk about the strategies they use to comprehend the text. On the third one, the students were asked to read the passage in order to answer some comprehension questions and while doing so they thought aloud.

In this task, it is interesting to note that the LM subjects, while producing their verbal protocol, read the questions first and then they tried to find the
answers. In fact, the most notable strategy that most of these subjects used was
the scanning strategy. They mentioned the reason for the use of this strategy as
being comfortable and fast for finding the detailed information or specific
phrases to answer the questions. For example, one of the subjects commented on
the use of this strategy as follows:

Example 16

“When I read this passage, I do not think what it is talking about. But
when I am reading, I try to focus on those parts that can be used to answer the
related questions.”

And when asked what she thinks about the passage, she replied:

“Well, to tell you the truth, I didn’t exactly get what the text was saying
because I was engaged in finding the answers to the questions that were asked
and I think that is enough for the purpose of this task.”

Another subject from this group explained the process she used as follows:

Example 17

“When I want to answer this question, what I do is to look for the cue
words that can help me find the right answer. I mean, I do not try to check every
word or phrase or sentence to understand what it says.”

As is clear from the above sentence, this subject tends to understand every word
or sentence to process the text (i.e. she is text-driven in her approach), but in this
particular case she has changed her strategy to try to focus on the particular task
wanted of her. In other words, she seemed to be more task-driven with regard to a
specific task. Therefore, it can be hypothesized that she would also attempt to
adjust her strategies to the demands of the class and the teacher when she is
involved in academic type of reading.
For the HM subjects, however, using a number of other strategies was important since they believed that those strategies could help them to find the answers better. For example, one of the subjects used strategies like rereading a sentence and dividing it into several parts when she encountered difficult or complicated sentences that she could not understand fully to be able to answer the question asked. And she explained that she only did this when she felt that those parts were crucial for answering the questions.

Example 18

"I think this portion here contains the answer to question two but I'm not sure because this sentence here is a bit complicated and I need to reread it to make sure."

An interesting thing about this particular subject was that though she has been classified as a reader-driven person (with respect to her think-aloud protocol and her responses to the “effective” and “difficulty” items in the MQ), when confronted with this particular task of answering some questions she seemed to have become interactive in her reading strategies. That is to say, she tried to rely on reader-driven strategies in some part of the passage and text-driven in some other parts which required to be comprehended more fully.

Another interesting finding of this part of the study was related to the ideas of the subjects with regard to the role interest played in the way they approached the text. This was asked as a retrospective question and most of them explicitly mentioned that interest in the subject was an important factor which determined their approach to the reading task. In fact, thirteen out of fifteen started reading with first reading the headings to both give them a general idea of what the passage is about and to find out whether it was a topic of their interest.
Example 19

“I’m reading the headings to see what the passage is going to talk about. It can help me understand what the author is trying to mention in the text. You see, it can give you a general idea of the contents of the passage to prepare you to read and as I go on reading the passage, the ideas I got from the heading and the way those ideas are organized in the text help me understand what the text is about.”

This particular subject seemed to be highly aware of her cognitive processes and though she was classified as belonging to the HM group, she differed from them in that she could perceive and predict what was going to help her read quite effectively and indeed she succeeded in getting a fuller grasp of the passages in comparison to other subjects. She used the organization of the text along with the information she got from the headings to predict and comprehend the ideas mentioned in the passages. Regarding note-taking and other strategies that helped comprehension as well as retention she mentioned that:

Example 20

“I usually make some mental notes of the parts I find important, but if necessary I also make some notes in the margin of the passage to refer to later more easily. Depending on the nature of the text, I may also ask myself some particular questions to make sense of the ideas mentioned; for example, I may ask ‘this part doesn’t make sense here, does it mean that I have to go back and check if something is missing or I have not noticed something important?’.”

Generally as part of the retrospective questions, when they were asked to name the main factor(s) that determined the way they read, they unanimously mentioned that it was the purpose of reading which determined the way they read. For example, one of the subjects contended that:
Example 21

"At the university or college and even in schools, the strategies that students choose are based on the requirements of the classroom or the demands of the teachers. It is also because in these educational situations students are under time stress, I mean they do not have that much time to spend only on one subject; therefore they resort to certain kinds of strategies that click and they think work for them in those situations."

