CHAPTER IV

RESULTS OF DATA ANALYSIS

This chapter reports the results of both quantitative and qualitative data analysis; therefore, it is organised into two major parts -- the quantitative and qualitative data. The first part presents the results of the general English reading comprehension test to answer the research questions one, two, and three; and the findings of the questionnaire to answer the research questions 4.1 and 4.2. The second part of the chapter analyses the qualitative data by applying the content analysis in order to provide greater depth and validate the findings of the quantitative analysis.

4.1 Results of Quantitative Data

The quantitative data were mainly collected by the general English reading comprehension post-test and the pre- and post-questionnaires.

4.1.1 A Comparison of the Main Effects of Three Degrees of Support for Learner Independence on the English Reading Comprehension Ability and the Effect Sizes

The results of 3 (degrees of support for learner independence: MS, SS, and LS) x 2 (levels of proficiency: high and low) for the dependent variable (English reading comprehension ability) are illustrated in Table 4.1.

Table 4.1: The 3 x 2 ANOVA

Source of Variations	Sum of Squares	df	Mean Square	F	Eta Squared	Observed Power
Main Effects						
Degrees of support for learner independence	27.80	2	13.90	1.29	0.01	0.27
Levels of English proficiency	710.45	1	710.45	65.76*	0.38	1.00
Interaction Effects						
Degrees of support x Levels of English proficiency	49.57	2	24.79	2.29	0.03	0.46
Error	1102.06	10	10.80			
Total	37279.00	11				
Corrected Total	1889.88					

* $p < 0.05$

Table 4.1 shows the result of the main effect of each independent variable. For the first independent variable: degrees of support for learner independence, the two-way ANOVA score of F = 1.29, df = 2 is not statistically significant (p > 0.05). This answers the first research question and indicates that the three different degrees of support for learner independence: MS, SS, and LS through WBI have no significant effect on learners' general English reading comprehension ability. Therefore, the first hypothesis, i.e. *there is a significant difference among English reading comprehension ability of undergraduate learners learning through different degrees of support for learner independence by WBI is* rejected.

The Eta squared effect size (the proportion of total variability attributable to a factor) is 0.01 meaning that the factor (degrees of support for learner independence) by itself accounted for 1% of the total variability in the dependent variable (English reading comprehension ability). Its magnitude is 'small' (Becker, 2000) as the correlation of 0.01 is smaller than 0.2, as per Cohen's *d* scale of magnitudes of a correlation suggested by Cohen (1988).

> d = 0.2-0.4   small
>
> d = 0.5-0.7   medium
>
> d = or > 0.8   large

The observed power of the main effect is 0.27 meaning that if the study were to be replicated 100 times, we would correctly reject the null hypothesis on 27% of those replications. In other words, it means that the reliability of the findings is low.

4.1.2 A Comparison of the Main Effects of Levels of English Proficiency of the Students on the English Reading Comprehension Ability and the Effect Size

Table 4.1 also shows the main effect of the second independent variable: levels of English proficiency of the learners. The two-way ANOVA score of F = 65.76, df = 1 for the independent variable (levels of English proficiency) is highly significant at p < 0.05. The Eta squared is 0.38 meaning that the factor (levels of proficiency) by itself accounted for 38% of the total variability in the dependent variable (English reading comprehension ability). Its magnitude is 'huge' (Becker, 2000) according to Cohen's *d* scale of magnitudes of a correlation.

The observed power of the main effect is 1.00 meaning that on 100% of the replications of this study the null hypothesis will be correctly rejected. This means that the reliability of the findings is very high (can be trusted).

Thus, to answer the second research question, the result suggests that the different levels of learners' general English proficiency have different effects on their English reading comprehension ability after learning it through WBI. Therefore, the second hypothesis, i.e. *there is a significant difference among English reading comprehension ability of undergraduate learners with high and low levels of general English proficiency learning through different degrees of support for learner independence by WBI* is accepted.

4.1.3 The Interaction Effect of Degrees of Support for Leaner Independence and Levels of English Proficiency of the Students on the English Reading Comprehension Ability and the Effect Size

Besides the main effects, Table 4.1 reveals that there is no interaction effect between the two independent variables: three degrees of support for learner independence and levels of English proficiency. No interaction effect between the two factors, $F = 2.29$, $p > 0.05$, indicates that different degrees of support for learner independence through WBI and levels of students' proficiency do not have an effect on their English reading comprehension ability. Therefore, the third hypothesis set in relation to the third research question, i.e. *there is a significant interaction effect between the different degrees of support for learner independence and levels of learners' proficiency on English reading comprehension of undergraduate learners* is rejected. Consequently, there was no effect size.

