



UNIVERSITY OF
LEICESTER

**The Relationship between Vocabulary Size and Training in Vocabulary-Learning
Strategies**

A Case Study of Preparatory Year Students at Saudi University

**A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Doctor
of Philosophy
In
Applied Linguistics**

By

Naif Alqurashi

**School of Modern Languages
University of Leicester**

October 2020

Abstract

The present study investigates the relationship between vocabulary size and training in vocabulary-learning strategies (VLSs) among preparatory year students at a university in Saudi Arabia. Vocabulary size is important because there is a close association between the size of speakers' vocabulary and the level of communication they can achieve (Nation, 2001). Sixty male students, twenty each from the humanities, science and health streams, participated in the study and ten students chosen randomly from each group participated in one one-hour long training session on VLSs each day for five consecutive days.

The objectives of the study were (i) to discover VLSs that can be utilized by preparatory year students; (ii) to identify the English vocabulary size of the students, and (iii) to examine the effects of VLSs training on the results of vocabulary size tests taken by the students. Data were collected before and after the treatment using a VLSs Questionnaire adapted from Schmitt and McCarthy (1997), consisting of 50 Likert-scale items with a 0.78 reliability coefficient to explore the students' use of VLSs before and after training. Secondly, *XK-Lex* (Masrai and Milton, 2012), a word recognition test, was used to measure the students' vocabulary size before and after training. Thirdly, I used a research diary to record trainees' expressions of their attitudes to VLSs at the end of each training session. The data were entered into the Statistical Package for Social Sciences (SPSS), version 25.

The study found significant differences between the experimental and the control groups' use of VLSs in the post-treatment, and the differences were positive in favour of the experimental group. When the experimental group was divided into fields of study, there was a statistically significant gain in the participants' total vocabulary size after training in some fields, suggesting that the VLSs training had had a beneficial effect. The sample size in this field-specific analysis was, however, small and so the findings need to be treated with caution.

Acknowledgement

“For, were you to count the favours of Allah, you will not be able to count them.

Surely Allah is Ever Forgiving, Most Merciful” (Nahl: 18)

All the praises and thanks are due to Allah the Almighty who continually grants me bountiful blessings and gifts and who has blessed me with guidance and wisdom to complete this thesis. Many people contributed in the success of my research and I would like to express my acknowledgement and appreciation for their unforgettable help, encouragement and continuous support through my PhD journey for writing this thesis. The writing of my thesis would not be possible without the contributions from many people. I would like to express my deepest and sincere gratitude to all of them.

First and foremost word of appreciation goes to my main supervisor Professor Kirsten Malmkjær who provided me with invaluable support, comments and feedback during my research and writing for my thesis. She endeavoured her knowledge and long-time experience at the field of Applied Linguistics in supporting me in my PhD journey. She always impressed me with her generous support through my writing process for this thesis. I would never have successfully accomplished this thesis without her unlimited support.

I would also wish to thank my second supervisor Dr Agneta Svalberg, a senior lecturer in Applied Linguistics, for inspiring me with some effective ideas that clarified some aspects in my research and shed light on the motivations of this research study.

I gratefully express my special appreciation to Dr Nick Smith and Dr Elizabeth H. Jones for their feedback and comments at the first-year probation review and the second-year annual review. Their opinions and comments about my research guided me to the right direction at those important stages of my research.

I am deeply grateful to the University of Leicester for giving me this opportunity to study a PhD in Applied Linguistics and providing me with the facilities that helped me during my PhD research. Also, a special thanks to the School of Modern Languages and its staff who help me and provided me with the documents and information for progressing from one stage to another one during my PhD journey.

My sincere thanks go to my sponsors in my PhD Study, Taif University, Ministry of Education in Saudi Arabia and the Saudi Cultural Bureau in London that provided me with the financial support and necessary documents to accomplish my PhD Journey successfully.

I am deeply grateful to Professor Abdulrahman Alasmari, head of English language centre and the dean of the preparatory year at Taif University, for giving me permission to

survey the preparatory year students. Also, a special thanks to Dr Thaer Tawalbah and Mr Jalal Marmouri who arranged for selecting the appropriate classes in each stream in the preparatory year. Also, my sincere thanks to the teachers of the surveyed classes Mr Rami Alghamdi, Mr Themothy, Mr Mohammed Bekheet for allowing me to survey their students and conduct my study on the targeted subjects.

I owe a special debt to the students who participated in my study and helped me during the data collection. I appreciate them for the time they spent answering the questionnaire and test and for their enthusiastic participation in the training sessions.

Above all, my deepest heartfelt gratitude to my beloved parents for their unlimited support, encouragement and prayers during my PhD journey. Their inspiration words have an enormous effect on myself and motivate me to overcome all obstacles that I faced during my stay away from my home to achieve the PhD degree. Also, Words cannot express my gratitude to my brothers Dr Ibrahim, Othman and Abdul-Aziz and my great sister Rajwa for their invaluable encouragement, help and prayers.

A special thanks to my wife Ebtihal and my children Abdullah and Rafa who were with me in the whole period of my PhD journey and provided me with support and encouragement. I appreciate my wife's sacrifice to face the difficulties for having a great and emotional environment where we lived away from our families and home country. Her prayers for me inspired me to accomplish the writing of this thesis.

Also, I would like to express my thanks and appreciation to my friends in Leicester Mr Majed Alghamdi, Mr Abdulaziz Alqarni, Mr Abdulkarim Alturki, Mr Yosef Alghamdi, who supported me and helped me to overcome some living difficulties and to settle down in Leicester which gave me the opportunity to concentrate and succeed in writing this thesis. Also, I am grateful to the members of the Saudi Society in Leicester for their support and friendship which gave my family and me a great and pleasurable stay in the UK.

The last but not least, A huge appreciation and thanks to all my friends and colleagues in Saudi Arabia, Dr Mansour Almalki, Dr Jalal Alqurashi, Mr Mohammed Abed, Mr Fayez Hassen, Mr Matoque and Mr Mohammed Hothali for their spiritual support and prayers to accomplish the PhD degree successfully.

Table of Contents

<i>Acknowledgement</i>	<i>3</i>
<i>List of Tables</i>	<i>10</i>
<i>List of Figures.....</i>	<i>13</i>
<i>List of Acronyms used in Thesis.....</i>	<i>15</i>
<i>Chapter 1</i>	<i>16</i>
<i>Introduction.....</i>	<i>16</i>
1.1 Overview	16
1.2 The Contribution of this Study	17
1.3 The motivation for choosing my research area	18
1.4 English language teaching in Saudi Arabia	18
1.5 The Objectives of the Study.....	21
1.6 Rationale and Aims of the Study	22
1.7 Empirical studies about Saudi students and their poor vocabulary knowledge	23
1.8 The Structure of the Thesis	25
<i>Chapter 2</i>	<i>28</i>
<i>The Literature Review.....</i>	<i>28</i>
2.1 Defining Terms	28
Word and Vocabulary	28
2.2 Vocabulary knowledge.....	29
2.2.1 Receptive and Productive Knowledge	29
2.2.2 Breadth (Size) of Vocabulary and Depth of Vocabulary knowledge.....	31
2.3 The importance of vocabulary	32
2.4 Language Learning Strategies (LLSs).....	33
2.4.1 Direct Strategies	35
2.4.2 Indirect Strategies.....	35
2.5 The importance of LLSs and VLSs:	36
2.6 Some Popular Classifications of Vocabulary Learning Strategies	39
2.7 The classification of Schmitt's VLSs	43
2.7.1 Category 1: Strategies to Discover the Meanings of New Words.....	44
2.7.2 Category 2: Strategies for Consolidating a Word Once it Has Been Encountered	45
2.8 Empirical studies on VLS	48
2.9 Self-Report Mechanism	54
2.10 Vocabulary Tests	56
2.10.1 Defining Vocabulary tests.....	56
2.10.2 Types of vocabulary tests.....	56
2.11 Strategy Training	61
2.11.1 Introduction	61
2.11.2 Definitions and perspectives of learner training.....	61

2.11.3 Self-Regulation.....	62
2.11.4 The significance of learner training.....	64
2.11.5 The goals and main concepts of strategy instruction	65
2.11.6 Ways of delivering strategy training	65
2.11.7 The framework of strategy instruction	69
2.12 Previous studies on training in the use of VLSs	72
2.13 Factors Affecting Vocabulary Learning Strategies.....	80
2.13.1 Learner Individual Difference Factors	81
2.13.2 Social and Situational Factors	87
2.13.3 The learning outcomes of learners	92
2.14 Summary and Conclusion	93
Chapter 3.....	95
RESEARCH DESIGN & INSTRUMENTS.....	95
3.1 Introduction	95
3.2 The Research Design of the Current Study	95
3.3 Participants of the Study	96
3.4 Data Collection Instruments	99
3.5 Procedure of Data Collection	106
3.6 The Data Analysis.....	110
3.7 Preparatory Year Deanship	112
3.8 A Description of the English Language Course at Saudi University.....	113
3.9 PILOT STUDY.....	114
3.9.1 Introduction	114
3.9.2 Overview	115
3.9.3 Modifications made to the methodologies after the pilot study	116
3.10 Strategy Training Sessions	118
3.10.1 The process of training sessions.....	118
3.10.2 The first training session on VLS use	121
3.10.3 The second training session on VLS use.....	123
3.10.4 The third training session on VLS use	124
3.10.5 The fourth training session on VLS use.....	126
3.10.6 The fifth training session on VLS use.....	128
3.11 Conclusion of the Chapter	130
Chapter 4.....	132
4.1 Overview	132
4.2 Introduction.....	132
4.3 Reliability statistics.....	133
4.4 Demographic Characteristics	134
4.5 Research questions.....	143
4.5.1 Research Question One.....	143
4.5.1.1 The Main Determination Strategies	143
4.5.1.2 The Main Social Strategies.....	147

4.5.1.3 The Main Memory Strategies.....	151
4.5.1.5 The Main Meta-Cognitive Strategies	160
4.5.1.6 The Overall Comparisons of the Five Categories of VLSs.....	163
4.5.2 Research Question Two	164
4.5.2.1 The vocabulary size for experimental and control groups	165
4.5.2.2 The vocabulary size for the three streams.....	166
4.5.3 Research Question Three.....	171
4.5.3.1 The relationship between VLSs and vocabulary size for experimental group	171
4.5.3.2 The relationship between VLSs and vocabulary size for control group	172
4.5.3.3 The Linear Regression Model and Scatter Plots for the relationship between VLSs and vocabulary size for both groups after the treatment.....	174
4.5.4 Research Question Four	182
4.5.4.1 Does age have a statistically significant impact on the use of VLSs pre and post training?	183
4.5.4.2 Do streams have a statistically significant impact on the scores of VLSs in the pre and post-training?.....	188
4.5.4.3 Extended Stay in an English country and VLS	197
4.5.4.4 Duration of studying English Vs VLSs	199
4.5.4.5 Speaking English outside the university vs. VSL scores	201
4.5.4.6 How the VLS scores vary in relation to watching TV in English.....	207
4.5.4.7 How the VLS scores vary in relation to reading books, journals or newspapers.....	210
4.5.4.8 Have you ever received training in vocabulary learning strategies?.....	215
4.5.5 The Main Research Question	216
4.6 Analysis of the Notebook data	220
4.6.1 Introduction	220
4.6.2 Thematic Analysis of Students' Responses	221
4.6.3 A reflection on training sessions	226
4.6.4 Conclusion.....	228
Chapter 5	229
DISCUSSION OF FINDINGS	229
5.1 Overview of the Chapter.....	229
5.2 Discussion of the Results.....	229
5.2.1 Research Question One	229
5.2.2 Research Question Two.....	232
5.2.3 Research Question Three.....	234
5.2.4 Research Question Four	237
5.2.5 The Main Research Question	246
5.3 The General Discussion	247
5.4 Conclusion.....	252
Chapter 6	253
RESULTS SUMMARY & CONCLUSION.....	253
6.1 Overview of the Chapter.....	253
6.2 Summary of final results.....	253
6.3 Pedagogical Implications	257
6.4 The Original Contributions of the Study	258

6.5 Limitations of the study	259
6.6 Suggestions for Future Research	261
6.7 The Overall Conclusion	263
REFERENCES	264
Appendices	287
Appendix (1) The Diagnostic Test.....	287
Appendix (2) The Students' Scores in the Diagnostic Test.....	291
Appendix (3) A Taxonomy of Vocabulary Learning Strategies	292
Appendix (4) The Arabic version for the questionnaire of vocabulary learning strategies:	295
Appendix (5) English XK-Lex Vocabulary Test 1.....	297
Appendix (6) English XK-Lex Vocabulary Test 1.....	298
Appendix (7) The Arabic version from Notebook for participants' responses after each training session:	299
Appendix (8) Notebook Data (translated to English): The students' responses to the questions at the end of each training session in the three streams:	302
Appendix (9) The original data from notebook in Arabic language for the reports after each training session:	308
Appendix (10) The reports after the training sessions (Translated into English).....	310
Appendix (11) A permission to Survey the students	313
Appendix (12) An Ethical Approval for Main Study.....	314
Appendix (13) The English Version of Consent Form.....	316
Appendix (14) The Demographical Questions.....	317
Appendix (15) Arabic version of Consent Form	318
Appendix (16) some instructions before answering the questionnaire:	319
Appendix (17) Students' Timetable for the Preparatory Year	321
Appendix (18) Cover Page and Table of content for the English Language course ..	322
Appendix (19) Ethical Approval for Pilot Study	327
Appendix (20) Table for Normality Testing of Major Determination Strategies for learning vocabulary used before and after training in the use of VLSs.....	329
Appendix (21) Table for Normality Testing of Major Social Strategies for learning vocabulary used before and after training in the use of VLSs.....	330
Appendix (22) Table for Normality Testing of Major Memory Strategies for learning vocabulary used before and after training in the use of VLSs.....	332
Appendix (23) Table for Normality Testing of Major Cognitive Strategies for learning vocabulary used before and after training in the use of VLSs.....	334

Appendix (24) Table for Normality testing of Major Metacognitive Strategies for learning vocabulary used before and after training in the use of VLSs.....	336
Appendix (25) Table for Normality testing of overall strategies for learning vocabulary used before and after training in the use of VLSs.....	337

List of Tables

TABLE 2-1 WHAT IS INVOLVED IN KNOWING A WORD (NATION, 2013, P. 49).....	30
TABLE 2-2 ADAPTED FROM NATION (2001, PP.218-222).	41
TABLE 2-3 THE RANKING OF THE MOST AND LEAST REPEATEDLY UTILISED STRATEGIES BY PARTICIPATING IRANIAN UNDERGRADUATE STUDENTS.....	49
Table 2-4 Critical thinking ability and L2 vocabulary learning strategies.....	49
Table 2-5 L2 Vocabulary learning strategies and L2 vocabulary knowledge.....	50
TABLE 2-6 PEARSON'S CORRELATION BETWEEN VLS AND VOCABULARY LEVEL TEST IN NORTHERN CYPRUS.....	53
TABLE 2-7 THE XK-LEX (MASRAI & MILTON, 2012, P. 55).....	60
TABLE 2-8 RESULTS OF THE INDEPENDENT-SAMPLES T-TEST OF VOCABULARY (PRE-TEST SCORES).	73
TABLE 2-9 RESULTS OF THE INDEPENDENT-SAMPLES T-TEST OF VOCABULARY (POST-TEST SCORES).	73
TABLE 2-10 PRE- AND POST-QUESTIONNAIRE RANKING OF INDIVIDUAL ITEMS.	75
TABLE 2-11 RESULT OF THE INDEPENDENT SAMPLE T-TEST IN VOCABULARY PRE-TEST.....	77
TABLE 2-12 RESULT OF THE INDEPENDENT SAMPLE T-TEST IN VOCABULARY POST-TEST.....	77
Table 2-13 Metacognitive strategy awareness and means for vocabulary test.....	76
TABLE 2-14 PERCENTAGE RECALL OF TARGET ITEMS UNDER EXPLICIT AND IMPLICIT TEACHING FOR EXPERIMENTAL AND CONTROL GROUP.....	79
TABLE 2-15 A COMPARISON OF STRATEGY USE BY ATTITUDE.	83
TABLE 3-1 SAMPLE DISTRIBUTION ACCORDING TO DEMOGRAPHIC CHARACTERISTICS BY GROUP (N=60).....	98
TABLE 3-2 THE XK-LEX (MASRAI & MILTON, 2012).....	101
TABLE 4-1 RELIABILITY STATISTICS	133
TABLE 4-2 SAMPLE DISTRIBUTION ACCORDING TO DEMOGRAPHIC CHARACTERISTICS BY GROUP (N=60).....	134
TABLE 4-3 SAMPLE DISTRIBUTION BY PERSONAL INFORMATION ON STUDYING THE ENGLISH LANGUAGE (N=60)	136
TABLE 4-4 STUDENTS' RESPONSES CONCERNING THE ENGLISH LANGUAGE AND VLSS.....	137
TABLE 4-5 STUDENTS' PERCEPTIONS ON THE POTENTIAL OF USING SKILLS TO IMPROVE THEIR VOCABULARY SIZE	142
TABLE 4-6 A Differences in the use of determination strategies between the experimental and control groups in the <u>pre-test</u> ; gain scores calculated using difference of mean values; significant testing performed using the Mann-Whitney U test.....	143
TABLE 4-7 Differences in the use of determination strategies between the experimental and control group in the <u>post-test</u> ; The significance testing performed using Mann-Whitney U test.....	144
TABLE 4-8 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.....	146
TABLE 4-9 To examine whether there are significant differences between the students' use of social strategies for learning vocabulary: experimental and control groups (<u>pre-training</u>).....	147
TABLE 4-10 To examine whether there are significant differences between the students' use of social strategies for learning vocabulary: experimental and control groups (<u>post-training</u>).....	148
TABLE 4-11 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.....	150
TABLE 4-12 A To establish whether there are significant differences between experimental and control groups in their use of memory VSL (pre training).....	151
TABLE 4-13 To establish whether there are significant differences between experimental and control groups in their use of memory VSL (post-training).....	152
TABLE 4-14 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.....	154
TABLE 4-15 A To determine whether there were significant differences between the use of cognitive strategies for vocabulary learning by the experimental and control groups in the pre-test.....	156
TABLE 4-16 To determine whether there were significant differences between the use of cognitive strategies for vocabulary learning by the experimental and control groups in the post-test.....	157
TABLE 4-17 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.....	158
TABLE 4-18 A Significant differences between the experimental and control groups' use of meta-cognitive strategies for vocabulary learning (post-training).....	159
TABLE 4-19 Significant differences between the experimental and control groups' use of meta-cognitive strategies for vocabulary learning (post-training).....	160

TABLE 4-20 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney Utest.....	161
TABLE 4-21 The differences between the use of main VLSs by the experimental and control groups in the post-test.....	162
TABLE 4-22 To establish whether there was a statistically significant difference between the vocabulary size of the students in the experimental and control groups in the pre-test and post-test.....	164
TABLE 4-23 Wilcoxon rank-sum test for two related samples (pre and post-training).....	166
TABLE 4-24 The correlation between the VLSs and total vocabulary size.....	170
TABLE 4-25 The correlation between VLS and total vocabulary size.....	171
TABLE 4-26 The correlation between VLS and total vocabulary.....	172
TABLE 4-27 The Correlation between VLS and total vocabulary.....	172
TABLE 4-28 The linear regression model, showing each strategy's relationship with the vocabulary size (post-training for experimental and control group).....	173
TABLE 4-29 The Correlation between post-training vocabulary size and the difference in pre and post training for each VLS.....	181
TABLE 4-30 Summary table for the two groups and participants' ages (pre-training).....	182
TABLE 4-31 Pre-training: Comparison between the age groups in each VLS category.....	182
TABLE 4-32 To examine whether there are statistically significant differences between students' use of VLSs in the post-test, related to age.....	183
TABLE 4-33 Post-training: Comparison between the age groups in each VLS category.....	184
TABLE 4-34 To examine whether there are statistically significant differences between students' use of VLSs in the pre vs. post-test (for the experimental group only), related to the 18-20 years age group.....	184
TABLE 4-35 To examine whether there are any statistically significant differences between students' use of VLSs in the pre vs. post-test, in relation to the 21-23 years age group. Experimental group only.....	185
TABLE 4-36 The mean and standard deviation for each stream, split into two groups (control and experimental).....	188
TABLE 4-37 The mean and standard deviation for each stream, split into two groups (control and experimental).....	189
TABLE 4-38 Results of analysis of variances (ANOVA) to examine differences in VLS use related to stream in pre-test (Experimental group).....	190
TABLE 4-39 Multiple comparison analysis of the significant difference in the use of cognitive strategies in the pre-test related to stream (experimental group).....	191
TABLE 4-40 To present the gain scores and the corresponding p-values, the Wilcoxon rank sum test was used for pair wise comparison (experimental group –post training).....	191
TABLE 4-41 THE RESULTS OF ANOVA TO EXAMINE SIGNIFICANT DIFFERENCES RELATED TO STREAM IN THE POST-TEST REGARDING THE USE OF VLSS (EXPERIMENTAL GROUP).....	194
TABLE 4-42 MULTIPLE COMPARISON ANALYSIS TO EXAMINE SIGNIFICANT DIFFERENCES REGARDING THE USE OF VLSS IN THE POST-TEST RELATED TO STREAM (EXPERIMENTAL GROUP).....	195
TABLE 4-43 THE DIFFERENCE BETWEEN THE STREAMS REGARDING VLS USE AFTER TRAINING (EXPERIMENTAL GROUP).....	195
TABLE 4-44 THE RESULTS OF THE T-TESTS TO EXAMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT EFFECTS OF HAVING AN EXTENDED STAY IN AN ENGLISH-SPEAKING COUNTRY ON THE USE OF VLSS.....	197
TABLE 4-45 RESULTS OF MANN-WHITNEY U TEST TO EXAMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT DIFFERENCES RELATED TO HOW LONG STUDENTS HAVE BEEN STUDYING ENGLISH AND ITS EFFECTS ON VLSS	199
TABLE 4-46 THE RESULTS OF KRUSKAL-WALLIS TEST TO EXAMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT DIFFERENCES RELATED TO SPEAKING ENGLISH OUTSIDE THE UNIVERSITY AND ITS EFFECTS ON THE USE OF VLSS.....	201
TABLE 4-47 THE POST-HOC ANALYSIS FOR THE SIGNIFICANT VARIABLES	202
TABLE 4-48 THE DIFFERENCES RELATED TO SPEAKING ENGLISH OUTSIDE THE UNIVERSITY AND ITS EFFECTS ON THE USE OF VLSS FOR TWO GROUPS (PRE-TEST).....	204
TABLE 4-49 THE DIFFERENCES RELATED TO SPEAKING ENGLISH OUTSIDE THE UNIVERSITY AND ITS EFFECTS ON THE USE OF VLSS FOR TWO GROUPS (POST-TEST).....	205
TABLE 4-50 WILCOXON RANK-SUM TEST FOR THE EFFECTS OF SPEAKING ENGLISH OUTSIDE THE UNIVERSITY ON THE USE OF VLSS.....	207
TABLE 4-51 THE RESULTS OF THE KRUSKAL-WALLIS TEST TO DETERMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT DIFFERENCES RELATED TO WATCHING ENGLISH TV PROGRAMS AND ITS EFFECTS ON VLSS	208

TABLE 4-52 THE DIFFERENCES RELATED TO WATCHING ENGLISH TV PROGRAMS AND ITS EFFECTS ON VLSS (PRE-TEST).....	209
TABLE 4-53 THE DIFFERENCES RELATED TO WATCHING ENGLISH TV PROGRAMS AND ITS EFFECTS ON VLSS (POST-TEST)	209
TABLE 4-54 WILCOXON SIGNED RANK-SUM TEST FOR THE DIFFERENCES RELATED TO WATCHING ENGLISH LANGUAGE TV PROGRAMS AND ITS EFFECTS ON VLSS AFTER THE TRAINING	210
TABLE 4-55 THE RESULTS OF THE KRUSKAL-WALLIS TEST TO EXAMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT DIFFERENCES RELATED TO READING ENGLISH LANGUAGE BOOKS, JOURNALS OR NEWSPAPERS AND ITS EFFECTS ON VLSS.....	211
TABLE 4-56 THE POST-HOC TEST FOR THE SIGNIFICANT VARIABLES (DETERMINATION, PRE-TEST AND PRE-TOTAL STRATEGY).....	212
TABLE 4-57 THE DIFFERENCES RELATED TO READING BOOKS, JOURNALS OR NEWSPAPERS WRITTEN IN ENGLISH AND ITS EFFECTS ON VLSS BEFORE THE TRAINING	213
TABLE 4-58 The differences related to reading books, journals or newspapers written in English and its effects on VLSS after the training.....	213
TABLE 4-59 WILCOXON SIGNED RANK-SUM TEST FOR DEMOGRAPHIC QUESTION (DO YOU READ ENGLISH NEWSPAPERS /JOURNALS/ MAGAZINES ETC.?)	214
TABLE 4-60 MANN-WHITNEY U TEST TO EXAMINE WHETHER THERE ARE STATISTICALLY SIGNIFICANT DIFFERENCES RELATED TO RECEIVING TRAINING IN VLSS AND ITS EFFECTS ON THE USE OF VLSS IN THE PRE AND POST-TEST	215
TABLE 4-61 THE CORRELATION MATRIX BETWEEN THE FIVE STRATEGIES FOR EXPERIMENTAL GROUP (POST-TRAINING).	216
TABLE 4-62 THE ANALYSIS OF COVARIANCE (ANCOVA) BETWEEN VOCABULARY SIZE (POST-TEST) AND THE FIVE VOCABULARY LEARNING STRATEGIES (FOR THE EXPERIMENTAL GROUP).....	217
TABLE 4-63 POST-HOC TESTING TO COMPARE THE FIVE STRATEGIES (FOR THE EXPERIMENTAL GROUP, POST-TEST).	218

List of Figures

FIGURE 2-1 FAN'S VLS CATEGORIES.....	42
FIGURE 2-2 KUDO'S TAXONOMY OF VLS (1999).	ERROR! BOOKMARK NOT DEFINED.
Figure 2-3 A model of strategy instruction effects on self-regulated learning and achievement.....	62
FIGURE 2-4 CALLA FRAMEWORK FOR STRATEGY INSTRUCTION.	ERROR! BOOKMARK NOT DEFINED.
FIGURE 2-5 FACTORS AFFECTING VLSS.....	81
FIGURE 4-1 PARTICIPANTS' DISTRIBUTION ACCORDING TO AGE.....	135
FIGURE 4-2 PARTICIPANTS' ATTITUDES TOWARDS THE ENGLISH LANGUAGE AND VLSS.....	139
FIGURE 4-3 THE FREQUENCY WITH WHICH STUDENTS WATCH ENGLISH-LANGUAGE TV PROGRAMS.....	140
FIGURE 4-4 RESPONSES REGARDING READING BOOKS, MAGAZINES, NEWSPAPERS, ETC.....	140
FIGURE 4-5 STUDENTS' ENJOYMENT OF STUDYING ENGLISH.....	141
FIGURE 4-6 PARTICIPANTS' USE OF STRATEGIES TO IMPROVE THEIR VOCABULARY.....	141
FIGURE 4-7 PARTICIPANTS' TRAINING IN VLSS.....	142
Figure 4-8 Determination Strategies mean difference scores between Control and Experimental Groups post-training.....	146
Figure 4-9 Social Strategies - mean difference scores between Control and Experimental Groups post-training.....	150
Figure 4-10 Memory Strategies – mean difference scores between Control and Experimental Groups post-training).....	155
Figure 4-11 Cognitive Strategies – mean difference scores between Control and Experimental Groups (post-training).....	159
Figure 4-12 Meta-cognitive Strategies – mean difference scores between Control and Experimental Groups (post-training).....	162
FIGURE 4-13 A comparison of means scores between Experimental and Control groups for major VLSs (post-test analysis).....	164
Figure 4-14 The boxplot comparisons of vocabulary size for experimental and control groups.....	166
FIGURE 4-15 A COMPARISON OF PRE AND POST- TOTAL VOCABULARY SIZE FOR HUMANITY STREAM IN THE EXPERIMENTAL AND CONTROL GROUP.....	168
FIGURE 4-17 A COMPARISON OF PRE AND POST-TOTAL VOCABULARY SIZE FOR HEALTH STREAM IN THE EXPERIMENTAL AND CONTROL GROUPS.	170
FIGURE 4-18 SCATTER PLOTS FOR DETERMINATION STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP.....	175
FIGURE 4-19 SCATTER PLOTS FOR DETERMINATION STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR CONTROL GROUP.....	176
FIGURE 4-20 SCATTER PLOTS FOR SOCIAL STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR CONTROL GROUP.....	177
FIGURE 4-21 SCATTER PLOTS FOR MEMORY STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP.....	177
FIGURE 4-22 SCATTER PLOTS FOR MEMORY STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR CONTROL GROUP.....	178
FIGURE 4-23 SCATTER PLOTS FOR COGNITIVE STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP.....	178
FIGURE 4-24 SCATTER PLOTS FOR COGNITIVE STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR CONTROL GROUP.....	179
FIGURE 4-25 SCATTER PLOTS FOR METACOGNITIVE STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP.....	179
FIGURE 4-26 SCATTER PLOTS FOR METACOGNITIVE STRATEGIES ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR CONTROL GROUP.....	180
FIGURE 4-27 SCATTER PLOTS FOR ALL CATEGORIES OF VLSS ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP.....	180

FIGURE 4-28 SCATTER PLOTS FOR ALL CATEGORIES OF VLSSs ALONG WITH VOCABULARY SIZE AFTER THE TRAINING FOR EXPERIMENTAL GROUP	181
FIGURE 4-29 THE COMPARING OF PRE-TRAINING AND POST-TRAINING VLSSs SCORES FOR THE 18-20 YEARS AGE GROUP	187
FIGURE 4-30 THE COMPARING OF PRE-TRAINING AND POST-TRAINING VLSSs SCORES FOR THE 21-23 YEARS AGE GROUP	188
FIGURE 4-31 THE DIFFERENCE BETWEEN THE STREAM REGARDING THE USE OF VLSSs PRE THE TRAINING	193
FIGURE 4-32 THE DIFFERENCE BETWEEN THE STREAM REGARDING THE USE OF VLSSs POST THE TRAINING	197
FIGURE 4-33 THE PRE AND POST-TEST SCORES FOR THOSE HAVING HAD AN EXTENDED STAY IN AN ENGLISH-SPEAKING COUNTRY AND ITS EFFECTS ON THE USE OF VLSSs	199
FIGURE 4-34 THE SCORES OF THE EFFECTS OF DURATION OF ENGLISH LANGUAGE STUDY ON THE USE OF VLSSs BEFORE AND AFTER THE INTERVENTION.....	201

List of Acronyms used in Thesis

LLSs: Language Learning Strategies

VLS: Vocabulary Learning Strategy

VLSs: Vocabulary Learning Strategies

VLST: Vocabulary learning strategy training

VLSQ: Vocabulary Learning Strategies Questionnaire

EFL: English as a Foreign Language

ESL: English as a Second Language

L1: First Language

L2: Second Language

SPSS: Statistical Package for the Social Sciences

SD: Standard Deviation

Chapter 1

Introduction

1.1 Overview

“Vocabulary acquisition is the largest and most important task facing the language learner.” (Swan and Walter 1984)

The present study investigates the relationship between vocabulary size and training in vocabulary-learning strategies among male preparatory year students at a Saudi university. The name of the university is anonymised, and the word Saudi used as pseudonym to refer to the country in which the university is located. There is a close connection between the students' vocabulary knowledge and the level of communication they are able to achieve (Akmajian et al., 2017). In EFL/ESL learning and teaching in KSA, there is a strong tendency, whether overt or covert, to ignore the process of teaching and/or learning vocabulary (Alqahtani, 2015). This lack of attention limits the vocabulary repertoire of learners, which likely impacts negatively on their ability to communicate successfully in the target language (Schmitt 2010, pp. 27-28).

As vocabulary learning is an indispensable part of any language learning, scholars have sought to identify strategies that can be adopted by teachers and learners to deal with some of the challenges that arise during the process.

The teaching environment is always subject to variation depending on issues such as motivation, aptitude, age, gender, context etc., and some strategies might not work well in certain contexts; thus, researchers such as Nation (2001) and Schmitt (2000) have provided a number of suggestions about how learners' ability to acquire vocabulary-learning strategies can be enhanced. They have also sought to establish a connection between vocabulary-learning strategies and vocabulary size.

Historically, vocabulary has been considered less important than grammar. According to Oxford (1990; p. 7), Sweet's (1899/1964) opinion on the role of vocabulary was that:

Even though language consists of words, we communicate in sentences, not in words. Regarding a practical and a scientific viewpoint, the word is not the unit of language, in fact the sentence is. According to the purely phonetic view, words do not exist.

However, in the 20th and 21st century, specialists in vocabulary teaching have acknowledged that lexical competence is a core component of communicative competence (Richards and

Renandya, 2002). Ketabi and Shahrakin (2011) mention that vocabulary learning and teaching is the most challenging part of second or foreign language learning, whereas in the past, it was thought that vocabulary could be learnt easily. Nevertheless, unlike other aspects of language teaching, such as grammatical competence, writing, reading, and contrastive and discourse analysis, which have received a high degree of attention from linguists, vocabulary has received a considerably lower degree of attention. This neglect of vocabulary has been discussed in depth by several scholars, including Allen (1983), Carter and McCarthy (2003), Meara (1980), Read (2000) and Zimmerman (1997), and although a great deal has been written about vocabulary, vocabulary acquisition, the significance of vocabulary, the nature of vocabulary knowledge, VLSs, vocabulary size, and the relationship between VLSs and vocabulary size, very few studies, if any, have tackled the relationship between vocabulary size and training in vocabulary-learning strategies in KSA.

1.2 The Contribution of this Study

The expected contributions of the current study to the field of applied linguistics and the area of VLS training can be summarised as follows:

- 1- This kind of study has not previously been applied in the Saudi context in general and on preparatory year students at university in particular.
- 2- Unlike other studies conducted in different contexts, this focuses on the most successful vocabulary learners who achieved high results in a diagnostic test administered by the university at the beginning of the semester to measure the students' English language proficiency level.
- 3- The design of the study is different from that of other studies. The experimental groups received five training sessions during the course of a week. They were left for three months to employ the strategies learnt within the regular classes which they shared with the control group. Subsequently, both groups answered a questionnaire and took a test. Previous studies trained the students for longer (e.g. three-months) and on fewer types of VLSs.
- 4- The students' vocabulary size was measured using the *XK-lex* vocabulary test (Masrai & Milton, 2012) before and after the training, whereas previous studies used a pre and post questionnaire only.

- 5- The current study is more comprehensive. The experimental groups were trained in a range of VLSs, and after the training sessions, participants had plenty of time (3 months) to employ them in their English course before their vocabulary size was measured again.
- 6- It is my belief that the findings of the current study will be of relevance to vocabulary teaching and learning in settings other than the one in which the study was undertaken, as the learning of vocabulary is not specific to any one setting, but common to all language teaching and learning settings.

1.3 The motivation for choosing my research area

During my experience of teaching English language courses at the Saudi University for preparatory year students, I observed that students lacked linguistic competence to function appropriately and academically during the English language courses and in their field of study, having barely passed the English language courses during their first year of university study. The majority of the preparatory year students have been exposed to English language courses for about six years in intermediate and secondary school; yet, they were still unable to use the English language appropriately. My aim was to focus on one area of language, namely vocabulary competence, in order to explore the effectiveness and impact of training in learning strategies, using the learners' vocabulary size as a measure. Although this was the case in one university, more insight into the teaching of English language in Saudi Arabia will be provided in the following section.

1.4 English language teaching in Saudi Arabia

In KSA, males and females are taught separately; male teachers only teach male students and female teachers only teach female students. In some cases, at university level, female students are instructed by male lecturers through a live stream projector. The history of teaching English in Saudi Arabia commenced in the 1930s when oil was discovered and English became the main language used in business (Al-Shammari, 1984). In the 1950s, the English language was introduced as a compulsory course in intermediate and secondary schools (Al-Johani, 2009). Students had three classes a week and each class lasted 45 minutes. Nowadays, students at the elementary school level from grade 4 to grade 6 are taught English in two, 45-minute classes per week, and the number of English classes has risen from three to

four at the intermediate and secondary stages. The curriculum, textbooks and workbooks used in English language courses are designed by the Ministry of Education and according to Saudi customs and traditions. The focus is mainly on the four language skills: Listening, Reading, Writing and Speaking; however, a lack of facilities and resources in most schools, such as tape recorders, equipment to show educational films, and language laboratories, hampers the development of students' linguistic competence. The English language coursebook is designed for students at different levels of education in school. It covers topics such as greetings, family members and so on.

After studying English for about six years in the general education system, students who join universities in Saudi Arabia are taught English courses, but these can differ depending on what the students are majoring in. The scientific and medical courses are mostly taught in English while for other majors, such as humanities, students must pass the English language course for academic purposes as a compulsory unit during their university study. In the last few years, some universities in Saudi Arabia have implemented a preparatory year known as The Preparatory Year Deanship. The Institution of Higher Education obliges first-year students to study the introductory year, and the courses are anticipated to enhance students' abilities to learn successfully, think, communicate and research. At Saudi University, all students take English Language Course 1 in the first semester and English Language Course 2 in the second semester. After passing the preparatory year, they can specialise in different majors depending on their stream (humanities, science and health).

However, despite studying English language in general education for nine years and studying English courses at university level, students still lack the linguistic competence to function appropriately and academically during the English language courses and in their field of study. The causes of low achievements in English language proficiency are many; some are detailed below.

Firstly, students are demotivated and discouraged from developing their English proficiency by some aspects of teaching (Khan, 2011). EFL teachers play a significant role in encouraging and motivating their students to make progress in learning effectively, but according to Khan (2011, p. 1251), in Saudi Arabia, teachers do not check the students' classwork and homework to find out how much progress they make and the extent to which their language proficiency is improving. Moreover, they engage in certain practices that can demotivate students, such as correcting their mistakes immediately, not providing real life

examples and connecting said examples with the learning process, and providing instant negative criticism of the students' endeavours (Al-Johani, 2009, p. 154).

Secondly, teachers often utilise outdated methods to teach English (Alhawsawi, 2013, p.135). Most English teachers in Saudi Arabia use Arabic when teaching English classes, and thus deprive students of sufficient exposure to English to achieve an adequate level of proficiency (Farah, 2010, p. 108). They lack the confidence and knowledge of English and look for the easiest way to deliver the material to students and avoid speaking English while teaching (Alhawsawi, 2013, p.185).

Thirdly, there is a lack of practice of the English language both inside and outside the learning setting (Alqahtani, 2011, p. 6). Practice plays an important role in improving language proficiency during the learning process, yet, students lack the opportunity to practice the language both inside and outside the classroom. In their daily lives, they communicate with their families or friends in their native language (Arabic), and during their English classes, most teachers do not encourage or motivate them to communicate and practice the language (Alqahtani, 2011, p. 7). In other words, if this was a second language rather than a foreign one, students would acquire it more easily via daily exposure to it. More importantly, if more meaningful practice opportunities were created for them, they would be more likely to develop their language faster and further, the learning process might be accelerated, and they might achieve a high level of proficiency and fluency. However, the learning environment in Saudi Arabia deters students from reaching high levels of proficiency in English (Khan, 2011, p. 1252).