In the reader-driven subjects' answers to the retrospective questions it was evident that the more they were able to relate the ideas in the passage to their previous knowledge and their real life experiences the more interesting and easier they found them to be. They tried to activate their background knowledge to facilitate their comprehension:

Example 22

"I know that this part is talking about feudalism and I understand it completely because we had read about it in our MA (I) lectures."

This reader-driven subject reread the portions that she said were important to her. Of particular interest was her use of scanning and skipping strategies to answer the comprehension questions. She mentioned that she generally relied on meaning-oriented strategies (the term she used to describe her reading strategies) but in practice she seemed to be interactive in her approach:

Example 23

"Basically, I try to look for the general meaning in the text so I try to guess the meaning of the unknown words form the previous sentences or even paragraphs. But when I want to answer a comprehension question sometimes guessing can misguide you so when I get stuck with some unfamiliar words I check the words up in my dictionary."
Therefore, as the results of the present verbal data represent, depending on
the purpose for which subjects approach a text and also the nature of the task and
text, they become interactive in their approaches to reading. As evident in this
study, the participants relied quite frequently on the text-driven reading strategies
especially in the texts in which they had little background knowledge. Additionally, the data were consistent with the findings of Anderson (1991) which suggested that the use of certain types of strategies do not always lead to
better comprehension.

One of the questions that I asked all the subjects to think about and answer
was about their reading experiences and the people who helped them to learn to
read. Most of the subjects mentioned their school teachers to be the ones who
taught them how to read and were appreciative of their efforts. But two of the
subjects who were surprisingly from the HM group, mentioned that their parents
played a great role in their reading abilities.

Example 24

“My mother was my reading teacher, you know, from very early age she
read bed-time stories to me and as I grew up she encouraged me to read on my
own and then we discussed the points in the story. So naturally, even in school,
whenever I faced some reading problems I went straight to my mom and she
would help me with that.”

Example 25

“My grandfather is a very knowledgeable person. When I get stuck in any
stuff in English I go to him. He always tells me to read a lot and he sets a good
example for me because he reads a lot himself. So I believe most of the strategies
that I use in my reading come from my reading excessively. I love novels but
unfortunately now I don’t have enough time to read my favorite novels and…”
Although these subjects mentioned that they were never taught any reading strategies in particular, it can be implied that reading extensively improved their metacognitive knowledge. In other words, their numerous encounters with different kinds of passages gave them the idea of what to expect the text to put forth and what strategies to use to facilitate text comprehension.

Furthermore, as evident from research in many foreign and second language situations, translation has often been reported as one of the reading strategies that most foreign language learners (based on my own observation) and some of the second language learners use as a strategy to make sense of the text especially when encountered with some complicated sentences. However, none of the subjects in study (B) used or even mentioned the use of translation as a strategy to comprehend the text. This could be due to the fact that (as evident from the interviews) all of the subjects used to attend English medium schools and were competent in English. In fact, to them it was funny to try to understand what a text in English said through converting it into Hindi.

They reportedly felt more convenient with using other strategies such as rereading the complicated sentence or breaking it into smaller chunks to try to figure out what the message was. They also mentioned that if none of the strategies worked and they failed to make out what the sentence or paragraph was about, they would ask for an expert's help either their parents, their teachers and sometimes their peers whom they believe are very competent in the language.

Perhaps, their language proficiency level can explain this strategic behavior because the subjects for the second part of the study were controlled with regard to their language proficiency. In many second language studies (see for example, Cziko, 1980; Coehn, 1984) translation has been reported as a text-driven strategy used by the readers to make sense of the passage. In these studies, the subjects were different in terms of their language proficiency as well as their exposure to the second language. In one of the studies, even highly advanced learners used translation to comprehend a text in English either to comprehend a sentence they believed was very important and in this case they only translated
that particular sentence word by word, or translated the whole passage or most part of the passage as an ongoing reading process.

However, what made this study different from other second language studies was the nature of the subjects involved as they seemed to be bilingual in English and Hindi and could easily switch from one to the other when they spoke. Additionally, since English is the official language of the country and also the medium of instruction in most schools and universities, the degree of literacy they achieve in this language is equal to and some cases higher than the one in their own native language. This can explain their strategic reading behavior in reading a passage they felt comfortable with and in which they found no reason to resort to their mother tongue to help them understand it.