4.1.4 The Investigation of Learners' Attitudes towards Learner Independence through WBI

The data from the questionnaire were analysed to answer the research objective 4 which contains two research questions.

4.1.4.1 A Comparison between the Pre- and Post-Questionnaire of the High Proficiency Students in the Three Treatment Groups

In order to answer the research question 4.1, the results of the 53-item questionnaire data were analysed and are presented in Table 4.2.

Table 4.2: The Differences between the Pre- and Post-Questionnaire (53 Items) of the High Proficiency Students in the Three Treatment Groups

Group (High proficiency)		n	Mean	Standard Deviation (SD)	df	t-value
MS	Pre	18	3.61	.23	17	1.74*
	Post	18	3.71	.28		
SS	Pre	18	3.57	.33	17	-1.89*
	Post	18	3.50	.34		
LS	Pre	18	3.65	.25	17	.33
	Post	18	3.67	.19		

*p < 0.05

For the high proficiency MS group, Table 4.2 shows that .05 t > 1.74; p = 0.05 and the hypothesis is accepted. Therefore, on average the attitudes towards learner independence enhanced by WBI of the students in this group after the learner training ($\overline{x}$ = 3.61, SD = 0.23) and at the end of the course ($\overline{x}$ = 3.71, SD = 0.28) were significantly different (a = 0.05). This means that on average the attitudes towards learner independence of the students in this group significantly increased at the end of the course.

For the SS group, Table 4.2 shows that .05 t > -1.89; p > 0.04 and the hypothesis is rejected. This means that on average, their attitudes towards learner independence before their independent learning through WBI or after the learner training ($\overline{x}$ = 3.57, SD = 0.33) and at the end of the course ($\overline{x}$ = 3.50, SD = 0.34) were significantly different (a = 0.05) in a reverse direction of the predicted outcome. On average, the SS learners' attitudes towards learner independence significantly decreased after the treatment.

For the LS group, Table 4.2 reveals that .05 t > 0.33; p = 373 and the hypothesis is rejected. Therefore, on average students' attitudes towards learner independence after the learner training ($\overline{x}$ = 3.65, SD = 0.25) and at the end of the course ($\overline{x}$ = 3.67, SD = 0.19) were not significantly different (a = 0.05). This means that they hold more or less the same attitudes towards learner independence after the learner training and at the end of the course.

4.1.4.1.1 <u>A Comparison of Each Domain between the Pre- and Post-Questionnaire of the High Proficiency Students in the Three Treatment Groups</u>

Besides the findings of the overall attitudes towards learner independence of the three high proficiency groups, a further analysis of each domain provided some interesting findings. Table 4.3 points out these findings.

Table 4.3: A Comparison of Each Domain between the Pre- and Post-Questionnaire of the High Proficiency Students in the Three Treatment Groups

Group	Domain	Pre-questionnaire		Post-questionnaire		df	t-value
		Mean	SD	Mean	SD		
H/MS	Attitude	4.07	.38	3.95	.29	17	-1.25
	Willingness	3.66	.30	3.62	.41	17	-.41
	Confidence	3.28	.39	3.16	.42	17	-1.11
	Motivation	3.78	.41	3.99	.47	17	2.64*
	Capacity	3.69	.32	3.76	.40	17	.76
	Cognitive	3.29	.30	3.36	.35	17	.86
	Metacognitive	3.60	.43	3.94	.30	17	3.51*
H/SS	Attitude	3.92	.37	3.82	.45	17	-.94
	Willingness	3.55	.43	3.45	.33	17	-1.16
	Confidence	3.03	.49	2.98	.50	17	-.62
	Motivation	3.95	.60	3.89	.56	17	-.77
	Capacity	3.67	.57	3.67	.48	17	.00
	Cognitive	3.24	.34	3.12	.47	17	-.1.12
	Metacognitive	3.61	.50	3.54	.45	17	-.71
H/LS	Attitude	4.01	.36	3.94	.21	17	-.98
	Willingness	3.65	.27	3.77	.26	17	1.47
	Confidence	3.18	.47	3.23	.41	17	.57
	Motivation	4.01	.54	3.97	.38	17	-.34
	Capacity	3.77	.40	3.83	.28	17	.72
	Cognitive	3.32	.34	3.32	.43	17	-.01
	Metacognitive	3.64	.38	3.68	.40	17	.38