A fourth reason is the dominance of the teacher role which prevents students from participating effectively in their learning process to improve their English language performance (Rajab, 2013, p. 245). According to Alrabai (2014, p. 9), students depend on teachers as a source of knowledge because they are dominant during the learning process, as is common in Saudi education. Students have a passive role within the English language classes and the teacher speaks for most of the class time. Thus, the teacher-centred approach means that the students have very little chance to practice and communicate effectively within the class.

The fifth reason is the discouragement from some members of Saudi society, who believe that learning a foreign language can affect the culture and customs of people negatively (Al-Seghayer, 2013, p. 63). Language is a part of culture and when someone learns an additional language, he/she will learn not only a collection of words and expressions, but will also acquire

some information about the culture, customs and traditions associated with the target language (Al-Seghayer, 2014, p. 17). Due to fears of losing the Saudi identity and concerns about the dominance of the English language, some sections of society discourage students' attempts to learn English.

A sixth reason is students' assumption that learning English is not useful for their social life, as Arabic is the medium of communication in Saudi Arabia. With regards to academic life, students who are not English language majors are instructed in Arabic (Alqahtani, 2011, p. 8). The only way to communicate in English in Saudi Arabia is with expatriates; however, most of them learn Arabic to communicate easily within the society. Thus, students find it pointless to learn English. A good example is expatriates who come to Saudi Arabia to work in hospitals; they communicate in Arabic with patients, so students and other members of society find that Arabic is the medium of communication across all parts of the country and that it is not important to learn English (Alqahtani, 2011, p. 8).

Finally, another reason of low achievements in English language proficiency for Saudi students is that they rely on only one or two types of strategies to learn English (Alrabai, 2014, p. 9). Rajab (2013, p. 246) insists that Saudi students rely solely on memorization to learn vocabulary and grammar in English courses. This reliance leads to an ineffective learning process and unsuccessful learning outcomes. Using different kinds of strategies is much more likely to have a positive effect on the success of the learning process.

This section has discussed English teaching and learning in Saudi Arabia and the challenges faced by both language learners and teachers there. The various reasons for Saudi students' poor English language knowledge can also be found in other, similar contexts. Thus, the current study could be beneficial not only for those in Saudi Arabia, but also for other EFL contexts. The next section highlights the objectives of the study and research questions of the thesis.

1.5 The Objectives of the Study

The current study aims to (i) discover VLSs that can be utilized by preparatory year students at Saudi University; (ii) identify the English vocabulary size of Saudi students studying English in the preparatory year at Saudi University, and lastly, (iii) examine the effects of VLS training on the results of vocabulary size tests taken by Saudi preparatory year students.

To meet these objectives, I set out to answer the main research question and sub-questions. The main research question is:

Does training in the use of VLSs affect the results of vocabulary size tests of preparatory year students at Saudi University?

To answer the main question of this research, it is necessary to answer the following sub-questions:

1. What are the similarities and differences between the VLSs used by the students before and after the VLST?
2. Is there any statistically significant difference between the vocabulary size of the control and experimental groups before and after training in the use of VLSs?
3. Is there any correlation between the VLSs employed by the students and their vocabulary size?
4. Are there statistically significant differences in the use of VLSs related to factors addressed in the demographic questions?

These sub-questions will be analysed and answered first, in order to obtain an answer to the main research question of the current study. The research questions will be answered based on the demographic information of the participants and their responses to questions asked, as part of the quantitative research methods used in this study. The following section will provide some information about the rationale and aims of the current study in order to show the importance of conducting such a study.

1.6 Rationale and Aims of the Study

Research has been conducted in the area of VLS training, within the Saudi context as well as others. This study seeks to focus more on the effect of VLS training on the vocabulary size of preparatory year students at Saudi University, which is divided into a number of deanships, or areas of responsibility covered by a dean. The concept of a preparatory foundation year programme at Saudi universities was established approximately 7 years ago, and it is one of the most recently established programs at Saudi universities; its purpose is to administer the implementation of the foundation courses at the university. The university

obliges its new pupils to study the foundation year, and the program is responsible for improving students' skills in learning, thinking, communication, and research. The present study looks to shed light on the VLSs employed by preparatory year students and their relation to the students' vocabulary size and aiming that this understanding may be applicable to other contexts.

Recognizing the importance of putting vocabulary into context, some scholars have started to focus on finding appropriate methods and approaches to help language learners acquire vocabulary efficiently and effectively (Carter, 1998; McCarthy, 1990; Nation, 2001; Schmitt, 2000, 2010). However, little attention has been devoted by scholars to the teaching of vocabulary in the vast majority of Arab countries, including Saudi Arabia, in which the present study is conducted.

As in other Arab countries, in Saudi Arabia, the teaching of English as a Foreign Language (EFL), is predominantly focused on teaching grammar (Al-Akloby, 2001; Al-Hazmi, 1993; Alqahtani, 2005), whereas vocabulary teaching and learning is considered marginal in the process of EFL education. This has a negative effect on the communicative process as well as the entire educational process. Davies and Pearse (2000, p. 59) indicate that due to the absence of the appropriate key words required to guarantee a high level of communication, a delay and/or a blockage of the intended message is likely to occur. Similarly, Catalan and De Zarobe (2009, pp. 81-83) note that vocabulary in most English language classrooms in Asian universities is neglected, in so far as when new vocabulary is introduced in the English classes, the teacher may not explain its functional nor its contextual usage. Surprisingly, even some of the schools that focus on the importance of vocabulary do not stress the significance of teaching vocabulary as much as they stress the size of vocabulary acquired. This is why most instructors in such schools tend to encourage students to memorise words blindly without putting them in context. Context can help students to remember not only the item itself but also its function and use (Al-Akloby, 2001).

1.7 Empirical studies about Saudi students and their poor vocabulary knowledge

Although Saudi students learn English for seven years, comprising about 800 compulsory hours in public education, their English language level is under the desired level when they start studying at university, as confirmed by a number of studies, such as Alahmadia et al.

(2018) and Alqarni (2019). Despite the large number of hours spent learning English, Saudi learners are not learning sufficient vocabulary and their average vocabulary learning rate is less than a word per hour (Alsaif, 2011). Alahmadia et al. (2018) investigated first year Saudi students' vocabulary size and discovered that the majority of pupils' vocabulary scores are less than 2,000 words. The majority of students in Saudi Arabia leave school with their English vocabulary repertoire being less than 700 words, and thus struggle at university (Alqarni, 2019). Al-Masrai (2009) investigated the vocabulary size of first and senior year Saudi university students using the XK-Lex vocabulary test. He found that the Saudi students started university with a vocabulary size between 1,650-3,000 English words, and after having graduated from university, their vocabulary repertoire increased to about 3,000-5,000 words. According to different studies conducted on Saudi students' English language level their vocabulary size is very low and inconsistent. There has been some interest in exploring the VLSs employed by Saudi students more generally in some empirical studies such as Alqarni (2017), Al-Bidawi (2018), Alqurashi (2018), Ali & Zaki (2019). They found that Saudi students are low users of VLSs and are in most cases unaware of the effect of using strategies on enhancing their language learning. It is likely that the reasons behind the students' poor vocabulary knowledge are the lack of strategic learning process and other cultural and linguistic factors. In Saudi Arabia itself, little research has been conducted on the topic of training on the use of VLSs, particularly to examine the effect of VLST on the retention of vocabulary, and more investigation on the effect of training is required. Thus, this current study will try to find a solution to the issue of the lack of linguistic competence by investigating the effects of training on the use of VLSs on participants' vocabulary size and taking into consideration different factors, such as age, field of study, and previous experience of a learning language, that could influence the Saudi students' vocabulary size.

I hope the findings of this study will lead to recommendations which can help improve teaching in order to help students. I also hope that the current study will be of interest to researchers in EFL and vocabulary teaching and learning, as well as to teachers, and assists them to:

- 1- Help students learn and develop new strategies for learning vocabulary to motivate them and increase the size of their vocabulary.

- 2- Enable students to start thinking of smart ways to learn vocabulary and employ it within appropriate contexts rather than blindly memorising words.
- 3- Design courses which are informed by a clear vision of the strategies that can help learners acquire vocabulary.
- 4- Be mindful of learners' individual differences so they can construct and design useful activities and materials to support learners' attempts to enhance their competence.
- 5- Help learners communicate effectively and draw on the exact vocabulary when needed, which will enhance their vocabulary knowledge and enrich it with words that match their level of education.

Having outlined the rational and expected implications of the current study in this section, it can be concluded that VLS training needs to be investigated further in order to find a solution for the main issue of EFL learners' lack of vocabulary knowledge. In this study, there are some aspects, such as field of study and measuring the vocabulary size for the participants and link it directly to their use of VLSs will be taken in consideration to explore the effectiveness of VLS training on EFL learners' vocabulary knowledge. The following section will provide a full description of the structure of this thesis and how will be organised.

1.8 The Structure of the Thesis

The thesis consists of six chapters. The start of this chapter has provided an overview of the study and its contributions to the field of applied linguistics. This was followed by an explanation of the motivation for choosing to investigate the area of VLSs. After that, background information about the teaching of English language in Saudi Arabia was provided in order to further clarify the subject matter and context of the study. This was followed by an outline of the objectives of the study and the research questions. Then, the rationale and aims of the study, which highlight the expected outcomes of the current research. The end of the introduction chapter includes insight into the vocabulary knowledge for students in the targeted context and discussing the previous researches investigate this aspect.

Chapter Two reviews the literature related to VLSs, vocabulary size and the relationship between the two. The chapter starts by defining the terms "word" and "vocabulary" and specifying the differences between them. Then, the different degrees of vocabulary knowledge

will be explained, along with their importance, after which background information about LLSs and VLSs will be provided, and their significance explained. This will be followed by a discussion of the different kinds of classifications of VLSs and some of the empirical studies conducted in this area. A detailed description of the classification used in the current study will also be provided, along with justifications for selecting this classification to survey participants' use of VLSs. Then, the strength and weaknesses of the self-report methods will be discussed, after which some of the factors that affect VLS use which are to be considered in the current study will be highlighted. Thereafter, information will be provided on vocabulary tests in general, and further details will be given on the specific vocabulary test that will be used to measure participants' vocabulary size in the current study. This will be followed by relevant information about strategy training and its significance for vocabulary learning. Then, a discussion of different ways of delivering the strategy and framework of strategy instruction will be provided. At the end of the chapter, some empirical studies investigating the effectiveness of VLS training on the use of VLSs will be explored.

Chapter Three will be divided into three main sections; the first section will introduce the methodologies of the current study, then, information about the pilot study will be provided, and the final section will shed light on the scenario of conducting the training sessions in the main study. More specifically, the first section will outline the research design, participants and instruments that were used in the current study. A detailed description of the participants and the criterion followed to select them will be included. Moreover, the three instruments used in the current research will be discussed and copies of the instruments will be attached to appendices (see appendix, 3, 5, 6 and 7). Following this, in-depth descriptions will be provided about the procedure of the data collection, including information about ethical permissions that had to be obtained in order to conduct the pilot and main studies (see appendices, 11, 12, and 19). Furthermore, the assumptions that were used to analyse the quantitative and qualitative data will be explored, and further information concerning the consent form and demographical questionnaire and the way in which they were designed will be provided (see appendices, 13 and 14). Finally, a full description will be given of the preparatory year students who took part in the study and the English language curriculum that was used in the VLS training sessions. The second section of Chapter Three will briefly describe the pilot study which was undertaken to test the instruments that were to be used in the main study. There is a copy of gained ethical approval for conducting the pilot study (see appendix, 19). Thereafter, the modifications made

to the instruments in light of the pilot study will be highlighted. The last section of Chapter Three includes a detailed description of how the training sessions were conducted and how the participants were trained in using VLSs.

Chapter Four consists of two sections; the first section contains the analyses of the quantitative data obtained by the first instrument used to collect data, a questionnaire adapted from Schmitt and McCarthy (1997), and the second instrument, namely the *XK-lex* developed by Masrai and Milton (2012). The second section of the chapter includes the analysis of the qualitative data obtained from the research diary. The analysis chapter begins by testing the statistical reliability of the obtained data and the demographical questions. After that, the analysis of quantitative data will be organised according to the research questions, starting by analysing the data for the sub-questions, and then answering the main research question. Then, information about the notebook data will be provided and the data will be analysed thematically. At the end of Chapter four, a reflection on the training sessions based on reports written by the researcher after each session will be presented. Copies of the notebook data can be found in the appendices (8 and 10), which includes the experimental groups' responses toward the VLSs and training sessions, as well as reports noted by the researcher after each training session.

Chapter Five discusses the major findings of the study and the extent to which they support or contradict previous studies conducted in the area of VLS training. The discussion of the analysed data will be organised based on the research questions. This will be followed by a general discussion section in which all data obtained from the quantitative and qualitative data methods used will be triangulated. Furthermore, the objective, implications, contributions and aims of the current study will be considered in this discussion.

Chapter Six is the conclusion of the thesis in which a summary of the main results will be provided, at the beginning. This will be followed by a discussion surrounding the pedagogical implications of the current study. After that, the original contributions of the study to the field of knowledge will be provided. Then, its limitations will be outlined, and recommendations for any future investigation into the relationship between vocabulary size and VLS training will be presented. The end of the chapter will include an overall conclusion of the entire thesis.

Chapter 2

The Literature Review

2.1 Defining Terms

Word and Vocabulary

Clarifying the definition of ‘Word’ and ‘Vocabulary’ is necessary to be able to distinguish between them.

Hornby et al., (1984); Bowen et al., (1985); Richards, Platt and Weber (1992); Nandy, (1994); Jackson and Amvela, (2000); Sheeler and Markley, (2000); and Sesnan, (2000) all agree that although words seem easy to perceive, the concepts of the word and of vocabulary are difficult to define. Yet, the word plays an important part in several areas of linguistics: “a word, at least, relates to the fields of morphology, semantics, etymology or lexicology” (Jackson and Amvela 2000, p. 48).

Hornby et al. (1984, p. 320) define “word” as a “sound or combination of sounds forming a unit of the grammar or vocabulary of a language”, and define vocabulary as “the total number of words which make up a language; and a range of words known to, or used by a person”. Richards et al. (1992) have described the word as “the smallest of the linguistic units which can occur on its own in speech or writing” (p. 406), and vocabulary as “a set of lexemes which includes single words, compound words and idioms” (p. 400). A similar definition of vocabulary is provided by Nandy (1994), who considers it to be the “total number of words we know and are able to use” (p.1).

Another definition of “word” is suggested by Sheeler and Markley (2000), who define it as “a unit formed of sounds or letters that have a meaning” (p. 2), while Sesnan (2000, p. 123) defines a word as “an uninterruptible unit of structure consisting of one or more morphemes and which typically occurs in the structure of phrases. The morphemes are the ultimate grammatical constituents, the minimal meaningful units of language”, while vocabulary is “a collection of words” (which is synonymous with ‘lexis’, or ‘lexicon’) or “a package of sub-sets of words that are used in this contexts” (p. 123).

These definitions suggest that generally speaking, a word is part of vocabulary and expresses one or more smaller meaning units, called morphemes, that are combined to structure a word. The following section discusses what is involved in knowing a word.

2.2 Vocabulary knowledge

In this section, vocabulary knowledge will be explained, the difference between receptive and productive vocabulary knowledge will be clarified, and the distinction between the breadth and depth of vocabulary knowledge will be made.

2.2.1 Receptive and Productive Knowledge

Webb and Chang (2012) suggest that most studies that compare the receptive and productive vocabulary knowledge of a language learner focus on vocabulary size, and show that the receptive vocabulary knowledge of a language learner is larger than their productive knowledge, and that receptive and productive knowledge of vocabulary grow at different rates.

Before defining receptive and productive vocabulary knowledge, it must be explained that the receptive knowledge of vocabulary helps to understand words upon hearing or reading them, whereas productive knowledge vocabulary allows the respondent to express their thoughts in their speech or writing.

It is helpful to clarify the language skills associated with each. According to Laufer & Goldstein (2004), listening and reading skills usually require receptive vocabulary knowledge, while speaking and writing are more often associated with productive vocabulary knowledge. Nation (1990, p. 5) defines receptive vocabulary knowledge as “the ability to recognize a word and recall its meaning when it is met”. Some scholars, such as Meara (1990) and Laufer & Goldstein (2004), refer to receptive vocabulary knowledge as ‘passive knowledge’. Meara (1990) thinks that testing passive knowledge is important because it is a crucial element in language learning and the basis for the language learner to attain a respectable active vocabulary. The language learner encounters the word for the first time mostly through the process of listening or reading, and they have learned it and understood its meaning if, when they encounter the word again, they recognize it. After a learner has recognised a word several times, it is most likely stored in their long-term memory.

Productive vocabulary knowledge, on the other hand, is defined as the ability to retrieve the words stored in memory and to use them successfully in particular situations, whether in writing or speech (Webb, 2009). In other words, the language learner needs to transform the passive or receptive vocabulary knowledge into active or productive knowledge. For further clarification, see Table 2.1, which is adapted from Nation (2013). It specifies the differences between receptive and productive vocabulary knowledge through the three dimensions of knowing a word: form, meaning and use.

Table 2-1 What is involved in knowing a word (Nation, 2013, p. 49).

Knowing a word			
Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in this word?
		P	What words parts are needed to express the meaning?
Meaning	Form and Meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concepts and Referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what pattern must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints of use (register, frequency)	R	Where, when and how we expect to meet this word?
		P	Where, when and how often can we use this word?

R=receptive knowledge

Nation (2013: 49).

P=productive knowledge

Nation (2013) divided the knowledge of a word into nine components which are included under three dimensions, word form, meaning and use. Each one of these dimensions include three components, and each of these components are divided into two parts, depending on whether they fall under receptive or productive knowledge of words. The first dimension, form, includes the pronunciation, spelling and the parts of a word. These are the basic components of word knowledge; after that, the learner seeks to figure out the word's meaning, which is the second dimension in Nation's classification (2013), as shown in Table, 2.1. The meaning contains three components which are the form and meaning, concepts and referents, and associations. These components are more likely to be tools that are used to consolidate the meaning of recently learned words. Once the learner knows the meaning of the word, they need to learn how to use it, this being the third dimension in this classification. The use of a word can include its grammatical functions, collocations and constraints of use. Knowing such information about a word is more likely to support the learner to retain the word easily and use it successfully.

Although Nation's classification of word knowledge is the most comprehensive one, it does not show the relation between these components (González-Fernández & Schmitt, 2019). The main two parts in the table, which are repeated many times, are the receptive and productive knowledge of a word. Therefore, the following section will discuss in detail the difference between them as well as which represents the breadth and the depth of vocabulary knowledge.

2.2.2 Breadth (Size) of Vocabulary and Depth of Vocabulary knowledge

According to Bogaards and Laufer (2004), and Milton (2009), a distinction can be made between two dimensions of vocabulary knowledge: breadth (size) and depth. Nation (2001) defines the breadth (size) of vocabulary as the number of words that a language learner knows at a specific proficiency level, while he defines depth in terms of how well language learners use and know a specific word. Read (2000) agrees with Nation when explains that the depth of vocabulary knowledge refers to how well a word is known. Scholars have pointed to “the complexity and multi-dimensionality of word knowledge and have suggested that knowing a word well should mean more than knowing its individual meanings in particular contexts” (Nassaji, 2004, p. 112). Nassaji (2004) suggests that aspects of knowing a word in addition to its meaning include, for example, the pronunciation and spelling of a word and its morphological features.

However, Milton (2009, p. 169) points out that vocabulary size and depth of vocabulary knowledge might be narrowly correlated rather than totally separable: “whatever the quality of depth and breadth are, they are linked, and qualities of depth really seem to appear only after a sizable vocabulary breadth has been attained”. Moreover, Schmitt (2014) has suggested that “the relationship between size and depth of vocabulary knowledge depends on how each is conceptualized and measured” (p. 913). In the case of high frequency words, there is some correlation between size and depth of vocabulary knowledge for language learners with a limited vocabulary size. In the case of low frequency words, there is a gap between these two dimensions for language learners whose vocabulary is larger (Schmitt, 2014).

The characteristics of breadth and depth of vocabulary knowledge are listed in Table 2.1. The table differentiates the features of receptive and productive knowledge, and these are synonymous with the breadth and depth of knowledge of vocabulary. For example, breadth of knowledge refers to a learner knowing a word but not being able to use it successfully and being confused regarding its use; depth of knowledge, however, refers to a learner being able to use a word, with proper knowledge and understanding of various aspects of the given word.

Breadth of vocabulary knowledge concerns the surface level of the word, while depth of knowledge involves the strong knowledge of different facets of a given word such as its sound, grammatical use, meaning and how it is associated with other words.

Generally speaking, receptive knowledge and breadth (size) of vocabulary may characterise an initial stage of vocabulary mastery, while productive knowledge and depth are characteristic of a more advanced stage of vocabulary knowledge. a receptive vocabulary test is a measure of the breadth of learning and a productive vocabulary test is a measure of the depth of learning. The following sections will illustrate the significance of vocabulary and VLSs.

2.3 The importance of vocabulary

For any language use, vocabulary is crucial. Nothing can be expressed without words. As Wilkins (1972) points out, “without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (p. 111). Similarly, Daofa et al. (1992) mention that vocabulary is at the heart of the four language learning skills (Listening, Speaking, Reading, and Writing). Acquiring a large amount of vocabulary contributes to effective communication. Words are tools that help language learners express opinions, ideas and feelings, and enable them to discover and explore the world around them. Language learners are likely to face difficulties in spoken and written communication if they lack sufficient vocabulary knowledge. Learners who have a limited vocabulary may be unable to communicate successfully, while having a large vocabulary helps learners to express their ideas clearly. “The more words one is able to use correctly, the better one will be able to express oneself easily and with self-confidence and to understand the world one lives in” (Nandy 1994, p. 1). Yet, according to Meara (1980: 1-2), vocabulary acquisition was ignored in applied linguistics, however, over the last few decades, there has been an increased interest in the area of vocabulary learning; this may be due to its importance as well as language learners’ lack of vocabulary knowledge. According to Meara (1980) that learners experienced considerable difficulty with vocabulary and that research in vocabulary acquisition had been largely “a-theoretical and unsystematic”, adding that “there are no clear theories of vocabulary acquisition, and the level of research is in general fairly low”. No-one denies the importance of grammar, but as Allen (1983, p.5) points out, neither grammar nor vocabulary should be neglected in language classes, and there is no conflict between learning the most significant words and developing a stable knowledge

of grammar. Since the 1980s, scholars have developed this area of language teaching and research (e.g., Allen, 1983; Coady & Huckin, 1997; Nation, 1990, 2001; Schmitt, 2000, 2008; Thornbury, 2002; Milton, 2013; Alqahtani, 2015). For example, Zimmerman (1997, p. 5) indicates that “vocabulary is central to language and of critical importance to the typical language learner.” Similarly, Gass and Selinker (2001, p. 372) comment that “...there are numerous reasons for believing that lexis is important in second language acquisition, in fact, the lexicon may be the most important language component for learners.” Other proponents of putting greater emphasis on vocabulary include Meara, (1995), Nation (2001) and Schmitt (2010), who stress the importance of vocabulary in language learning and advocate that learners and instructors should spend more time on developing and increasing the vocabulary repertoire to facilitate the learning process of any language.

The interest in vocabulary research has increased dramatically over the last two decades in the field of language learning, and the importance of vocabulary knowledge has become more widely recognized. Scholars have investigated the relationship between vocabulary knowledge and the proficiency of language learners. Generally, they have found that there is a significant relationship between the vocabulary knowledge and the linguistic competence of the learners in the four language skills (Zareva, 2005; Stæhr, 2008; Akbarian, 2010; Milton, 2013; and Webb & Chang, 2015). These studies illustrate the significance of vocabulary in language learning and suggest that attention should be devoted to ways of expanding vocabulary through using language learning strategies (LLSs). The following sections will discuss LLSs in general and the significance of VLSs specifically.

2.4 Language Learning Strategies (LLSs)

The term “strategy” derives from the ancient Greek word ‘strategia’, meaning the art of war (Oxford, 1990). With regard to second language acquisition, Brown (1994, p. 114) mentions that “these specific ‘attacks’ that we make on a given problem ... are moment by moment techniques that we employ to solve ‘problems’ posed by second language input and output”. O’Malley and Chamot (1990, p. 44) define LLS as thoughts and behaviours that are used by language learners to help them to learn, understand and recall new data and information, and Rubin (1987) defines LLSs as contributions to the development of a system of language learning in which learners can create and affect learning directly.

The most significant advantage of LLSs is that they can help language learners to achieve their long-term goals on their own. As the proverb has it: “if you give a man a fish, you must feed him every day; but if you teach a man to fish you feed him for a lifetime”.

Oxford (1990) divides LLSs into two categories, direct and indirect. Direct learning strategies include memory strategies, cognitive strategies and compensation strategies. Oxford (2003) notes that memory strategies help language learners to connect a concept or item of a second language to the other; however, it is not essential to have a deep understanding of this item. The memory strategies are essentially a mental processing of learning and retrieving items in a language with the use of sounds, images or physical items, for instance. The second category of direct strategies is cognitive strategies, in which learners can use the language in direct ways by practicing, reasoning, note taking, etc., as shown in the figure below. The last part of direct strategies is compensation strategies, in which learners can use the language in speaking and writing by guessing intelligently and overcome the limitations of knowledge. Direct strategies are focused on the basis of the teacher setting clear goals. The instructor keeps track of the students’ learning and understanding, and provides them with feedback on the performance.

Indirect strategies include three categories of strategies: metacognitive, affective and social strategies. The metacognitive strategies are related to planning, mentoring and the evaluation of the language learning process, while affective strategies concentrate on the emotional aspect of the language learners, such as controlling their anxiety and motivating themselves (Alhaysson, 2017). The last category of indirect strategies is social strategies, which mainly concerns learners’ involvement in the community by interacting, asking, paraphrasing and cooperating using the target language. The indirect strategy is mainly focused on learning through stimuli; in this strategy, range of instances about particular strategies are increased, rules and sequences are applied. Respondents have to respond to the stimuli.

In the case of the direct category, a language learner is involved directly with the target language, processing the language mentally. In contrast, the category of indirect learning provides the learner with techniques such as planning, concentrating, monitoring anxiety, seeking opportunities, and increasing cooperation (Ajideh et al., 2017). Direct and indirect strategies are employed in this current research by teaching the strategies to participants and

measuring their progress after the intervention. There is one aspect of indirect strategies which will not be included in the training; affective strategies. In this research design, participants will not be trained on lowering their anxiety, motivating themselves, or controlling their emotions. These types of strategies could be gained as a result of using LLSs.

The following figure shows the taxonomy of LLSs suggested by Oxford (1990), which appears comprehensive. A number of scholars have based their classifications on Oxford's taxonomy. For example, Schmitt (1997) designed a taxonomy for VLSs that is quite similar to some of the main categories in Oxford's (1990).

2.4.1 Direct Strategies

- | | |
|-------------------------------------|--|
| I. Memory strategies | <ul style="list-style-type: none"> A. Creating mental linkages B. Applying images and sounds C. Reviewing well D. Employing action |
| II. Cognitive strategies | <ul style="list-style-type: none"> A. Practicing B. Receiving and sending messages C. Analyzing and reasoning D. Creating structure for input and output |
| III. Compensation strategies | <ul style="list-style-type: none"> A. Guessing intelligently B. Overcoming limitations in speaking and writing |

2.4.2 Indirect Strategies

- | | |
|------------------------------------|--|
| I. Metacognitive strategies | <ul style="list-style-type: none"> A. Centering your learning B. Arranging and planning your learning C. Evaluating your learning |
| II. Affective strategies | <ul style="list-style-type: none"> A. Lowering your anxiety B. Encouraging yourself C. Taking your emotional temperature |
| III. Social strategies | <ul style="list-style-type: none"> A. Asking questions B. Cooperating with others C. Empathizing with others |

The classification of LLSs adapted from Oxford (1990, p. 17).

Such kinds of LLSs taxonomies include a variety of strategies that might facilitate the process of learning a language. It is possible to use these strategies to improve the four language skills or to enhance the vocabulary learning process, which is a significant component of language learning, as mentioned earlier. In the next section, the importance of VLSs will be discussed and the most crucial advantages of such types of strategies will be explored.

Strategies of Learning are the procedures for communication and mind learning that are employed by learners in order to learn and use a language. A strategy is used for each task and exercise; learners in classrooms are not aware of these strategies. These are tested by the hypotheses by the researchers that leads to the awareness and deployment of strategies and help to learn effective language (Macaro, 2001, p.88).

2.5 The importance of LLSs and VLSs:

Oxford (1990, p.9) suggested twelve significant features of LLSs which are listed below:

1. Contribute to ... communicative competence.
2. Allow learners to become more self-directed.
3. Expand the role of teachers [to guide and facilitate].
4. Are problem-oriented, because learning involves problem-solving.
5. Are specific actions taken by the learner
6. Involve many aspects of the learner, e.g., cognitive, emotional, social.
7. Support learning both directly and indirectly.
8. Are not always observable; some are purely mental and hence unobservable
9. Are often conscious [This was later changed to remove “often”]
10. Can be taught
11. Are flexible
12. Are influenced by a variety of factors, such as task requirements, teacher expectations, learning style, personality traits, motivation, culture, and others (pp. 13–14).

Adapted from Oxford & Griffiths (2016).

The list is unorganised as the methodological, pedagogical and cognitive features of LLSs are all included together. However, it provides a comprehensive overview of the characteristics of

LLSs. For the purpose of this study, the focus will only be on the most relevant features of LLSs. It is worth noting that the second characteristic of LLSs, which is to “allow learners to become more self-directed”, could be the underlying rationale of teaching or learning strategies. According to Scharle and Szabo (2000), a student can take more responsibility for their studies and learning if they have the tools required for learning. VLSs are among those LLSs which enable language learners to take more control of their own learning. Therefore, the strategies enhance “learner autonomy, independence, and self-direction” (Oxford and Nyikos, 1989, p. 291). The strategies of learning help learners to learn tactics that are useful to gain control over the process of learning. As is part of their role, teachers help to facilitate the learners by enhancing the strategies and thinking process in the classroom and outside the classroom for second language learning. It is necessary to take into consideration the biographies and needs of each learner while teaching them a second language. Language learners will know how to deal with unknown words if they are equipped with a variety of VLSs.

Dörnyei & Muir (2019) have mentioned that the strategies are not the end of language teaching; however, they can be used to improve the confidence and motivation of language learners. An increasing number of studies have found that LLSs or VLSs are teachable, but there is an argument about the length and content of the training sessions on using LLSs or VLSs (Llach & Alonso, 2019). There is still considerable ambiguity with regard to the sufficient duration of time for training on using VLSs and the process of training, which is the reason behind this study’s aim to clarify the effectiveness of training on VLSs for a specific period of time on trainees’ vocabulary size.

Learners can acquire a large vocabulary and also improve their language level if they have a good knowledge of strategies and apply them to learn new words (Nation, 2001). The most important advantage of VLSs may be that they are “readily teachable” (Oxford and Nyikos 1989, p. 291), meaning that instructors and teachers do not need to spend too much time teaching their students VLSs and how to apply them. It seems that this suggestion from Oxford and Nyikos can be applied to the current research; the classification of VLSs used in this research was translated into the Arabic language so as to make it easier for the trainees to read the strategies in their own language and understand them. Cameron (2001) considers that

children should have training on how to use VLSs because they may not be able to implement these strategies on their own. Many linguists believe that VLSs are crucial for students to develop independence and that language learners need to take more responsibility for their learning process and individual needs because it is difficult for teachers to consider all students' needs equally beyond the elementary level (Gairns and Redman, 1986). Schmitt (2000) agrees and argues that it is necessary to help students to learn strategies that will enable them to learn on their own. Moreover, according to Nation (2001), the most important way to teach students vocabulary is by teaching VLSs, and the learning of strategies should be a part of teaching development programmes. It seems that strategies can be taught explicitly, and this will be applied in this research study. Furthermore, this current study will investigate other factors that influence the use of VLSs, such as participants' cultural, personality and educational traits. This current study also will explore the effects of age, field of university study, and duration of studying the target language on strategy preferences. These factors will be discussed in the subsequent sections in relation to their effects on VLS training.

A large number of studies such as Nassaji (2004); Hamzah, Kafipour and Abdullah (2009); Kalajahi and Pourshahian (2012); Mokhtar et al., (2017); Bai (2018); and Eliah & Kiran (2019), have stressed the importance of VLSs and their positive correlation to the vocabulary knowledge of language learners. However, these studies examine the VLSs used by participants at one point in time and do not specify exactly what factors or duration of training are required to enhance the learners' VLSs or vocabulary repertoire. Factors might include learners' characteristics, learning and teaching goals, activities that support learning, and assessment strategies that drive and measure learning, a culture that directly enhances a learning environment.

A limited number of studies, such as Rasekh & Ranjbary, (2003); Tezgiden, (2006) and Mahdavi (2014), have examined the effect of training in using VLSs on learners' vocabulary size, but concentrate on only one or two types of VLSs such as cognitive and metacognitive strategies. The current study will attempt to investigate five categories of VLSs namely, determination, social, memory, cognitive and metacognitive and explore the effect of students' areas of study on their use of VLSs and vocabulary size.

Generally, VLSs may play a significant role in developing the learning process of language learners, as suggested by the scholars mentioned in this section. It is difficult with the uncertainties of linguistics to carry out the planning of learning but understanding and

recognizing the contextual and educational factors of the selected subjects can help to reveal new trends as well as techniques of learning. It is important to understand what kind of ideas, methods and approaches are required in order to respond to the research questions successfully (section, 1.5).

Before highlighting the VLSs classifications used in the current study, some of the popular taxonomies of VLSs in the field of learning vocabulary will be elaborated upon in order to highlight their drawbacks and shed light on the reasons behind using one of these taxonomies.

Having discussed VLSs and their importance, as well as specified some popular taxonomies in this field, the following sections will discuss studies that have investigated VLSs and the extent to which they have positive effects on language learners. These studies have been selected because of the significance of their findings and because they have been conducted in different contexts, making them useful to gain insight into the use and effects of VLSs in different parts of the world.

2.6 Some Popular Classifications of Vocabulary Learning Strategies

Since the late 1970s, a significant number of studies have dealt with LLSs in general and VLSs in particular. Most of them tried to identify the relationship between different kinds of strategies and listed them under specific categories. Khan et al. (2018) argue that the leaning strategies seem to be a developmental behaviour that learners can adapt to facilitate their learning tasks, and the LLSs foster self-directed learning for students. Brewer (2016) clarified the core idea of self-directed learning where learners become self-regulated and have the capability to be more responsible about their learning outcomes, meaning that they can improve their motivation, involvement, self-reliance and proficiency. It seems that VLS use could lead to better learning as it can provide learners with tools to enhance their vocabulary learning by themselves and create an atmosphere of self-learning. Khan et al. (2018) mentioned that most types of VLSs have been identified by EFL and SLL through an enormous number of studies, and most of these studies do not agree on which is the best strategy. It is more likely that different learners prefer different strategies. Therefore, researchers (such as Schmitt, 1997; Nation, 2000) have made a massive effort to formulate classifications and taxonomies for VLSs; most of these classifications share many strategies and categorizations. The taxonomy

of LLSs designed by Oxford (1990) has been adapted by different scholars who have used it as a base when designing their own VLSs taxonomies (Khan et al., 2018).

A large number of taxonomies have been suggested, and the most popular ones, such as Stoffer, (1995), Gu and Johnson (1996), Schmitt (1997), Nation (2001, 2005), and Fan (2003), are discussed in detail in the following section. Given that the highlighted taxonomies were developed at different time periods, they are listed in chronological order from oldest to newest.

Stoffer (1995) developed a taxonomy of VLS called *The Vocabulary Strategy Inventory (VOLSI)*. This taxonomy consists of 53 strategies divided into nine categories: (i) the use of authentic language, (ii) creativity activities such as creative solutions for problems, (iii) physical activities, (iv) memory strategies, (v) visual and audio techniques, (vi) building mental association, (vii) classifying vocabulary, (viii) strategies designed to overcome anxiety and lastly, (ix) strategies that motivate the learners. The advantage of this taxonomy is that it offers a starting point for the classification of projects on the basis of an analysis of factors (Schmitt, 1997). However, Pavicic (2008) and Kudo (1999) have criticized Stoffer's taxonomy for not presenting adequate data to support these VLS categories.

Gu and Johnson's (1996) *Vocabulary Learning Questionnaire* contains 91 strategies grouped into eight categories: guessing, careful consideration, self-initiating, using a dictionary, repeating for memorizing, coding for memorizing, recording strategies and activation tactics. They investigated a group of advanced Chinese EFL university students and found that students who had a larger size of vocabulary used more VLSs. Ghazal (2007) has criticized this taxonomy on the grounds that it could be condensed into four categories (memory, cognitive, metacognitive and activation strategies) instead of eight. The 91 strategies grouped into eight categories can be seen as a disadvantage because learners might be confused and find it difficult to comprehend and use such a large number of strategies.

Kudo (1999) developed his VLS questionnaire on the basis of Schmitt's classification (1997). The 56 strategies branch into four categories (social, memory, cognitive and metacognitive), and each category includes 14 VLSs. This questionnaire was an attempt to simulate Schmitt's classification, but after testing the questionnaire items for reliability and

validity, 12 items were deleted, leaving 44 validated items. However, this taxonomy does not add any new strategies or categorizations, and can be described as a slimmed down version of Schmitt's classification (1997).

In Nation's (2001, p. 218) taxonomy, features of vocabulary knowledge are kept separate from the learning process. He considers context to be a crucial source of vocabulary knowledge and knowing a word in its context involves learning the word parts, the meaning, and the written and spoken form of the word. The grammar and collocation of the word are also important, and once these aspects of the word have been identified, the learner can start the process of retrieving the word. Nation (2001) classifies his VLS taxonomy into three main categories: (i) planning, during which the learner chooses what to focus on and when to focus on it, (ii) sources, in which the learner tries to find information about words, and (iii) processing, during which the language learner should acquire knowledge of vocabulary. How these categories differ from each other will be explained in detail in the following section. Finally, Nation lists types of strategies under each of these categories. Table 2.2 is adapted from Nation (2001: 218-222) and contains his classification of VLS.

Table 2-2 adapted from Nation (2001, pp.218-222).

General class of strategies	Types of strategies
Planning: choosing what to focus on and when to focus on it	<ul style="list-style-type: none"> • Choosing words • Choosing aspects of word knowledge • Choosing strategies • Planning, repetition and spending time
Sources: finding information about words	<ul style="list-style-type: none"> • Analysing words • Using context • Consulting a reference source in L1 and L2 • Using parallels in L1 and L2
Processes: establishing knowledge	<ul style="list-style-type: none"> • Noticing • Retrieving • Generating
Skill in use: enriching knowledge	<ul style="list-style-type: none"> • Gaining in coping with input through listening and speaking • Gaining in coping with output through reading and writing • Developing the fluency through the four skills

Nation's taxonomy aims to separate word knowledge from the process of learning and from the source from which the word originated. Moreover, his taxonomy sheds light in general on theoretical aspects of the field of VLSs without providing the learners with a list of specific types of strategies that could be used to learn new words. It seems that his taxonomy could be useful for teachers and researchers to comprehend how vocabulary is acquired through different stages.

Fan (2003, p. 226) has nine categories and 56 strategies divided between these categories. He (2003) draws on other scholars such as Gu & Johnson (1996), O'Mally & Chamot (1990) and Oxford (1990). Additionally, he interviewed EFL students during the process of designing a new VLS questionnaire. The nine categories are management, sources, guessing, dictionary, association, repetition, analysis, grouping and the strategies of known words, as shown in Figure 2.1. It is a useful classification of VLSs, but may be confusing because it includes so many categories.