4.6. Summary of the Findings

In short, the groups (HM/LM) demonstrated similarities between their responses to the retrospective questions and interview questions as well as their performance on the think-aloud task. However, some few discrepancies were found in a number of cases where the subjects reported to be text-driven while in reality and in action they were reader-driven or vice versa. In addition, there were some subjects who were categorized as interactive because they used both strategies interactively, especially when a particular task was demanded. This however, was found when readers were engaged in attempting to answer some comprehension questions asked at the end of the passage.

Though the metacognitive knowledge was shown to play no significant role in the strategic reading behavior of the subjects, it proved useful in facilitating the reading performance of the readers. In other words, those with higher metacognitive knowledge were more organized in their reading and were capable of regulating their own reading, varying their performance to suit the purpose, and thus more successful in comprehension. They also showed to be more aware of their own self, and were able to deal with the text and the tasks
specified in a more logical manner. These subjects also tried more useful ways of comprehending difficult or complicated parts.

Moreover, HM subjects were more capable in making decisions about their comprehension of the text; for example, they knew very well when to reread and what portions to reread to help them work out a problem they faced; they also knew when and what type of inference to make, what information of importance to retain in memory and make note of, and what information of lesser importance to discard.

In general, the following features were observed to be used by HM subjects:

- They skimmed the text to get information about the structure of the text as well as the ideas being put across by the author.
- They used their metacognitive knowledge to activate prior knowledge and to construct meaning while reading.
- They read selectively, reading quickly irrelevant information or rereading information which was important, difficult or interesting to them.
- They could easily identify main ideas.
- They were able to monitor their understanding of the passage; to do so, they attempted to review and reflect on reading through self-questions.
- They were very quick in processing the text to find out the answers to the comprehension questions.
- They were quick in skipping the part of the text that was considered irrelevant to the question.

Low metacognition group; in contrast, were not that clear in their knowledge of the task and their own strategies. They were not able to explain why they were using certain strategies and did not know how or when to adjust specific strategies to the specific conditions they found themselves in.

Additionally, as mentioned earlier in the summary section of study A, the degree of metacognitive knowledge did not relate to or affect the kind of beliefs the subjects held about reading. That is, some of the HM and LM subjects
demonstrated similar beliefs about language learning in general and reading in a second language in particular.

Some other findings, though secondary to the purpose of this study, were found that revealed interesting points with regard to the importance of the metacognitive knowledge in reading. Subjects in the high metacognitive group (HM) were different from the ones in the low metacognitive group (LM) in another aspect – activation of the prior knowledge– which was probably why their strategic reading behavior was a bit different from the other subjects. In the passage in which subjects possessed the required background knowledge, both HM and LM groups comprehended the text effectively though they processed it differently (i.e., some were text-driven and some were reader-driven). But in the passage beginning with an archaic sentence (see Appendix A) in which they lacked enough background knowledge –because the text was an introduction to a play that was part of their curriculum and addressed the readers before they embarked on the play itself– the performance of the subjects in the high metacognitive group was different from the ones in the low metacognitive one. Though both groups demonstrated greater difficulty in processing the passage in comparison to their processing of other passages in which their background knowledge helped them widely, the HM group outperformed the LM group in their approach and rate of reading. The HM group was more consistent and systematic in their attempts to make sense of the passage. In fact, they knew where to concentrate in order to activate the necessary background information. Research has shown that when readers do not possess the schemata assumed by the writer, they can distort meaning as they try to accommodate even explicitly stated propositions to their own pre-existing knowledge structure (see Israel, 2005). However, a good degree of metacognitive knowledge can pave the way for relating the new information to the related previous information they have. It can help activate the prior knowledge in order to facilitate subjects’ abilities to comprehend. In this regard, it was interesting to find that all the reader-driven
subjects were in the HM group who could better activate their background knowledge to process the text.

Thus, it was found that metacognitive knowledge is a key to successful reading; that is learners with higher levels of metacognitive knowledge were able to monitor and regulate their reading processes to accomplish the reading goals being it mere comprehension or comprehension in order to answer a set of questions which were both examined in this study.

Therefore, as it was revealed from the findings of this research, metacognitive knowledge did not determine the reading strategies that learners chose to use to process the text, but it helped in comprehending the text more effectively. What determines the choice of strategies by the reader could therefore be partly due to the kind of beliefs that they have about the reading process that affects their decision to approach a text in a particular way or another.