* $p < 0.05$

For the high proficiency most support for learner independence group (H/MS), Table 4.3 shows that the two domains: 'motivation' and 'metacognitive strategies' significantly increased at the end of the course ($\overline{x}$ = 3.99, SD = 0.47; and $\overline{x}$ = 3.94, SD = 0.30 respectively). This means that the H/MS group had more motivation to learn independently by themselves and used more metacognitive strategies after the treatment. It is also noted that the post-questionnaire rating on 'confidence' was the lowest ($\overline{x}$ = 3.16, SD = 0.42).

Regarding the high proficiency semi-support group (H/SS), Table 4.3 illustrates there was no domain showing a significant difference between the pre- and post-questionnaire. In addition, every domain except 'capacity' was rated slightly less in the post-questionnaire than the pre-questionnaire. Among these, the domain of 'confidence' on the post-questionnaire was rated the lowest ($\overline{x}$ = 2.98, SD = 0.50) which were the same findings as from the case of the H/MS group above.

For the high proficiency least support group (H/LS), like the H/SS group, there was no significant difference in any domain between the pre- and post-questionnaires. Table 4.3 also shows that 'confidence' to learn independently was the lowest rating on the post questionnaire ($\overline{x}$ = 3.23, SD = 0.41).

In conclusion, on average the significant differences occurred in the MS group on the 'motivation' and 'metacognitive strategies' domains, which means that students in this group had more motivation and used metacognitive strategies at the end of the course than after the learner training, while the SS and LS groups held more or less the same attitudes towards independent learning of every domain after learner training and at the end of the course.

4.1.4.1.2 The Range of Each Item of the Pre- and Post-Questionnaires Reported by the Three High Proficiency Groups

Besides a comparison of each domain of the pre- and post-questionnaires rating, a further analysis of each questionnaire item can yield insights regarding change of students' attitudes towards learner independence. Since the information is massive, Tables 4.3.1- 4.3.3 which present the findings of each high proficiency group are in Appendix M.

4.1.4.2 A Comparison between the Pre- and Post-Questionnaire of the Low Proficiency Students in the Three Treatment Groups

The analysis of the pre- and post-questionnaire data was conducted to provide answer to research question 4.1 and the results are presented in Table 4.4.

Table 4.4: Differences between the Pre- and Post-Questionnaire (53 Items) of the Low Proficiency Students in the Three Treatment Groups

Group (Low proficiency)		n	Mean	Standard Deviation (SD)	df	t-value
MS	Pre	18	3.55	.26	17	.70
	Post	18	3.58	.23		
SS	Pre	18	3.41	.20	17	.36
	Post	18	3.43	.24		
LS	Pre	18	3.38	.22	17	.28
	Post	18	3.40	.24		

For the MS group, Table 4.4 shows that .05 t > 0.70; p = 0.25 and the hypothesis is rejected. Therefore, on average, the attitudes towards learner independence fostered by WBI of the students in this group and their capacity to be independent learners before they performed the independent learning ($\overline{X}$ = 3.55, SD = 0.26) and at the end of the course ($\overline{X}$ = 3.58, SD = 0.23) were not significantly different (a = 0.05). This means that they held more or less the same attitudes towards learner independence after the learner training and at the end of the course.

For the SS group, Table 4.4 shows that .05 t > 0.36; p = 0.36 and the hypothesis is rejected. On average, their attitudes before their independent learning through WBI, that is, after the learner training ($\overline{X}$ = 3.41, SD = 0.20) and at the end of the course ($\overline{X}$ = 3.43, SD = 0.24) were not significantly different (a = 0.05). This means that they had more or less the same attitudes towards learner independence after the learner training and at the end of the course.

For the LS group, Table 4.4 reveals that .05 t > 0.28; p = 0.39 and the hypothesis is also rejected. Therefore, on average students' attitudes after the learner training ($\overline{X}$ = 3.38, SD = 0.22) and at the end of the course ($\overline{X}$ = 3.40, SD = 0.24) were not significantly different (a = 0.05). This means that their attitudes towards

learner independence after the learner training and at the end of the course were more or less the same.

In short, for every group on average, the attitudes towards learner independence of the students in each group before and after they performed the independent learning on the English reading comprehension skills through WBI or the EDO were more or less the same.