The Nine Categories of Vocabulary Learning Strategies

Categories of Strategies	Number of Items	Section and Item Number
Management	5	A1-A3, A5, F2
Sources	8	B1-B8
Guessing	8	C1, C3, D1-D6
Dictionary	13	E1-E13
Repetition	5	H1-H5
Association	5	J1-J5
Grouping	5	G1-G5
Analysis	4	I1-I4
Known Words	3	A4, A6, A7

Figure 2-1 Fan's VLS categories.

Adapted from Fan (2003, p. 226).

However, all the previously mentioned classifications of VLSs suffer from serious drawbacks. None of these taxonomies are as clear or comprehensive as Schmitt's taxonomy (1997), which is being employed in this study. Schmitt's taxonomy was the starting point that was used to develop taxonomies in context of VLSs and ESP. The taxonomy helps to gain a deeper insight into vocabulary learning and identify effective ways of teaching vocabulary. Catalan (2003: 60) has mentioned that using Schmitt's classification to gather data on the frequency of VLS use has the following advantages:

- It can be standardized.
- It can be used to collect the answers from students easily.
- It is based on the theory of learning strategies as well as on theories of memory.
- It is technologically simple, which allows for ease in coding, classification, and managing the data in computer programs.
- It can be used with learners of different ages, educational backgrounds, and target languages.
- It is rich and sensitive to the variety of learning strategies.
- It allows comparison with other studies.

Taking into consideration the advantages of Schmitt's classification, the researcher will use it as an instrument to obtain information about the frequency of participants' use of VLSs in the current study. After clarifying the advantages and drawbacks of some popular VLS, in the following section, the VLS classification used in the current study will be explained in detail.

2.7 The classification of Schmitt's VLSs

Schmitt (1993) suggested a taxonomy of VLSs, and Schmitt (1997) refines taxonomy that contributes to the framework of categorizing VLSs because of comprehensive classification. It includes various facets of vocabulary learning. The classification is based on the distinction between discovery and consolidation of aspects of vocabulary learning.

Schmitt divides the taxonomy into two main types. The first type is discovery, which includes strategies for the discovery of the meaning of new words; these strategies are thus used in the initial stages of learning the meaning of new words. The second type is consolidation, which includes strategies for learners to consolidate the meaning of newly learned words.

In relation to these two categories, Nation (1990, p.6) has suggested two stages of learning vocabulary. The first is 'increasing the vocabulary', which refers to helping a learner to discover the meaning of new words and introducing them to new vocabulary regularly to increase their vocabulary repertoire. This stage is more likely related to breadth of vocabulary. The second stage is 'establishing vocabulary', in which a learner tries to build up and

strengthen the knowledge of the words learned in the initial stage. This stage seems to be related to depth of vocabulary.

2.7.1 Category 1: Strategies to Discover the Meanings of New Words

The first stage includes two kinds of strategies, namely determination and social strategies. Each of these are used in the initial stages when a learner encounters a new word and tries to discover its meaning.

2.7.1.1 Determination Strategies:

The determination strategies include nine strategies which can be used to discover the meaning of new words: (i) analysing the grammatical position of new words by identifying their part of speech whether noun, verb or adjective; (ii) identifying the root of the word and the affixes attached to the word, so the learner becomes familiar with different kinds of prefixes and suffixes that are usually attached to a large number of words; (iii) focusing on finding out whether there is a similar word in the learners' first language, as some words in English originate from other language and vice versa; and (iv) analysing the pictures in the textbook to discover the meaning of the new word. This last strategy might be preferred by visual learners because it helps them to remember the meaning of the words by relating it to pictures or gestures. Visual learners are more likely to use pictures, illustrations and drawings as a strategy to memorize new words (Sistani & Hashemian, 2016). Following this is the fifth strategy, which involves (v) trying to guess the meaning of the new word within a text, which may benefit learners by saving the time they would spend looking for the meaning in the dictionary for each new word and by providing examples of how to use the words in well-structured sentences; (vi) the use of a monolingual dictionary which could help the students strengthen their language skills by reading definitions of the new words in English and trying to figure out their meaning along with that of the whole sentence, so that they can increase their vocabulary repertoire; (vii) the use of bilingual dictionaries for discovering the meaning of new words, which tends to be more popular among foreign language learners; finally, (viii) and (ix) are the use of word lists and flash cards. With the help of words lists, learners can collect words to revise and study. It seems that Schmitt categorized the strategies in this order to reflect the process that language learners follow to discover the meaning of new words. When learners seek to discover the meaning of new words, they begin by analysing the words and then trying to guess their meaning in the context of a sentence without using the dictionary; however, if the learner cannot reach a close or exact meaning of the word that would fit in the context of the full sentence, they can then use a monolingual dictionary.

2.7.1.2 Social Strategies:

The second category of Schmitt's (1997) classification of VLSs is social strategies. Social strategies mainly focus on how to discover the meaning of new words by interacting with members of society in general or with the teacher or classmates in the English classes. A number of researchers have examined the effectiveness of communication using the target language on the enhancement of learners' level (Benson, Swan and Siegel, 2016, p.27-34). It seems to be more advantageous to learn a language in a country where it is used than learning it as a foreign language, because learners then have more opportunities to practice the language outside the classroom. This kind of practice is considered as effective to improve speaking skills and to bring fluency in the communication process. This category of VLSs includes five types of strategies, which mainly concentrate on discovering the meaning of new words through social actions: (i) discovering the meaning of the new word by asking the teacher for the first language translation. The disadvantage of this strategy is that the teacher may not know the learners' L1. (ii) Asking the teacher to paraphrase the words by showing synonyms or antonyms; (iii) asking the teacher to provide a sentence including the new word; (iv) inquiring about the meaning from classmates; and (v) discovering the meaning by means of group work.

The learner moves to the second stage of VLS after he/she has completed the initial stage, discovering the meaning of new words. At this stage, the learner is advised to use different kinds of strategies to consolidate the meaning of recently learned vocabulary. Schmitt (1997) divides the second category of VLS, consolidation, into four types; social, memory, cognitive and metacognitive strategies. The memory strategies are intended to help learners organise the information mentally or transfer the information in ways that helps it to be memorable, while the cognitive and metacognitive strategies are less directly related to intellectual manipulation.

2.7.2 Category 2: Strategies for Consolidating a Word Once it Has Been Encountered

2.7.2.1 Social Strategies

The difference between the social strategies in the first and second category is the purpose of using them, and the strategies seem different from each other. Those in the first category are used to discover the meaning of a new word while those in the other are used to consolidate the meaning of the word by using it in different situations. Three types of strategies have been suggested by Schmitt (1997): (i) learners should practice and study the words within groups in the classroom, (ii) they should ask their teacher to check the accuracy of their word

lists or flash cards, and (iii) they should communicate with native speakers of the target language, which gives the learners the opportunity to recall the newly learned vocabulary and consolidate its meaning in their memory.

2.7.2.2 Memory Strategies

Memory strategies constitute the largest category of strategies in Schmitt's taxonomy. They include all strategies that rely on memorisation or connecting the meaning of words with different things to consolidate the meaning. These are: (i) learning the word by representing its meaning pictorially; (ii) trying to image the meaning of the word; (iii) linking the word to the learner's personal experience to create a mental connection so as to remember the meaning successfully; and (iv) associating the word with other words in collocation or as (v) synonyms or antonyms of the targeted word; (vi) using semantic maps (e.g. Meronymy: **Oxygen** is part of **air** and Hyponymy: e.g. **A cheetah** is a kind of **cat**); and (vii) using scales for gradable adjectives (e.g. good, better, best) (Schmitt, 1997). Moreover, like Cohen (1987, 1990) and Rubin and Thompson (1994, pp. 79-82), Schmitt (1997, p. 213) suggests (viii) grouping related words under one topic and using them in sentences, but he adds the idea of "grouping words together within a storyline", which may be more enjoyable for learners and creates a strong association with some stories. Like other classifications, such as the classification of VLS by Nation (2001, 2005), Schmitt (1997, p. 212) also suggests (ix) practicing the pronunciation and spelling of newly learned words. The next memory strategy concerns (x) trying to image the form of the words, whether they are nouns or verbs, to create mental links with their meanings, which was advocated by Rubin and Thompson (1994), as previously discussed in this chapter. Schmitt (1997, p. 212) also suggests (xi) that learning the root and affixes of the new word helps learners remember the word and consolidate its meaning. These last two strategies are also suggested by Nation (2001, p. 219), who thinks that analysing the word parts and identifying its stem and its affixes is the first source of information the learner accesses about an unknown word. The next memory strategy listed by Schmitt (1997, p. 199) is (xii) summarising the meaning of the word in which the learner tries to paraphrase the meaning in a simple sentence. Moreover, (xiii) learners can use cognates of the word in their L1 (e.g., "Cotton" is the same word in Arabic but written with Arabic letters). The final strategy in the memory category is (xiv) the use of physical actions to consolidate the meaning of a word. This strategy is similar to the one suggested by Cohen (1987, 1990), Rubin and Thompson (1994) and Stoffer (1995), who all confirm that kinaesthetic learning, such as linking words'

meanings with physical actions or objects, might help learners to recall the meaning and remember words easily.

2.7.2.3 Cognitive Strategies

The fourth category of Schmitt's (1997, p. 208) classifications of VLSs is cognitive strategies, which include nine different kinds of strategies. Most cognitive strategies focus on mental activities and the repetition of some activities to consolidate the meaning in the learner's repertoire. The first two strategies are: (i) loudly repeating the words several times and (ii) writing the words many times to learn its spelling. Nation (2001) also advocates these two strategies. The third and fourth strategies are (iii) writing the new words on a list or (iv) on flash cards, and (v) taking notes on the new words during the class. Again, Nation (2001) recommends the process of noticing strategy, in which the learner should learn the word as an item with the help of devices such as flash cards, a vocabulary notebook, and verbal and written repetition. Most language textbooks include a vocabulary section, and Schmitt (1997, p. 215) suggests (vi) that language learners can benefit from this section to enhance their vocabulary repertoire. The advantage of such a section is that the level of vocabulary will be appropriate for the learner because it is included in the same course book that they use in their language classes. Strategy involves (vii) listening to taped vocabulary lists, and strategy consists of (viii) writing the words on a piece of paper and attaching it to an object. Strategy is (ix) to keep a notebook listing the vocabulary that has been learned. This is similar to the process of retrieving the meaning of the word suggested by Nation (2001).

2.7.2.4 Metacognitive strategies

The last category of VLSs in Schmitt's (1997, p. 216) taxonomy is metacognitive strategies, which include five different kinds of strategies: (i) the use of media, such as listening to music, or watching films or TV. Nation (2001) supports this strategy as a source of vocabulary knowledge which can enhance the skill of guessing the meaning of unknown words from the context. Following this, (ii) the language learner should evaluate his/her level of vocabulary by testing him/herself using different kinds of word tests, which can help to consolidate the meaning of recently learnt words. Further strategies include (iii) continual practicing of the word; and (iv) showing that it is unnecessary to know every single word in a text or paragraph to comprehend the main idea of the text. Schmitt (1997, p. 216) suggests that learners can skip and pass over some new words as a metacognitive strategy. Lastly, (v) the

language learner can learn the new vocabulary and how to pronounce words correctly by noticing and paying attention to the words when someone is speaking English.

Having explained in detail the classification used in the current study, the following section will shed light on some empirical studies which investigate the use of VLSs in a variety of contexts by using different types of taxonomies.

2.8 Empirical studies on VLS

The research in the area of vocabulary learning strategies can be divided into three stages. During the first stage, researchers investigate and list all kinds of strategies that are used by language learners. In the second stage, they begin designing different taxonomies for vocabulary learning strategies. In the third stage, researchers dig deeper into the effectiveness of such strategies of language learners and the extent to which these strategies facilitate their learning process.

In one of the early studies in the area of VLS, Gu and Johnson (1996) investigate the VLSs used by 850 second-year, non-English major students learning English at Beijing Normal University, China. The study highlights the association between the participants' achievements and their use of VLSs. The students completed a vocabulary learning questionnaire which asked about their beliefs about vocabulary learning and investigated their use of VLS. The results revealed that the best students, who represented a very small group, believed in learning through exposure in the classroom and careful study, but not memorisation. In other words, participating subjects were using more meaning-oriented VLSs such as note taking than root strategies, which mainly focus on the root of the new word apart from the suffixes and the context.

Al Qahtani (2005) explored the use of VLSs by EFL learners at three different educational levels. His study investigated what VLSs learners were currently using in the Kingdom of Saudi Arabia (KSA) across genders and a range of educational levels including school and university, both in and out of classrooms. It also explored their use of VLS in relation to individual factors such as education level, gender, and vocabulary proficiency. The study revealed that, generally, females reported using VLSs such as note-taking strategies more than males. However, there were specific strategies that both male and female students used,

such as writing down words and their Arabic translation, guessing the meaning of an item from pictures related to the unfamiliar word, and organizing new words in alphabetical order.

Hamzah, Kafipour and Abdullah (2009) investigated the VLSs used by Iranian undergraduate EFL students and the extent to which these were related to their vocabulary level. Participating subjects answered a questionnaire targeting VLSs and the results show that the Iranian EFL students were intermediate users of VLS; they achieved a mean score between 2.40 and 3.50 out of 5 (see Table 2.3). The authors suggest that the subjects achieved this result because they studied a course in their first semester which focused on vocabulary learning techniques and strategies. Their vocabulary learning strategy questionnaires and vocabulary level test results showed a positive correlation between the use of VLS and vocabulary size. The effect of VLS training sessions on the study subjects' vocabulary level was, however, not the focus of Hamza et al.'s study; in contrast, this current study aims to explore the usefulness of such sessions.

Table 2-3 The ranking of the most and least repeatedly utilised strategies by participating Iranian undergraduate students.

Strategy	Mean	SD	Rank	Strategy use
Determination	3.25	0.60296	1	Medium
Memory	3.15	0.64180	2	Medium
Metacognitive	3.08	0.79952	3	Medium
Cognitive	2.92	0.72703	4	Medium
Social	2.70	0.74284	5	Medium

Adapted from Hamzah, Kafipour and Abdullah (2009, p.44).

Table 2.3 shows that the strategies most frequently used by the respondents are determination strategies, with a mean score of 3.25 and a standard deviation of 0.60, followed by memory strategies with a mean score of 3.15 and a standard deviation of 0.64. In third place is metacognitive strategies with a mean score of 3.08 and standard deviation of 0.79 and in fourth, cognitive strategies, with a mean score of 2.92 and standard deviation of 0.72. The least frequently used strategies were social strategies with a standard deviation of 0.74 and a mean score of 2.70. The participants tended to use traditional strategies such as determination and memory strategies more frequently than communicative strategies such as social, cognitive and metacognitive strategies. Hamza et al. (2009) acknowledged that the tendency to use more traditional strategies was because the lecturers at the Iranian university did not train the students to use a communicative learning approach, which would have created conflicts with the goals

of the university. At the end of the study, Hamza et al. (2009) suggest that lecturers should be enrolled in programs on how to train students to use communicative strategies.

Fahim and Komijani (2011) aimed to investigate and identify any significant correlations between the use of VLSs, the knowledge of L2 vocabulary and critical thinking ability among 70 male and female intermediate Iranian participants. Critical thinking is a metacognitive process that increases the chances of productive and logical decision-making for an argument or a problem. It facilitates the cognitive process for the learner and raises their awareness regarding social and educational issues, and thus could encourage the students to take tangible actions (Fahim and Komijani, 2011).

The findings showed that there was a positive correlation between the critical thinking capability of Iranian EFL students and their vocabulary knowledge. The participants seemed to benefit from their critical thinking and use different kinds of L2 VLSs such as determination, memory, cognitive and metacognitive strategies. The study also showed that there was a positive relationship between the VLSs used by the participants and their vocabulary knowledge. In other words, those who scored higher on critical thinking ability also used a greater range of VLSs, which resulted in greater vocabulary knowledge.

The results of a productive vocabulary level test (PVL) demonstrated a significant correlation between it and critical thinking ($r = 0.75$), which meant that critical thinking had an effect on the breadth and depth of vocabulary knowledge. Fahim and Komijani (2010) found that learners with greater critical thinking abilities achieved higher scores, while students with low critical thinking ability achieved lower marks on the vocabulary test.

Fahim and Komijani (2010) also investigated the correlation between critical thinking and VLSs in relation to second language acquisition. The findings showed a positive and significant association in second language vocabulary learning between critical thinking ability and determination, memorization, cognitive, and metacognitive strategies. The correlation between critical thinking ability and social strategies was also significant at ($p < .05$).

In this study, the correlation between critical thinking and metacognitive strategies is 0.34 with a P-value = 0.00 (< 0.05). The mean value is 2.70 with a standard deviation of 0.69, while the lowest correlation was found to be between critical thinking and social strategies, at 0.15 with P-value = 0.21 (> 0.05 , insignificant). The mean value was 2.26 and standard deviation 0.58.

Metacognitive strategies play an important role in critical thinking, and impact the memorisation and determination strategies as well. The results revealed that determination

strategies have the same correlation ($r = 0.34$, $P\text{-value} = 0.00$) with a mean value 2.84 and standard deviation of 0.39. Determination strategies support creative approaches such as debating, collaborative working, productive learning, etc. Metacognitive strategies support memorisation strategies, such that participants can do out of the box critical thinking.

Table 2-4 Critical thinking ability and L2 vocabulary learning strategies

Var. X & Var. Y	Correlations Marked correlations are significant at $p < .05000$ (Casewise deletion of missing data)								
	Mean	Std.Dv.	$r(X,Y)$	r^2	t	p	N	Constant dep: Y	Slope dep: Y
Critical Thinking	3.35	0.64							
Determination	2.84	0.39	0.34	0.11	2.95	0.00	70	2.16	0.20
Critical Thinking	3.35	0.64							
Social	2.26	0.58	0.15	0.02	1.28	0.21	70	1.80	0.14
Critical Thinking	3.35	0.64							
Memorization	2.89	0.51	0.32	0.10	2.79	0.01	70	2.04	0.25
Critical Thinking	3.35	0.64							
Cognitive	2.77	0.72	0.28	0.08	2.43	0.02	70	1.72	0.31
Critical Thinking	3.35	0.64							
Metacognitive	2.70	0.69	0.34	0.12	3.01	0.00	70	1.48	0.37

Fahim and Komijani (2010, p. 33).

They also investigated the correlation between L2 vocabulary learning strategies and vocabulary knowledge. The participants answered *The Productive Vocabulary Levels Test (PVLТ)* created by Laufer and Nation (1999) who found a significant correlation between the participants' use of VLSs and their vocabulary knowledge. The highest correlation is found between PVL and memorization strategies. This shows that for productive vocabulary learning, memorization strategies are the most important compared to other strategies. Their study has shown the importance of strategies and critical thinking in facilitating language learning. In their conclusion, they suggest conducting more studies on the explicit instruction of VLSs and hypothesize that the use of VLSs could foster autonomy for learners.

Table 2-5 L2 Vocabulary learning strategies and L2 vocabulary knowledge

Var. X & Var. Y	Correlations Marked correlations are significant at $p < .05000$ (Casewise deletion of missing data)								
	Mean	Std.Dv.	r(X,Y)	r ²	t	p	N	Constant dep: Y	Slope dep: Y
Determination	2.84036	0.390466							
PVL	16.61429	6.244517	0.236288	0.055832	2.005267	0.048917	70	5.88101	3.778839
Social	2.25833	0.580376							
PVL	16.61429	6.244517	0.158524	0.025130	1.323963	0.189949	70	12.76241	1.705629
Memorization	2.89372	0.511946							
PVL	16.61429	6.244517	0.415195	0.172387	3.763505	0.000352	70	1.95938	5.064381
Cognitive	2.76905	0.718443							
PVL	16.61429	6.244517	0.250853	0.062927	2.136913	0.036205	70	10.57680	2.180348
Metacognitive	2.70068	0.688260							
PVL	16.61429	6.244517	0.262748	0.069036	2.245573	0.027985	70	10.17617	2.383885

Fahim and Komijani (2010, p. 33).

Kalajahi and Pourshahian (2012) investigate 125 students at the Eastern Mediterranean University in Northern Cyprus, whose major was English language teaching. This study aims to explore VLS and the relation between these and the students' vocabulary size. They used Kudo's (1999) VLS classification, which divides the strategies into two kinds. The first kind includes metacognitive strategies such as 'use English-language media (songs, movies, newscasts, etc.)', and social VLSs, such as 'ask teacher for a synonym, paraphrase, or L1 translation of new word'. The second type is psycholinguistic strategies, which include cognitive VLSs like 'verbal or written repetition' and memory VLSs such as, 'connect word to a previous experience of individuals' (see Figure 2.2).

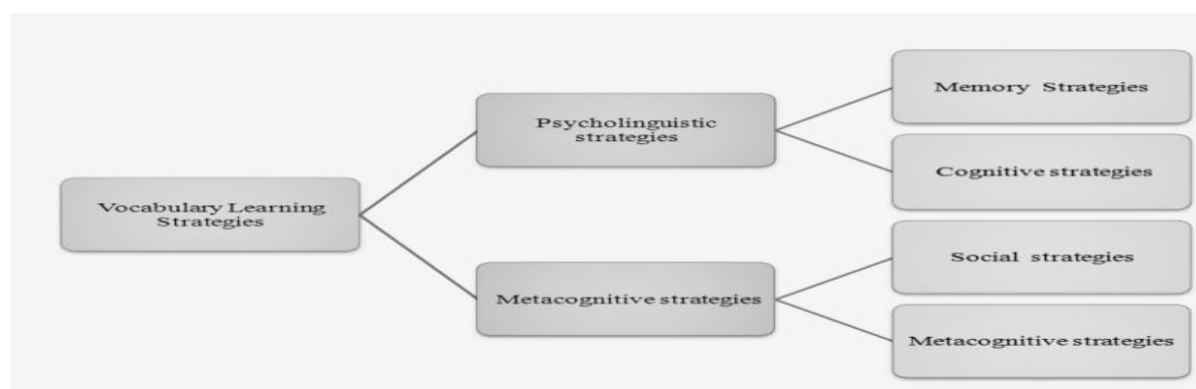


Figure 2-2 Kudo's Taxonomy of VLS (1999).

Kalajahi and Pourshahian (2012, p. 149).

Additionally, they found that some of the participating students used psycholinguistic strategies while others used metacognitive strategies.

As in the case of Hamza's study (2009), Kalajahi and Pourshahian (2012) report no significant relationship between students' responses to the VLS questionnaire and their vocabulary size. They compared the students' self-reported use of VLS's and the VLT score (vocabulary size) overall, and also specifically for two types of strategies which are psycholinguistics and metacognitive strategies.

Table 2-6 Pearson's Correlation between VLS and Vocabulary level test in Northern Cyprus.

	Vocabulary Size	P-value
Psycholinguistic strategies - Vocabulary Level Test	0.161	0.073
Metacognitive strategies - Vocabulary Level Test	-0.324**	0.000
VLS Questionnaire - Vocabulary Level Test	- 0.264**	0.003

* if the P-value is significant at 5% level of significance.

** if the P-value is significant at 1% level of significance.

Kalajahi and Pourshahian (2012, p. 149).

Table 2.6 shows the relationships between the VLSs used by the participants and their vocabulary size. There was no significant correlation between psycholinguistic strategies and the vocabulary level test scores. On the other hand, there was a significant correlation between the vocabulary size of the participating students, their use of metacognitive strategies and the reported responses in the VLS questionnaire (see Khalajahi and Pourshahian, 2012).

The previous paragraphs show that while some studies suggest that there is a strong correlation between the use of VLSs and vocabulary size, other studies have failed to identify any significant relationship between the two; this contradiction regarding the effect of VLSs on vocabulary learning suggests that the relationship between the two is complex. Generally speaking, researchers have been investigating LLS in general and VLS in particular over the past thirty years. They have used and built different instruments to obtain data from participants; numerous studies have shown significant and influential effects of language learners' use of VLSs and produced an increasing number of techniques to identify subjects'

use of VLSs (Llach & Alonso, 2019). However, most of these studies find that students have a limited knowledge of VLSs and are unaware of the different kinds of strategies that could facilitate their learning process for vocabulary acquisition in the target language (Grenfell & Harris, 2017). It is possible that this limitation could be overcome by training students on using VLSs, which could enhance their awareness of their importance. For this purpose, the core idea of this research is to investigate the effectiveness of training students on using VLSs on their vocabulary size and whether there is any significant difference between the targeted participants' VLSs and their vocabulary size before and after the intervention. The following sections will focus more specifically on VLSs and their effects but from the perspective of the extent to which training on VLS use improves learners' vocabulary size. A number of studies that have attempted to investigate this relationship will be discussed in detail in the last section of this chapter, and the reason for re-evaluating the relationship in this study will be explored.

2.9 Self-Report Mechanism

The use of self-report methods such as questionnaires has some advantages and disadvantages. The advantages of using questionnaires are, firstly, that it is convenient, as it saves researchers and participants time (Dornyei, 2010). In a short time, a researcher can obtain a large amount of data about participants' behaviours and responses toward a specific subject. Furthermore, according to Bryman (2008), questionnaires can be adapted and used for different kinds of people. When designed successfully, it is more likely to be unbiased toward the participants, and will thus lead to more reliable and consistent results. Lastly, questionnaires do not require the researcher to pay respondents for their participation. The financial resources are considered a vital part of data collection by the researchers and using such a method is free, in most cases. It seems that the self-report questionnaire method is used in most social science research, taking in consideration the mentioned advantages.

On the other hand, the use of questionnaires also has some cons, such as the accessibility of the questions, responses' lack of depth, unreliable and unenthusiastic respondents, "respondent literacy problem, and Social Desirability Bias" (Dornyei, 2010, p.115). The first limitation concerns the simplicity of the questionnaire responses. The likelihood of obtaining valuable and reliable data is greater if the questionnaire has simple and straightforward questions. In the current study, the researcher tried to make the questionnaire

very clear and easy to understand for the participants. The questions were translated into the Arabic language - the participants' mother tongue language - and include explanations of some terms. Another weakness of questionnaires is the superficiality of questions or responses which could hinder an in-depth investigation of the issue. Also, the response options (never, rarely, sometimes, often, always) were explained to the participants by the researcher himself. These steps were taken in an attempt to overcome the first limitation of using questionnaires. The second limitation relates to participants answering the questionnaire carelessly, leading to potentially unreliable results; in order to avoid this, the researcher invited learners who were enthusiastic to participate in this study. Most participants showed a reasonable amount of motivation when they took part in the research. A number of researchers confirmed the possibility of overcoming this limitation by looking for volunteers who have an interest in answering the questionnaire, and thus leading to reliable and trustworthy results. The downside of only selecting the students who were enthusiastic to participate in this study is could have more typical learners and might not getting more positive results than would have in most regular classes. This weakness was taken into consideration and the researcher randomly split the participants into experimental and control groups in order to fulfil the aims of this study. Deceptively, the questionnaire administered by the researcher himself could increase the percentage of reliability, as any terms which need to be clarified, misunderstood points, as well as respondents' inquiries can be directly addressed when the questionnaire is being conducted. This solution could prove useful in countering the next limitation, this being participants' lack of knowledge, which hinders their understanding of some points found in the questionnaire. When the questionnaire administered by researcher himself could introduce a support to explain and clarify incomprehensible parts of questionnaire. The next limitation concerns participants not answering questions truthfully depending on their situation, which can be characterised as 'prestige bias'. This kind could happen when the responses are sensitive or expose secrets. However, this research is seeking information about students' vocabulary learning behaviours, and will not have any negative effects on the society or the participants; therefore, the use of questionnaires in such a case can overcome the biased data. The last limitation pertains to some parts or points of the questionnaire being left without any responses by the participants. Such a limitation could negatively affect the overall findings.

2.10 Vocabulary Tests

According to Hutson (1983, pp. 231-256), there is a significant relationship between learners' proficiency in a second language and their vocabulary size. This indicates that vocabulary has a significant impact on a learner's language proficiency. Numerous scholars such as Schmitt (1997), Nation (2001) and Milton (2009), have focused on vocabulary and how large a learner's vocabulary needs to be to meet various language proficiency levels; many techniques and tests have been suggested to measure learners' vocabulary size. In the following section, the nature and types of vocabulary tests will be discussed, as well as the most popular vocabulary tests, along with their advantages and disadvantages.

2.10.1 Defining Vocabulary tests

A vocabulary test is designed to measure the receptive and productive knowledge of the test takers' vocabulary. As discussed in section 2.2.2 in this chapter, the difference between the depth and breadth of vocabulary knowledge is difficult to explain precisely, but will become clearer when the types of vocabulary tests and the kinds of knowledge each is designed to test are explained.

2.10.2 Types of vocabulary tests

The two main types of vocabulary test are receptive and productive tests. Most of these tests target words that are selected on the basis of the frequency with which they occur. Receptive tests measure the vocabulary a person can recognize and/or understand. This type of test comes in different forms, such as Yes/No questions, multiple choice questions and tasks involving matching words with meanings. The main point of receptive tests is to measure the breadth of vocabulary knowledge by assessing how many words learners recognise. The other main type of vocabulary test is the productive test, which measures the depth of a learner's vocabulary knowledge. The results of productive tests can provide a more precise vision of the depth of vocabulary knowledge of the test taker and could be beneficial for measuring the breadth of some learners' vocabulary knowledge. There are different ways to test a language learner's productive vocabulary knowledge; for example: (i) filling in the gaps with the missing words, (ii) providing the test takers with the first two letters of the required word.

Below, some of the most popular vocabulary tests are described, namely the Yes/No vocabulary test, the Vocabulary Level Test, the Eurocentre Vocabulary Size Test 10k and the Xk-Lex Vocabulary test.

2.10.2.1 The Yes/No vocabulary test

The Yes/No vocabulary test is a test of receptive vocabulary knowledge. It is designed as a check list which includes a number of words, and the test taker is asked to tick the words whose meaning he/she knows (Eyckmans, 2004). According to Underwood (1977), the check list test was designed for testing learners' vocabulary knowledge in their first language, but Meara and Buxton (1987) used it to measure second language vocabulary knowledge and changed the list to a yes/no layout. A number of modifications have been made to this test. It originally contained 100 words, 60 of them actual English words and the remainder forms that could have been words of English, as far as rules of spelling and grammar were concerned, but which were not part of the lexis of English. The number of words was reduced by Meara and Buxton (1987) from 100 to 75 to measure 5,000 frequent words, of which 50 are actual English words while the remaining 25 are pseudowords. The latter are meant to challenge the test takers in assessing their vocabulary repertoire. The test designers derived the vocabulary in the test from frequency statistics describing the most frequent words of British English. The test is easy to manage, control and mark. The yes/no format enables the instructor to collect the data easily in a short period of time, unlike multiple choice tests, which require more time to answer and mark. Furthermore, this kind of test helps to measure and estimate the vocabulary size accurately and reliably for different levels of learners, whether they are beginner or advanced learners of the English language. On the other hand, one of the disadvantages of the Yes/No vocabulary test is that it may overestimate learners' vocabulary size (Read, 2000). This can be the case if test takers do not know its meaning but guess that a certain word in the list is an English word. In his book on vocabulary tests, Read states (2000, p. 130): "clearly, the test will not give an accurate estimate of vocabulary size". Also, the possible ceiling effect of 5,000 receptive tests is considered as a disadvantage as the estimation is too low (Drummond, 2018). The vocabulary size of test takers may be larger than what the test can measure, meaning that this type of test would be more suitable for beginner or intermediate level students. Another possible disadvantage of this kind of test is that it only measures the learner's receptive vocabulary knowledge, although it is seen as an advantage by Meara (1990, p. 153), who thinks that passive vocabulary knowledge is a crucial element in any language and the basis for the language learner to attain a respectable active vocabulary. He states (1990, p. 153) that "passive vocabulary may already have good links with the active parts of the network; merely supplying the word and asking for it to be used appropriately reinforces these already existing links".

2.10.2.2 The Vocabulary Level Test

This test was designed by Nation (1990) and measures a learner's vocabulary on the basis of five levels, namely 2,000 words; 3,000 words; 5,000 words, academic vocabulary and 10,000 words. The levels of 2,000; 3,000; 5,000 and 10,000 words represent the high, medium, and low level of frequency words in general English, while the academic vocabulary level test includes words obtained from an academic language and seems to be useful for learners who wish to engage in different academic disciplines. This test has four forms and measures the receptive knowledge of the test takers. Its drawbacks are that it takes a long time to answer, and students may get bored during the test and not take it seriously. Moreover, the significant gap between the 5,000 and the 10,000 words levels can be considered a drawback in terms of the test takers whose vocabulary level lies between the two levels, for which the test cannot provide a more precise measurement of general word level. Moreover, the test only starts measuring the size of vocabulary from the 2,000 words level, thus, the first 1,000 high-frequency words in the English language seem to be neglected in this vocabulary level test. On the other hand, the most significant advantage of this test is that it can measure the academic word level (AWL) of the test takers, which may help teachers and students to improve their knowledge of academic words (Newman, 2016). However, the drawback of such an AWL test is that it only includes thirty items, which is likely not sufficient to measure the size of participants' academic vocabulary knowledge. Also, it seems unreasonable to integrate AWL into a test whose main focus is on measuring the general most frequent words (Pecorari, D., Shaw, P., & Malmström, 2019). For the purposes of this study, measuring the academic vocabulary knowledge seems unnecessary because 1) the targeted participants are foundation students at the university, 2) the main focus of their foundation year is on improving their general language skills, and 3) the subjects of the study suffer from poor general vocabulary knowledge, as mentioned in section 2.2.

2.10.2.3 The Eurocentre Vocabulary Size Test 10k (EVST)

The Eurocentre Vocabulary Size Test is a computerized test developed by Meara (1990). It is similar to the Yes/No test in the way that words are listed, but there are a number of differences. The first is that the test takers write the number 1 beside known words and zero beside the unknown ones, and the results of the test are shown on the computer screen immediately after completion. The word lists level is mixed, which means that the first list includes both high and low frequency words, unlike the paper based yes/no test which

progresses gradually from high frequency words to low frequency words. This test has certain drawbacks; for example, the learners cannot review their answers or modify them, and the test requires the investment of more time and resources than yes/no tests because each test taker has to take the test on a computer. Also, the programme software for the EVST is 20 years old, and it can be difficult to read the layout (see https://www.lex tutor.ca/tests/yes_no_eng/test_1/). It seems that the weakness of this kind of test depends on the behaviour of students when they respond to the items of the test.

2.10.2.4 The Xk-Lex Vocabulary test

The *XK-lex* vocabulary test (Masrai & Milton, 2012) uses a yes/no format that requests learners to place a tick alongside words they recognize and know how to use (see Table 2.3). The *XK-lex* vocabulary test was created by Meara and Milton (2006) based on Nation's (1984) and Kilgarriff's (2006) low and high frequency word list and has been used and redesigned by many researchers, such as Masrai & Milton (2012). They created a new version of the *The XK-lex* to estimate more accurately learners' vocabulary and to measure the breadth of vocabulary knowledge for English language learners. According to Masrai & Milton (2012), it is a two-version, standard, proven diagnostic measure of vocabulary level which contains 120 words, of which 100 are actual English words and 20 are pseudowords (see Appendix 8 & 9). Researchers create non-English words (pseudowords) by: 1) changing some letters of a real English word, or 2) creating eccentric vile plus affix combination (Eyckmans, 2004). With regards to calculating test results, each word in the lists represents 100 most frequent English words, so the actual words in the lists represent 10,000 of the most common words in English. When calculating the raw score for participants, each actual English word selected by the participant as a known word counts as 100 marks, and 500 marks are detracted from the final score for each pseudo word selected as a known word by the participant (Masrai & Milton, 2012). The test is easy to administer and mark, and takes approximately 10 minutes to answer. An example is provided in Table 2.7 (see also Appendix 8 & 9).

Please tick the words that you know or can use. Here is an example. **cat** ✓

Table 2-7 The XK-lex (Masrai & Milton, 2012, p. 55).

New		Commerce		Organise	
Gummer		Tindle		Wookey	
Word		Dust		Fountain	
Near		Nonsense		Movement	
Peace		Fond		Likely	

Masrai, A. (2012, p. 55).

As discussed in the previous sections, there are a variety of vocabulary tests, and each measures different kinds of knowledge and vocabulary. The main focus here has been on examples of tests which are related to the instrument that has been used in the current study. The most favoured type of vocabulary test by a number of researchers and practitioners is the check list or Yes/No format, which has been proved to be valid and reliable (Mochida & Harrington, 2006; Nation, 1990; Pellicer-Sanchez & Schmitt, 2012). The *XK-lex* (Masrai & Milton, 2012) was used in this current study to measure the vocabulary size of the participating subjects for a number of reasons. The test is simple and easy to manage; this is likely one of the reasons why it is preferred by researchers. Also, the test can measure the vocabulary knowledge of both low and high-level learners as it covers up to 10,000 most frequently used words. Furthermore, the *XK-lex test* is better than the Eurocentre Vocabulary Size Test 10k (EVST) because it takes less time to answer and allows test takers to review their answers and make changes, unlike the EVST test that is answered on computer and does not allow for answers to be reviewed. Moreover, the reason behind choosing the *XK-lex* test is that it includes fabricated words which influence the guessing and overestimating. The most important reason, however, is that the reliability of *The XK-lex test* has been tested and verified by empirical research such as (Alothman, 2014; Alsager & Milton, 2016; Aldhahi, et al., 2017; Masrai & Milton, 2018). These researchers used the *XK-lex* test and confirmed its usefulness to measure the breadth of participants' vocabulary knowledge. Therefore, taking into account the reasons that have been mentioned above, *The XK-lex test* is best suited to the purposes of this research.

2.11 Strategy Training

2.11.1 Introduction

Scholars such as Oxford (1990), Cohen (2014) and Cook (2016) have utilized different names for LLSs training, such as learner methodology training, strategy instruction, strategy training, and learning to learn training. However, this study will utilize the term “strategy training”.

Cohen (1998) claims that to learn a language successfully, a language learner should be an independent learner. This idea is also stressed by Wenden and Rubin (1987, p. 131): “the educational goal of learner strategy research and its classroom applications is an autonomous learner.” Oxford and Leaver (1996) suggest that a language learner trained in strategy use will become more self-directed and a better learner. Strategy training can also motivate the language learner to overcome learning difficulties and use effective tools to improve their language successfully. Oxford et al. (1990) conducted six studies on strategy training and claim that “strategy training can enhance both the process of language learning (the strategies or behaviours learners use and the affective elements involved) and the product of language learning (changes in students’ language performance)” (p. 210).

2.11.2 Definitions and perspectives of learner training

After highlighting the factors that affect the language learning process, this section will shed light on learner training and different approaches to strategy training. Scholars have defined learner training in different ways, but Wenden’s is the most detailed definition:

the learning activities organized to help language learners improve their skills as learners include: learning to use strategies; knowledge about the language learning process; and attitude and development to support autonomous use of the strategies and knowledge; learner education.

Another perspective is provided by Scrivener (*italics and bold in the original*). Learner training, in Scrivener’s view, can:

raise student awareness about how they are learning and, as a result, help them to find more effective ways of working, so that they can continue working

efficiently and usefully even when away from their teacher and the classroom.

More simply, it means *work on teaching **learning** as well as teaching English.*

(1994, p.189; bold as in the original)

These two explanations of learner training suggested by Wenden (1991) and Scrivener (1994) specify the main objective of this training, which is to enhance students' learning skills and raising their awareness. Achieving this objective will lead to a number of advantages, such as increasing learners' ability to use strategies successfully, enhancing their awareness of the process of language learning, and promoting positive attitudes toward language learning, which will allow learners to become more independent. Similarly, Scrivener (1994) focused on the ability of language learners to continue in their learning process without teacher support; an ability which they developed by using the independence gained from using strategies and techniques that enhance their learning process.

2.11.3 Self-Regulation

Self-regulation refers to “many processes by which the human psyche exercises control over its functions, states, and inner processes” (Vohs & Baumeister, 2004, p. 1). Furthermore, Dörnyei (2005, p. 191) argues that self-regulation is a ‘process-oriented construct’ which approaches language learning from a different point of view:

The notion of self-regulation is a multidimensional construct, including cognitive, metacognitive, motivational, behavioural, and environmental processes that learners can apply to enhance academic achievement. Thus, we face a rather blurry situation, not unlike we did in the study of learning strategies, namely that a particular concept overarches virtually all the main aspects of psychology. However, because in this case we have a process-oriented construct on our hands, it may be sufficient to identify the core dynamic energizer of the process, which is more manageable than to define the outcome.

It can be understood from the previous quotations and definitions for self-regulation that there are different components to the concept of self-regulation. The first component is cognitive, where students set goals for their learning and have the intention of engaging in the learning

process. The second element is related to the first, in the sense that after setting their goals for learning, learners begin to control and regulate their cognition to achieve their learning goals; this is called metacognitive (goal orientation). The third component of self-regulation is motivation, where learners have to be encouraged to adapt and integrate strategies in the learning procedure, to which the cognitive and motivational elements are associated. The fourth component is the behavioural practices of the learners towards the learning. These behaviours can be affected by the learners' previous learning experience and these behaviours can be motivated or demotivated in the learning process. The final component is related to the context of learning, where learners are surrounded by environmental features that could accelerate their learning process effectively, such as learning a new language in a country in which it is spoken, which could be more effective than being in another country. It seems that these components of self-regulated learning are characteristics of a learner and could enhance their learning and encourage them to use learning strategies (Bozpolat, 2016; Panadero, 2017; Hashamdar & Maleki, 2018; Rose, Briggs, Boggs, Sergio & Ivanova-Slavianskaia, 2018).

Scholars discuss the relationship between language learning strategies and self-regulating. Bridging theoretical ambiguities, Dörnyei puts learning strategies in a broader framework and argues that they “refer to idiosyncratic self-regulated behaviour, and a particular learning behaviour can be strategic for one learner and non-strategic for another” (Dörnyei, 2009, p. 183). This then poses the question: how can one differentiate between strategy and a learning process? Cohen (2007) argues that if the learners use the strategy consciously, then it could be called a strategy, while if the learners use it unconsciously, it could be called a process.

The following figure illustrates a model of strategy instruction effects on self-regulated learning and achievement, adapted from Ardasheva, (2017, p. 4).

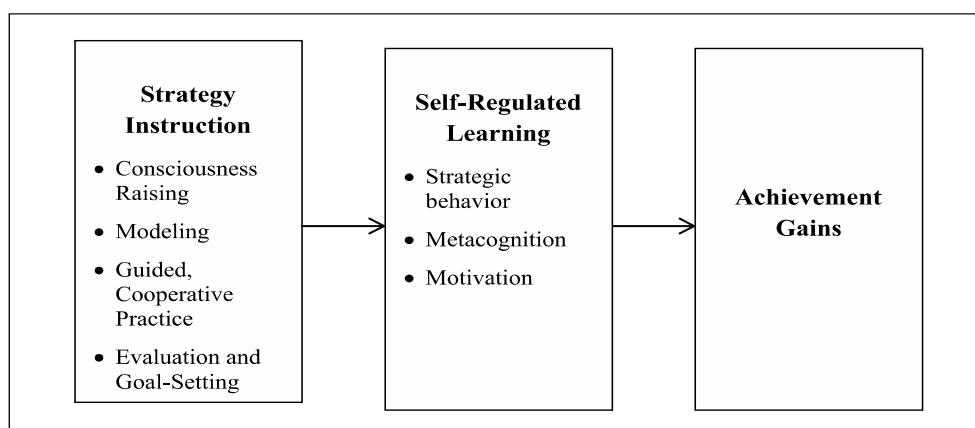


Figure 2-3 A model of strategy instruction effects on self-regulated learning and achievement

As shown in the above figure, strategy instruction can affect self-regulated learning and achievement. The strategy instruction has some advantages, such as raising the consciousness of a learner, which could affect their self-regulated learning, such as a learner's strategic behaviour, metacognition and motivation. According to the model, these traits are more likely to lead learners towards their achievements and knowledge acquisition.

2.11.4 The significance of learner training

Learner training is useful and effective in a number of ways. Rutherford (1987) concentrates on the significance of learner training in raising learners' consciousness. Teachers should foster learner autonomy, e.g. by teaching listening and reading skills, so they can then listen and read without so much teacher support. In other words, language learners should be given the techniques and tools of language learning and allowed to control their learning process. Wenden (1991) discusses in detail the importance of learner training and points out that:

In effect, 'successful' or 'expert' or 'intelligent' learners *have learned how to learn* [my italics]. They have acquired the learning strategies and the knowledge about learning, and the attitudes that enable them to use these skills and knowledge confidently, flexibly, appropriately and independently of a teacher. Therefore, they are autonomous.

(1991: 15)

These studies highlight that learner training is extremely significant because it:

- 1- Raises the learner's consciousness.
- 2- Makes the learner more independent.
- 3- Helps the learner to become autonomous.

2.11.5 The goals and main concepts of strategy instruction

According to Cohen (2007, 2014), strategy training aims to provide language learners with the tools to enable them to: 1) be able to diagnose their weaknesses and strengths by themselves; 2) raise their awareness about some techniques that can lead to learning the language successfully; 3) improve their skills in solving their problems during the learning process; 4) become more familiar with different kinds of strategies whether popular or rarely used; 5) make their own decisions about how to carry out tasks without a teacher to help them complete the tasks; 6) evaluate and monitor their performance and learning progress by themselves so that they become more independent of teachers' assessment, and lastly; 7) enable them, as well as their teachers, to employ different kinds of strategies successfully in different learning settings.

It can be concluded that learner training might be beneficial for language learners, but the important issue of how learner training can be implemented successfully to achieve a high level of effective strategy training remains.

2.11.6 Ways of delivering strategy training

After defining learner training and highlighting some concepts of LLSs, ways of delivering strategy training need to be identified. Richards et al. (2005) mention three approaches to strategy training:

1. **Explicit or direct training**, in which the learner is given information about the purpose and significance of certain strategies and is taught about the appropriate way to use them, so that they control their own use of language strategies (Richards *et al.*, 2005). Trainees receive training in a direct way without any ambiguity.

2. **Embedded strategy training**, where strategies are embedded and taught implicitly within the course. The advantage of this kind of training is that students use their regular curriculum to apply and use the new strategies. The drawback of this approach to strategy training is the time constraints in a busy curriculum. Another disadvantage of embedded strategy training is ambiguity. Learning should be clear and obvious if it is to be comprehended by students.
3. **Combination of the two strategy training methods**, in which teachers can use both types of strategy training so learners are trained to use strategies explicitly first and then implicitly. Learners need a clear explanation of strategies at the beginning so that they can subsequently apply them to different exercises within the curriculum. The advantage of this method is linking the newly learned strategy with a practical exercise in the students' regular course book and during their normal classes. The drawback of the approach is that it requires specially designed course books and the inclusion of the strategies to be employed within the syllabus.

Cohen & Macaro (2007) agree with Richards *et al.* (2005) on their classification of strategy training approaches but list seven approaches, namely: 1) using the courses in general learning skills, which is an implicit approach to improving learners' skills; 2) lecturing students about strategy applications, which is an explicit method of helping learners to identify the different kinds of applications of strategy; 3) holding workshops on strategy training, which is an explicit approach; 4) tutoring sessions on strategy training, which is another explicit approach; 5) embedding strategies in the curriculum; 6) introducing the advantages of strategy training in a videotape; and finally, 7) the mixed strategies-based approach, in which learners are taught the strategies explicitly and implicitly (Cohen & Macaro 2007). Cohen (2014) highlighted these ways of delivering strategy instruction and mentioned that the differences between them lie in the level of explicitness, the level of students' awareness of the practical applications and transferability of the strategy, and the level of integration into the targeted language's coursebook. These seven ways of presenting strategy training can each be categorized under one of the three approaches suggested by Richards *et al.* (2005), whether explicit, implicit or both. Such approaches, however, have failed to address a precise framework for strategy instruction and which one of explicit and implicit

approach might be more effective. Therefore, the following paragraph will discuss the explicit and implicit strategies in terms of their effectiveness.

As mentioned above, strategy training may be delivered implicitly, explicitly or both. A large and growing body of literature has investigated the effectiveness of the explicit and implicit instruction of strategy. It has become evident that implicit instruction can be more useful, especially when the strategy which needs to be taught cannot be separated from its contextual situation or textbook (Tseng and Schmitt, 2008). Implicit teaching motivates the students to learn from authentic texts and try to deduce the rule or objective from the input. Learners in this case need feedback from their teachers regarding their understanding of the task. Raja et al. (2020) conducted a study to investigate the effects of implicit training on the use of metacognitive strategies for 37 Indonesian senior high school students. They found that implicit instruction of metacognitive strategies, namely, self-planning, self-directing, self-managing and self-correcting, had a positive effect on participants' performance after the treatment. Despite the positive result of implicit training found in Raja et al.'s study (2020), there are some issues regarding the use of this approach. Firstly, one of the weaknesses of the implicit approach is that learners are dependent on their teachers during the whole period of the course to teach the implemented strategies within the coursebook and at the end can select the strategies that facilitate their learning style. Also, it is likely that some students may not be able to deduce the targeted strategy that was introduced implicitly through their coursebook due to their unconscious learning of strategies. Another weakness of this approach concerns the limitation of the number of strategies that can be explored in the textbook; some course designers tend to concentrate only on the basic and most significant strategies, which may not be suitable for some learners (Raja et al., 2020). On the other hand, explicit instruction has different ways and goals, but the most effective, according to Nyikos (1996) is that explicit instruction is intended to help students in the following ways:

1) to become aware of the strategies they already use; 2) to apply task-specific strategies that can make learning more efficient and allow them time to compensate for nervousness, inability to remember, and lack of wait time; 3) to monitor for strategy effectiveness; and 4) to create new strategies or weed out ineffective ones via metacognitive control. (Nyikos, 1996, p. 112).

These characteristics of explicit instruction are confirmed by Cohen (2011), who also emphasized that these advantages can lead to a learner who is active toward their language learning. He mentions that explicit strategy instruction can be employed in a separate training program or within a language course. Both of these ways are used by different researchers, but the integration of explicit strategy instruction in language learning courses are favoured by the majority of researchers (Chamot, 2008; Cohen, 2011; Harris and Grenfell, 2004; O'Malley and Chamot, 1990; Oxford, 2011). They prefer it because instructors can link the strategies practically to the textbook being used and can examine the effectiveness of the strategy on students' learning. In the present study, the researcher used training sessions which were separate from the participants' English language classes. Taking into consideration the advantage of second way of explicit instruction, the researcher applies the strategies introduced and explained them to the participants during the training sessions with the use of textbooks from their own English language course in order to link them practically to their actual lessons and create a simulated scenario of their real language classes.

Generally speaking, for the purpose of the current study, the explicit instruction approach to VLSs can be more useful than the implicit approach for a number of reasons. Firstly, the advantages of learning and using VLSs will be described to the participants intentionally in order to raise their awareness of the significance of such training sessions. This cannot be done implicitly, as confirmed by Spada & Tomita (2010), who have suggested that explicit instruction is more effective than implicit instruction with regards to short-term programs. The second reason behind the use of the explicit instruction approach is that the participants are beginners; therefore, the implicit approach might be too complex. Also, to reach a high level of clarity, the participants will be trained on VLSs by using the Arabic language, as it is their mother tongue, guaranteeing that the training will be more effective.

Having found that the most efficient training strategy seems to be explicit instruction, the method of teaching VLSs in the current study must be outlined. Oxford (1990) lists three ways of teaching LLSs: first, awareness training, in which learners discover and become more conscious of the concept of learning strategies. The second is one-time strategy training, in which the learner is introduced to different kinds of strategies and told when and why each should be used in specific situations. After that, learners apply these strategies in a number of

training sessions. The third is long-term training, in which a strategy training programme is designed for a long-term course.

2.11.7 The framework of strategy instruction

Having discussed the instructional approach to strategy training and ways of teaching LLSs, the type of model that could be used to teach the learning strategies will be explored. Oxford (1990) proposes a model according to which instructors follow eight steps to deliver the learning strategies. The first five relate to preparation and planning, while the last three steps relate to conducting and evaluating the strategy training.

- 1- Identify the students' requirements and the time available for strategy training.
- 2- Determine the kinds of strategy that you will integrate into your training sessions.
- 3- Consider how to integrate the strategy training within the learners' programme.
- 4- Take into consideration the issue of learners' motivation.
- 5- Prepare resources and activities.
- 6- Conduct "completely informed training".
- 7- Assess strategy training.
- 8- Reconsider strategy training.

The first step involves collecting information about the learners who will take part in the training sessions: who they are, what their needs are, what kinds of strategies they are familiar with, and how much training they have time for. The second step focuses on selecting specific types of strategies which should not be too easy or difficult for the learners and which must relate to their characteristics and needs in order to be useful for them. Participants have their own regular language classes, which brings us to the third step; how to integrate the training sessions without detracting from or conflicting with students' regular language classes. The fourth step in this model relates to a vital factor that affects the success of the strategy training, namely, how to motivate learners so that they engage with some enthusiasm into the training sessions. Considering the kinds of issue that demotivate learners from engaging with the strategy training sessions will help to create a successful programme. Instructors can motivate learners in different ways; for instance, they can explain to students that these strategy training sessions will make them more effective learners, or they can provide learners with

their grades so that they are aware of their achievement levels pre and post-training. The fifth step is the selection of materials and activities that will be used in the training sessions. Svalberg (2017) discusses factors that can make tasks meaningful to learners, thereby increasing their willingness to engage, such as the perception of the purpose and utility of the task. She suggested that task design could be effective positively on learners' willingness. The materials should be interesting and help learners to engage with the strategy training. The sixth and seventh steps can be applied together by presenting the strategies to the learners and explaining how they can be used and in which situations. Concurrently, learners and teachers evaluate the strategy training. The last step is revising the strategy training by summarizing the strategies presented and their use.

Chamot and O'Malley's (1986) model is similar to Oxford's eight step model (1990), but it is more precise and detailed. The Cognitive Academic Language Learning Approach (CALLA) reflects Chamot and O'Malley's interest in learning strategies and their desire to enhance learners' and teachers' awareness of LLS and self-learning. Chamot *et al.* (1999, p. 7) explain that the theoretical framework of CALLA is "a social-cognitive learning model that emphasizes the role of students' prior knowledge, the importance of collaborative learning, and the development of metacognitive awareness and self-reflection." This model targets learners with limited language proficiency, seeking to integrate educational language improvement, content themes and learning strategies to meet these learners' educational needs. The greatest advantage of the CALLA model is its use of explicit instruction which, as explained in Chapter 2 of this study, is among the most effective ways to ensure that learners comprehend the strategies and are able to use them appropriately. Chamot and O'Malley's (1986) CALLA model has five stages which include language, content and learning strategies. The five stages are preparation, presentation, practice, evaluation and expansion; with the exception of the preparation stage, which needs to come at the beginning, they do not need to follow a specific order. The first stage, preparation, concentrates on collecting information about the learner's background to establish which strategies and content they need to learn. During the presentation stage, instructors introduce the strategies explicitly to the learners and explain how and when each strategy is used. Practice generally follows the presentation stage to help students to use the strategies properly. In order to develop the learners' self-learning, the evaluation stage assesses the learners' performance to establish how effective the strategy training was and the extent to which trainees have developed. During the expansion stage,

instructors encourage the learners to benefit from the strategies that they learned in the training sessions by applying them in their regular language classes and in different areas of their academic life.

As mentioned earlier, the main goal of the CALLA model is to encourage learners to take responsibility for their learning process; however, some factors can have a negative effect on achieving this goal and on learners' benefitting from strategy training. The first potentially negative factor is the instruction language used. Chamot et al. (1999) recommend avoiding using the target language, especially for beginner language learners, and recommend using the first language if it is the learners' shared language. This factor will have a positive effect in our study because the participants share the same native language, Arabic will be the instruction language in the strategy training sessions to ensure that learners comprehend the strategies presented and are able to use them appropriately. The second factor which is recommended by Chamot et al. (1999) that could lead to successful strategy training is to clarify for learners that there is no specific strategy that is best for all, different learners utilize different types of strategies and that they can use a specific strategy in some situations but not in others.

The CALLA model is a cyclical instruction model where the amount of responsibility is shared between the teachers and learners. The instructors begin the strategy training with full responsibility for explaining strategies and evaluating the learners' comprehension of how to use the strategies presented, while at this stage, students have limited responsibility. Moreover, students can ask the instructors if they encounter any difficulties in applying the strategies and receive support and feedback from teachers. With time, students take more responsibility for their learning process by assessing strategies, using strategies independently and transferring strategies to new tasks. This process of instruction in the CALLA model is illustrated in the following figure, in which the responsibility can be seen to shift from the instructor to the learners:

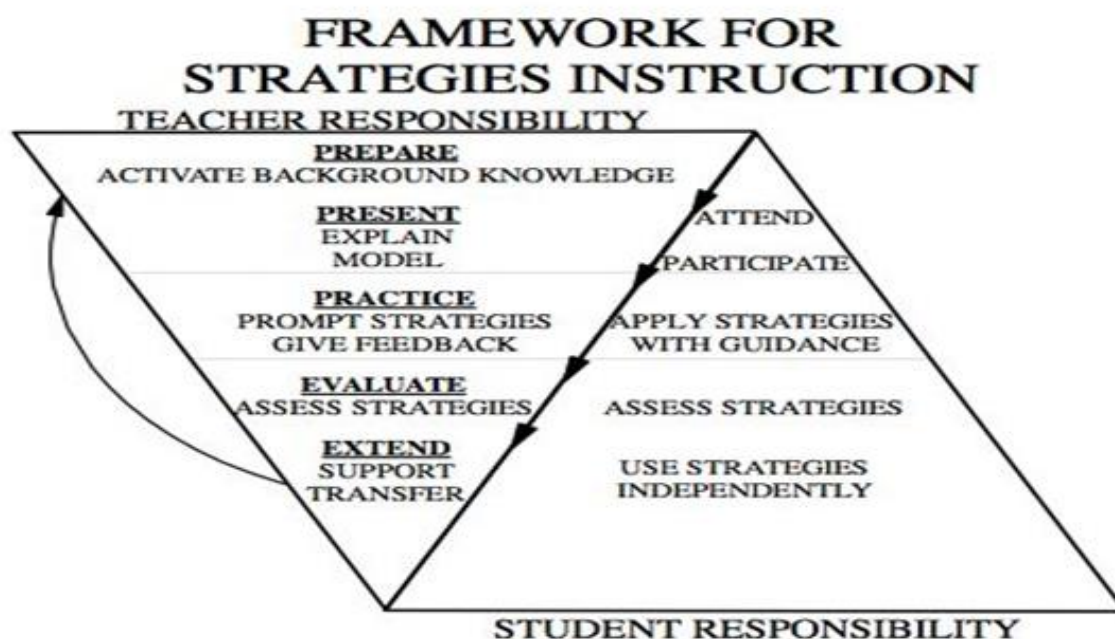


Figure 2-4 CALLA framework for strategy instruction.

(Chamot et al., 1999, p. 46.)

The instructor should begin by choosing the strategies that they feel are most useful for the students to be able to persuade learners of their significance. They are advised to start the instruction with the easiest strategy (Chamot et al., 1999) and to explain that it will make them better learners and improve their learning autonomy (self-learning). This step might help in motivating trainees to engage with the training and acquire useful strategies to improve their learning process. It seems that this model of instruction is useful for conducting such kind of training and clarifying the teachers and students' responsibilities before, during and after the training sessions.

2.12 Previous studies on training in the use of VLSs

Rasekh & Ranjbary (2003) conducted a study aimed at discussing the issue of strategy training and exploring the influence of training on metacognitive strategies by using explicit strategy instruction in order to develop the EFL learners' lexical knowledge in Tehran Institute of Technology, Iran. 53 intermediate level students participated in the study; they were divided into two groups, an experimental and a control group. The experimental group took part in a

10-week course which provided instructions on the use of VLSs and training in using metacognitive strategies, while the control group only received instructions on VLSs in general. Chamot and O'Malley's (1994) framework for direct LLSs instruction was used as the training model in this study. The outcomes of the research revealed that the explicit training on metacognitive strategies had a substantial, positive influence on the EFL learners' vocabulary learning. Tables 2.8 and 2.9 show the results obtained by Rasekh & Ranjbary (2003). Table 2.10 shows the results of an independent pre-test t-test of the participants' vocabulary level.

Table 2-8 Results of the independent-samples t-test of vocabulary (pre-test scores).

Group	N	Mean	SD	Std. Error Mean	t-test
Experimental Group (Metacognitive)	27	7.67	3.39	.652	1.00
Control Group (None)	26	6.65	3.96	.777	

Rasekh & Ranjbary (2003, p. 11).

As Table 2.8 shows, Rasekh & Ranjbary's (2003) experimental group had 27 participants, and their control group had 26 participants. There was no significant difference at the beginning between the mean scores of the participants in the experimental group and those in the control group (t - value = 1.00, P -value > 0.05). The mean and standard deviations also support the statistical analysis that the two groups achieved quite similar scores. This could be certain that any significant differences between the two groups after the treatment could be interpreted. As shown in Table 2.9 participants' results in the post-test were compared using the independent-samples t-test. The findings show that after training, the results are statistically different (t -value = 3.55, P -value < 0.05).

Table 2-9 Results of the independent-samples t-test of vocabulary (post-test scores).

Group	N	Mean	Std. Deviation	Std. Error Mean	t-test value
Experimental Group (Metacognitive)	27	29.2963	3.8412	.7392	3.55*
Control Group (None)	26	25.3077	4.3245	.8481	

Rasekh & Ranjbary (2003, p. 11).

Tables 2.8 and 2.9 show that the experimental group's mean score after training was 29.29. and significantly different from the control group's mean score of 25.30. indicating that the training on metacognitive strategies had a positive and significant effect on the vocabulary learning of the participating subjects (Rasekh & Ranjbary, 2003). The positive outcome of their study seems to confirm the practicality and usefulness of the model used to teach metacognitive strategies.

However, the main weakness of this current study is that it only focused on one kind of strategies, the metacognitive. Another weakness of Rasekh & Ranjbary's research (2003) is that they did not use specific instruments to measure the participants' use of metacognitive strategies before and after the training. Using such an instrument could illustrate how much improvement the learner achieved after the intervention.

Tassana-ngam (2004) examined VLST in the second language classroom, and the extent to which it is effective in helping Thai students at the university level to retain words. She focuses on five VLSs, 'Dictionary work', the 'Keyword method', 'Semantic context', 'Grouping word families', and 'Semantic mapping' (Tassana-ngam, 2004). The study participants were 69 second, third and fourth-year university students in different majors at Kasetsart University. She divided the participants into two groups. The control group, which included 33 students, were given extra reading work, while the second, the experimental group which included 36 students, were given training in VLSs. The experimental group received six training sessions in VLSs, each lasting one hour and thirty minutes, while the control group studied an elective English course on Reading for Mass Communication. Tassana-ngam used three research instruments to collect her data, namely pre and post-tests of vocabulary learning ability, think-aloud protocols and semi-structured interviews (Tassana-ngam, 2004). Her SPSS analysis showed that the control group subjects' learning of new vocabulary was much less effective than that of the experimental group.

The key findings of this study revealed that the experimental group's scores in the post-test were significantly greater than in the pre-test, suggesting that VLST was effective. There was a significant difference between the experimental group and the control group post-test scores, with a mean score of .905 for the experimental group, and a mean score of .226 for the control group (Tassana-ngam, 2004). The experimental group adopted the five VLSs taught and used them to help them remember words. Moreover, the data collected from interviewing the experimental group participants about their attitudes towards VLST showed that they had positive attitudes toward VLST; no negative attitudes were reported.

Nevertheless, the main weakness of Tassana-ngam's (2004) study lies in not showing the strategies which were most used before and after the treatment, and not highlighting which strategies affect the participants' vocabulary knowledge in the most positive way. It seems that the duration of the training sessions in Tassana-ngam's (2004) research was brief, as mentioned above, and had a significant effect on the experimental group. Tassana-ngam's (2004) study used a total of five training sessions, which yielded significant results for the experimental group; this number of sessions can be used as a guidance for the current study. Moreover, she integrated 36 students in her training, a reasonable number for training sessions which gives the trainer a chance to manage the sessions successfully and address the trainees' questions and inquiries during the session.

Tezgiden, (2006) conducted a study with the aim of investigating the effects of explicit VLS instruction on the strategies used by learners, and their opinions regarding the usefulness of VLSs. Furthermore, the study explored the attitudes of teachers and learners toward instruction in VLSs. The participants in this study were the students of one specific class, along with their teacher, at Afyon Kocatepe University, Turkey. The level of the EFL class was intermediate, and the class participated in an instruction course on VLSs taught by their teacher for three weeks. For data collection, Tezgiden used four methods: observing the classes, an interview with teacher and students, a questionnaire for VLSs, and lastly, a research diary. The results revealed that instruction on using strategies had a positive influence on the strategy use itself. Moreover, the attitudes of teacher and learners toward strategy instruction were positive. On the other hand, the results indicated that there was no significant increase in learners' perception of the usefulness of VLSs (Tezgiden, 2006). Table 2.10 shows the ranking of a selection of recording strategies pre and post-questionnaire.

Table 2-10 Pre- and Post-Questionnaire Ranking of Individual Items.

Item No	Frequency		Usefulness	
	Rank		Rank	
	PRE	POST	PRE	POST
Vocabulary notebook	37 (m = 2.58)	1 (m = 4.25)	35 (m = 3.33)	3 (m = 4.42)
Grouping	38 (m = 2.54)	5 (m = 3.92)	23 (m = 3.63)	4 (m = 4.17)
Drawing semantic maps	60 (m = 1.46)	25 (m = 3.33)	50 (m = 2.96)	31 (m = 3.67)

Tezgiden, (2006, p. 89)

Note: m= mean

Table 2.10 shows that keeping a vocabulary notebook, as well as Grouping and Drawing semantic maps are the strategies most frequently used by the participants and that the training improves the frequency of VLS use; it also shows the extent to which the participants found them useful. Keeping a vocabulary notebook is the most frequently used strategy in the pre-questionnaire, ranked as 37 with a mean of 2.58; it becomes number one with a mean of 4.25 in the post questionnaire. Similarly, the rank of usefulness for ‘keeping a vocabulary notebook’ moved from 35 with a mean of 3.33 in the pre-training questionnaire to number 3 with a mean of 4.42 in the post-training questionnaire. Similarly, Grouping and Drawing semantic maps show a significant improvement after the training, and the participants’ attitude to the usefulness of such strategies increased positively (Tezgiden, 2006).

However, this research has the same shortcoming as Rasekh & Ranjbary’s (2003) study, where both investigate training in relation to one type of strategy only. Tezgiden (2006) suggested that further research include all types of strategies in order to be more comprehensive. Moreover, Tezgiden’s study failed to use the vocabulary test to measure the participants’ vocabulary size before and after the intervention and find out whether it was affected by their use of VLSs.

Zhao (2009) investigated a group of undergraduate Chinese students’ vocabulary learning and its correlation with training on metacognitive strategy use. The participants were trained on using metacognitive strategies for five weeks. The study’s main objective was to find out whether the training could help and support undergraduate Chinese learners in their vocabulary learning process. Zhao (2009) used two research methods; a questionnaire and a vocabulary test. 134 students participated in the study. They were divided into two classes, the first of which was the experimental group including 68 students. The students in this group were given training on metacognitive and cognitive strategies for vocabulary learning while the control group, which included 66 students, was trained on cognitive strategies only. The training on metacognitive vocabulary learning strategies showed a positive effect on the students. The results of vocabulary test for the experimental group after the training were higher than for the control group. Tables 2.11 & 2.12 show a comparison of participants’ results in the pre and post-vocabulary test using the independent sample t-test:

Table 2-11 Result of the independent sample t-test in vocabulary pre-test.

Group	N	Mean	SD	S.E. Mean	P-value
Experimental	68	47.0000	11.2582	.5676	.376
Control	66	47.2121	12.0189	.5292	

Zhao (2009, p. 129).

As shown in Table 2.11, there is no significant difference between the two groups in the pre-training vocabulary test, whereas Table 2.16 shows a significant difference between the experimental and control groups after the training. The experimental group outperformed the control group with a mean of 47.4688 and a standard deviation 9.3806, while the control group mean is 43.9412 and the standard deviation is 10.3294. Thus, the metacognitive strategy training for vocabulary learning proved to be effective for these students (Zhao, 2009).

Table 2-12 Result of the independent sample t-test in vocabulary post-test.

Group	N	Mean	SD	SE Mean	P-value
Experimental	68	47.4688	9.3806	.6756	.042
Control	66	43.9412	10.3294	.7442	

Zhao (2009, p. 129).

Zhao mentions in the conclusion of his research that “the use of learning strategies is more enduring when students are informed of the significance of the strategies and given reasons for their potential effectiveness” (p.126). It can be seen that he is keen to shed light on the importance of motivation with regards to learning strategies use, as well as highlight the potential outcome, which is a more self-reliant learner. Despite the positive effect of training on metacognitive strategies, Zhao failed to assess the learners’ vocabulary knowledge or extract more information about some of the factors or habits that could influence the participants’ use of VLSs. Another weakness is that the author offers no explanation for the distinction between the effects of cognitive strategies and metacognitive strategies. This is likely related to defects in the methodological design of the study.

In Iran, Mahdavi (2014) conducted a study with 60 EFL students to investigate the effects of training on the use of metacognitive strategies on the participants' vocabulary tactic consciousness and vocabulary size. The participating subjects were divided into two groups; the experimental group, who participated in training on using metacognitive strategies, and the control group, who did not receive any treatment and stayed in their usual teaching practice classes for vocabulary. This class involved skill-based teaching for evolving vocabulary knowledge. The instruction programme lasted 14 weeks, providing two sessions a week. The results showed that the instruction for the experimental group on using metacognitive strategies had a positive effect on their awareness of vocabulary strategies. Similarly, the descriptive statistics' outcomes show that the experimental group achieved a high score of 0.05 in the vocabulary test. Therefore, this study concluded that training on metacognitive strategies has the important effect of improving the vocabulary knowledge of the language learners (Mahdavi, 2014).

Table 2-13 Metacognitive strategy awareness and means for vocabulary test

	tests	Experimental Group	Control Group		Experimental group (30 students)		Control group (30 students)	
Overall Awareness of strategies	Pre-test	2.98	3.02		Mean	Std. Deviation	Mean	Std. Deviation
	Post-test	3.35	3.13					
Standard Deviation	Pre-test	2.85	2.89	Pretest	8.40	2.98	8.22	3.57
	Post-test	3.83	2.87	Posttest	14.66	2.96	10.53	3.31

Mahdavi (2014, p. 395).

The experimental and control groups were compared for awareness in metacognitive strategies. The means for the two groups pre-test are very similar to each other, while post-test, the values differ from each other (3.35 and 3.13 for experimental and control groups, respectively). The mean values for the vocabulary test, post-test, for the experimental and control groups are 14.66 and 10.53 respectively. An analysis of variance (ANOVA) was applied and the P-value indicated a significant difference in the scores for post-test and pre-test vocabulary learning in the two groups (F-value =97.24, P-value = 0.000). The researchers used a one-way ANOVA for the two groups (experimental and control groups), while there were two levels for each groups, which makes it a 2x2 factorial design rather a simple one-way ANOVA. Therefore, unless specified, the results are somewhat unclear.

Recently, Alamri and Rogers (2018) conducted a study on 88 Arab learners of English language to investigate the effectiveness of different explicit vocabulary teaching strategies in

visual and written contexts on learner' retention of technical and academic words. Their findings revealed that direct and explicit teaching of technical and academic vocabulary was statistically and significantly more effective than implicit teaching. Table 2.19 shows the difference between the experimental and control group in terms of recalling the target items.

Table 2-14 Percentage Recall of Target Items under Explicit and Implicit Teaching for Experimental and Control Group.

Group	Immediate tests				Delayed test			
	<i>M</i>	<i>SD</i>	<i>p</i>	Cohen's <i>d</i>	<i>M</i>	<i>SD</i>	<i>p</i>	Cohen's <i>d</i>
Experiment	47.8%	24.4	<.001	1.45	43.4%	26.1	<.001	1.02
Control	16.4%	16.7			18.7%	21.1		

Alamri and Rogers (2018, p.627).

The experimental group achieved a high percentage in the immediate and delayed tests compared to the control group. For statistical testing, the non-parametric Mann-Whitney U test was applied to compare the experimental and control groups in each immediate and delayed testing method. The P-values for the Mann-Whitney test show that there are significant differences between immediate and delayed test (P-value < 0.001 for each test). Cohen's d effect size for explicit teaching is 1.45 for the immediate tests and $d = 1.02$ for the delayed test (Cohen 1988; Plonsky and Oswald, 2014). The results suggest a preference for explicit vocabulary learning over purely implicit vocabulary learning.

In addition, Alamri and Rogers (2018) investigated the participants' opinions regarding the explicit vocabulary teaching strategies and found that participants' views were positive. In their pioneering study, participants preferred visual aids more than written ones; this was confirmed when the study discovered that teaching vocabulary by using visual aids is useful for enhancing the input for the learners and the theoretical items (Alamri and Rogers, 2018). Their study has shown the effectiveness of strategy instruction on Arab students and their opinions regarding the explicit instruction on using VLSs.

Despite the large number of studies which have been conducted on VLS training, there remain certain aspects which need to be investigated. Firstly, these studies were conducted in a small number of contexts and it is not clear how generalizable their results are. The generalisability of much of the published research on this issue is problematic, and a number

of empirical studies recommend conducting such kind of studies in different contexts. Secondly, the length of time allocated to the training on VLS use was long, and this may be difficult to replicate in contexts where learners will find it hard to enrol in an extensive training course.

On the other hand, some studies reveal that strategy training does not always have positive effects on language learning (Flaitz and Feyten, 1996). The following factors have been suggested to have an influential role in the language learning as mentioned by Chamot and Rubin (1994): the proficiency level of the language learner, students' cultural backgrounds, the learning context, students' learning style, their previous educational experience, the duration of the strategy training, the learning tasks, and the teachers' knowledge of LLSs in general and VLSs in particular.

2.13 Factors Affecting Vocabulary Learning Strategies

Different factors affecting the use of VLSs have been mentioned in many studies in the field of VLS. Ellis (1994) divides these factors into three categories with sub-categories, as follows:

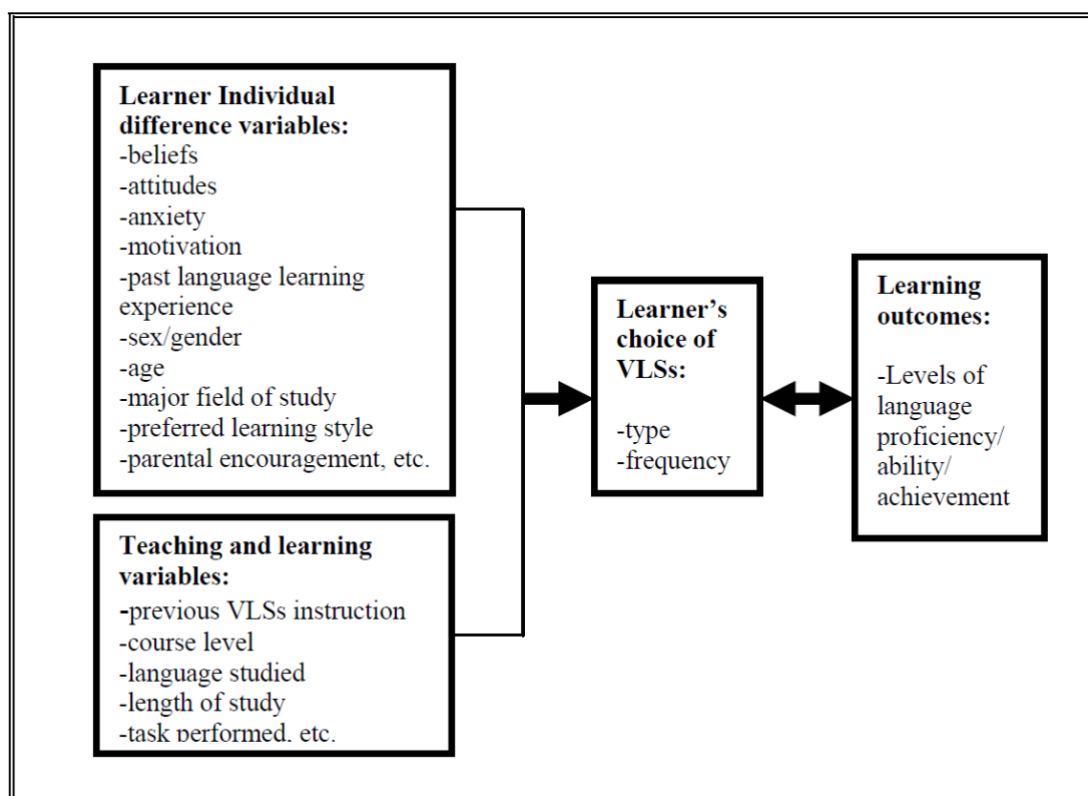


Figure 2-5 Factors Affecting VLSs.

(Source: from Ellis 1994, p. 530).

These factors have been examined in various studies and applied in different contexts, showing their influence on VLS use. The following section will discuss these factors in detail and the extent to which they affect VLS training and the learners using them, within the context of Saudi students.

2.13.1 Learner Individual Difference Factors

The first category of factors that affect the use of VLS is learner individual differences, which include four types of factors; belief, attitude, motivation, and language learning experience.

2.13.1.1 Belief

Some studies have found that this factor affects learners' VLS use, while others have not. 850 non-English major Chinese university students participated in a study of rote memorization strategies conducted by Gu and Johnson (1996). The researchers used a vocabulary learning questionnaire to investigate the participants' beliefs about VLSs, and they correlated the

participants' results on the vocabulary size test and on the college vocabulary test. Students who believed that words are learnt in context achieved better scores on the vocabulary test than students who believed that words are best learnt by using memory strategies. In a similar study, Peg and Strikhao (2009) investigated 30 students belonging to a different Chinese ethnic group, the Miao. The researchers used a VLS questionnaire and a semi-structured interview to probe the participants' use of VLSs and their beliefs about them. The findings revealed that participating subjects used cognitive VLSs because they believed that it was important to study how the word could be used in different situations to consolidate its meaning. Other studies have suggested that the learners' VLS use is not affected by their beliefs, and that the ability to successfully utilize words in different contexts is a significant sign that learners have a comprehensive understanding of the words' meaning (Wei, 2007). The ages of the sixty participants in Wei's (2007) study ranged between 18 and 22 years old, and they majored in English and automation. About 37 of participants were females while 33 were male students. Wei (2007) found that his participants' use of VLS was not affected by the belief factor, but their attitudes towards VLS use showed significant results, as discussed in the following paragraph.

2.13.1.2 Attitude

A significant number of studies identify a positive correlation between attitude and the use of VLS. Wei (2007) conducted a study with Chinese university students to identify the influence of learners' attitudes on the frequency of using VLSs. In this study, the students were divided into two groups: high English proficiency ("excellent" or "above average"; $n = 12$), and low English proficiency ("below average" or "poor"; $n = 11$). The two groups were statistically compared using two independent samples t-test for possible differences in VLS use. As shown in Table 2.8, the results revealed that learners with a positive attitude towards use of VLSs such as encoding, rehearsal, activation and sources strategies more frequently than learners who had a negative attitude.