4.1.4.2.1 A Comparison of Each Domain between the Pre- and Post-Questionnaire of the Low Proficiency Students in the Three Treatment Groups

Like the case of the three groups of the high proficiency students, further analysis of each domain of the questionnaire provides some interesting findings (Table 4.5).

Table 4.5: A Comparison of Each Domain between the Pre- and Post-Questionnaire of the Low Proficiency Students in the Three Treatment Groups

Group	Domain	Pre-questionnaire		Post-questionnaire		df	t-value
		Mean	SD	Mean	SD		
L/MS	Attitude	3.87	.52	3.92	.29	16	.57
	Willingness	3.48	.46	.3.65	.45	16	1.82*
	Confidence	2.98	.59	2.98	.47	16	.00
	Motivation	3.71	.52	3.87	.42	16	1.44
	Capacity	3.71	.36	3.66	.40	16	-.58
	Cognitive	3.23	.23	3.29	.42	16	.58
	Metacognitive	3.58	.37	3.68	.35	16	.95
L/SS	Attitude	3.75	.37	3.68	.42	17	-.74
	Willingness	3.67	.48	3.51	.37	17	-1.79*
	Confidence	2.93	.34	2.97	.51	17	.29
	Motivation	3.75	.49	3.66	.46	17	-.74
	Capacity	3.65	.40	3.57	.39	17	-.74
	Cognitive	3.01	.41	3.08	.30	17	.53
	Metacognitive	3.23	.46	3.51	.49	17	2.39*
L/LS	Attitude	3.81	.28	3.81	.35	17	.00
	Willingness	3.56	.27	3.53	.47	17	-.26

Confidence	2.91	.41	2.94	.45	17	.24
Motivation	3.71	.45	3.68	.37	17	-.37
Capacity	3.40	.36	3.51	.44	17	.92
Cognitive	2.98	.39	3.00	.40	17	.22
Metacognitive	3.36	.46	3.38	.40	17	.16

* $p < 0.05$

For the low proficiency most support for independence group (L/MS), Table 4.8 shows that there was no statistically significant difference in any domain between the pre and post-questionnaires except the 'willingness' to learn independently. This indicates that their attitudes on every domain after the treatment were more or less the same as before the treatment with an exception that they had more willingness to learn independently after the treatment.

The analysis of each domain of the low proficiency semi-support group (L/SS) reveals that there was a statistically significant difference in their use of metacognitive strategies ($\bar{x}$ = 3.51, SD = 0.49). This means that they used more metacognitive strategies after than before the treatment. However, their willingness to learn independently significantly decreased after the treatment.

For the least support (L/LS) group, the results show that there was no statistically significant difference in any domain. This reveals that their attitudes on every domain after the treatment were more or less the same as before the treatment.

4.1.4.2.2 The Range of Each Item of the Pre- and Post-Questionnaires Reported by the Three Low Proficiency Groups

A further analysis of each questionnaire item was conducted to gain insights regarding change of students' attitudes and capacity for the independent learning mode. Tables 4.5.1- 4.5.3 present the findings of each low proficiency group (Appendix M).

4.1.5.1 The 3.5 Statistical Test Value of the Post-Questionnaire of the High Proficiency Groups

Research question 4.2 asks 'Are learners' attitudes towards learner independence after the treatment at a high level (greater than 3.50 out of 5.00)?' The

One-Sample t-test was utilised to answer this research question. The findings of the data analysis are demonstrated in Table 4.6.

Table 4.6: Statistical Test Value of 3.50 of Every Domain of the Post-Questionnaire (53 Items) of the High Proficiency Students in the Three Treatment Groups

Group	n	Mean	SD	Test Value = 3.50	
				df	t-value
H/MS	18	3.71	.28	17	3.16*
H/SS	18	3.50	.34	17	-.05
H/LS	18	3.67	.19	17	.87*

* p < 0.05

Table 4.6 indicates that overall, there was a statistically significant difference at the test value level of 3.50 in learners' attitudes towards learner independence after the treatment from the MS ($\overline{X}$ = 3.71, SD = 0.28) and LS ($\overline{X}$ = 3.67, SD = 0.19) groups (a = 0.05). The hypothesis is accepted for these two groups. This means that their attitudes towards learner independence were higher than 3.50, which suggests that at the end of the course they had highly positive attitudes towards learner independence.