Table 2-15 A comparison of Strategy use by Attitude.

Table 6 Comparisons of Strategy Use by Attitude

Category	Attitude	Mean	SD	t	Sig. (2-tailed)
DIC	High	3.0000	.50000	1.880	.073
	Low	3.4688	.64469		
GUE	High	3.5370	.69736	1.193	.245
	Low	3.8438	.56917		
PER	High	3.3889	1.21906	-.522	.607
	Low	3.6250	1.00830		
ENC	High	2.2222	.66667	3.093	*.005
	Low	3.3438	.96123		
REH	High	1.9778	.47376	3.843	*.001
	Low	3.1125	.80654		
ACT	High	2.5833	.48412	3.086	*.005
	Low	3.4531	.75949		
MAN	High	3.3111	.76884	1.147	.263
	Low	3.6000	.49531		
SOU	High	2.4722	.88780	2.111	*.046
	Low	3.0000	.50000		

* $p < .05$

(Source: Wei 2007, p. 114.)

The above-mentioned comparison of strategy shows how different attitudes are found in the table, such as high and low. High attitude refers to a positive attitude, whereas, low attitude indicates a negative attitude. Statistically significant relationships were found between the use of Encoding strategies (ENC), rehearsal strategies (REH), activation strategies (ACT) and using sources (SOU), and learner attitudes, with P-values of 0.005, 0.001, 0.005 and 0.036 respectively. Strangely, in many strategies, the mean values for a negative attitude influenced VLS use more than a positive attitude, which contradicting Wei's (2012) expectations. In general, the mean standard deviation and the t-test results indicate that students in the high

proficiency group used these strategies more frequently than those in the low proficiency group.

In addition to this, Akbari (2017) conducted a study with 137 medical and paramedical university students who were studying English for specific purposes (ESP) in Iran. His study concentrated on developing a taxonomy of VLSs within an ESP context. Within his study, he discussed the factors that affect the ESP students' choice of VLSs. One of these factors is the learners' attitude towards, or belief about, VLS use as discussed in Wei's study. Participants were asked about their attitudes to and beliefs about using some English words in their Persian speech as a strategy of practicing the new vocabulary to consolidate its meaning. Akbari found that 60% of students used English words within their Persian speech, from which they gained some prestige; this encouraged them to learn and use more English vocabulary. However, others did not like to switch to English in their Persian speech and some believed that English vocabulary was very difficult for one of two reasons: their experience of learning English in intermediate and high school had not been satisfying, and their level of English language proficiency was very low. Thus, during their university study, they had developed the idea that learning English was an activity that consumed their time without leading to any effective development, and had merely sought to meet the demands of their university course. For the purposes of this current study, the Saudi students selected learned English language in schools, and had a low level of English language proficiency and poor knowledge of vocabulary (Alahmadi et al., 2018; Alqarni, 2019). Increasing their awareness of VLSs and how these can improve their learning process could enhance their positive attitude as well as their beliefs about learning the English language, especially the vocabulary.

2.13.1.3 Motivation

The hypothesis that motivation correlates positively with VLS has been tested by Fu (2003), who supports the notion. As mentioned earlier, Akbari (2017) examined the extent to which motivation affects students' VLS use. He found that learners who had integrative motivation, meaning that they had the desire to learn a language because they wanted to communicate and interact with people from different cultures, practised speaking the language they were learning. Other learners' motivation was instrumental, which means that they wanted to learn a language "in order to accomplish particular progressive goals, for instance, passing an exam or getting a job" (p. 96). Such learners "were determined to continue their education

at post graduate levels” (p. 96). Moreover, he discovered that motivated students transferred their vocabulary knowledge to real life contexts and found that it was one of the strategies that consolidated the meaning of learned words and made language learning more meaningful.

In addition, Marttinen (2008) investigated 50 upper secondary school students in Finland using a VLSs questionnaire and open questions to find out about their attitudes and motivation with regards to VLSs. He discovered a positive relationship between VLSs and motivation, as evidenced by the use of a wider range of VLSs by learners with high motivation than by learners with low motivation. The participants of this current study were very active because they had been encouraged and motivated before the strategy training sessions; the advantages of participating in VLS training were explained to them, meaning that their awareness of VLSs and how to use them successfully was enhanced. Thus, learners would develop their vocabulary repertoire and be able to retain the meaning of new words.

2.13.1.4 Language Learning Experience

The effects of experience on the use of VLSs have been examined in different contexts. Porte interviewed 15 EFL learners in a language school in London (Porte 1988) to identify the types of VLS they used, discover where they learned them, and which factors had an effect on their use of VLSs. His study revealed that these students used the strategies they had learned in their native countries and that their choice of specific strategies was influenced by their language learning experience. It seems that those participants had limited strategies that they learned during their previous language learning experience and needed to be exposed to a variety of strategies in order to ameliorate their practise of language learning. Stoffer (1995) also identified significant relations between learners’ language learning experience and their use of VLSs by conducting a study on Turkish university students which used the VLSs questionnaire and investigated the participants’ language learning experience. According to Stoffer (1995), the findings revealed that the learners who were instructed on VLSs used memories strategies and creating mental linkages more frequently than those with no previous exposure to VLSs. Moreover, 1,481 undergraduate Thai students at 12 Rajabhat Universities were investigated using two data collection methods, namely a VLSs questionnaire and a semi-structured interview. The study found that learners with more language learning experience used the discovery strategies of ‘new vocabulary’ or ‘expansion of the learner’s own vocabulary knowledge’ more often than learners with more limited language learning experience (Siriwan, 2007). In light of these findings, the researcher suggested investigating

the effect of VLS training on students when in a classroom setting or specific VLS training sessions.

In a study of 137 Iranian undergraduate medical and paramedical students undertaken by Akbari (2017), observations, interviews and questionnaires were used to collect the data. The questionnaire was divided into two categories; discovery strategies and consolidating strategies. The results revealed that 85% of the participants used the VLSs that they had learned in intermediate and high school. They mostly used the strategy of translating the words into Persian and putting them in a list to memorize them. Because they were so familiar with this strategy, they found it difficult to adjust to using others. Despite the limitation of the strategies used depending on the previous experience of learning, the present study uses similar participants, who might have a medium level in language learning. It seeks to overcome this issue with strategy training sessions, which can increase the learners' awareness of VLSs and how they could improve and develop the EFL learning process.

2.13.1.5 Learning Style

Scholars have identified that learners' choice of learning strategies is significantly influenced by their preferred learning styles (Al-Habaishi, 2012; Muniandy & Shuib, 2016; Sahragard, Khajavi & Abbasian, 2016; Balci, 2017). The learning style is defined as the favourite way of learning; this includes auditory, visual, kinaesthetic, tactile, individual and group learning styles (Reid, 1987). Auditory students attain information through listening, while visual students learn better through images, posters and films. Auditory learners prefer discussion activities during the class and are usually more talkative, while visual learners prefer to take notes and observe teachers' gestures or pictures in the coursebook. The kinaesthetic learning style is a movement-oriented style in which learners prefer to learn from physical actions or personal experience. Tactile learners prefer to learn through touching; this kind of style is mostly used by blind people. The last two styles of learning are group and individual styles. The learners who use group learning style prefer to learn through interactions with their classmates or teacher, while students who prefer the individual style mostly study alone and depend on themselves to learn. Balci (2017) investigated the relationship between the language learning strategies used by 328 freshman Turkish students and their learning style. He found there to be a significant correlation between the participants' use of visualisation strategies and the visual learning style. Moreover, the study revealed that there is a strong relationship

between the kinaesthetic learning style and the use of different strategies such as cognitive, metacognitive, memory and compensation strategies, but not affective strategies. Regarding learners who prefer the group learning style, it was found that they use social strategies more frequently than any others. This shows that participants vary significantly from each other in their way of learning and choose the strategies that suit their learning style.

Similarly, within the Saudi context, Al-Habaishi (2012) investigated 88 female university students majoring in English language. She found a positive relationship between the participants' learning styles and their use of LLSs. Her study revealed that most participants preferred the visual learning style and tended to use memory and affective strategies more frequently than others. Although the current study will not investigate participants' learning styles, it should be taken into consideration that participants' choice of VLSs might be affected by the learning style they employ. The objective of this study is to provide the learners with a variety of strategies that can allow them to select the strategies that suit their learning styles. The five categories of VLSs (determination, social, memory, cognitive and metacognitive) are including strategies that suit with different kinds of learning styles. The training on VLS use could indirectly facilitate the preferences of learning styles for the targeted participants and help them to enhance their learning of vocabulary. The significance of the impact that difference between participants can have on their VLS use, as mentioned in the previous section, social and situational factors might play an enormous role in the training and use of VLSs. The following section will review these factors and the extent to which they can influence VLS use.

2.13.2 Social and Situational Factors

Social and situational factors have a significant effect on the use of VLS. They include factors such as field of study, type of course, level of class, gender, and the language learning environment. These factors have been examined in different contexts and have been shown generally to affect the use of VLS by language learners.

2.13.2.1 The Field of Study

It has been hypothesized that there is a substantial relationship between learners' use of VLSs and their field of study. Gu (2002) compared arts and science students' VLS use focusing

on one category of VLSs, encoding strategies, which includes: association/elaboration, use of imagery, visual encoding, auditory encoding, use of word-structure, semantic encoding and contextual encoding. The results revealed that arts students used imagery, visual coding, word-structure, and semantic coding strategies less frequently than science students, and tended to use strategies that are associated with the normal acquisition of words, such as memorization, more frequently than science students.

Gu's results are supported by Mingsakoon's (2002) study, who investigated arts and science major university students in Thailand and found that arts students employed different VLSs to science students and that English major students used VLSs differently to non-English majors. The arts students tended to use more social strategies such as asking their classmates about the meaning of new words, working in groups, and listening to English songs. On the other hand, science students used the bilingual dictionary to look up the meaning of words, as well as learned new vocabulary from flash cards, traffic signs and computer games. Both sets of students did have a strategy in common, this being asking their classmates for the meaning of words.

In another context, Bernardo and Gonzales (2009) conducted a study on the use of VLSs using Schmitt's questionnaire of VLSs (1997) on Filipino students taking five different majors, namely arts and education, computer engineering, business education, hospitality management and medical science. They discovered that differences between the five majors in the use of memory, cognitive and metacognitive strategies were insignificant. However, findings pointed to significant differences in the use of determination and social VLSs. The arts and medical students used determination strategies more frequently than others, while the computer engineering, business education and hospitality management students used social strategies more frequently compared to the other majors. Furthermore, Akbari (2017) conducted a study involving medical students who specialized in different areas such as medicine, dentistry, pharmacy, and nursing. He found that medical students used elaborate strategies to learn and consolidate specialized medical terminology to be able to communicate appropriately with their classmates, doctors or professors. However, this does not appear to be a reasonable justification for the result, as students in other fields of study may use strategies to learn the terminology related to their studies.

All of the studies reviewed here support the hypothesis that the field of study could be an influential factor in the use of VLSs. However, these studies would have been more interesting if they had included training on VLS use and subsequently investigated whether students' use of VLSs was still influenced by the field of study. For this purpose, the current study will seek to examine the effect of this factor in the context of VLS training for three different streams at the university level.

2.13.2.2 The type of course

The course type factor relates to the intensity of the course and pedagogical approaches. This factor was examined by Al-Shuwairekh (2001), whose students were learners of Arabic as a foreign language. The findings revealed a significant difference between the students who attended morning classes and the students who attended evening classes. The morning course learners used VLSs more frequently than evening course learners because the morning students were full-time students with an intensive Arabic curriculum, while the evening students were part-time students and took a non-intensive Arabic course. It seems that other factors were also involved, but the researcher failed to identify them; for instance, pedagogical approaches could also have been influencing the participants' use of VLSs. Additionally, Siriwan (2007) examined the relation between Thai learners' use of VLSs and course type. He discovered that full-time students used VLSs such as 'using English-Thai dictionary', 'listening to songs', 'listening to other people when they are speaking' and 'translating English words to Thai' significantly more frequently than part-time students who reported that they used only two types of strategies; 'guessing the meaning from context' and 'saying the words many times'. It seems that more exposure to the learning environment could provide learners with more opportunities to enhance their VL skills.

2.13.2.3 The level of class

This factor is considered important in many studies; for example, Politzer (1983) showed a positive link between strategy use and level of class, with a significance level of less than 0.05. Alyami (2006) examined the VLS use of two groups of university EFL students in Saudi Arabia. He compared first and fourth year EFL students' VLS use, finding that first year students did not use VLSs frequently, while fourth year students made significant use of three kinds of VLS, namely dictionaries, guessing strategies and drawing on their previous background knowledge to deduce the meaning of unknown words. Furthermore, Mongkol

(2008) compared first and second-year Thai university students' use of VLSs. The results showed that first year students used specific kinds of VLSs such as paraphrasing the meaning of unknown word or remembering the new word by its part of speech, more than second year students, while the second year students analysed new words' affixes and roots more recurrently than the primary year pupils. In addition, Doczi (2011) examined the relation between the levels of ESL students and the types of VLSs they used. His study showed a significant correlation between these two variables. ESL students with low levels of language proficiency used vocabulary lists to consolidate the meaning of new words, but when their level improved, this kind of strategy was used less, whereas the use of different types of strategies such as skipping unknown words increased, especially in advanced level ESL students. It can be concluded from these studies that the level of class has an effect on language learners' use of VLS.

2.13.2.4 Gender

This factor is the most controversial of all the social and situational factors, and studies have not yet come to a consensus on its effects. According to Sunderland (2006), gender is “a sort of social correlate of sex. In this view, biological males and females process certain ‘culturally’ imbued characteristics which fall neatly into the same two biological determined categories” (p. 28). A total of 1,200 students studying English as a foreign language in the USA were investigated by Oxford and Nyikos (1989) to establish the elements influencing their use of LLSs. One of these variables was gender, and the study showed considerable variation between males and females in the use of LLSs. The results revealed that females were using LLSs more frequently than males. In a different context, Green and Oxford (1995) conducted a study on a total of 374 ESL students at Puerto Rico University, investigating their LLS use. The findings showed that females used four categories (metacognitive, memory, affective, and social) of LLS significantly more often than males. In contrast, Khatib and Hassandeh (2011, p. 144) conducted a study on 146 upper-intermediate level university students in Iran to identify VLSs use preferences. They found no significant difference between Iranian male and female students' use of VLSs. Furthermore, Catalan (2003) found that Spanish male students employed different VLS from female students, and Siriwan (2007) and Seddigh (2012) found a significant difference between males and females' use of VLSs such as guessing and note taking.

However, a number of studies have found that there is no significant difference between the use of VLS by male and female students (Jones, 2006; Tsai and Chang, 2009; Manuel, 2017). The main weakness of these studies is the small sample size of the participants, therefore, the insignificant difference between the two genders should not be generalised. Furthermore, the statistical power of the ultimate outcome of these studies might be unreliable due to the small sample size. Generally speaking, it can be said that gender plays an important role in the use of VLS during the language learning process in some contexts, as has been shown by studies conducted since 1989. However, other studies have not shown any significant effects as a result of the gender factor, taking in consideration the reliability and robustness of these studies, as discussed earlier in this paragraph.

2.13.2.5 The environment of language learning

A number of studies have been undertaken in the Malaysian context on two categories of language learning environment; formal and informal. Kameli et al. (2012) examined the formal environment of language learning and the extent to which the classroom environment, teachers and peers affect the learners' use of VLS. Their study showed that the classroom environment, peers, and teachers have a substantial effect on learners' VLS use. For instance, the teacher can play an important role in encouraging learners to use VLSs and concentrate on increasing their awareness of such strategies. The informal environment also plays a significant role in learner VLS use; for example, parents can play an important role in supporting their children outside the classroom and help them to develop their learning skills. Asgari and Mustapha (2011) discovered a positive correlation between parents' support and learners' use of VLSs. They found that learners who received more support and motivation from their parents used VLSs more frequently than learners whose parents did not support them. Akbari (2017) found that the classroom environment is significant in assisting learners with knowing how to deal with unknown words that have been encountered during the lesson. His study revealed that in the ESP context, when students faced new words and needed to know their meaning urgently, they were "likely to adapt some deliberate strategies (such as repletion and memorizing the definition of new words) which facilitate long term retention of word meaning" (2017, p. 103). He also found that if students had learned effective strategies, they were able to choose effectively the words that they needed and that related to their learning process.

2.13.3 The learning outcomes of learners

This category of factors that affect the use of VLS by language learners includes three types: the language achievement of learners, their language proficiency and their vocabulary knowledge. These factors will be discussed in detail and studies showing the effectiveness of these factors in different language learning contexts will be mentioned.

2.13.3.1 The Language Achievements of Students

Studies such as those conducted by Suppasetseree and Saitakham (2008) and Gidey (2008) have illustrated the effect of students' language achievement on their VLS use. Their findings showed a significant correlation between the learners' language achievement and their use of VLSs: high achievers were found to use a greater variety of VLSs than lower achieving students. The difference between language achievements and the language proficiency of learners can be seen in that achievement concerns the learner's ability to repeat the elements of the language that they have been taught or mastered, while proficiency mainly concerns the learners' ability to use the language in real life situation (Grisso, 2018).

2.13.3.2 Language proficiency

Most studies showed a positive correlation between the students' language proficiency and their use of VLSs. Scholars have examined the relationships between learners' language proficiency, two dimensions of VLS use, and the frequency of using the strategies. Specifically, Celik and Toptas (2010) identified a positive correlation between the language proficiency of students and their VLS use. The study revealed that students with a high language proficiency used VLSs more regularly than students who had a medium or low language proficiency (Celik & Toptas 2010). Locky (2003) found that among the Japanese university students he examined, there was a significant positive correlation between the degree of language proficiency and VLS use. Furthermore, when examining the correlation between language proficiency and the type of VLSs used by learners, Lachine (2008) found that high proficiency learners used different kinds of VLSs and strategies which correlated more closely with their learning, as opposed to the learners with lower language proficiency levels.

2.13.3.3 Vocabulary Knowledge:

The terms 'vocabulary size' and 'vocabulary knowledge' are utilized interchangeably in different studies to refer to the number of words that are included in the learner's repertoire. A

large number of studies such as Ahmed (1989); Gu and Johnson (1996); Fan (2003); Hamzah, Kalifpour and Abdullah (2009); Komol and Sripetpun (2011); Tilfarlioglu and Bozgeyik (2012); Waldvogel (2013); and Prayitno (2015) have examined the relation between students' vocabulary size and their use of VLSs. Some have shown a significant correlation between these two phenomena, while others suggest that there is no correlation between them. One study that showed a positive relationship is Waldvogel (2013), in which the associations between the use of VLSs by adult learners of Spanish as a foreign language and their vocabulary size were investigated. A total of 475 participants were enrolled in his study, aged between 18- 24 years old, at three different level of language: beginner, intermediate and advanced learners. A significant correlation was found between the vocabulary size of advanced learners and their VLS use, while the results were negative for the beginner and intermediate level students because they are less effective in managing and controlling their vocabulary learning process (Waldvogel, 2013).

Contrastingly, Prayitno (2015) investigated the relationship between VLSs and vocabulary size for English major students in their fourth semester at an Indonesian University. The findings revealed that there was no correlation between these two elements among the targeted participants. This shows that the correlation between VLS and vocabulary size is negative in all contexts, which explains the significance of investigating different contexts to establish whether the correlation between them is positive or negative, and the need for an in-depth exploration of the causes as well as the results.

In the Saudi context, Alyami (2006) found that a majority of Saudi EFL students have difficulties with English language for two reasons; the limitation of their vocabulary repertoire and their lack of awareness of VLSs. A number of empirical studies have supported this finding, such as Al-Hazemi (1993), Al-Akloby (2001), Alqahtani (2005), and Alharthi (2012). These scholars have suggested that Saudi university students should be trained in the use of VLS to enhance their vocabulary repertoire.

2.14 Summary and Conclusion

This chapter has discussed the concept of vocabulary knowledge, as well as shed light on the importance of vocabulary and VLSs and their role in the language learning process. Some popular classifications of VLSs and scholars' perspectives on these strategies were presented. Section 2.9 introduced the types of vocabulary tests that are mostly used by

researchers to measure the vocabulary size of English language learners. Then, studies undertaken in a variety of contexts which support the notion that VLS training has positive effects on learners' learning process were explored. Finally, the educational system in Saudi Arabia was outlined and the preparatory year at the targeted institution was explained.

The next chapter will concentrate on the tools that have been used in this current study, the participants, and how the data was collected. Moreover, a detailed description of the strategy training sessions and how the participants of this current study have been trained on VLSs use will be provided.

Chapter 3

RESEARCH DESIGN & INSTRUMENTS

3.1 Introduction

In this chapter, the participating subjects and data collection instruments used in the current study will be described. Initially, the first section will elaborate on the research design used and its characteristics. Following that, the description of the methods employed will include the reasoning and justification for using them in the current study. Furthermore, a number of considerations regarding the use of these instruments will be highlighted. The data collection procedures and methods of analysis will also be explained, after which a general description of the English language curriculum that were used during the training sessions will be provided. In the following section, the process of the pilot study to test the methods used in the current study will be briefly described, as well as the modifications made on the instruments employed in the present study. Finally, further information about the strategy training sessions that the participants attended, including their organization and design, will be provided.

3.2 The Research Design of the Current Study

The quasi-experimental research design is used in this research study and the criteria of selection for individual subjects has been determined. This kind of research is common in social sciences in order to investigate the cause and effect outcome, in which subjects are randomly divided into two groups in order to investigate the pre and post-intervention characteristics (Dorny, 2007; Riazi, 2016). The limitations of this design include the possibility that the statistical tests are meaningless, which has been taken into consideration by randomizing the subjects appropriately, into two groups by selecting randomly from all participants. The experimental groups who will integrated into training sessions on using VLSs; this also avoids any bias that could lead to an unreliable outcome. The quasi-experimental research design has a number of characteristics that suit the core idea of this research One of the advantages of this research design is that it allows for the possibility to have experimental and control groups, unlike other types of design, which do not include control groups and compensate by the comparison group or another experimental group that

have different sort of treatment (Loewen & Plonsky, 2015). Furthermore, the research design used in the current study is suitable and practical to conduct in a natural setting and allows the researcher to evaluate the influence of independent variables as they occur in natural circumstances (McKinley & Rose, 2020). These mentioned characteristics therefore make this research design suitable to achieve the objectives of the present study.

3.3 Participants of the Study

In the Kingdom of Saudi Arabia, most students use the Arabic language for their university studies. Only a few majors such as Medicine, Science, and the English courses are in the English language; the students in these majors represent less than a quarter of the entire student population. Therefore, approximately 20% of students use the English language in their studies at Saudi universities; these represent the target population for this research.

60 male preparatory year students, 20 of them being humanity stream students, 20 being science stream students, and 20 being health stream students, participated in the current study. These participants were selected from the first-year students in the respective streams in the preparatory year at a university in Saudi Arabia. In each stream, the 20 students studied English in the same class and had the same teacher. This criterion of selecting the participants in the current study was adopted in order to decrease the possibility that the results might be affected by the teacher or language teaching methods. Integrating pupils from different classes in each stream might lead to lack of homogeneity between the participants. In a personal interview conducted with each of them, they expressed enthusiasm and willingness to take part in the current study. Formal consent was obtained before starting the data collection step.

The respondents were chosen on the basis of their performance in the four language skills test and diagnostic test which they had taken during the English language course in their preparatory year (see appendix, 1). This criterion was used as this research required students who might have had experience with VLSs and who possessed an adequate amount of vocabulary, and most importantly, in order to ensure the homogeneity of the participating students.

In the pilot study, participants had been chosen based on the results in their English language course exams. Students who obtained at least 80 out of 100 in the final English

language course test in the first semester of their preparatory year had been invited to participate in the pilot study. However, within the time frame of the main study, the students were in their first semester at university, and thus had only completed the diagnostic test during the first week of the semester to measure their English language level (see appendix 1). Students who achieved at least 20 out of 35 in the diagnostic test were invited to participate in the main study (see appendix 2).

Systematic bias in participant selection emerged, as many students did not have a sufficient background with regards to learning the English language in Saudi Arabia to enable them to respond appropriately to the VLSs questionnaire and vocabulary test. Moreover, a number of studies conducted with Saudi students at different education levels suggested that they had a lack of linguistic competence and poor vocabulary size (see section 1.4 & 1.7). This resulted in systematic bias in sample size selection in the current study that could not be avoided (Malone, Nicholl, and Tracey, 2014). Furthermore, to counter the issue of participants' low English proficiency, the questionnaire on VLS use was translated into Arabic, the participants' mother tongue. This ensured that learners could acquire a full understanding of different kinds of strategies and respond appropriately.

The reason for selecting second language learners of English in the preparatory year at Saudi University was that they had just started their university study and could be introduced to tools and strategies that might support them in their academic life. Moreover, the positive outcome of Alamri and Rogers's study (2018) encouraged me to apply my study to a similar context by using different methodologies, in order to investigate more strategies for vocabulary learning and compare them to the participants' receptive vocabulary knowledge. As discussed in Chapter 2, the participants in Alamri and Rogers's study (2018) were preparatory year students in science, while the current research aimed to be a more comprehensive study including all the groups within the preparatory year; the humanity, science and health streams. This expansion might lead to a greater understanding of the similarities and differences between the three groups in using VLSs, and the influence of VLSs, and participants' responses regarding the direct instruction of VLSs.

Choosing first year preparatory year students ensured participants' homogeneity. This differentiates my study from previous studies on the effect of VLS training in different contexts, such as Rasekh & Ranjbary (2003) and Tassana-ngam (2004), who chose second,

third and fourth-year university students (see section 2.12). The participants in my study were all male and of similar ages (see Table 3.1) and language proficiency. Table 3.1 shows the demographic characteristics of the experimental and control groups, as well as their age and academic subject streams. The reason for dividing participants' ages into these four categories is that each of them represents a three-year period starting from 18 years old, which is the age of most first-year university students.

Table 3-1 Sample distribution according to demographic characteristics by group (n=60).

Demographic characteristics	Experimental group		Control group		p-value
1. Age	Number of students	%	Number of students	%	
18-20 years	28	46.7	27	45.0	insig. (0.643)
21-23 years	2	3.3	3	5.0	
2. Stream in the preparatory year					
Humanity stream	10	16.7	10	16.7	insig. (0.99)
Science stream	10	16.7	10	16.7	insig. (0.99)
Health stream	10	16.7	10	16.7	insig. (0.99)

With regards to the sample distribution according to the demographic characteristics for the participants, as shown in the above table, 10 students from each stream attended the training sessions separately, as they studied on different campuses, depending on stream. Moreover, it has been demonstrated that small class sizes promote the practice in language learning (Long et al., 1985; Finn et al., 2001; Bahanshal, 2013; Toro et al., 2019). It seemed more advantageous for a small number of students to be integrated into the training sessions, in order to enable the researcher to successfully supervise the students' practice of VLSs in each training session. It has been ensured that students in each stream have the same teacher in

their regular English language classes in order to decrease the chances of this being an influencing factor; this is particularly important in the current study, given that no observations were carried out to identify the teachers' characteristics. The small sample size of participants could be challenging when analysing the data statistically; therefore, the data analysis and interpretation were undertaken with caution. Some of the categories were not sufficient in size and therefore, the selected sample size for those categories reflect their number of individuals in the population. That means, small number of individuals in the population resulted in selecting small sample size for those categories.

3.4 Data Collection Instruments

Three data collection instruments were used in the current study. The first was a questionnaire taken from Schmitt and McCarthy (1997), consisting of 50 Likert-scale items with a 0.78 reliability coefficient (Schmitt and McCarthy 1997, pp. 207-208). This Vocabulary Learning Strategies Questionnaire (VLSQ) was used to explore the preparatory year students' VLSs use. The questionnaire items were categorized into five clusters of VLSs: (A) determination, (B) social, (C) memory, (D) cognitive, and (E) metacognitive (see appendix 3). A number of advantages encouraged me to use Schmitt and McCarthy's questionnaire (1997) in the current study (2.7). The advantages of the used questionnaire that can be standardised, can be used to collect information from students, based on memory and language learning theories, can be used for different kinds of students in regard of their age educational and language experience and comprehensive questionnaire that include more than fifty strategies in learning vocabulary (Catalan, 2003:60). The reason behind investigating the five categories of VLSs in the present study was that this had been suggested by Tezgiden (2006) as a way to overcome the limitation of previous studies that only focused on one or two categories of VLSs (2.12). Consequently, the current study included all types of strategies and trained the students on using them.

The participants' vocabulary knowledge was assessed and the distinctions between all categories of strategies for the experimental and control groups were investigated. The VLSQ used in the current study employs a five-point Likert type scale (1= never, 2=rarely, 3=sometimes, 4=often, 5=always) for each question which includes five degrees of frequency of VLS use. I have a moderate sample size (30 for each control and experimental groups) , that

means considering seven-point Likert scale will result in very few participants in each category. Due to this reason, I adapted the five-point scale to cover different possible responses. The participants read the statement and select how often they used the strategy. In some sub-group analyses to contrast between the streams, I had to merge the categories due to sample size issue. Thus, never (=never, rarely), sometimes, and always (=often, always) were the three categories (Chen, Lee and Stevenson, 1995; Grandy, 1996).

A possible limitation of Likert scale questionnaires is that individuals may lie when filling out the questionnaire, due to social pressure or wanting to project the positive image of being proficient in their learning of English vocabulary. In addition, as the Likert type scale provides ordinal data, the median or mode are used by some researchers (Allen et al., 2007; Bertram, 2007). When various Likert scale variables are combined together to form a single score, then the mean is the best representative for such situations. Another potential weakness is that students may be uncertain about the frequency of their VLS use, and which of the five options best represents their situation. An attempt was made to deal with this by explaining the differences between these options (always, often, sometimes, rarely, never) to the participants before they began answering the VLSQ.

The questionnaire was translated into Arabic, as the English version included some difficult words which might have prevented the participants from comprehending and answering the questionnaire properly (see appendix 4). When constructing a questionnaire or using one designed by scholars in the field, some characteristics need to be taken into consideration. In addition to avoiding the limitations of questionnaires mentioned earlier, the researcher should include some instructions about the questionnaire and how it should be answered (Stassen & Carmack (2019). Moreover, the items in the questionnaire should be categorised in a coherent order and written clearly. This step could be helpful for the participants to follow up with strategies in the correct sequence. Including some examples could be useful to clarify confusing items. Moreover, researchers have suggested that questionnaires should be validated and their reliability determined by piloting a small sample and analysing the data obtained from the questionnaire (Krosnick, 2018). Following these procedures could lead to a constructive questionnaire that achieves the goals of investigating and obtaining data from participants. Many researchers have utilised this research instrument to obtain crucial information about learners' behaviours toward some practices of language learning (2.8).

The second instrument used, as described in detail in Chapter 2, was the XK-lex vocabulary test (Masrai & Milton, 2012). They applied two tests, the standard well-established diagnostic measure of vocabulary level (Meara & Jones, 1990), which contains 120 words, of which 100 are actual English words and 20 are pseudo words (see appendices 5 & 6). The actual words in the lists represent 10,000 of the most common words in English, which means that 10 words in the lists represent 1,000 English words. The method of calculating the total score for test takers is as follows: each real English word selected by an examinee as a recognised word will count as 100 marks in the final score. Each non-word selected by test takers as known will detract 500 marks. The most significant advantages of the test, as mentioned in the previous chapter, are that it is easy to mark and administer, and does not take long to answer. An example is provided in Table 3.2.

The test asks participants to look at the words presented and to tick those that they consider to be real English words; for example, **cat** ✓ .

As mentioned earlier in section 2.9.2, there are two versions of the test (A & B). Both versions were administered by me in person, where version (A) was given before the treatment, while version (B) was given after the intervention. Both versions have the same structure, but the content is partly different to challenge the students and achieve a high degree of precision when measuring the test takers' vocabulary size. Table 3.2 shows a sample of the XK-lex (Masrai & Milton, 2012) test. For the full two versions of the test, please see appendices 5 & 6.

Table 3-2 The XK-lex (Masrai & Milton, 2012).

New		Commerce		Organise	
Gummer		Tindle		Wookey	
Word		Dust		Fountain	
Near		Nonsense		Movement	
Peace		Fond		Likely	

(Masrai & Milton, 2012, p. 55).

Participants are asked to place a tick alongside words they recognize and know how to use (Table 3.1). The test is marked as follows: the first column in the test includes 12 words, 10 of which are real English words while the other two are not. If a participant ticks all 12 words in the first column, he or she will get 100 points for each correct word, that is, 1,000 points, and will lose 500 points for every unreal word, meaning that the final total of the first column will be zero. In the case that the participant chooses seven correct words and one unreal English words, the marking will be $700 - 500 = 200$ points in the first column. At the end, the score for each column is calculated to establish the total number of words that the student has in his repertoire, out of 10,000 words.

There are a number of potential difficulties with assessing the lexical knowledge of a language learner. The first difficulty in measuring the vocabulary knowledge is in the validity and reliability of the test used, which should provide consistent and accurate results. The second difficulty concerns the criteria followed in selecting the words included in the test, and whether those criteria are effective or not in producing a valid measure for assessing vocabulary knowledge. The third difficulty involves the question of whether a receptive or productive vocabulary test is most suited to obtaining a full picture of test takers' vocabulary knowledge. It has been argued that each type of test has distinct characteristics and targeted goals to measure the test takers' lexical knowledge, as discussed in the literature review (2.10). Lastly, the fourth difficulty concerns the time needed to answer the test. Students usually consume more time when answering the productive vocabulary test than the receptive test. Therefore, the current study seeks to assess participants' receptive lexical knowledge due to the time constraints. It has been argued that the use of multiple-choice test or the yes/no format vocabulary test is associated with certain weaknesses such as the overestimation of test takers' vocabulary size, as shown in the literature review (2.10.2.1).

All these difficulties surrounding the assessment of language learners' lexical knowledge and the weaknesses of certain vocabulary tests have been taken into consideration when selecting the instruments used to measure participants' vocabulary size in the current study. There are a number of reasons behind the use of the XK-lex test (2.10.2.4). It enabled the measurement of the vocabulary size of the subjects and linking it to their use of VLSs (2.10.2.4) before and after the intervention. The test uses a yes/no format to measure the

vocabulary size of English language students. The criteria for selecting the vocabulary test were as follows: firstly, the goal of measuring the participants' vocabulary size is to have an idea of their approximate repertoire of vocabulary knowledge before and after the intervention, in order to link participants' vocabulary size to their use of VLSs. Also, there is no need to know the depth of their knowledge and measuring the breadth of the lexical knowledge will meet the objectives of the current study. The second criteria is that participants in the present study are unable to spend a long time answering the test questions due to the busy schedule they have during their foundation year; therefore, the receptive vocabulary test was selected, as it takes less time to complete. This is especially important given that each student had to do the test twice, once before and once after the intervention. One of the criteria used in selecting the appropriate vocabulary test for the current study is that the test has the ability to measure the vocabulary repertoire as much as possible therefore, the used test could measure the vocabulary size for the test taker up to 10,000 words. The fourth reason is that the test has two versions, meaning that it can be used before and after intervention without any conflict in terms of the style or contents of the test. Finally, the last and most important criteria is that the test is validated and reliable, and has been used and recommended by a number of researchers. The designer of the vocabulary test which was used in this study had a clear criterion for selecting the words in the test and invented a smart way to measure the number of words that test takers know. The most important advantage of the test is that it is easy for participants to answer, especially given that they need to complete it twice; moreover, it is also easy to mark (2.10.2.4).

The third instrument used in this study is a research diary, in which trainees' expressions regarding their attitudes towards VLSs were recorded at the end of each training session (see appendix 7). It is important to mention that the notebook data does not answer any of the current research's main questions, and was used as a source of supporting information for the main findings of the present study. The researcher used specific questions to obtain information verbally about participants' opinions and attitudes towards VLSs and the training sessions. The questions that trainees in the three streams were asked at the end of each training session are:

- 1) Were there any difficulties in understanding or using any of the strategies you learnt during the session?

2) What are your opinions about the strategies you were trained in using during this training session?

3) What are your attitudes towards the training sessions on using VLSs?

At the end of each training session, the participants were asked these questions, and answered them verbally in Arabic, as it is their mother tongue, allowing them to express their opinions easily. Their answers were recorded in the Arabic language in the notebook by the researcher (see appendix 7), and then translated into English in order to be analysed and discussed in this thesis (see appendix 8). Across the three streams, after each session, the researcher tried to make notes as a general report written in Arabic about the trainees' reactions and how the session progressed (see appendix 9); this was then translated into English (see appendix 10). This report could be categorised as a reflection on the five training sessions for the three streams, and what the researcher observed during the session. The research diary was used to provide a reference point for what happened during the process of strategy training. Trainees had the opportunity to express their reactions, feelings, opinions and ideas about VLSs at the end of each session, and to describe the extent to which they found the training useful and whether they understood and were able to use the strategies successfully. The format of the research diary was a notebook, which was practical and manageable in the context of the training sessions.

The data collected in the notebook was noted down by me, according to the participants' answers to the questions they were asked at the end of each training session. Many reasons encouraged me to write about participants' feedback. The first reason is that one of the questions asked concerns their understanding of the strategies that they received training on, and whether they have any questions about said strategies. Such a question requires an instant response during the training session to guarantee that participants have finished the training session with full comprehension of the strategies. Thus, I noted the trainees' feedback regarding their understanding of the categories of strategies directly in the notebook at the end of each training session. The second reason behind my choosing to note down the feedback myself is that the students may become reluctant to answer the questions at the end of each training session, repetitively, if they have to write their feedback down every time; it is easier for them to provide their answers verbally. The third and final reason is that I was not able to obtain the permission to interview the participants after the training sessions to obtain detailed feedback regarding the VLSs in general, and the training on VLS use, as their course is

intensive during their foundation year. Therefore, I thought that asking the trainees for their feedback at the end of each training session was an alternative solution.

The notebook data had the potential to improve the interpretation of the quantitative data. It drew on the qualitative methods, which is considered a complex practice because it includes many phases, such as noticing the important data, finding links between the responses, and coding this valuable information (Creswell, 2014). Qualitative methods can be useful for identifying and characterising the experimental group's attitudes toward VLSs and the training sessions. This kind of data could be useful in the understanding and interpretation of the quantitative data obtained with the VLSs' questionnaire and vocabulary test. In the current study, the process of data analysis begun with a careful reading of the notebook to code the significant parts of the information and categorise them into themes. Then, the notebook data was analysed thematically and referring to some extracts from experimental groups' responses in appendix, 8. Following the analysis, reflections on the training sessions and participants' interactions during each session were noted down by the researcher.

There is a large amount of criticism regarding self-report questionnaires and the extent to which researchers can depend on them to extract data from participants and build on their results. Scholars have discussed these issues extensively (Kagan, 2007; Paulhus and Vazire, 2007; McDonald, 2008; Dornyei, 2010). The participants in this current study reported the use of a variety of VLSs. Relying on the data obtained from questionnaires can be insufficient and said data should be interpreted cautiously. In this current research, the results of the questionnaire have been correlated with participants' vocabulary size to obtain overall results that are more precise. Moreover, the results were compared with data pertaining to participants' previous learning experiences and how their learning changed before and after partaking in the training sessions. The notebook data recorded by the researcher aimed to minimize the issues associated with the self-report method by comparing the results of the questionnaire with the training session reports and participants' responses after each session. As shown, there was an attempt to overcome the limitations on self-report methods in different ways.

3.5 Procedure of Data Collection

The first step in the data collection involved obtaining permission from the dean of the preparatory year at Saudi University to survey the students (see appendix 11). Following this, I applied for ethical approval at the University of Leicester to conduct my study (see appendix 12). Then, I invited 60 preparatory year students to participate in the study. For the purpose of the current research, the 60 students were taken from three different streams, and half were trained on using VLSs. It has been demonstrated that small class sizes promote practice in language learning (Long et al., 1985; Finn et al., 2001; Bahanshal, 2013; Toro et al., 2019). The students were given written consent forms to complete, information concerning the study, and demographic questions to answer (see appendices 13 & 14). They were given the Arabic version of the consent form and some instructions before answering the questionnaire (see appendices 15 & 16). The demographic questionnaire was designed by the researcher, who tried to collect as much information to identify and understand the participants' personal characteristics, such as age and experience of English language in general, or VLS use and training programmes in particular. For the purpose of the current study, the demographic information collected about the population was regarded as factors that could influence students' use of and training on VLSs.

The factors mentioned in the literature review (2.13), such as individual learner differences, social and situational factors, and the learning outcomes of learners, led to positive effects on learner' VLS use in some contexts, while in others, did not seem to have any effect. The current research study sought to investigate the extent to which these factors have influenced the selected students. They have been taken into account and efforts have been made to overcome any challenges to the students' comprehension of VLSs during the training. One of these obstacles is that the instruction on VLS used the target language, which could hinder the trainees' successful understanding of the strategies. As mentioned earlier, the EFL students find it difficult to communicate in the target language. Teaching VLSs using the participants' mother tongue could lead to an intervention that might influence their vocabulary learning more effectively. Moreover, the effect of social and situational factors such as gender, level of class, and field of study were taken into consideration. Participants in this study are almost in the same social and situational circumstances; they are in the same field of study and at the same class level. Despite the difference between them in terms of stream (humanity, science,

and health), participants in each stream have the same teacher and syllabus. This study will examine the difference between the three streams in the use of VLSs before and after the intervention. Regarding the participants' gender and its effect on the use of VLSs, as confirmed by a number of researchers (Susanti, 2018; Kobayashi & Little, 2020), all participants in this research are of the same gender to avoid any differences between participants in this regard. Additionally, age is categorised as an influential factor on the use of VLSs for EFL and ESL learners (Kazamia, 2016; Bai, 2018; Baharudin, 2019). It has been shown that younger learners use simple and specific kinds of strategies compared to older learners, who use a variety of strategies (Kobayashi & Little, 2020). Thus, this research took this factor into consideration and examined the extent to which it affects the participants' use of VLSs and their vocabulary knowledge both before and after the treatment.

Regarding the demographical questionnaire employed in this study, the first two questions asked about the participants' name and nationality. Providing a name was optional to respect participants' right to privacy. The participants were asked about their nationality as Saudi universities have small populations of international students. The contextual background could influence the findings of the research. The following question was about participants' age, and was categorised to four options in which there are all three years categories together starting from the age when most students finish the secondary school and start the bachelor's degree. The next question was included to find out which stream the students are in, as the preparatory year is divided into three streams (humanity, science, and health). The field of study could positively or negatively influence the participants' use of VLSs. The next two questions looked into the participants' background with regards to learning English in order to determine the extent to which the length and context of language learning influence the VLS use. The next question seeks to uncover more information about the students' motivation to learn the English language, and includes three common options, with the last option allowing participants to specify their own reasons. Questions 9 to 15 looked to collect in-depth information concerning certain popular practices used to learn vocabulary, and determine whether participants had attended any kind of training on VLS use. Lastly, the researcher sought to find out more about participants' learning styles regarding which of the four language skills affects their vocabulary learning. The differences between learners' styles could be categorised under the learner's beliefs and whether they positively or negatively affect their learning.

To overcome one of the shortcomings of some of the previous studies (2.12), namely measuring the participants' VLS use only once, and for the purpose of this research, participants' use of VLSs was measured both before and after the training. Rasekh & Ranjbary (2003) recommended expanding the research in the area of training students on using VLSs in different contexts and investigating influential factors such as motivation, beliefs, cultural backgrounds, attitudes and learning styles. In this current research, a number of factors are explored and linked directly to the participants' VLS use (see appendix, 13). A potential weakness of Likert-type scale responses is that they are unable to obtain detailed information, or pick up on underlying potential factors. Moreover, the participants may find it difficult to assess their status using the ranking scale (always, often, sometimes, rarely, never); however, this approach of data collection is very convenient and easy to analyse. In addition, it can capture much of the details into fixed categories for open-ended questions (see appendix, 13).

The subjects were also asked to answer Schmitt's VLSQ and to complete the *XX-lex* vocabulary size test (version A) (Masrai & Milton, 2012). Each of the three different streams the participants belonged to was taught on a different campus, and the students were surveyed and questioned on their own campus. 20 students from each stream came together in one classroom and completed the questionnaire and the test in exam conditions. The time allotted was 20 minutes to answer the VLSQ and 10 minutes to answer the vocabulary test. After the first stage of collecting data from the students, 10 students were chosen from each group and asked whether they would volunteer to attend training sessions. Students in each stream were split into two groups, a control and experimental group; each group consisted of 10 participants. The 30 students in the control groups were enrolled in their normal classes. A total of 30 preparatory year students (10 from each stream) had 1 training session on VLS each day for five days (see section 4.6. below). Each session lasted one hour.

There are two reasons for giving the experimental groups only five training sessions. The first one is to examine the effectiveness of brief training on the participants' VLSs use. The second reason was that it was not possible to engage the trainees in long-term strategy training sessions due to their busy schedules (appendix 17). Students in the preparatory year attend English language classes that total up to 12 hours a week. Furthermore, they study five courses in different subjects depending on their stream; for instance, the humanity stream students study similar subjects to those studied by science stream students, with the exception of

physics, chemistry and computer and information technology, which are only for science stream students (see appendix 17). In contrast, those in the health stream study subjects related to the medical field, such as medical biology, medical physics and medical chemistry, during the two semesters (appendix 17). It might be that the field of study through what the student's exposure to during their regular classes in the preparatory year could affect VLS use before and after the intervention. This factor has been investigated in a number of studies, as discussed earlier (2.13).

At the end of each training session, the third instrument, the research diary, was used to record the trainees' attitudes towards VLSs; they answered the questions orally in their mother tongue, as this proved to be easier for them to express their attitudes and ensured that they did not misunderstand any of the questions. This instrument showed whether the trainees generally understood the strategies and the extent to which they felt they might be useful. Once the experimental groups had completed the five training sessions, they joined the control groups in their normal English language classes.

The current research accounts for the limitations of previous research, such as Tassanangam's (2004), in which there was no mention of the most used strategies by participants before and after the treatment (2.12). The present study investigated the most used strategies by participants before and after the intervention, and the extent to which each strategy influenced their vocabulary size. After two months, the study subjects were given Schmitt's VLSQ and Masrai and Milton's (2012) *XK-lex* vocabulary size test (version B) to complete again. The procedure of collecting the data from students and the timeline are presented in the following figure:

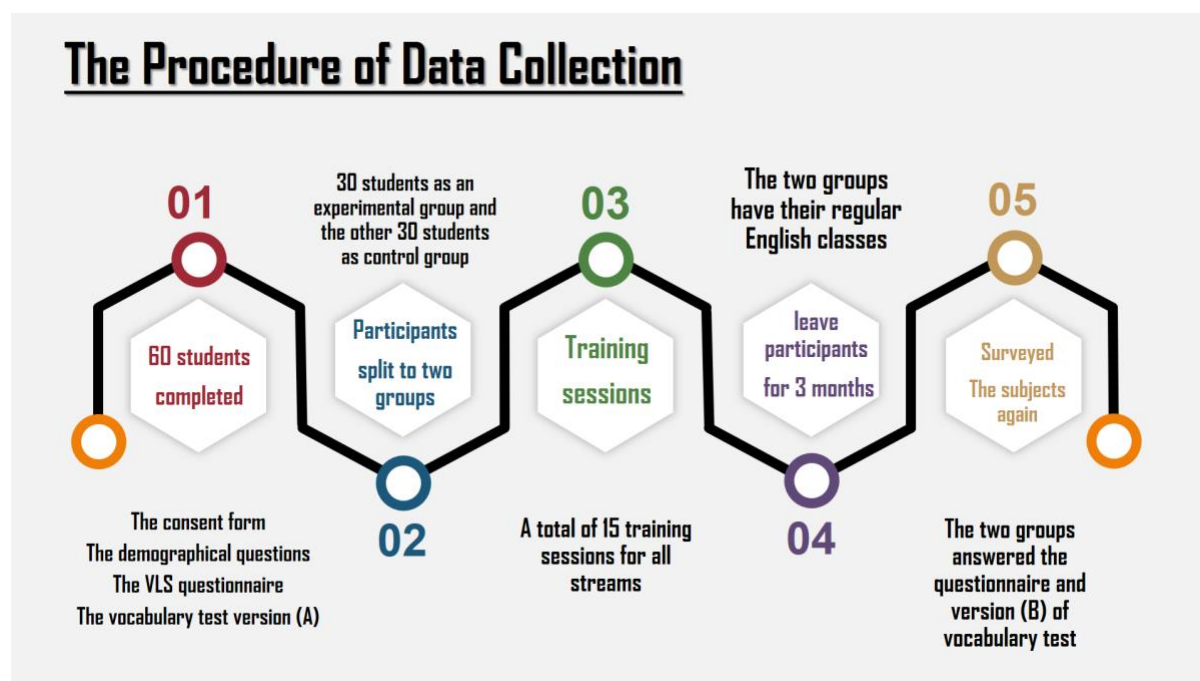


Figure 3-1 Procedure of Data Collection in the current study

3.6 The Data Analysis

The data was first entered into an MS-EXCEL spreadsheet, after which it was imported into the Statistical Package for Social Sciences (SPSS), version 25. Firstly, the properties of the variables were adjusted in SPSS. The Likert-style scale coding were labelled for each variable (never = 1, rarely = 2, Sometimes = 3, often = 4, and always = 5) to make the analysis more meaningful. Descriptive statistics (mean, median, standard deviation, minimum and maximum) were calculated for each numeric variable in the dataset. For the Likert-style scale data, the median, mean, quantiles and mode values are also included for further insight (Kafipour and Naveh, 2011).

Cronbach's alpha coefficient was run to test the reliability statistics of the survey questionnaire method. As most statistical tests rely on the normality assumption of the dataset, the normality of each variable used in the study is tested using Kolmogorov-Smirnov and Shapiro-Wilk tests (Hamzeh, 2016; Yao, 2019). The p-value criterion is used for making statistical decisions on the significance of the test (a test with a p-value <0.05 is assumed as significant). To examine the similarities or differences between the VLSs used by the students

before and after, a paired sample t-test or a paired Mann-Whitney U test was applied, depending on the normality assumption of the data. When the data follows a normal distribution, a t-test can be applied to determine statistical significance for two columns. In the current research, two types of t-tests were applied: an independent sample t-test to test for statistically significant differences between the experimental and control groups in the pre-test and post-test, and a paired sample t-test to determine whether there were statistically significant differences between the experimental group scores in the pre-test and post-test, in order to provide answers to the research questions. The non-parametric versions of the t-test and paired t-test, the Mann-Whitney U test and Wilcoxon signed rank-sum tests, were applied when the data failed to follow the normality assumption. As these tests are non-parametric, they do not require for normality assumptions to be fulfilled. Additionally, the gain score value for the t-test is used to check the size of differences when comparing two variables. For the Mann-Whitney U and Wilcoxon signed rank-sum test, the difference between the sum of positive and the sum of negative ranks (alternatively, the difference between the mean of the positive ranks and negative ranks) is used as the gain score criterion.

The analysis of variance (ANOVA) requires equal variances and a normal distribution for each variable used. The one-way ANOVA is suitable for situations where all variables are independent of each other, whereas the analysis of covariance (ANCOVA) is used when an underlying covariance structure exists between the different variables. To overcome the lack of normality and equal variance assumptions, a non-parametric ANOVA named the Kruskal-Wallis test is applied to establish the effect of stream as an independent variable on VLSs before and after training. Moreover, Pearson's correlation is performed between numeric variables, while Spearman's correlation is applied when one of the two or both variables are categorical. Additionally, multiple linear regression was used in this research. Adjusted R-Square and F-test are used to judge the overall model performance. Later on, the t-tests using the p-value approach are presented for each coefficient of the multiple linear regression model. The last technique used in the current study is analysis of covariance (ANCOVA), which is used for data analysis. As the name suggests, in this approach, the covariates are correlated with each other. Therefore, ANCOVA was performed with a 2-way and 3-way correlation between covariates. Tests between subjects was performed and the corresponding P-value, observed power and R-square adjusted are used for suitable model selection. For post-hoc analyses in ANCOVA, the Wilcoxon Signed rank-sum test is also performed. However, in the

event that the data fails to fulfil the normality assumptions, then the non-parametric version of the one-way ANOVA, the Kruskal-Wallis test, must be used.

With regards to the analysis of the qualitative notebook data into a thematic framework, the related words and phrases were coded manually, without the use of any program, as there were not a large amount of responses. The advantage of thematic analysis is that it enables one to locate patterns or trends in the data to reveal meaningful and coherent themes (Nowell et al., 2017).

In this section, the study participants, data collection instruments and procedure of collecting and analysing the data have been described. Generally speaking, the methods used in the current study were selected to overcome certain limitations of previous studies. For instance, this study offered a brief training program which does not last for a whole semester course or a full year, so as to encourage and motivate language learners to enrol; this could in turn have a positive effect on their language learning process. Also, and most importantly, this study measured the participants' vocabulary size before and after the intervention, as well as surveyed their VLS use, and investigated the correlation between them and the extent to which the shorter training period affects their vocabulary knowledge, and finally, determined which strategy had the most effect on the participants' vocabulary size. Training learners with a poor vocabulary level and a lack of linguistic competence (Alahmadia et al., 2018; Alqarni, 2019) might contribute to the knowledge regarding the effects of VLS use training on language learners' vocabulary repertoire (see section 1.7).

In the following section, the context of English language learning at the Saudi university, where the current study was conducted, will be described. Additionally, the diversity of preparatory year and the differences between the fields of study will be defined. At the end of the section, the content of the English language course will be outlined, as well as how some of the texts and paragraphs in the English language coursebook were used in the training sessions for the current study.

3.7 Preparatory Year Deanship

As mentioned in chapter 1, the preparatory year deanship at Saudi University was established in 2012-2013, to administer preparatory year programs. Preparatory year students

are obliged to study general subjects such as English Language, Mathematics, Chemistry, Genetics and Communication Skills. There are three streams in the preparatory year; humanities, science and health. Each stream enables students to specialize in specific majors; for instance, a student who has followed the health stream during the preparatory year is eligible to specialize in medicine or dentistry. With regards to the English language course, the curriculum was designed in cooperation with Monash University in Australia. There are four English course books, each for a different English language level, and each of these books has 7 units. The course is suitable for language learners from the beginner to advanced level. All streams start from book number one, but they do not all study the full course. Humanity students study books one and two over two semesters, while science stream students study books one, two and three, and students in the health stream study all four books. Consequently, students' English language level will vary depending on which stream they are in. The following section will provide an overview of the course book used in the training sessions.

3.8 A Description of the English Language Course at Saudi University

The English language course in the preparatory year at Saudi University uses four books, depending on the stream. The course begins with the basics of the English language, such as the alphabet and numbers, and gradually advances to providing more information about the English language to improve the four language skills. It seems that the programme seeks to overcome university students' lack of English language knowledge, as has been mentioned earlier (section 1.4). To do so, the course starts with the basics to successfully prepare the students for university study. By the end of the course, students should be able to introduce themselves, greet people in different situations, describe people, describe countries, discuss different job titles, give opinions and reasons, link the past to present events, discuss daily routines, express likes and dislikes, and ask for and give information, as shown in the table of contents (see appendix 18). The outcomes for the four language skills are specified in the table of contents for each unit; this is helpful as it provides general information about the kind of content the experimental and control groups were exposed to during their English language classes, throughout the whole semester.

The training sessions took place at the beginning of the first semester, meaning that at that stage, all participants, regardless of streams, were studying the first book; therefore, these were

used in each training session as a source of material for texts and paragraphs. Once the strategy was explained to the participants in the experimental group, the trainer and trainees select one text from the English coursebook and find a new word to practice using the newly learnt strategy. As the focus was more on applying the strategy successfully than the kind of vocabulary or text that was used, the strategy training section will focus on the process of explaining, understanding and practically applying the strategies. There are two reasons for not providing precise information about the texts that were used. The first is that since there are more than fifty strategies, it would be difficult to mention each of the texts which were used in relation to them. The second, as previously mentioned, is that the training focused more on the students' understanding of the strategies than the practical practice, as a large number of strategies were covered in the five training sessions. The experimental groups had three months to practically employ the introduced strategies within their language learning course. Given that the content of the course does not include any resources to improve VLS use, it is likely not an influential factor in the students' use of VLSs during their classes. More information about how the training sessions were conducted will be provided later in this chapter.

The previous paragraphs discussed the research design, participants of the study, instruments for data collection, procedures of data collection, subjects' field of study, and finally, described the English language course taken by the preparatory year at Saudi university. In the following section, I will briefly outline the pilot study which was conducted in order to test the instruments of the current study, and highlight the modifications that were made to the research tools after the pilot study.

3.9 PILOT STUDY

3.9.1 Introduction

This chapter concerns the pilot study that was conducted to test the study's instruments. It will describe how the pilot study was conducted and provide a general idea of the findings. The reason for not including the results of pilot study will be given in the following paragraphs. The study's instruments were tested on a group of students similar to the main study's participants, namely preparatory year students at Saudi University. The end of the chapter includes a description of the main modifications that were made to the instruments in light of the pilot study.

3.9.2 Overview

The pilot study was carried out in April 2016, and involved 30 preparatory year students, 10 from each stream, at Saudi University, Kingdom of Saudi Arabia, over a period of 21 days. Permission was obtained from the dean of the preparatory year to survey the students. Moreover, ethical approval was issued from the University of Leicester to conduct the pilot study (see appendix 19). As mentioned in Chapter 3, Section 2, there are three campuses for the preparatory year and each campus is dedicated to a stream. First, the survey was conducted on the science stream students, then the humanity stream students, before finishing with the health stream students. All 30 students answered the pre-treatment questionnaire and took the pre-treatment test. Then, five students were selected randomly from each stream to be part of the experimental groups, while the other students formed the control group. The experimental groups were given one-hour long training sessions every day for three days. Two weeks later, the control and experimental group students were surveyed and tested again. Unfortunately, four students from the health stream could not attend the post-treatment survey, and test, as they had a practical exam. The questionnaire and vocabulary test completed by the participants in the three streams pre and post-training were marked by me, and the obtained data was entered in the SPSS version 25, in order to analyse it and uncover any significant differences between the experimental and control groups before and after the VLS training and the participants' vocabulary repertoire. The collected data were analysed to determine whether the intervention that the experimental groups attended had any effect on their VLS use and vocabulary size.

However, the main goal of the pilot study was to test the methods that were to be used in the main study. The data obtained from the pilot study is not included or discussed in this thesis, as it is not reliable. Moreover, the period between the pre and post-test was only two weeks, meaning that no differences between the students' use of VLSs before and after the training sessions were expected to be found. The training sessions only took place over three days, so as to allow for any issues with the module used to introduce the strategies to students, and the materials used during the session, such as the translated version of VLSs into Arabic and the duration of each session, to be found, as well as to determine whether introducing all the strategies to the students is a suitable approach. As mentioned earlier, one category of VLSs was introduced to the students in each training session. The largest number of strategies was

covered in the third session, when the experimental group trained on the category of memory strategies. The duration of each session was sufficient to introduce one category of VLSs in each session, showing that allowing one session for each category would likely be enough in the main study. The findings of the pilot study were not included, given the main goal of the pilot study, as mentioned earlier in this paragraph. A statistical analysis was performed on the pilot study data obtained from the VLS questionnaire and vocabulary test. There were no significant differences between the two groups before and after the intervention regarding their use of VLSs and vocabulary repertoire. The insignificant statistical results were expected, given that there was only a two-week period between the completion of the pre and post-intervention VLSs questionnaire and vocabulary test. The most important modifications that were made to the methodologies after the pilot study are outlined in the following section.

3.9.3 Modifications made to the methodologies after the pilot study

Following the pilot study, some modifications were made to the research design and methods.

The first modification made after the pilot study was the reviewing and editing of the Arabic translation of Schmitt's VLS questionnaire (1997) and the consent form by a teacher specialised in Arabic language teaching. He reformulated the Arabic translation of some sentences in the questionnaire and the consent form to make them clearer and easier for the participants to understand in their native language. Also, the demographic questions were modified to obtain precise background information about the participants. Another modification was made to the training sessions in the pilot study, which were not organized appropriately and not based on a specific instructional model for learning strategies. In the main study, the sessions were planned using The Cognitive Academic Language Learning Approach (CALLA), which reflects Chamot and O'Malley's (1986) interest in learning strategies and their desire to enhance learners' and teachers' awareness of LLSs and self-learning. The training sessions programme was reconstructed and planned more successfully in the main study; this illustrates how beneficial the pilot study was in improving the research methodology. The last change was made to the *XK-lex* vocabulary size test (Masrai and Milton, 2012), and was suggested by members of my probation review panel.

As mentioned earlier, and as Masrai (2009) points out, the *XX-lex* (Masrai and Milton, 2012) is a two-version, standard, proven diagnostic measure of vocabulary level, which contains 120 words, of which 100 are real words and 20 are pseudo words (see appendices 5& 6). There were 10 groups of word lists, with each list including 12 words, 10 of which were real English words while the other two were not, and in every group, the second word and word number 11 were the non-words. The panel members suggested that the order of the non-words and words be varied to make the test more challenging for the participants, and to avoid the probability of them discovering the arrangement of the non-words. Moreover, some words were capitalised, while others were not. Changes were made so that all were capitalised.

Another modification made to the methodology after the pilot study was to increase the number of training sessions from three to five, as the students found it difficult to stay focused and fully comprehend the five VLS categories, namely the determination, social, memory, cognitive and metacognitive strategies, over the span of only three sessions. Increasing the number of training sessions to five, over five days, allowed for one VLS category to be focused on in each hour-long session.

The final modification that was made was the addition of a research diary, to enable me to record information obtained from the trainees after each session about their attitudes and feelings towards the VLSs they had been trained on. As previously mentioned, the students had very busy programmes (see section 3.7), therefore, interviews could not be conducted. Due to these time constraints, a research diary was introduced as an alternative tool to obtain information about the students' attitudes and feelings towards the VLS training (see section 3.4).

This section described how the pilot study was conducted, and the reasons for not mentioning the findings within this research. Furthermore, the modifications made on the instruments used in the current study were outlined in the previous paragraphs. These modifications were made to improve the data collection tools and avoid any obstacles which could be faced when conducting the main study and running the training sessions, especially given that it is challenging to introduce so many strategies in such a brief period of time. In the following section, the structure of the strategy training sessions for the main study is explained. Moreover, the scenario of each session and how the strategies were introduced will be described.

3.10 Strategy Training Sessions

Overall, the training sessions lasted 15 hours for the experimental groups across the three streams. Despite the fact that the sessions took place in three different campuses, and each stream had their training separate from one another, the structure, model and scenario of the sessions were unified for all streams. In the following paragraphs, a detailed description of how the intervention was conducted will be provided, and the scenario for each of the training sessions which the experimental group attended will be outlined. For the purpose of this research, participants were integrated in training sessions to increase their knowledge about VLSs, which could enhance their self-regulation, as argued by a number of researchers (see section 2.11.3). With regards to measuring their achievements, the researcher administered the vocabulary test before and after the intervention and determine the extent to which the strategy instruction facilitated their learning process and thus potentially enhanced the components of self-regulation such as motivation, strategic behaviour and metacognition. As mentioned in section 3.5 & 3.7, five training sessions were allotted for VLS training, as the participants were studying an intensive English language course designed by a University, Saudi Arabia, and Monash University, Australia.

As mentioned above, the CALLA instruction model developed by Chamot and O'Malley (1986), was used in this study. It is divided into five stages: preparation, presentation, practising, evaluating, and extending (2.11.7). Schmitt's classification of VLSs was selected for this study as it is comprehensive and well organised. Schmitt identifies five types of strategies; determination, social, memory, cognitive and metacognitive VLSs, and develops his VLS taxonomy on the basis of Oxford's four categories of LLS; Social, Memory, Cognitive and Metacognitive, to which he adds a fifth category, Determination strategies. These include strategies that language learners can use to discover the meaning of unknown words without help from the teacher or other persons.

3.10.1 The process of training sessions

Students used their normal English language course book to practise the strategies presented in the training session for several reasons. The first was to connect the strategies

directly to the course book, so that the students would be able to notice the difference between learning with and without the strategies, and hopefully find that the strategies make the learning process easier and more effective. The second reason is that the course book was suited to the students' English language proficiency level; this also avoided them being confused by a new syllabus. The paragraphs or articles that were selected from their English language book were ones which they had not studied yet, in order to render the practicing of the strategies more challenging and useful for trainees. The participants in the three streams could not be trained together for a number of reasons. First, each stream had different timetable slots for their English language classes as part of a busy weekly schedule. They had a total of 12 hours of English language classes over four days in a week, this being three hours every day, along with other subjects to study during their foundation year (see appendix 17). Therefore, I arranged with their teachers to give the participating students permission to use one of the three hours daily lecture to join the training session. The second reason for not delivering the sessions to all the students together was that each stream is taught on a different campus, and it was more convenient for the participants to attend the training sessions if they were offered on their campus.

After preparing the materials and content of the training sessions, the second stage in the CALLA instruction model was applied, namely presentation, which was integrated with practice in the strategy training sessions. In the first session, before presenting the VLSs, the trainer briefly discussed the expected outcomes of using learning strategies in the process of language learning generally, and in improving and developing vocabulary size in particular. This step was very significant in motivating the participants to fully focus during the training sessions, and make an effort to comprehend and use these strategies. Another reason for highlighting the advantages of VLSs is that it may motivate the participants to integrate these strategies in their regular learning of English language vocabulary after the training sessions, in order to achieve positive results in the last stage of assessment of VLS use. After that, each participant was provided with two versions of Schmitt's VLSs classification, an English one and an Arabic one, to raise the trainees' awareness of the terms and expressions related to VLSs in their mother tongue and the target language. Moreover, the trainees' English level tended to be low, especially given that they were first year university students, and needed more support to increase their vocabulary repertoire in order to comprehend the terms and strategies used within the training sessions.

The classification of strategies in general was explained to the trainees and the nature of each category (determination, social, memory, cognitive and metacognitive) was clarified according to Schmitt and McCarthy's (1997) classification of VLSs (see appendix 3). Arabic was used as the language of instruction in all five training sessions as it is the participants' mother tongue, ensuring that they understood and used the strategies successfully. Using Arabic also enabled them to express their opinions about the strategies easily and ensured they could ask for further clarification using their first language. Subsequently, the trainer explained to the participants that VLSs can generally be divided into two groups; discovery and consolidating strategies. The first group contains strategies for discovering the meaning of a specific word, while the second group contains strategies used to consolidate the meaning of a specific word and remember it. The trainer explained to the participants that most words are easily forgotten after you first discover their meaning, but if you study the word many times and use different strategies to consolidate its meaning, you may be able to retain it. Students were asked about what they usually did when they found a new word. All their answers concentrated on two strategies: using the bilingual dictionary, or asking the teacher for the meaning of this new word. Next, they were asked about what they usually did to consolidate the meaning. They replied that most of the time, they wrote the meaning in Arabic beside the word in the text and returned to the text in their course book to revisit the meaning and attempt to memorize it. Subsequently, the trainer was able to motivate them by emphasizing the advantage and significance of the training sessions, which would provide them with more options and opportunities to use over 50 VLSs instead of using just two or three strategies.

The following paragraphs provide a detailed description of how the training sessions were conducted session by session, which VLSs were presented in each session, how the strategies were practised during the sessions, and how the sessions ended. Before providing this description, a visualization of the targeted category of VLSs in each training session is presented.

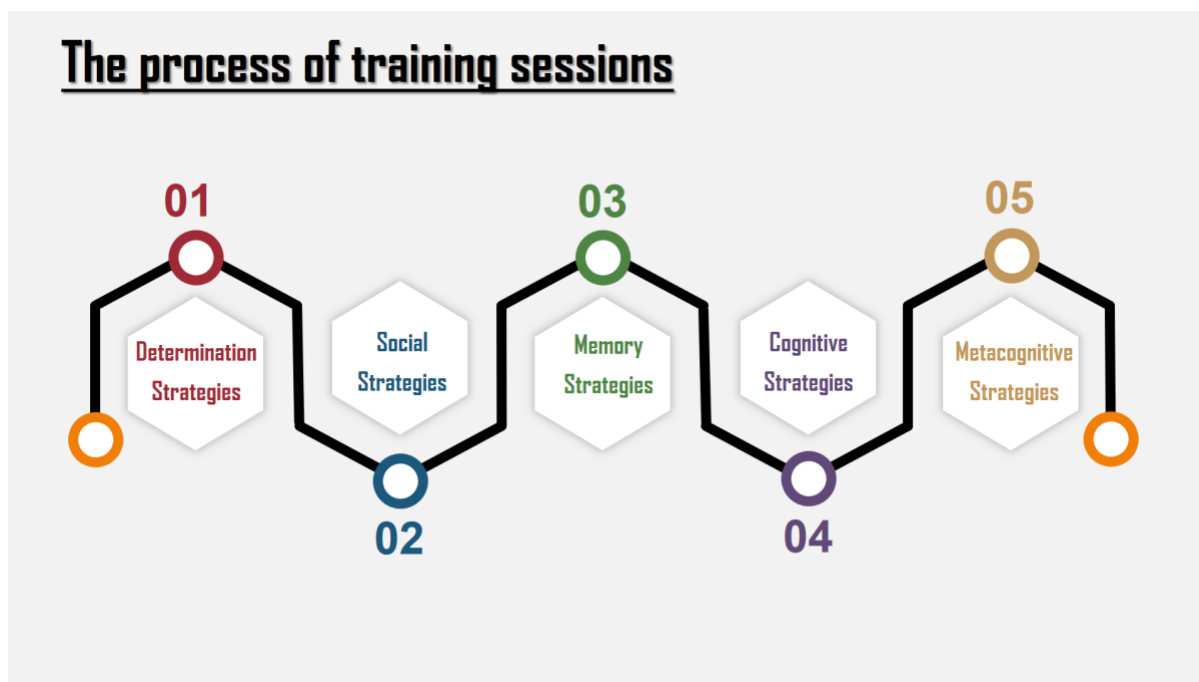


Figure 3-2 The process of training sessions for the current study

3.10.2 The first training session on VLS use

The first session started with the first category, discovering the meaning of new words, which is a determination strategy. A question was written on the board: what are the steps that language learners follow to determine the meaning of a new word? This question was followed by the nine determination strategies:

- 1- Analysing its part of speech.
- 2- Analysing its affixes and roots.
- 3- Checking for an L1 cognate.
- 4- Analysing any available pictures or gestures.
- 5- Guessing its meaning from textual context.
- 6- Using a bilingual dictionary (e.g. an English-Arabic dictionary).
- 7- Using a monolingual dictionary (e.g. an English-English dictionary).
- 8- Using word lists.
- 9- Using flash cards.

Adapted from Schmitt's classification of VLSs (see appendix 3).

Finding out whether the word is a noun, verb, adjective or adverb (step 1) is essential for the learner to determine its meaning. Usually, learners need to go through several more steps to determine a new word's meaning. They start by determining the part of speech, clarify the affixes and roots of the new word, then establish whether there is a cognate in the Arabic language, and so on. The learner can stop at any of these steps if he/she has reached the meaning of the new word. There are two major benefits to following these steps: studying the use of the word and helping to consolidate the meaning of this new word. Although it is initially time consuming to follow these steps in the early stages of the learning process, the students felt that over time, they would become more proficient in applying and using these strategies. The second step is to analyse the new word's affixes and root; for example, in the case of "happiness", "happy" is the root and "ness" is a suffix. The types of affixes were introduced briefly, and most of the participants were already familiar with this point.

With regards to the third step taken when having encountered a new word, learners should check first language cognates and different examples presented to them, for instance, tomato, potato, television, etc. After that, the learner tries to analyse any pictures in the textbook. Most of the text in the English course book is accompanied by pictures that relate to the main idea. This step helps to find the meaning quickly and consolidate it by connecting it with specific pictures or gestures.

The next step is guessing the meaning from context; a five-step model is suggested by Nation (1990) in relation to this. The first step is to determine the part of speech of a new word. The second is simplifying the grammatical context in which "learners can practice clarifying a passive construction into an active one, and by interpreting reference words" (Nation, 1990: 258). The third step is looking at the wider context of the unknown word and finding its relations with other words and sentences, while the fourth step is guessing the meaning of the unknown word. The final step is checking whether the guess was correct.

After presenting the five-step model for guessing the meaning of a word from the textual context, learners were provided with dictionaries, which brings us to the sixth and seventh VLSs under the determination category. Most participants preferred to use a bilingual dictionary, as this is an easy and rapid way to obtain the meaning, but struggled to remember it when facing the same word in different texts. This gave me the opportunity to explain the

advantages of using a monolingual dictionary instead of a bilingual one, which arise from the way in which the use of this dictionary exposes the learner to the language; the learner can discover different aspects of the unknown word, such as the pronunciation, spelling, collocations, grammatical characteristics, and can also obtain information with regards to frequency, register, sample sentences, and so on. In contrast, when the learner uses a bilingual dictionary, he/she will mostly concentrate on the Arabic meaning. The participants realized the significance of using a monolingual dictionary by using it during the first training session. When asked whether they preferred to use a bilingual dictionary or a monolingual dictionary, they replied that they felt that using the monolingual dictionary instead of the bilingual one helped them improve their English language proficiency more effectively and rapidly. Next, the students were introduced to the last two strategies in this category, which focus on using word lists and flash cards. Both are useful for language learners during initial exposure to the language in translation, as the language learner has a list of new words that have been translated into their mother tongue. The strategy can also be extended to support a more advanced level of vocabulary learning to include sample sentences, collocations, grouping, etc. (Schmitt and Schmitt, 1995). After that, students practiced finding the meaning of a new word using the two types of dictionaries. They also analysed word roots and affixes. Lastly, they practiced guessing the meaning of some unknown word from the context of the sentence and paragraph. At the end of the first training session, students were asked about their attitudes towards the determination strategies; they expressed positive attitudes towards the nine types of determination strategies and found them useful when looking to figure out the meaning of new words (see appendices 7, 8 & 11). Moreover, they had the chance to practice the strategies presented and had the opportunity to ask for further clarification if facing difficulties in using one of the determination strategies (see appendices 9 & 10).

3.10.3 The second training session on VLS use

During the second training session, the determination strategies were reviewed, after which the social strategies were introduced to the participants. These are divided into two groups depending on their function; discovering the meaning and consolidating the meaning:

The social strategies for discovering the meaning of unknown words include:

- 1- Asking the teacher for an L1 translation.

- 2- Asking the teacher for a paraphrase or synonym of the new word.
- 3- Asking the teacher for a sentence including the new word.
- 4- Asking classmates for meaning.
- 5- Discovering new meaning through group work activity.

The social strategies for consolidating the meaning of new words include:

- 1- Studying and practicing the meaning in a group.
- 2- Asking the teacher to check flash cards or word lists for accuracy.
- 3- Interacting with native speakers.

Adapted from Schmitt's classification of VLSs (see appendix 3).

These strategies mainly focus on asking someone who knows the meaning of the unknown word, and most of the time, it is the teacher. Learners asked their teacher about the L1 meaning, synonyms, antonyms, and making a sentence including the new word. Moreover, language learners can discover the meaning through their classmates or in group work. On the other hand, learners can consolidate the meaning of unknown words by practising using the words whether in groups or with one of their classmates. Moreover, checking the accuracy of word lists or a specific words' meaning with a language teacher leads to successful vocabulary learning (Kramsch, 1979: 154). The last social strategy introduced to participants was interacting and communicating with a native or a non-native speaker to gain new vocabulary and use recently learned words (Krashen, 1982: 60).

At the end of the second training session, students practiced these strategies by using their textbook and trying to find out the meaning from their teacher (trainer) or classmates or through group work activities. They expressed their enthusiasm about using the social strategies because they helped them to interact with others using the English language to gain new words, and found that learning words in specific situations makes them easier to remember (see appendices 7 & 8). The students were encouraged to practice the strategies learnt within their regular English language classes and at home, and if they had any questions about these strategies, they could address them by asking the trainer during the next training session.

3.10.4 The third training session on VLS use

At the beginning of the third training session, trainees were reminded of the strategies

that they learned in the first and second training sessions, and received further support regarding any questions they had about the strategies learnt. After that, the nineteen memory strategies were presented, which fall under the category of consolidating strategies. These are listed below:

- 1- Studying the word with a pictorial representation of its meaning.
- 2- Imaging the word's meaning.
- 3- Connecting the word to a personal experience.
- 4- Associating the word with its coordinates (words around a new word).
- 5- Connecting the word to its synonyms and antonyms.
- 6- Using semantic maps (Meronymy e.g. **Oxygen** is part of **air**, and Hyponymy e.g. **A cheetah** is a kind of **cat**).
- 7- Using 'scales' for gradable adjectives (e.g. good, better, best).
- 8- Grouping words together to study them.
- 9- Using the new word in sentences.
- 10- Grouping words together within a storyline.
- 11- Studying the spelling of a word.
- 12- Studying the sound of a word.
- 13- Saying the new word aloud.
- 14- Imaging the word form (e.g. a new word has a noun form and verb form).
- 15- Remembering the word using its affixes and roots. (e.g. happy=root OR happy + ness affix = happiness).
- 16- Remembering the word using its Part of Speech (e.g. noun, verb, adjective).
- 17- Paraphrasing the words' meaning.
- 18- Using cognates (e.g. Cotton is the same word in Arabic but written with Arabic letters).
- 19- Using physical action when learning a word.

Adapted from Schmitt's classification of VLSs (see appendix 3).

Each of these strategies was presented explicitly to the trainees and they practised them within the training sessions by using them to consolidate the meaning of some of the words they had recently discovered. The students began by practicing the sound and spelling of some of the new words in their coursebook. They wrote the words many times and repeated them aloud. They also practiced connecting the words with physical items or actions; for instance,

they named the facilities in the classroom and used them in sentences. Then, the participants practiced connecting the new word with their own experiences, using the unit in their coursebook which addresses the topic of family members. After that, they practiced finding the synonyms and antonyms of some of the words in the text. Then, the students had the chance to study a number of associated words together and group them. They found that more than one strategy can be used to learn new vocabulary. Following this, the participants practiced learning a new word using the semantic maps by finding links between words, as explained in the classification. Then, they practised memorizing the new words through gradable scales and tried to find an adjective in the text, before determining what other grades of that adjectives. Lastly, the final practice element of the session focused on some of the determination strategies introduced in the first session, which can be used to remember a word by recalling the verbs or nouns, or the affixes or roots associated with the newly learnt word. While practising the use of these strategies, students received support if they encountered any difficulty in using or applying them in real situations. As the discussion was verbal, I noted everything down in the research notebook; at the end of the third training session, participants felt that they were able to use and apply the memory strategies appropriately and expressed their eagerness to learn more techniques and strategies to improve their vocabulary learning process (see appendices 7 & 8).