In contrast, for the SS group the result shows that there was no statistically significant difference at the test level of 3.50 in terms of students' attitudes towards learner independence at the end of the course. The mean was 3.50 (SD = 0.34) and the probability value was 0.48. The hypothesis was therefore rejected. This means that their attitudes towards learner independence were at the moderate level at the end of the course.

A further statistical test value analysis of each domain was conducted in order to gain more information, and the results are presented in Table 4.7.

Table 4.7: Statistical Test Value of 3.50 of Each Domain of the Post-Questionnaire of the High Proficiency Students in the Three Treatment Groups

Group	Domain	n	Post-questionnaire		Test Value = 3.50	
			Mean	SD	df	t-value
H/MS	Attitude	18	3.95	.29	17	6.65*
	Willingness	18	3.62	.41	17	1.25
	Confidence	18	3.16	.42	17	-3.48*
	Motivation	18	3.99	.47	17	4.43*
	Capacity	18	3.76	.40	17	2.77*
	Cognitive	18	3.36	.35	17	-1.70
	Metacognitive	18	3.94	.30	17	6.23*
H/SS	Attitude	18	3.82	.45	17	3.04*
	Willingness	18	3.45	.33	17	-.59
	Confidence	18	2.98	.50	17	-4.44*
	Motivation	18	3.89	.56	17	2.96*
	Capacity	18	3.67	.48	17	1.47
	Cognitive	18	3.12	.47	17	-3.46*
	Metacognitive	18	3.54	.45	17	.38
H/LS	Attitude	18	3.94	.21	17	8.94*
	Willingness	18	3.77	.26	17	4.44*
	Confidence	18	3.23	.41	17	-2.74*
	Motivation	18	3.97	.38	17	5.27*
	Capacity	18	3.83	.28	17	4.94*
	Cognitive	18	3.32	.43	17	-1.83*
	Metacognitive	18	3.68	.40	17	1.94*

* $p < 0.05$

For readers' convenience, based on the information from Table 4.5 the meaning of each domain of the three groups is presented in Table 4.8.

Table 4.8: Evaluation of Each Domain of the Three High Proficiency Groups

Domain	MS	SS	LS
Attitude	High	High	High
Willingness	Moderate	Moderate	High
Confidence	Moderate	Moderate	Moderate
Motivation	High	High	High
Capacity	High	Moderate	High
Cognitive	Moderate	Moderate	Moderate
Metacognitive	High	Moderate	High

Table 4.8 indicates that the three groups had highly positive attitudes towards independent learning, moderate self-confidence, high motivation to learn independently, and used cognitive strategies at the moderate level. However, there are some differences among the three groups; the LS group showed high willingness for independent learning, while the MS and SS groups' willingness was at the moderate level. The MS and LS groups both reported that they possessed the high capacity and the metacognitive strategies at the high level for their independent learning, while the SS group was at the moderate level. The SS group also reported a moderate use of metacognitive strategies.

Besides presenting the results of each domain, it is worthwhile looking at each statement under each domain in order to note some interesting findings. Therefore, the major findings from Tables 4.3.1 to 4.3.3 (Appendix M) of each item under each domain of the post-questionnaire of the three high proficiency groups are comparatively and contrastively analysed.

1) Attitudes towards independent learning

All the three groups very highly agreed that learning was their own responsibility (Item 1) and that they believed that learning success resulted from their effort (Item 7). All means were greater than 4.80. However, all of them moderately agreed that people were good at English because of their gift (Item 8, $\overline{X}$s = 3.22 and 3.33). Moreover, students reported that sometimes they knew how to learn successfully, but they did it at the moderate level (Item 5). Means ranged from 2.67 (MS), 2.39 (SS), to 2.44 (LS).

2) Willingness to learn independently

The three groups were highly pleased to take responsibility for their own learning (Item 11) and willing to evaluate their learning whether it was good (Item 12). All means ranged from 4.17 to 4.50. However, it was obvious that they were

likely not to agree that the teacher should select appropriate learning methods for them (Item 13). Means were 1.96 (SS), 2.28 (MS), and 2.17 (LS).

3) Self-confidence to learn independently

As noted earlier, students in the three groups had moderate self-confidence to learn independently. Students reported on the Item 15 that they highly liked the teacher to be their supporter all the time so that they could be confident in their learning. Means were 2.22 (MS), 2.00 (SS), and 2.28 (LS). Moreover, the MS and SS groups reported that they highly wanted the teacher to tell them clearly what they should learn and do in and out of class (Item 16, $\bar{X}$s = 2.50 and 2.39), while the LS group moderately agreed ($\bar{X}$ = 2.56).