3.10.5 The fourth training session on VLS use

The determination, social, and memory strategies were revised at the beginning of the fourth training session. Then, the cognitive strategies were presented; these are similar to the memory strategies but focus on controlling the intellectual processing itself, while in contrast, memory is the place in which information is stored and from which it is retrieved. The cognitive strategies include repetition and utilizing mechanical means to study vocabulary. The strategies were explained to the participants and listed as follows:

- 1- Repeating the words aloud many times.
- 2- Writing the words many times.
- 3- Making a list of new words.
- 4- Putting the new words on flash cards.
- 5- Taking notes in class.

- 6- Using the vocabulary section in your textbook.
- 7- Listening to a tape of word lists.
- 8- Putting English labels on physical objects.
- 9- Keeping a vocabulary notebook.

Adapted from Schmitt's classification of VLSs (see appendix 3).

Repetition is an effective strategy to retain words easily. Participants practised the first strategies by repeating some words aloud in the class, in order for them to learn how to pronounce them correctly; when asked, they said that they found it useful to listen to the repetition of words, which consolidated them in their repertoire (see appendices 9 & 10). Moreover, they mastered the spelling of new words by writing them many times during the session. Additionally, trainees understood that the first strategy improved their speaking skills, while the second improved their writing skills, knowledge which can be used to learn vocabulary successfully. The third and fourth strategies focused on word lists and flash cards; these can be kept in a notebook, which can be an advantage, as a learner can access them anywhere and study the words repeatedly. This ties in with the ninth cognitive strategy, which is to give the learner a view of their vocabulary learning progress and the ability to rehearse the words easily. Participants were advised to keep a vocabulary notebook and judge for themselves the extent to which this was effective and useful in enhancing their vocabulary repertoire. As mentioned earlier, participants' use of VLSs and their vocabulary size were measured before the vocabulary training sessions and again after three months, to chart their improvement in using the strategies and their vocabulary size, and the extent to which the training sessions affected the participants' vocabulary size and VLS use positively or negatively, if at all.

Following this, the sixth strategy was explained, which encourages students to benefit from the vocabulary section in their course book. Examples were introduced from the end of their regular English language course book, which included a list of the most important new vocabulary items in the book's chapters. This list enabled students to study and revise a collection of significant vocabulary derived from their course book. After this, the seventh strategy was explored. It not only helps to consolidate the meaning of unknown words, but also improves speaking and listening skills, given that it requires learners to record a list of words and listen to it repeatedly. Participants recorded some new words on their smart phones and

listened to their recordings with their classmates; support was provided to the trainees to help them pronounce the words correctly. Finally, the last strategy concerned identifying the English names of physical objects such as chairs, desks, boards, beds, refrigerators etc., by putting labels on them. This enabled the students to see the words many times and link them with specific objects. Examples were provided by placing some labels on certain physical objects in the lecture room. At the end of the fourth training session, students practised using the cognitive strategies they learned.

3.10.6 The fifth training session on VLS use

The fifth session mainly focused on two points: presenting the last category of Schmitt's VLSs taxonomy, namely metacognitive strategies, and revising all the VLSs presented during all five training sessions. The metacognitive strategies are broad strategies that can help learners to manipulate and evaluate their own learning process through the following:

- 1- Using English-language media (songs, movies, newscasts, etc.).
- 2- Testing oneself with word tests.
- 3- Continuing to study new words many times.
- 4- Skipping or passing over the new word.
- 5- Paying attention to English words when someone is speaking English.

Adapted from Schmitt's classification of VLSs (see appendix 3).

Learners can acquire a significant number of new words by using English-language media such as listening to music and watching films, TV programmes or the news. Participants said that they spend some time watching English films with Arabic subtitles. They were advised to maximize their exposure to the language in order to improve. Spending as much time as possible listening to and watching the news, TV programmes, films or songs, will accelerate the development of a learner's English language proficiency through gaining more vocabulary items (Faliyanti & Arlin, 2018). This enables learners to produce the language, whether in speaking or writing. During the training session, students watched a YouTube Video of a British Broadcasting Corporation (BBC) channel broadcasting breaking news. They discovered the meaning of some new words through the context that they were used in, and heard how to pronounce them correctly. They also watched part of an English film, tried to

repeat some of the sentences, discovered the meaning of unknown words, and wrote them down in their vocabulary notebook. Students liked this strategy because they had fun learning.

The second metacognitive strategy asks learners to establish how much progress they have made in enlarging their vocabulary repertoire by testing themselves with word tests aimed at students at different levels. These kinds of tests can easily be found online and are free of charge. They are usually suitable for a range of different levels, from beginners to advanced. Learners can benefit from word tests, which measure vocabulary level, new words learned, and the use of these words in sentences, amongst other things. Online word tests have many advantages over paper tests; for instance, they are easily marked, provide the correct answers, and can be accessed everywhere and at any time. Trainees practiced this strategy during the session by using their smart phones and trying the first level of any online word test. The third strategy focuses on the effectiveness of the repeated practise of new words, as learners mostly forget recently learned words if they do not study them repeatedly.

The fourth strategy suggests skipping unknown words to improve your reading speed. It can be difficult for learners to get to know low frequency words, so skipping this kind of vocabulary might accelerate their learning process (Schmitt, 1997, p.208). Trainees were advised to skip or pass over unimportant words which they would use very rarely. It has been suggested that language learners should consider certain factors when deciding whether a word is important or can be skipped. They should ask themselves the following questions to determine how significant an unknown word is:

- 1- Is it related to your field study?
- 2- Are there any root or affixes that can be useful to learn?
- 3- Is it repeated twice or more?

Li (1983, cited in Nation 1990: 141)

The fifth and final strategy stresses the significance of communication with native speakers, and focusing on words produced verbally by a native speaker. At the end of the final session, students revised all of the VLSs, received support and were able to practice any strategies they found complicated, such as using semantic maps or using 'scales' for gradable adjectives. It seems that they found the latter strategy difficult as it is related to English

language grammar rules; moreover, students study gradable adjectives in the second semester of their foundation year. Regarding the semantic maps strategy, students may have found it complicated because it required them to have more depth in vocabulary knowledge.

As recorded in my research diary, participants said that they benefitted from these training sessions and they learned new, useful and effective tools and techniques that might support them in accelerating their vocabulary growth and thus improving and developing their English language proficiency level successfully in the four language skills (Listening, Reading, Writing, and Speaking) (see appendix 7). Students' attitudes and feelings toward the VLSs and the training session were noted in the notebook, which will be analysed and discussed in depth in the following two chapters.

The structure and scenario of each training session were described in the previous paragraphs. To sum up, the first session outlined the taxonomy used in the training and some of expected advantages which can be gained from said training. The experimental groups were trained on one category of VLSs according to Schmitt & McCarthy's (1997) classification (see appendix 3). The materials used in the training sessions were translated into Arabic. The trainer (who is the researcher), noted down some of the students' verbal reactions at the end of each session. Moreover, a report was written after each training session to reflect on the students' attitudes toward VLSs and the intervention. Both the students' responses at the end of each training session and the report will be discussed extensively in the analysis chapter. Once all of the VLSs in Schmitt's taxonomy were presented and practiced, all the participants in the study, whether in the experimental or the control groups, attended their regular English classes for three months. At the evaluation stage, all sixty participants in both the experimental and control groups for the three streams answered the post questionnaire about VLSs (Schmitt & McCarthy, 1997) and took version (B) of the vocabulary test (Masrai and Milton's *XX-lex* vocabulary size test version A & B, 2012).

3.11 Conclusion of the Chapter

In conclusion, this chapter has provided information about methodologies, the pilot study and the strategy training sessions. The methodology section shed light on the study's participants and the instruments used, as well as explained how and why they were selected.

The three main instruments used to collect the data are described, these being a questionnaire focusing on VLSs, according to Schmitt's classification of VLSs, the *XK-lex* test (Masrai and Milton, 2012) and the research diary. In the second half of the first part of the chapter, the formal and informal procedures that were followed to obtain and analyse the data were listed step-by-step. The most used techniques in the SPSS were highlighted and justified. In the final part of the first section of the chapter, the preparatory year students' English language coursebook which was used during the VLS training sessions was described (section 3.8). The following section dealt with the pilot study and the most important modifications made to the research design after the pilot was conducted. Finally, the process followed during the strategy training sessions was outlined; the CALLA instruction model suggested by Chamot and O'Malley (1986) was used when designing the training sessions.

The following chapter explores the data obtained from the two quantitative research methods (3.4), which was entered into SPSS to be analysed. It also presents the data obtained from the qualitative research method, which was manually coded and analysed thematically.

Chapter 4

DATA ANALYSIS

4.1 Overview

The current chapter includes the results of the main study, and the data analysis is shown for each research sub-question. First, however, the subjects, instruments and sub-questions are described briefly for convenience (see Chapter 3 for more detail on the methodologies employed). Finally, the notebook data is presented and analysed at the end of this chapter.

4.2 Introduction

Although the main objectives of the study are defined in Chapter 1, for clarity, they are once again listed below:

- (i) to explore VLSs that can be utilized by preparatory year students at a Saudi university;
- (ii) to identify the English vocabulary size of Saudi students studying English at a Saudi university, and
- (iii) to examine the effects of VLST on the results of vocabulary size tests taken by Saudi preparatory year students.

To achieve these objectives, data was collected using two methods, as mentioned in Chapter 3. First, a VLS questionnaire taken from Schmitt and McCarthy (1997), consisting of 50 Likert-scale items with a 0.78 reliability coefficient (Schmitt and McCarthy 1997, pp. 207-208) was used to explore the students' use of VLSs. The questionnaire items were categorized into five clusters of VLSs: (A) determination, (B) social, (C) memory, (D) cognitive, and (E) meta-cognitive (see appendix 3); a version of the questionnaire translated into Arabic was also used (see appendix 4). The second instrument measured the students' vocabulary size. The *XK-lex* (Masrai and Milton, 2012) is a yes/no test format which asks learners to place a tick beside words they recognize (see appendix 5). The data was entered into the Statistical Package for Social Sciences (SPSS), version 20, after being coded and labelled. The methods of data analysis included descriptive statistical measures of means, standard deviation, frequencies, gain scores and percentages (section, 3.6).

The main research question is:

Does training in the use of VLSs affect the results of vocabulary size tests of preparatory year students at Saudi University?

Answering this question requires answers to be provided to the following sub-questions:

1. What are the similarities and differences between the VLSs used by the students before and after the VLST?
2. Is there any statistically significant difference between the vocabulary size of the control and experimental groups before and after training in the use of VLSs?
3. Is there any correlation between the VLSs employed by the students and their vocabulary size?
4. Are there statistically significant differences in the use of VLSs related to factors addressed in the demographic questions?

The demographic characteristics of the participants in the study and other personal information were also obtained, as shown in section 4.4.

4.3 Reliability statistics

Cronbach's Alpha Coefficient was used to measure the reliability and internal consistency of the survey questionnaire. A value greater than 0.6 is assumed as minimally acceptable and values greater than 0.8 are assumed excellent.

The results are displayed in Table 4.1. Participants were surveyed before and after the training sessions (see 3.5). As shown in Table 4.1, 50 items were tested pre and post-intervention.

Table 4-1 Reliability statistics

Training	No of items	Cronbach's Alpha
Pre-training	50	0.813
Post-training	50	0.944

Results from testing the questionnaire before and after training revealed Cronbach's Alpha coefficient values of 0.813 and 0.944, indicating that the questionnaire method used for data collection achieved very high reliability and internal consistency, and generalizations can be made from the study's results.

4.4 Demographic Characteristics

Table 4.2 focuses on the students' answers to eight demographic questions. The demographic characteristics and other personal information relating to the subjects who participated in the study are shown in Tables 4.2 – 4.6. Table 4.2 displays the age of participating subjects and their streams. Participants had to choose from four age categories (18-20 years / 21- 23 years / 24-26 years / over 26 years) (see appendix 14). The methodology defines the necessity of splitting the age into sub-categories (see 3.4).

The table below includes only the first and second age categories, as there were no participants in the other age groups. I did not consider other age categories as the study comprised of undergraduate university students. The second section of Table 4.2 displays the streams of the preparatory year students at Saudi University. The participating subjects specified whether they were Humanity, Science or Health students. The figure between brackets represents the number of students out of 60 participating subjects.

Table 4-2 Sample distribution according to demographic characteristics by group (n=60)

Demographic characteristics	Experimental group %	Control group %
1. Age		
18-20 years	46.7 (28)	45.0 (27)
21-23 years	3.3 (2)	5.0 (3)
2. Stream in the preparatory year		
Humanity stream	16.7 (10)	16.7 (10)
Science stream	16.7 (10)	16.7 (10)
Health stream	16.7 (10)	16.7 (10)

Table 4.2 shows the sample distribution according to age and stream. 46.7% of students in the experimental group are 18 to 20 years old, compared with 45.0% of students in the control group. Furthermore, 3.3% of students in the experimental group are 21 to 23 years old compared with 5.0% of the students in the control group. Thus, the majority of the students, whether in the experimental or control group, were in the 18-20 age group, which comprises 91.7% of the total number of participants. The subjects are distributed equally between the academic streams, with 16.7% in each of the humanity, science, and health streams, for both the experimental and control groups.

Figure 4.1 displays the age-related information graphically to highlight the preponderance of students in the 18-20 year age group.

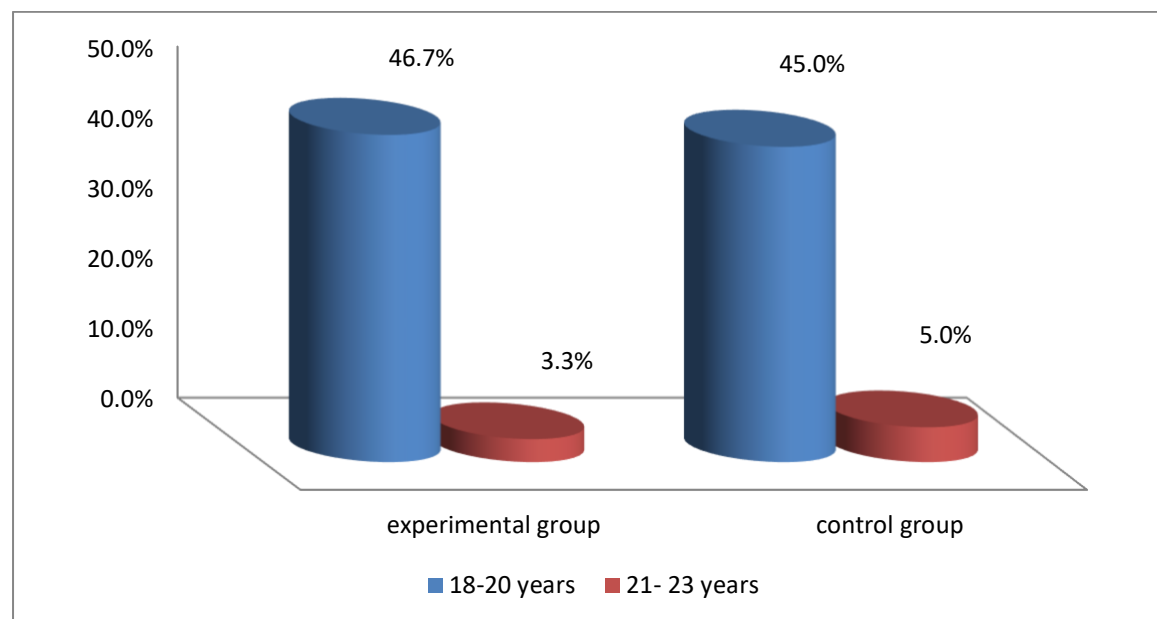


Figure 4-1 Participants' distribution according to age

Table 4.3 includes four questions which focused on participants' background in English language learning. The first and second questions looked at whether the participating subjects had had an extended stay in an English-speaking country and exactly how long they had lived there. The next demographic question was about how long they had been studying English. There were four categories to choose from: "1-3 years", "4-6 years", "7-9 years" and "more than 9 years" (see appendix 14). The table only includes the second and third categories, all

the students had studied English between 4 and 9 years. The last section of the table displays participating subjects' answers concerning the reasons why they were learning English. There were four options available to answer this question, namely "personal interest", "travelling abroad", "finding a job easily", or "other reasons".

Table 4-3 Sample distribution by personal information on studying the English language (n=60)

1. Having had an extended stay in an English-speaking country	Percentage %
Yes	10.0 (6)
No	90.0 (54)
2. How long did you stay in an English-speaking country?	
1-3 months	1.7 (1)
4-6 months	5.0 (3)
7- 9 months	1.7 (1)
More than 9 months	1.7 (1)
None	90.0 (54)
3. How long have you been studying English?	
4-6 years	83.3 (50)
7-9 years	16.7 (10)
4. Reasons for studying English	
Personal interest	56.7 (34)
Travelling abroad	8.3 (5)
Finding a job easily	26.7 (16)
Other	8.3 (5)

Table 4.3 shows that the majority of participants (90.0%) had not had an extended stay in an English-speaking country, while only 10.0% confirmed that they had. However, when participants were asked how long they had stayed in the country, 5.0% of them reported that they had stayed for 4-6 months, whereas only 1.7% reported that they had stayed for other periods, namely 1-3 months, 7-9 months, and more than 9 months. The sample size for a longer stay in an English-speaking country is too small to draw any general conclusions from it.

When participants were asked to present their reasons for studying English, the majority (56.7%) confirmed that they studied English for personal interest, whereas 26.7% said they studied English to find a job easily. 8.3% expressed that they studied English for travelling abroad, and 8.3% reported that they did so for other reasons. Therefore, personal interest was the most important reason behind participants' decision to study English.

The demographic questions target participants' background in English-language learning. The majority of participants had not had a lengthy stay in an English-speaking country. The second section of Table 4.3 gives more precise details of the length of the stay. Only 6 students stayed in an English-speaking country, while the other 54 students did not. Moreover, Table 4.3 shows that all the participating subjects had been studying English for more than three years.

The following table displays the participants' responses to the other demographic questions, which aimed to find out more about their usage of the English language and VLSs.

Table 4-4 Students' responses concerning the English Language and VLSs

The Demographic Questions		%	Always	Often	Sometimes	Seldom	Never	M	SD
1	Do you speak English outside of the university?	%	5.0 (3)	20.0 (12)	36.7 (22)	23.3 (14)	15.0 (9)	2.77	1.09
2	Do you watch English language TV programs?	%	48.3 (29)	11.7 (7)	18.3 (11)	15.0 (9)	6.7 (4)	3.80	1.36
3	Do you read English language books, journals, or newspapers other than what is required for the course?	%	1.7 (1)	5.0 (3)	25.0 (15)	41.7 (25)	26.7 (16)	2.13	0.93
4	Do you enjoy studying English?	%	53.3 (32)	18.3 (11)	18.3 (11)	6.7 (4)	3.3 (2)	4.12	1.14

5	Do you use vocabulary learning strategies?	%	0.0 (0)	8.3 (5)	30.0 (18)	8.3 (5)	53.3 (32)	1.93	1.09
			Yes	No					
6	Do you use any kind of strategies that improve your vocabulary?	%	46.7 (28)	53.3 (32)				1.53	0.50
7	Have you ever received training in vocabulary learning strategies?	%	8.3 (5)	91.7 (55)				1.92	0.28
8	What is the skill that improves your vocabulary size most effectively?	Skills	Writing	Speaking	Reading	Listening		M	SD
		%	8.3 (5)	43.4 (26)	23.3 (14)	25.0 (15)		2.35	0.95

Note: The number between brackets represents the number of students out of 60 participating subjects.

As shown in the table 4.4, students had the choice to choose from five options to answer each question (always, often, sometimes, seldom and never). These questions sought to obtain information about the subjects' perceptions and experiences of English language learning in general and VLSs specifically. The linguistic classification for using English outside University are explained as under,

Always: Very often or frequently use English outside the university.

Often: lesser than frequent use of English outside the University.

Sometimes: not very frequent but use English outside University as per need.

Seldom: Very low rank for the usage of the English language.

Never: Do not use English at all.

The 5-scale Likert style is used in the analyses as 3-scale was short to cover the variations in responses and 7-scale was wider (Hartley, 2014).

In the following section, the survey results for each question are explored individually. Later, a complete analysis presenting the associations between pairs of variables is provided.

Question 1: speak English outside of the university

To thoroughly understand the interests and intentions of the participants and their development in learning English, it is necessary to first investigate how often they use the English language outside of university. The results show that 5% of the participants claim that they always speak English outside the university, while 20% said that they often do. The study revealed that most participants (75%) showed their intentions of lack of interest in speaking English outside the university (see Figure 4.2).

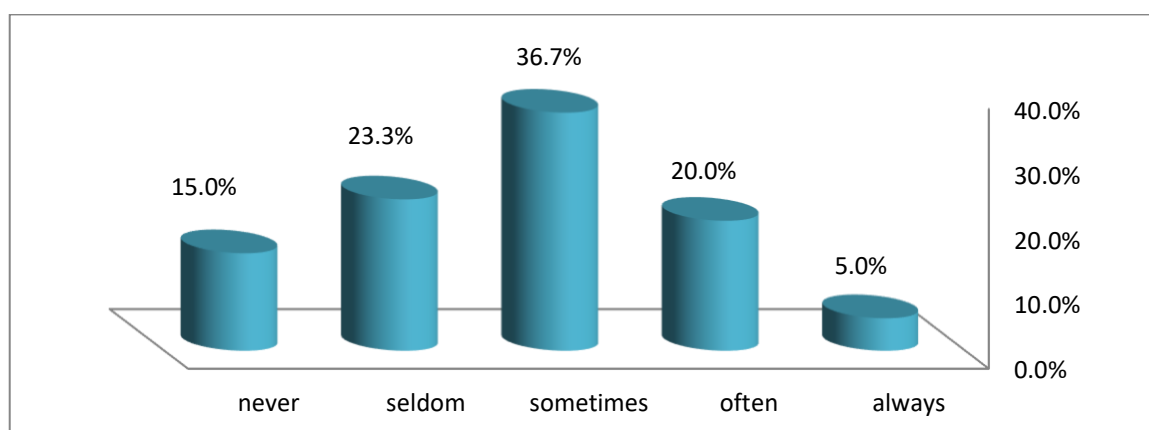


Figure 4-2 Participants' attitudes towards the English language and VLSs

Question 2: The frequency with which students watch English-language TV programs.

When the students were asked how often they watched English-language TV programs, the majority (60%) said they did so often or always, and 18.3% sometimes did. Lastly, a minor group (22%) of participants had almost no interest in watching English-language programs (see Figure 4.3)

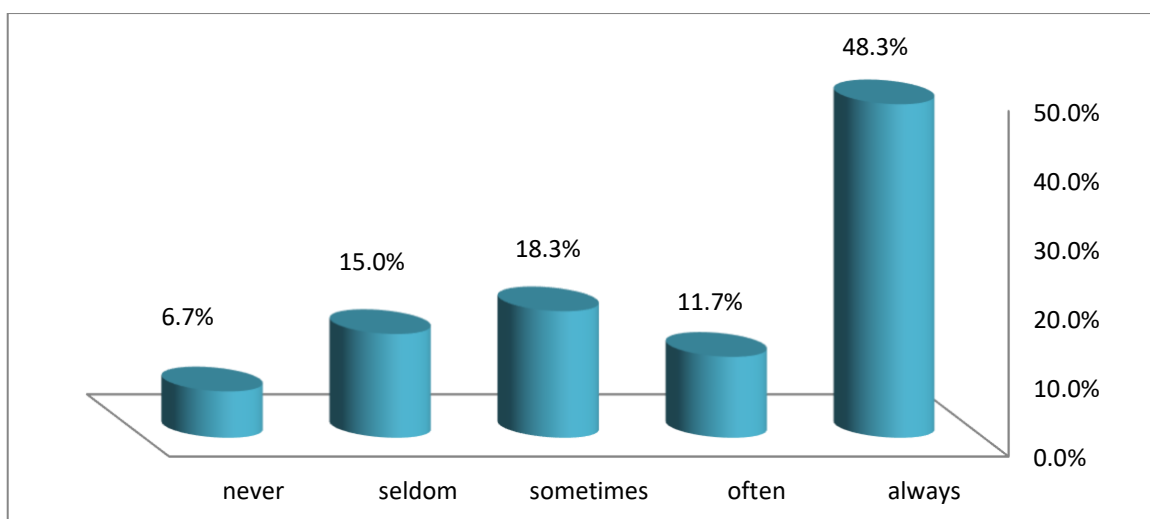


Figure 4-3 The frequency with which students watch English-language TV programs

Question 3: Students' responses regarding reading books, magazines, newspapers etc.

When the students were asked whether they read books, journals, or newspapers written in English, other than what was required for the course, 68.4% responded that they never or seldom did, 25.0% sometimes did and 6.7% often or always did.

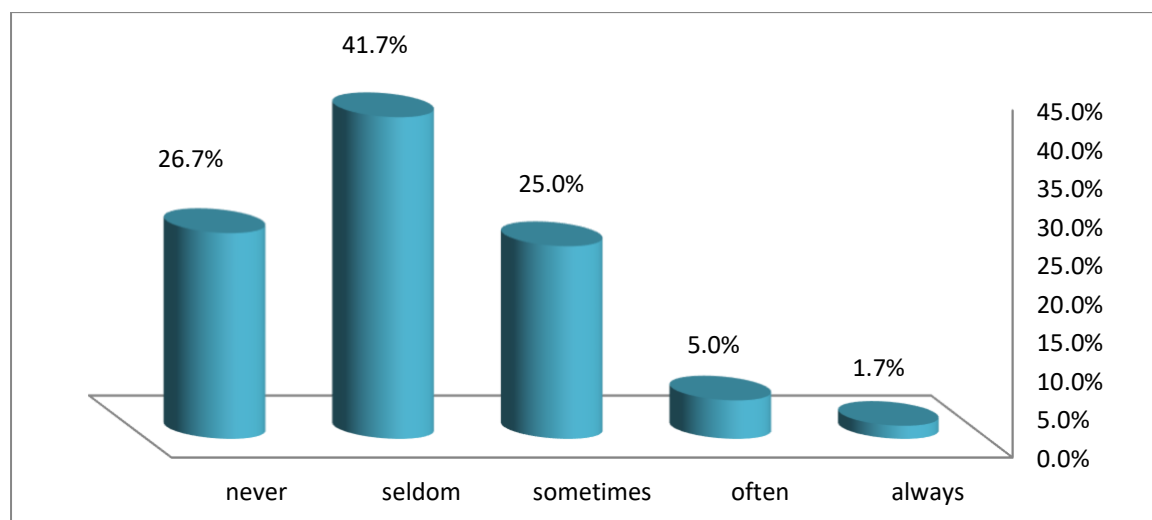


Figure 4-4 Responses regarding reading books, magazines, newspapers etc.

Question 4: Students' enjoyment of studying English.

When participants were asked whether they enjoyed studying English, the majority (71.6%) confirmed that they did, while 18.3% sometimes enjoyed it, 6.7% seldom enjoyed it and 3.3% never enjoyed it.

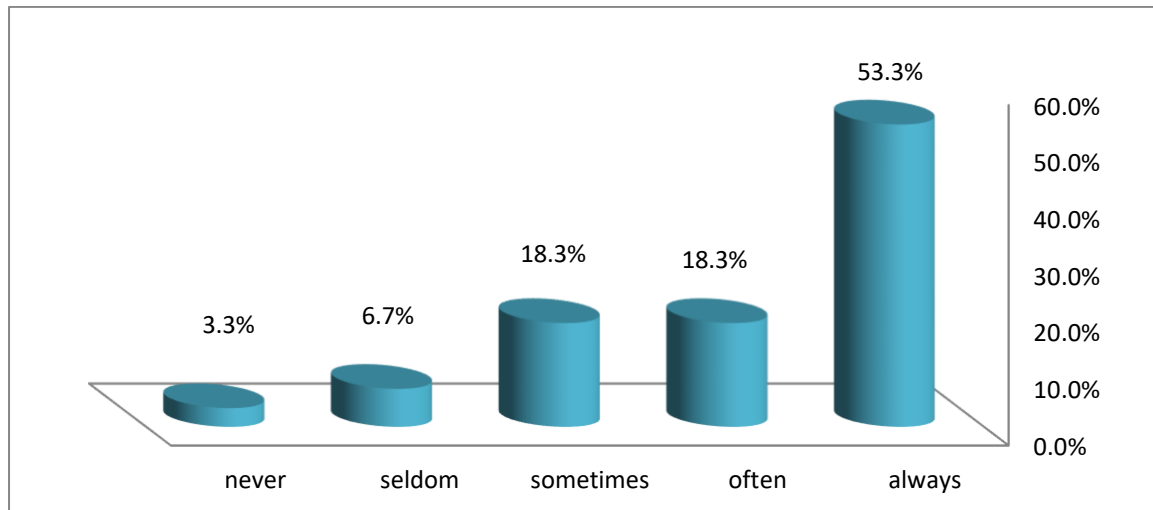


Figure 4-5 Students' enjoyment of studying English

Question 5: The frequency of using vocabulary learning strategies in general.

Figure 4.6 shows that 46.7% of the students used some kinds of strategies to improve their vocabulary, while the majority (53.3%) did not use any.

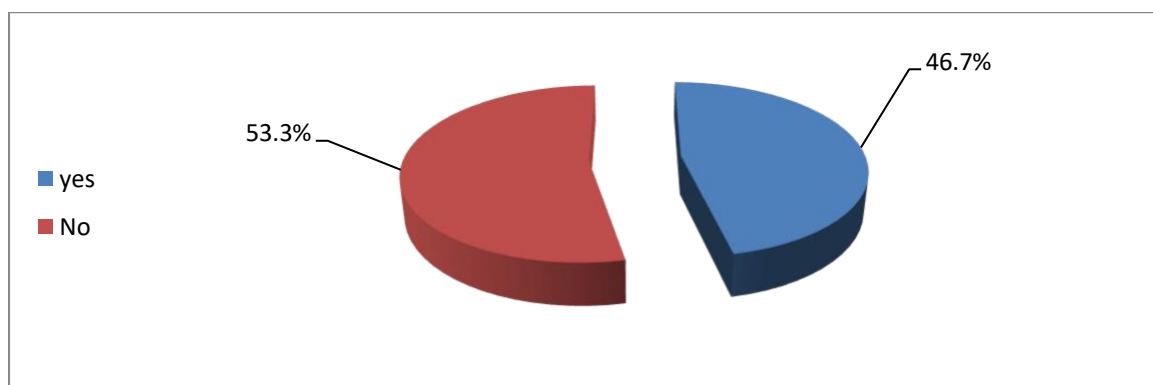


Figure 4-6 Participants' use of strategies to improve their vocabulary

Question 6: Participants' training in VLSs

When participants were asked whether they had received training in VLSs, the majority (91.7%) believed that they had not, while only 8.3% confirmed that they had as shown in figure, 4.7.

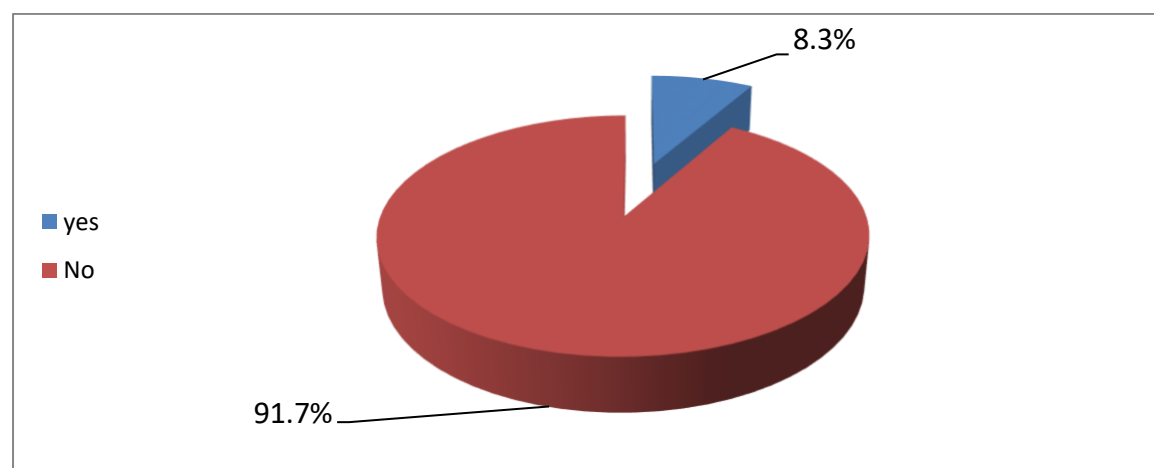


Figure 4-7 Participants' training in VLSs

Question- 7: Students' perceptions of the potential of using skills to improve their vocabulary size.

As can be seen in Table 4.5, 43.3% of students believed that the most important skill for improving their vocabulary size was speaking, whereas 25.0% thought that listening was the most effective skill. 23.3% thought that reading was the most effective strategy, and only 8.3% reported that writing was the most important.

Table 4-5 Students' perceptions on the potential of using skills to improve their vocabulary size

Skills	Frequency	Percentages %
Speaking	26	43.4
Listening	15	25.0
Reading	14	23.3
Writing	5	8.3
Total	60	100.0

4.5 Research questions

This section deals with the analysis of data obtained from students' responses in the VLSQ and vocabulary test for both the experimental and control groups in the three streams (see section 3.5). The analysis will be categorised based on the research questions for the current study. Each question is answered in light of the findings that emerged from the statistical analysis of the data using different assumptions (see section 3.6).

4.5.1 Research Question One

1. What are the similarities and differences in the VLSs employed at a Saudi University by preparatory year students before and after they are trained in their use?

To examine the main VLSs employed at a Saudi University by preparatory year students before and after they had been trained in the use of VLSs (determination, social, memory, cognitive, metacognitive), descriptive statistics were used, including the mean and standard deviation of the scores. Normality testing was performed before conducting statistical significance testing for pre and post-training comparisons and experimental vs control group comparisons. First, the normality testing was performed. In the event that the data distribution was not normal, the non-parametric Wilcoxon Rank Sum test would have to be applied. Otherwise, the two-sample t-test would have to be used. The results are displayed below in Tables 4.6, 4.7 and 4.8.

4.5.1.1 The Main Determination Strategies

In Table 4.7, the comparison between the experimental and control groups with regards to the use of determination strategies (pre-training). The normality testing revealed that all variables deviate from normal distribution; a paired t-test would therefore not be suitable (see appendix 20). Due to the data being categorical Likert scale data, the non-parametric Mann-Whitney U test was performed in place of the two-sample t-test. The mean gain scores were calculated using the difference between rank-sum values of the experimental and control groups. The p-value for each VSL comparison is also displayed. Results shows that there were no statistically significant differences in the use of determination strategies for learning

vocabulary between experimental and control group, and that the students' use of determination strategies has a low impact before intervention.

Table 4-6 A Differences in the use of determination strategies between the experimental and control groups in the pre-test; gain scores calculated using difference of mean values; significant testing performed using the Mann-Whitney U test

Determination strategies for learning vocabulary	Experimental group (30)		Control group (30)		Mean difference scores
	Mean	SD	Mean	SD	
Part of speech analysis	3.07	1.41	2.63	1.3	0.44
Analysing affixes and roots	2.4	1.1	2.03	0.96	0.37
Checking for L1 cognates	3.23	1.41	2.77	1.14	0.46
Analysing any available pictures or gestures	3	1.41	3.43	1.28	-0.43
Guessing meaning from textual context	4	1.11	3.9	1.16	0.1
Using bilingual dictionaries (e.g. English-Arabic dictionary)	3	1.7	3.13	1.63	-0.13
Using monolingual dictionaries (e.g. English-English dictionary)	1.97	1.3	1.77	0.82	0.2
Using word lists	1.93	1.17	1.47	0.78	0.46
Using flash cards	1.83	1.29	1.1	0.31	0.73

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

As the respondents are randomly split between the control and experimental groups, testing was performed to ensure that the randomisation is unbiased. The corresponding p-values (for the Mann-Whitney U test) show that none of the strategies have significant differences in terms of pre-training scores between experimental and control groups. This confirms that the randomisation was not biased.

The participants' responses to questions were statistically analysed to establish whether there were any significant changes after training was received and compare the use of determination strategies between the two groups. Interestingly, all nine strategies produced statistically significant results. The P- values computed using Mann-Whitney U test are pointed. The gain scores are calculated by taking difference of mean values in Table 4.6.

“Using flash cards” VLS achieved the highest gain score but still all differences between control and experimental groups are insignificant

Table 4.7 shows statistically significant differences in the use of determination strategies for learning vocabulary between the experimental and control groups; this difference is positive in favour of the experimental group post-training.

The gain scores are determined by calculating the difference between the mean values for experimental and control groups. Significance testing are highlighted using asterics.

Table 4-7 Differences in the use of determination strategies between the experimental and control group in the post-test: The significance testing performed using Mann-Whitney U test

Determination strategies for learning vocabulary	Experimental group (30)		Control group (30)		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Part of speech analysis	4.17	1.15	2.80	1.13	6	1.37***
Analysing affixes and roots	4.13	1.11	2.23	0.86	3	1.9***
Checking for L1 cognates	4.40	0.86	2.77	1.14	5	1.63***
Analysing any available pictures or gestures	4.20	1.03	3.47	1.22	8	0.73*
Guessing meaning from textual context	4.80	0.61	4.23	0.90	9	0.57**
Using bilingual dictionaries (e.g. English-Arabic dictionary)	4.17	1.12	3.30	1.53	7	0.87*
Using monolingual dictionaries (e.g. English-English dictionary)	3.53	1.22	1.77	0.82	4	1.76***
Using word lists	3.67	0.80	1.47	0.78	2	2.2***
Using flash cards	3.60	1.04	1.17	0.38	1	2.43***

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

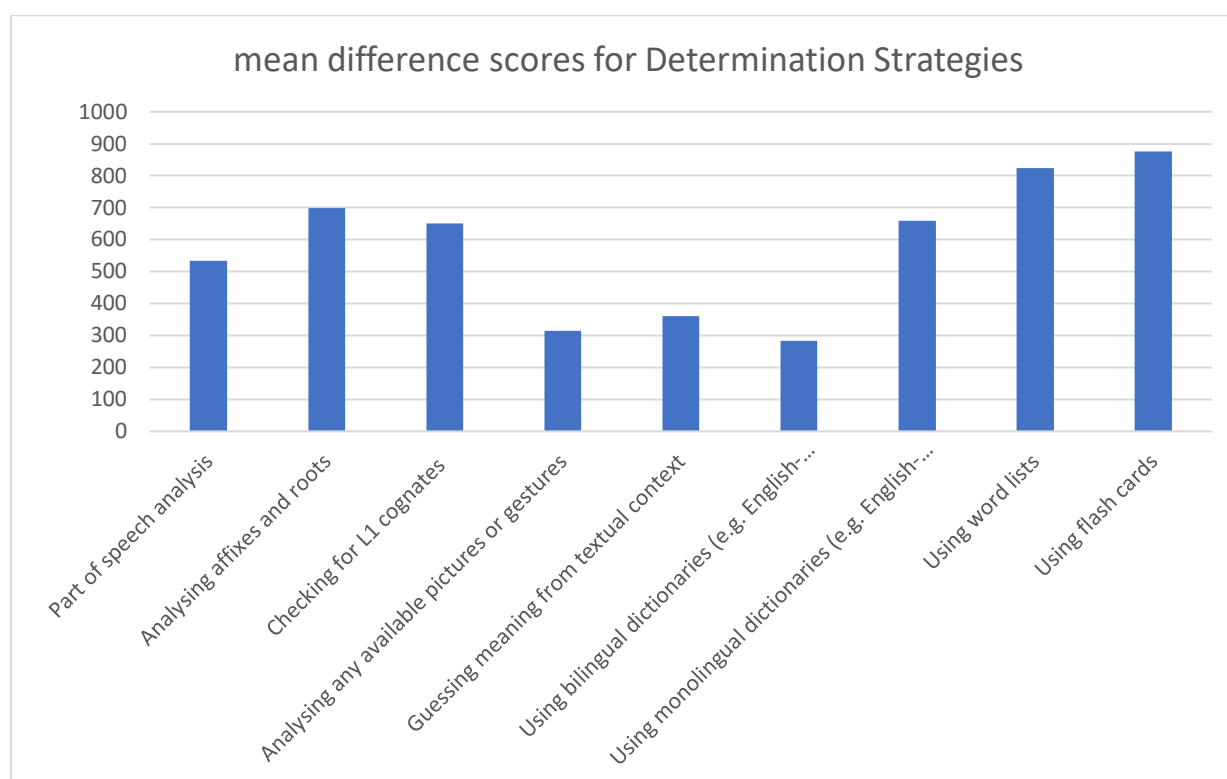


Figure 4-8 Determination Strategies mean difference scores between Control and Experimental Groups post-training, see Table 4.7. The middle three strategies have smaller gain scores compared to the first and last three categories.