4) Motivation to learn

The three groups reported that they highly enjoyed learning English (Item 20, means ranged from 3.94 (MS) to 4.06 (SS and LS). The MS and LS groups also highly enjoyed learning English on the web independently outside class (Item 23, means were 4.00 and 3.83 respectively), while the SS group reported a very nearly high enjoyment ($\bar{X}$ = 3.50). In addition, all students reported that they liked to learn English because it is interesting and important (Item 22), that they liked to learn English because they would be able to get job easily (Item 24), and that they paid attention to learning English to get a good grade (Item 25) at a high level. However, for the items 22 and 24, only the PS group reported a significant increase in the post-questionnaire.

5) Capacity to learn independently

All groups reported that they usually knew their learning weak points and tried to focus more on them in their learning (means ranged from 4.67 to 4.33). It is also worth noting that only the MS group rated highly on Item 26: *I can set my own learning objectives* in the post-questionnaire. Their post-questionnaire rating on this item was very much higher than the pre-questionnaire ($\bar{X}$s = 3.72 and 3.33 respectively). The other two groups were moderately able to set their learning objectives from both the pre and post-questionnaires.

6) Cognitive strategies

The most popular cognitive strategy used by the MS group was thinking about the gist or main idea of the passage to see if they really understood it (Item 33, $\bar{X}$ = 4.22), while the SS and LS groups used the note taking strategy the most (Item 36, $\bar{X}$s

= 4.22 and 4.06 respectively). Moreover, only the MS group usually read every word (Item 41), while the other two groups somewhat did so. However, students of the three groups reported that they usually used a dictionary to find meanings of the really important words that they did not know (Item 37) at a high level. The strategy of guessing meanings of unknown words from the context (Item 35) was therefore used at a moderate level by the PS and LS group, while at a low level by the SS group.

7) Metacognitive strategies

For the MS group, the most striking findings were Items 43 and 48. Before reading, they set their reading objectives in advance and read with those objectives in mind (Item 43, $\overline{X}$ = 3.17 vs. 4.06). This finding is in line with Item 26 revealing that the PS group could plan their learning by setting their own learning objective better than the other two groups. They also reported more use of the while-reading strategy: telling themselves not to stop reading when encountering any reading difficulties (Item 48, $\overline{X}$ = 3.50 vs. 4.17). However, the most popular strategy at the end of the course was Item 44: imagination of what the reading passage would be about ($\overline{X}$ = 4.22).

Similarly, the SS group reported at the end of the course that they usually told themselves not to stop reading when encountering any reading problem (Item 48) as their most popular metacognitive strategy ($\overline{X}$ = 3.94) followed by imagination (Item 44, $\overline{X}$ = 3.89).

For the LS group, the two strategies usually used were Items 51: noticing mistakes of the English reading skills in order to improve them, and Item 53: checking whether they accomplished their objective for reading ($\overline{X}$s = 3.94 for both items). However, although they used evaluating strategy to check the objective (Item 53), they used the Item 43: setting their reading objectives in advance and read with those objectives in mind the least ($\overline{X}$s = 3.33 for both pre and post-questionnaires).

4.1.5.2 The 3.50 Statistical Test Value of the Post-Questionnaire of the Low Proficiency Groups

The findings in relation to the fifth research question are presented in Table 4.9.

Table 4.9: Statistical Test Value of 3.50 of Every Domain of the Post-Questionnaire (53 Items) of the Low Proficiency Students in the Three Treatment Groups

Group	n	Mean	SD	Test Value = 3.50	
				df	t-value
L/MS	18	3.58	.23	17	1.52
L/SS	18	3.43	.24	17	-1.26
L/LS	18	3.40	.24	17	-1.75*

* p < 0.05

According to Table 4.9, the result shows that there was no statistically significant difference at the test value level of 3.50 in terms of students' attitudes towards learner independence at the end of the course in the MS and SS groups. The hypothesis is therefore rejected. The mean for the MS group was 3.58 (SD = 0.23), and for the SS group was 3.43 (SD = 0.24). This means that their attitudes towards learner independence were not greater than 3.50, or they were at the moderate level at the end of the course.

In regard to the LS group, due to the one-tailed statistical significance and the negative t value, the test of 2.50 value was conducted to confirm whether this group had attitudes greater than 2.50 (moderate level) out of 5.00. The result is shown in Table 4.9.1.

Table 4.9.1: Statistical Test Value of 2.50 of Every Domain of the Post-Questionnaire (53 Items) of the Low Proficiency Students in the Least Support Group

Group	n	Mean	SD	Test Value = 2.50	
				df	t-value
L/LS	18	3.40	.24	17	15.85*

* p < 0.05

The result from Table 4.9.1 indicates that there was a statistically significant difference at the test value level of 2.50 in terms of students' attitudes towards learner independence at the end of the course in the LS group. The hypothesis is therefore accepted. The mean was 3.40 (SD = 0.24). This means that their attitudes towards learner independence were greater than 2.50, or were at the moderate level at the end of the course.

In short, the low proficiency students of the three groups had moderately positive attitudes towards learner independence at the end of the course. The statistical test value of 3.50 of each domain of the post-questionnaire of the low proficiency students in the three degrees of learner independence groups is presented in Table 4.10.

Table 4.10: Statistical Test Value of 3.50 of Each Domain of the Post-Questionnaire of the Low Proficiency Students in the Three Treatment Groups

Group	Domain	n	Post-questionnaire		Test Value = 3.50	
			Mean	SD	df	t-value
L/MS	Attitude	17	3.92	.29	16	6.04*
	Willingness	17	.3.65	.45	16	1.33
	Confidence	17	2.98	.48	16	-4.56*
	Motivation	17	3.87	.42	16	3.67*
	Capacity	17	3.66	.40	16	1.69
	Cognitive	17	3.29	.42	16	-2.08*
	Metacognitive	17	3.68	.35	16	2.12*
L/SS	Attitude	18	3.68	.42	17	1.84*
	Willingness	18	3.51	.37	17	.11
	Confidence	18	2.97	.51	17	-4.44*
	Motivation	18	3.66	.46	17	1.46
	Capacity	18	3.58	.39	17	.79
	Cognitive	18	3.08	.30	17	-5.89*
	Metacognitive	18	3.51	.49	17	.09
L/LS	Attitude	18	3.81	.35	17	3.74*
	Willingness	18	3.53	.47	17	.25
	Confidence	18	2.94	.45	17	-5.25*
	Motivation	18	3.68	.37	17	2.00*
	Capacity	18	3.52	.44	17	.14
	Cognitive	18	3.00	.40	17	-5.30*
	Metacognitive	18	3.39	.40	17	-1.24

* $p < 0.05$

Like the case of the high proficiency groups, the meaning of each domain of the three low proficiency groups is presented in Table 4.11.

Table 4.11: Evaluation of Each Domain of the Three Low Proficiency Groups

Domain	MS	SS	LS
Attitude	High	Moderate	High
Willingness	Moderate	Moderate	Moderate
Confidence	Moderate	Moderate	Moderate
Motivation	High	Moderate	High
Capacity	Moderate	Moderate	Moderate
Cognitive	Moderate	Moderate	Moderate
Metacognitive	High	Moderate	Moderate

The three groups reported the same that they were moderately willing to learn independently, had moderate self-confidence, and moderate capacity to perform independent learning outside class. In addition, they used the cognitive strategies moderately. However, the MS and LS groups had highly positive attitudes towards learner independence, while the SS group had moderately positive attitudes. The MS and LS groups also had high motivation for the independent learning, while the SS group had moderate motivation. Noticeably, every domain of the MS and LS groups was the same. The only difference between the MS and LS groups was the use of metacognitive strategies. The former group used them at a high level, while the latter group at the moderate level. Every domain was reported at the moderate level by the SS group.

Based on the information from Tables 4.8.1 to 4.8.3 (Appendix M), an investigation of each statement under each domain in the post-questionnaire reveals some interesting findings as follows.

1) Attitudes towards independent learning

All three groups very highly agreed that learning was their own responsibility (Item 1). Only the LS group very highly believed that learning success resulted from their effort (Item 7), while the other two groups highly believed so. Moreover, students of the MS and LS groups reported that sometimes they knew how to learn successfully, but they did it at the moderate level (Item 5). Means were 2.61 and 2.56 respectively, while the mean for the SS group was only 1.94 which was at a low level.

2) Willingness to learn independently

The three groups reported that they were highly willing to take responsibility for their own learning (Item 11) and evaluated their learning whether it was good (Item 12). However, they also highly liked to have the teacher select appropriate learning methods for them (Item 13).

3) Self-confidence to learn independently

The three groups reported the same that they highly liked the teacher to be their supporter all the time so that they could be confident in their learning (Item 15) and wanted the teacher to tell them clearly what they should learn and do in class and out of class (Item 16). In addition, they thought they were moderately effective independent learners of both in and out of class (Item 19).

4) Motivation to learn

All groups reported that they highly enjoyed learning English on the web independently outside class (means were from 3.67 to 3.88). In addition, all three groups reported high intrinsic (Item 22) and extrinsic (Items 24, 25) motivation.

5) Capacity to learn independently

The independent learning capacity of the three groups was moderate. All groups reported that they could set their own learning objectives at the moderate level (Item 26, all means below 3.50). Also, they rated the highest on Item 29: *I know my learning weak points* (all means greater than 4.00), and they reported they tried to address their learning weak points (Item 30) at a high level. However, all of them could moderately tell about what they had learned (Item 31) and find appropriate learning methods and techniques for themselves (Item 32).

6) Cognitive strategies

Overall, the post-questionnaire results show that the three groups moderately used the cognitive strategies. The most popular cognitive strategy employed by the MS group was using a dictionary to find meanings of the really important words that they did not know (Item 37, $\bar{X} = 4.22$) followed by thinking about the gist or main idea of the passage to see if they really understood it (Item 33, $\bar{X} = 3.94$). Moreover, they highly tried to translate word for word or every word (Item 34, $\bar{X} = 2.39$). The SS reported that only the note taking strategy was highly utilised (Item 36, $\bar{X} = 3.78$), while other strategies except Item 34: trying to translate word for word, were employed at a moderate level. Similarly, the LS group reported two cognitive

strategies that were highly used, that is, Item 33: periodically think about the gist or main idea of the passage to see if they really understood it; and Item 36: note taking. Other cognitive strategies were moderately employed, except Items 34 and 41: usually reading every word.

Regarding the grammatical knowledge related strategies (Items 39 – 40), all three groups moderately employed them by guessing meanings from the prefix or suffix and trying to know the part of speech of the word.

7) Metacognitive strategies

In general, only the MS group reported a high use of metacognitive strategies, while the SS and LS groups reported moderate use. The most popular strategies for the MS group were the while-reading strategies: Item 47: asking whether they understood what they were reading ($\overline{x} = 4.11$) and Item 48: telling themselves not to stop reading when encountering any reading difficulties ($\overline{x} = 4.11$).

The most popular metacognitive strategy for the SS and LS groups was the pre-reading strategy, that is, imagine what the reading passage would be about (Item 44, $\overline{x} = 3.83$). Likewise, they reported the same least popular strategy, that is, Item 45: *When I have reading problems, I know what to do* ($\overline{x} = 2.61$). The same item was reported as being used least by the MS group as well; however, the rating was higher ($\overline{x} = 3.06$).

4.2 Results of Qualitative Data

In regard to the results of qualitative data which will be used to support the quantitative findings and for discussion purpose, they are analysed and presented in the section 4.2 which is in Appendix N.

4.3 Chapter Summary

This chapter shows the results of the data analysis in responding to each research objective and question. To answer the first research question, the result shows that there was no main effect of different degrees of support for learner independence on the English reading comprehension ability of the students; therefore, the hypothesis was rejected. However, the result of the second research question shows that there was a main effect of the levels of English proficiency on the reading comprehension ability with a practical significance of 0.38 Eta squared and the

observed power was 1.00. The hypothesis was accepted. The interaction effect between the degrees of support for learner independence and levels of English proficiency on the reading comprehension ability did not exist. The hypothesis was rejected

For research objective 4.1 the result from a comparison between the pre-and post-questionnaire of the high proficiency groups shows that on average the attitudes towards learner independence of the MS group at the end of the course were significantly different from those before their independent learning execution. The hypothesis was accepted. In contrast to the SS group whose positive attitudes towards learner independence were significantly decreased at the end of the course. The attitudes of the LS group were not significantly different at the end of the course. The hypothesis for the SS and LS groups was rejected. For the low proficiency groups, the attitudes towards learner independence of the three groups were not significantly different at the end of the course. The hypothesis was rejected.

For research objective 4.2, the results show that the high MS and LS groups had highly positive attitudes towards learner independence at the end of the course, and the hypothesis was accepted. By contrast, the high SS group showed moderately positive attitudes towards learner independence at the end of the course. The three low proficiency groups hold their attitudes towards learner independence at the moderate level at the end of the course.