The top three determination strategies used by the students to learn vocabulary include “using flash cards”, “using word lists” and “analysing affixes and roots”, with gain scores of 2.43, 2.2 and 1.9, respectively (see Figure 4.8).

It is worth noting that the pre and post-training results for the determination strategies indicate that “using flash cards” is the strategy which shows the biggest difference between the experimental and control groups. The gain score was 0.73 for pre-training and became 2.43 after training.

Furthermore, there is an approximate three-fold increase in the differences between pre-training and post-training for the control and experimental groups. That means that although there was difference between the two groups pre-training, this increased multiple times after the VLS training, indicating the usefulness of the VLS determination strategies. Overall, the use of flash cards is the second most impactful strategy when comparing pre and post-training results, regardless of groups.

Participants in the experimental groups are compared for their mean performance checking by comparing the pre-training and post- training scores. The results showing that the results are highly significant for each category in the determination strategies. Gain scores are calculated using difference between the mean scores. The significance testing is performed using Mann-Whitney U test.

Table 4-8 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.

Determination strategies for learning vocabulary	Experimental (Pre)		Experimental (Post)		Mean gain score
	Mean	SD	Mean	SD	
Part of speech analysis	2.85	1.36	3.48	1.32	0.63***
Analysing affixes and roots	2.22	1.04	3.18	1.37	0.96***
Checking for L1 cognates	3	1.29	3.58	1.29	0.58***
Analysing any available pictures or gestures	3.22	1.35	3.83	1.18	0.61***
Guessing meaning from textual context	3.95	1.13	4.52	0.81	0.57***
Using bilingual dictionaries (e.g. English-Arabic dictionary)	3.07	1.66	3.73	1.4	0.66***
Using monolingual dictionaries (e.g. English-English dictionary)	1.87	1.08	2.65	1.36	0.78***
Using word lists	1.7	1.01	2.57	1.36	0.87***
Using flash cards	1.47	1	2.38	1.45	0.91***

4.5.1.2 The Main Social Strategies

Descriptive statistics were used to examine the most important social strategies for learning vocabulary employed at a Saudi University by preparatory year students before and after they were trained in the use of VLSs, including average mean and standard deviation of the scores. Normality tests were performed prior to deciding between using a paired t-test and Wilcoxon signed rank-sum test.

To ascertain that the two groups are not significantly different from each other prior to intervention, a non-parametric testing is performed on the two groups. As the participants were randomly split into control and experimental groups, any significance in their scores prior to training would be by chance. In the following, Table 4-8-A showing that the two study groups

are not significantly different for six social strategy research questions but differ from each other for the first two questions that are “Asking the teacher for an L1 translation” and “Asking the teacher for a paraphrase or synonym” respectively.

Table 4-9 To examine whether there are significant differences between the students’ use of social strategies for learning vocabulary: experimental and control groups (pre-training)

Social strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Asking the teacher for an L1 translation	3.70	1.29	2.77	1.55	1	0.93**
Asking the teacher for a paraphrase or synonym	3.57	1.38	2.70	1.42	2	0.87**
Asking the teacher for a sentence including the new word	3.07	1.39	2.73	1.28	3	0.34
Asking classmates for meaning	3.17	1.49	3.13	1.46	5	0.04
Discovering meaning through group work activity	2.13	1.22	2.37	1.22	8	-0.24
Studying and practicing meaning in a group	2.53	1.38	2.03	0.96	6	0.5
Asking the teacher to check flash cards or word lists for accuracy	2.50	1.57	2.03	1.22	7	0.47
Interacting with native speakers	3.13	1.43	3.40	1.38	4	-0.27

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

In addition, this research examined whether there was a statistically significant variation between the scores of the experimental and control groups on social strategies (post-training), as shown in Table 4.9. As the students were randomly split into a control and experimental group, only the post-training results are presented in the following.

Normality testing was performed for each social VLS using the Kolmogorov-Smirnov and Shapiro-Wilk tests in SPSS (see appendix 21). Results showed that the variables were not normally distributed and therefore, non-parametric testing rather than the t-test for two

independent sample had to be applied. Statistical significance testing for the difference in social VLS was performed using a non-parametric Mann-Whitney U test in table 4.10.

Table 4-10 To examine whether there are significant differences between the students' use of social strategies for learning vocabulary: experimental and control groups (post-training)

Social strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Asking the teacher for an L1 translation	4.67	0.66	2.8	1.52	2	1.87***
Asking the teacher for a paraphrase or synonym	4.47	0.9	2.73	1.41	4	1.74***
Asking the teacher for a sentence including the new word	4.27	1.01	2.7	1.29	5	1.57***
Asking classmates for meaning	4.23	1.01	3.1	1.49	7	1.13**
Discovering meaning through group work activity	3.57	1.17	2.37	1.21	6	1.2**
Studying and practicing meaning in a group	3.83	0.99	2.03	0.96	1	1.8**
Asking the teacher to check flash cards or word lists for accuracy	3.73	1.14	2.1	1.18	3	1.63***
Interacting with native speakers	4.13	1.07	3.4	1.38	8	0.73*

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

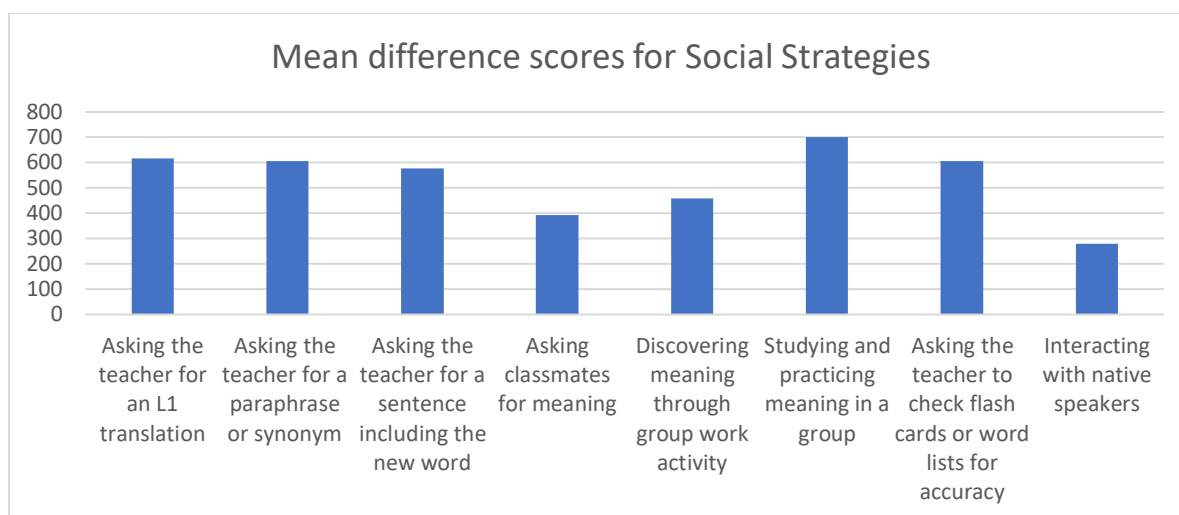


Figure 4-9 Social Strategies - mean difference scores between Control and Experimental Groups post-training

Table 4.10 shows that there are statistically significant differences in the use of social strategies for learning vocabulary between the experimental and control groups after training in their use. The difference between the sum of ranks for the experimental and control groups is used as the gain score. The largest gain score of 1.8 was achieved by the ‘studying and practicing meaning in a group’ strategy (see Figure 4.9). This strategy helps to cover the small and frequent mistakes through a collaborative approach, discussion and interaction between students. This is a useful approach as it can be used outside the university through social networking.

As shown in Table 4.11, participants in the experimental groups are compared for their mean performance checking by comparing the pre-training and post- training scores. The results showing that the results are highly significant for each category in the social strategies. Gain scores are calculated using difference between the mean scores. The significance testing is performed using Mann-Whitney U test.

Table 4-11 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.

Social strategies for learning vocabulary	Experimental Pre		Experimental Post		Mean gain score
	Mean	SD	Mean	SD	
Asking the teacher for an L1 translation	3.2	1.5	3.69	1.52	0.49***
Asking the teacher for a paraphrase or synonym	3.11	1.45	3.57	1.47	0.46***
Asking the teacher for a sentence including the new word	2.9	1.33	3.48	1.39	0.58***
Asking classmates for meaning	3.16	1.45	3.67	1.38	0.51***
Discovering meaning through group work activity	2.3	1.26	3	1.34	0.7***
Studying and practicing meaning in a group	2.34	1.29	2.98	1.37	0.64***
Asking the teacher to check flash cards or word lists for accuracy	2.34	1.53	2.98	1.5	0.64***
Interacting with native speakers	3.34	1.52	3.84	1.38	0.5***

4.5.1.3 The Main Memory Strategies

Descriptive statistics were employed to identify the most commonly used memory strategies for learning vocabulary by the students before and after training in the use of VLSs. These include the average mean of scores, standard deviation, and Wilcoxon test statistics, which assist in identifying any significant differences between the pre-test and post-test scores. The normality testing results are attached to appendix (22).

Following the verification approach, a non-parametric testing is performed for the control vs experimental groups prior to intervention. The significance testing proved that the two groups were randomly selected in this research study and none of the main memory strategies differ from each other in the pre-training group (see table 4.12).

Table 4-12 A To establish whether there are significant differences between experimental and control groups in their use of memory VSL (pre training)

Memory strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Studying the word with a pictorial representation of its meaning	3.17	1.15	2.80	1.27	2	0.37
Imaging the word's meaning	3.07	1.14	2.57	1.14	1	0.50
Connecting the word to a personal experience	3.23	1.52	3.27	1.23		-0.03
Associating the word with its coordinates (words following a new word)	3.07	1.36	2.83	1.15	5	0.23
Connecting the word to its synonyms and antonyms	2.93	1.31	2.70	1.12	5	0.23
Using semantic maps (meronymy e.g. Oxygen is part of air)	1.90	1.09	1.77	0.73	7	0.13
Using 'scales' for gradable adjectives (e.g. good, better, best)	3.23	1.57	2.93	1.28	6	0.30
Grouping words together to study them	1.90	1.16	1.87	1.01	8	0.03
Using the new word in sentences	2.97	1.38	2.97	1.45	9	0.00
Grouping words together within a storyline	1.67	0.99	1.90	1.06	12	-0.23
Studying the spelling of a word	3.30	1.34	3.30	1.26	9	0.00
Studying the sound of a word	3.50	1.48	3.37	1.35	7	0.13
Saying the new word aloud when studying	3.43	1.48	3.33	1.30	8	0.10
Imaging the word form (e.g. a new word has a noun form and verb form)	2.40	1.50	2.03	0.96	3	0.37
Remembering the word using its affixes and roots	2.10	1.24	2.13	1.20	10	-0.03
Remembering the word using its Part of Speech (e.g. noun, verb, adjective)	2.27	1.11	2.33	0.76	11	-0.07
Paraphrasing the words' meaning	2.10	1.21	1.80	1.10	6	0.30
Using cognates (e.g. Cotton/ <u>قطن</u> Koton)	2.93	1.60	2.97	1.38	10	-0.03
Using physical action when learning a word	2.67	1.42	2.57	1.52	8	0.10

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

To establish whether there were statistically significant variations between the experimental and control groups in their use of memory strategies for learning vocabulary, independent sample t-tests were run; the results are presented in Table 4.13.

Table 4-13 To establish whether there are significant differences between experimental and control groups in their use of memory VSL (post-training)

Memory strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Studying the word with a pictorial representation of its meaning	4.37	0.81	2.8	1.27	3	1.57***
Imaging the word's meaning	4.1	0.84	2.57	1.14	5	1.53***
Connecting the word to a personal experience	4.2	1.03	3.27	1.23	12	0.93**
Associating the word with its coordinates (words following a new word)	4.3	0.88	2.83	1.15	7	1.47***
Connecting the word to its synonyms and antonyms	4.2	0.99	3.4	1	13	0.8**
Using semantic maps (meronymy e.g. Oxygen is part of air)	3.4	1.1	1.77	0.73	2	1.63***
Using 'scales' for gradable adjectives (e.g. good, better, best)	4.27	0.94	3.5	1.01	14	0.77**
Grouping words together to study them	3.4	1.16	1.9	0.99	6	1.5***
Using the new word in sentences	4.2	0.96	2.97	1.45		1.23**
Grouping words together within a storyline	3.47	1.11	1.9	1.06	3	1.57***
Studying the spelling of a word	4.13	1.04	3.33	1.21	13	0.8*
Studying the sound of a word	4.3	1.06	3.3	1.37	11	1*
Saying the new word aloud when studying	4.5	0.94	3.37	1.33	10	1.13**
Imaging the word form (e.g. a new word has a noun form and verb form)	3.77	1.1	2.13	1.01	1	1.64***
Remembering the word using its affixes and roots	3.67	1.24	2.13	1.2	4	1.54***

Remembering the word using its Part of Speech (e.g. noun, verb, adjective)	3.83	0.95	2.33	0.76	6	1.5***
Paraphrasing the words' meaning	2.87	1.17	1.87	1.11	11	1***
Using cognates (e.g. Cotton/ قطن Koton)	4.23	0.97	3	1.34	9	1.23**
Using physical action when learning a word	4.07	0.98	2.7	1.42	8	1.37**

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Table 4.13 shows that there are statistically significant differences between the experimental and control groups in their use of memory strategies for vocabulary learning post-training. Again, the differences are positive and in favour of the experimental group. The top five memory strategies are “Imaging the word form”, “using semantic maps (meronymy e.g. Oxygen is part of air)”, “Studying the word with a pictorial representation of its meaning”, “Grouping words together within a storyline” and “Remembering the word using its affixes and roots”. The most differentiating memory-based vocabulary strategy between the experimental and control groups is “Imaging the word form (e.g. a new word has a noun form and verb form)”, with a gain score of 1.64 (see Figure 4.10). This approach allows students to use their cognitive powers and memory to remember synonyms for each word.

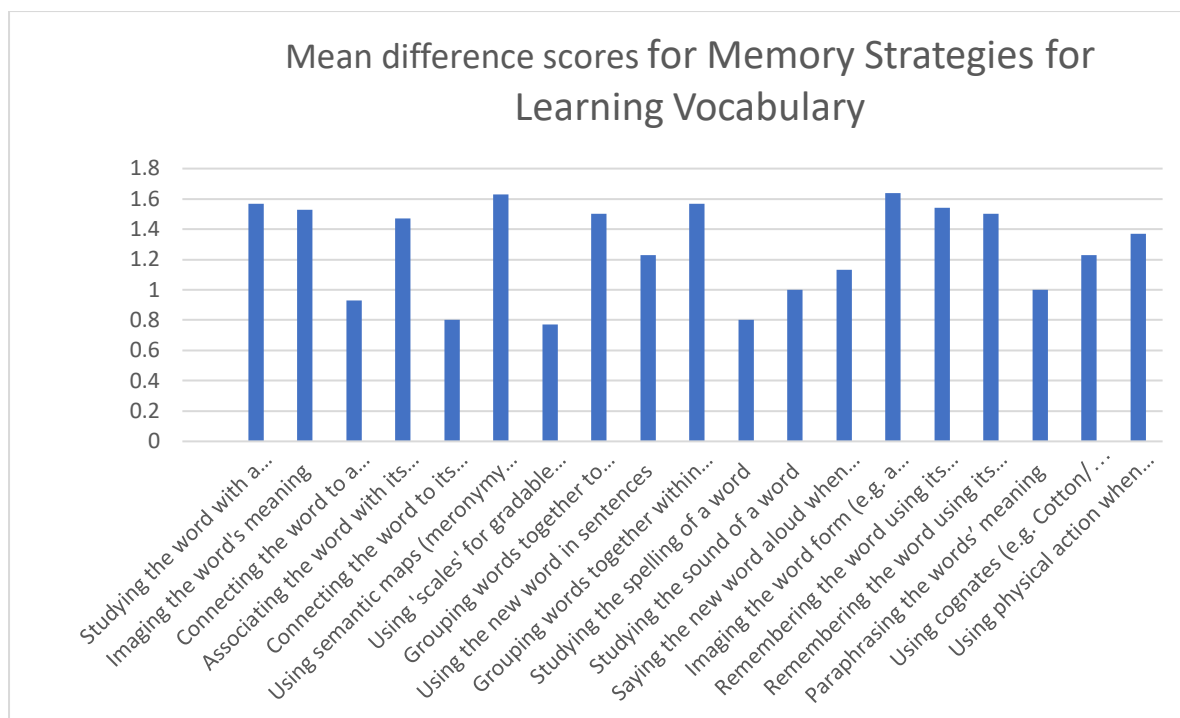


Figure 4-10 Memory Strategies – mean difference scores between Control and Experimental Groups post-training).

Participants in the experimental groups are compared for their mean performance checking by comparing the pre-training and post- training scores. The results showing that the results are highly significant for each category in the memory strategies. Gain scores are calculated using difference between the mean scores in Table 4.14. The significance testing is performed using Mann-Whitney U test.

Table 4-14 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.

Memory strategies for learning vocabulary	Experimental group Pre		Experimental group Post		Mean gain score
	Mean	SD	Mean	SD	
Studying the word with a pictorial representation of its meaning	2.95	1.23	3.54	1.35	0.59***
Imaging the word's meaning	2.8	1.15	3.31	1.26	0.51***
Connecting the word to a personal experience	3.25	1.36	3.72	1.21	0.47***
Associating the word with its coordinates (words following a new word)	2.97	1.25	3.57	1.24	0.6***
Connecting the word to its synonyms and antonyms	2.85	1.24	3.82	1.07	0.97***
Using semantic maps (meronymy e.g. Oxygen is part of air)	1.9	1.06	2.64	1.3	0.74***
Using 'scales' for gradable adjectives (e.g. good, better, best)	3.15	1.5	3.93	1.11	0.78***
Grouping words together to study them	1.98	1.32	2.74	1.47	0.76***
Using the new word in sentences	2.97	1.4	3.58	1.37	0.61***
Grouping words together within a storyline	1.78	1.03	2.68	1.33	0.9***
Studying the spelling of a word	3.3	1.29	3.73	1.19	0.43***
Studying the sound of a word	3.43	1.41	3.8	1.31	0.37***
Saying the new word aloud when studying	3.38	1.38	3.93	1.27	0.55***
Imaging the word form (e.g. a new word has a noun form and verb form)	2.22	1.26	2.95	1.33	0.73***
Remembering the word using its affixes and roots	2.12	1.21	2.9	1.43	0.78***
Remembering the word using its Part of Speech (e.g. noun, verb, adjective)	2.3	0.94	3.08	1.14	0.78***
Paraphrasing the words' meaning	1.95	1.16	2.87	1.51	0.92***
Using cognates (e.g. Cotton/ قطن Koton)	2.95	1.48	3.62	1.32	0.67***
Using physical action when learning a word	2.62	1.46	3.38	1.39	0.76***

4.5.1.4 The Main Cognitive Strategies

In this section, the cognitive strategies most frequently used by the students in the post-test will be presented, along with the results of significance testing between the experimental and control groups using a non-parametric Wilcoxon test. The normality testing was performed first, followed by statistical significance testing.

Comparing the control vs experimental groups prior to intervention, no significant difference is found for any main cognitive strategies in the pre-training group. The P-values computed using the Mann-Whitney tests were all insignificant at 0.05 level of significance. This satisfies that the participants were randomly allocated in the experimental and control groups.

Table 4-15 A To determine whether there were significant differences between the use of cognitive strategies for vocabulary learning by the experimental and control groups in the pre-test.

Cognitive strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Repeating the words aloud many times	3.47	1.36	3.30	1.29	1	0.17
Writing the words many times	3.27	1.44	3.43	1.41	5	0.17
Making a list of new words	2.20	1.27	2.73	1.36	7	0.53
Putting the new words on flash cards	1.43	1.07	1.47	0.94	3	0.03
Taking notes in class	2.27	1.44	2.17	1.42	2	0.10
Using the vocabulary section in your textbook	2.23	1.07	2.27	1.17	3	0.03
Listening to tape of word lists	1.83	1.18	2.10	1.32	6	0.27
Putting English labels on physical objects	1.57	1.14	1.73	1.26	5	0.17
Keeping a vocabulary notebook	1.93	1.34	2.00	1.29	4	0.07

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

The differences between the scores achieved in the post-test by the experimental and control groups, t-test statistics were run, and the results are shown in Table 4.16.

Table 4-16 To determine whether there were significant differences between the use of cognitive strategies for vocabulary learning by the experimental and control groups in the post-test.

Cognitive strategies for learning vocabulary	Experimental group		Control group		Ranking	Mean difference scores
	Mean	SD	Mean	SD		
Repeating the words aloud many times	4.33	0.84	3.47	1.36	8	0.86*
Writing the words many times	4.4	0.86	3.27	1.44	7	1.13**
Making a list of new words	4.17	0.91	2.23	1.33	1	1.94***
Putting the new words on flash cards	3.03	1.03	1.5	1.07	4	1.53***
Taking notes in class	3.67	1.15	2.37	1.47	7	1.3**
Using the vocabulary section in your textbook	3.63	1.07	2.23	1.07	5	1.4***
Listening to tape of word lists	3.73	0.94	1.87	1.25	2	1.86***
Putting English labels on physical objects	3.53	1.11	1.67	1.12	2	1.86***
Keeping a vocabulary notebook	3.6	1	2	1.31	3	1.6***

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Table 4.16 shows statistically significant differences between the two groups' use of cognitive strategies for vocabulary learning post-training; these differences were significant at the 0.01 level, and positive in favour of the students in the experimental group rather than the control group. This suggests that training the students on using cognitive strategies can affect their vocabulary learning significantly.

Normality testing using the Shapiro-Wilk and Kolmogorov-Smirnov tests was performed (see appendix 23). The Kolmogorov-Smirnov and Shapiro-Wilk tests showed that the data was not normally distributed; therefore, the non-parametric test rather than the t-test had to be used. To determine whether there were statistically significant the gain scores are presented in Figure 4.11 and indicate that "putting the new words on flash cards" is the most used vocabulary learning strategy when comparing the experimental and control groups.

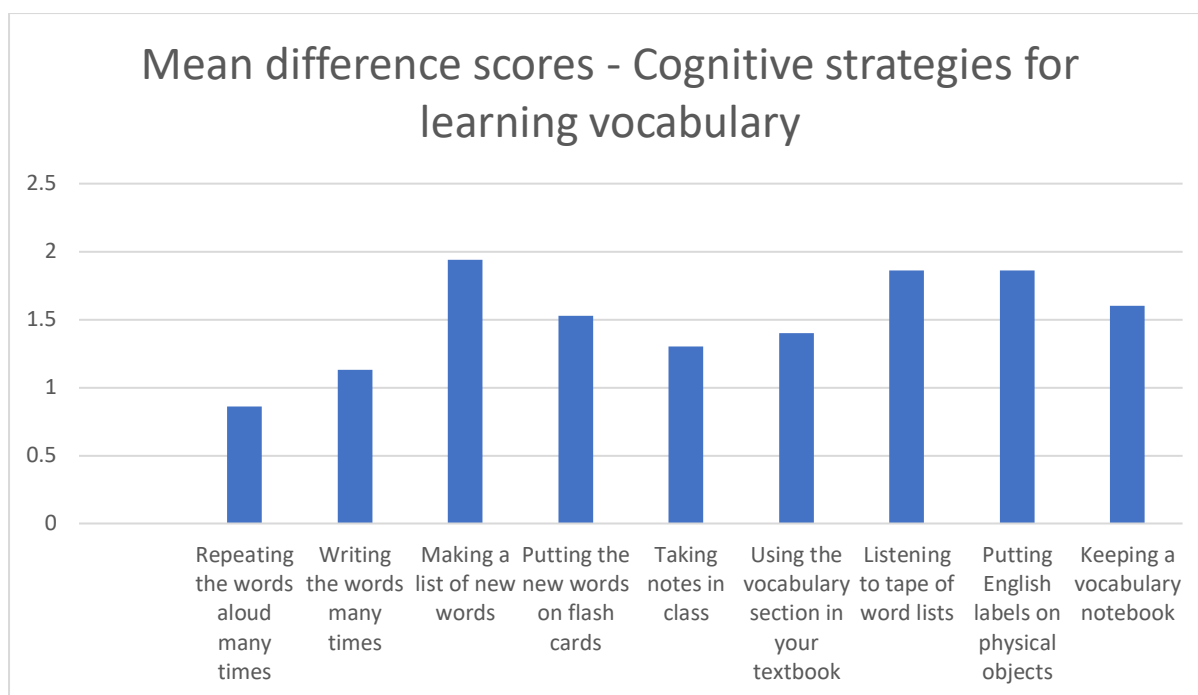


Figure 4-11 Cognitive Strategies – mean difference scores between Control and Experimental Groups (post-training).

Participants in the experimental groups are compared for their mean performance checking by comparing the pre-training and post- training scores. The results showing that the results are highly significant for each category in the cognitive strategies. Gain scores are calculated using difference between the mean scores in table 4.17. The significance testing is performed using Mann-Whitney U test.

Table 4-17 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.

Cognitive strategies for learning vocabulary	Experimental group Pre		Experimental group Post		Mean Gain score
	Mean	SD	Mean	SD	
Repeating the words aloud many times	3.38	1.32	3.9	1.2	0.52***
Writing the words many times	3.35	1.41	3.83	1.3	0.48***
Making a list of new words	2.47	1.33	3.2	1.49	0.73***
Putting the new words on flash cards	1.45	1	2.27	1.3	0.82***
Taking notes in class	2.22	1.42	3.02	1.47	0.8***
Using the vocabulary section in your textbook	2.25	1.11	2.93	1.27	0.68***

Listening to tape of word lists	1.97	1.25	2.8	1.45	0.83***
Putting English labels on physical objects	1.65	1.19	2.6	1.45	0.95***
Keeping a vocabulary notebook	1.97	1.3	2.8	1.41	0.83***

4.5.1.5 The Main Meta-Cognitive Strategies

Initially, the normality testing was performed, followed by statistical significance testing to compare the Main meta-cognitive VLSs. The normality testing using the Shapiro-Wilk and Kolmogorov-Smirnov tests indicated that none of the strategies follow normal distribution (see appendix 24).

Prior to intervention the experimental and control groups showing no significance differences at 0.05 level of significance using non-parametric testing. This approves that the participants were randomly allocated in the two groups.

Table 4-18 A Significant differences between the experimental and control groups' use of meta-cognitive strategies for vocabulary learning (post-training).

Meta-cognitive strategies for vocabulary learning	Experimental group		Control group		Rank	Mean difference scores
	Mean	SD	Mean	SD		
Using English language media (songs, movies, newscasts, etc.)	4.47	1.11	4.20	1.21	2	0.27
Testing oneself with word tests	2.40	1.40	2.50	1.28	4	0.10
Continuing studying new words many times	2.80	1.24	2.63	1.10	3	0.17
Skipping or passing new words	2.00	0.98	2.00	0.98	5	0.00
Paying attention to English words when someone is speaking English.	3.97	1.54	3.67	1.45	1	0.30

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Furthermore, Wilcoxon rank-sum tests were run to determine whether there are statistically significant differences between the scores of the experimental and control groups' use of meta-cognitive strategies for vocabulary learning in the post-test. The results are shown in Table 4.19.

Table 4-19 Significant differences between the experimental and control groups' use of meta-cognitive strategies for vocabulary learning (post-training).

Meta-cognitive strategies for vocabulary learning	Experimental group		Control group		Rank	Mean difference scores
	Mean	SD	Mean	SD		
Using English language media (songs, movies, newscasts, etc.)	4.77	0.57	4.27	1.14	5	0.5**
Testing oneself with word tests	4.00	1.08	2.53	1.25	2	1.47***
Continuing studying new words many times	4.03	1.00	2.67	1.15	3	1.36***
Skipping or passing new words	3.67	0.92	2.17	0.91	1	1.5***
Paying attention to English words when someone is speaking English.	4.57	0.94	3.70	1.42	4	0.87**

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Table 4.19 shows statistically significant differences between the experimental and control groups' use of meta-cognitive strategies for vocabulary learning after training. The differences are positive in favour of the experimental group students. The gain scores are presented in Figure 4.12. The most used meta-cognitive strategy is “analysing affixes and roots”, followed by “checking for L1 cognates”.

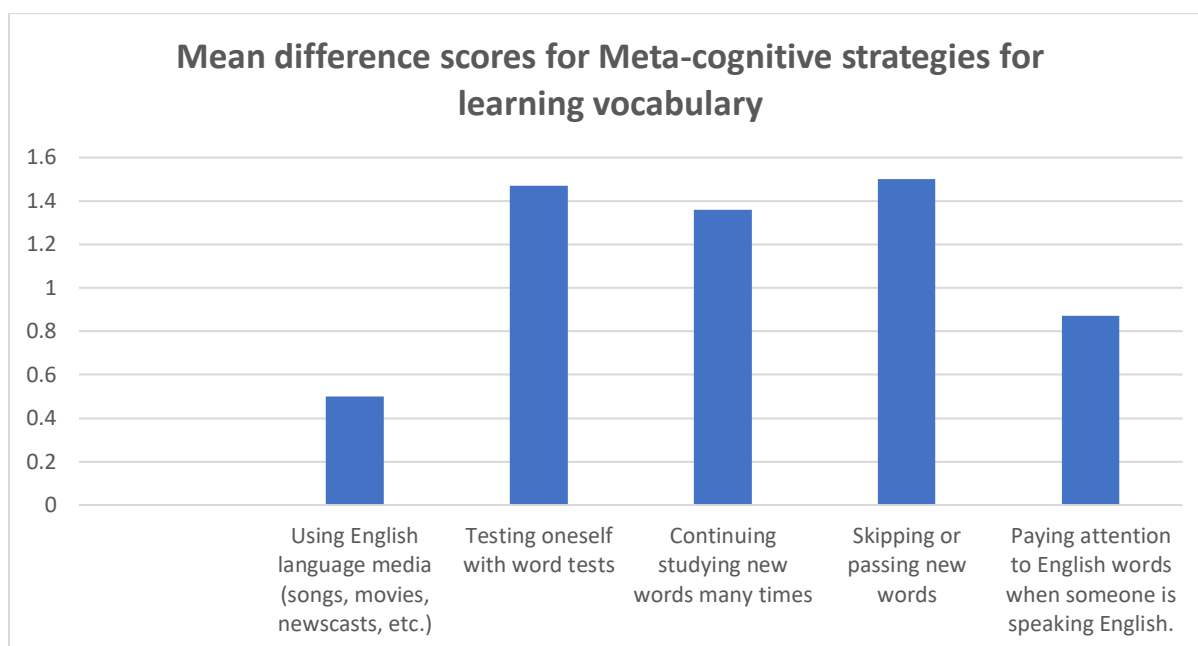


Figure 4-12 Meta-cognitive Strategies – mean difference scores between Control and Experimental Groups (post-training).

Participants in the experimental groups are compared for their mean performance checking by comparing the pre-training and post- training scores. The results showing that the results are highly significant for each category in the meat- cognitive strategies. Gain scores are calculated using difference between the mean scores. The significance testing is performed using Mann-Whitney U test.

Table 4-20 Pre vs. post analyses for Experimental group with corresponding gain scores and Significance testing using Mann-Whitney U test.

Meta-cognitive strategies for vocabulary learning	Experimental Pre		Experimental Post		Gain Score
	Mean	SD	Mean	SD	
Using English language media (songs, movies, newscasts, etc.)	4.33	1.16	4.52	0.93	0.19**
Testing oneself with word tests	2.45	1.33	3.27	1.38	0.82***
Continuing studying new words many times	2.72	1.17	3.35	1.27	0.63***
Skipping or passing new words	2	0.97	2.92	1.18	0.92***
Paying attention to English words when someone is speaking English.	3.82	1.49	4.13	1.27	0.31***

4.5.1.6 The Overall Comparisons of the Five Categories of VLSs

Normality testing using the Shapiro-Wilk and Kolmogorov-Smirnov tests indicated that none of the strategies follow a normal distribution (see appendix 25). The following table displays the significant differences between the use of main VLSs in the post-test by the experimental and control groups.

Table 4-21 The differences between the use of main VLSs by the experimental and control groups in the post-test

Vocabulary learning strategies	Experimental group		Control group		Mean difference scores
	Mean	SD	Mean	SD	
Determination strategies	4.07	0.67	2.58	0.47	1.49***
Social strategies	4.11	0.62	2.65	0.74	1.46***
Memory strategies	4.01	0.60	2.69	0.58	1.32***
Cognitive strategies	3.79	0.60	2.29	0.81	1.5***
Meta-cognitive strategies	4.21	0.54	3.07	0.68	1.14***
Overall learning strategies	4.04	0.50	2.66	0.47	1.38***

***indicates that the difference is significant at the (0.001) significance level.

As can be seen in Table 4.21, there are statistically significant differences between the experimental and control groups' use of VLSs in the post-test; the differences are positive in favour of the experimental group, who were trained on the use of the main VLSs.

In summary, the VLSs that are used “always” and “often”, achieving scores between 3.0 and 4.5, include meta-cognitive, social and determination strategies, as shown in Table 4.21.

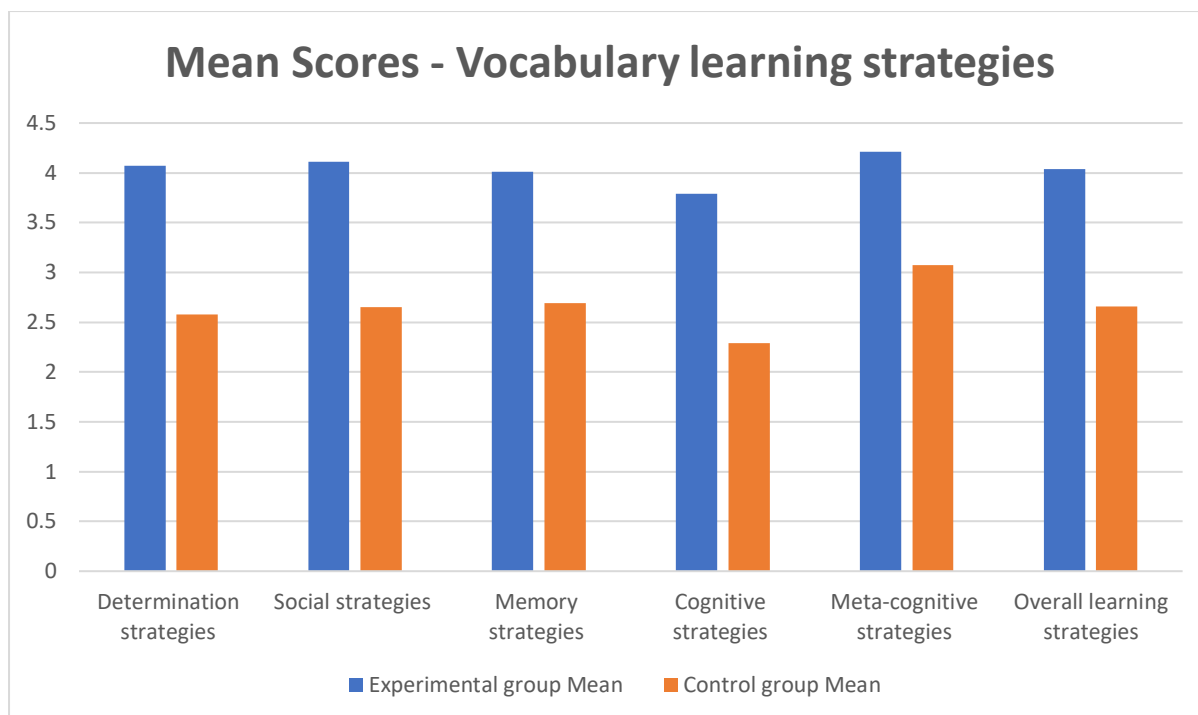


Figure 4-13 A comparison of means scores between Experimental and Control groups for major VLSs (post-test analysis)

Figure 4.13 (above) shows a comparison of the overall gain scores for each strategy between the experimental and control groups. For each strategy, the control group gain scores are much lower than those of the experimental group. This is an indicator that overall, the vocabulary training provides the students with the tools to significantly improve their vocabulary learning.

4.5.2 Research Question Two

The second research question is:

Is there any statistically significant difference between the vocabulary size of the control and experimental groups before and after training in the use of VLSs?

This research question is designed to identify the size of the participating subjects' vocabulary before and after training. The results were analysed (Section 3.6) in order to also establish whether there are any statistically significant correlations between the students' vocabulary size pre and post-training. Thereafter, a comparison between the vocabulary size of the experimental and control groups before and after training was made, as will be shown in this section.

4.5.2.1 The vocabulary size for experimental and control groups

H₀: There is no difference in the total vocabulary size between the experimental and control groups (at pre-training without splitting into streams).

H₁: There is a significant difference in the total vocabulary size between the experimental and control groups (at pre-training without splitting into streams).

Due to lack of normal distribution, the Wilcoxon rank-sum test was applied for statistical testing between the two groups.

Table 4-22 To establish whether there was a statistically significant difference between the vocabulary size of the students in the experimental and control groups in the pre-test and post-test

	Experimental group		Control group		Mean difference scores	P-value
	Mean	SD	Mean	SD		
Total vocabulary size in pre-test	2613.3	1194.5	2565.0	1219.7	48.3	0.929
Total vocabulary size in post-test	3568.00	1255.9	2978.0	1331.3	590.0	0.155

Table 4.22 shows that there were no statistically significant differences between the vocabulary size of the experimental and control groups in the pre-training test, as the significance level of the Wilcoxon rank-sum test is greater than the 0.05 significance level, as can be seen in Table 4.22. Both groups show lower vocabulary sizes in the pre-training than in the post-training test. The results for the total vocabulary size before and after training for the experimental group is also not significant on the overall level (i.e. ignoring the stream and any other factors). Also, there was no statistically significant difference between the vocabulary sizes of the experimental and control groups in the post-training test. Although both results are insignificant, the size of the p-value indicates that there is slightly more difference between pre and post-testing in the experimental group as compared to the control group.

The Figure 4.14 below displays the boxplots for pre and post-training vocabulary size and the difference between them. The boxplot comparisons for both experimental and control

groups are presented to facilitate further comparisons between the two. In experimental group, the pre-training and post-training results showing a significant change in vocabulary size. This is evident from the box plot as the two plots have significantly different median values. While in the control group, median vocabulary sizes are same as the two boxes overlap each other.

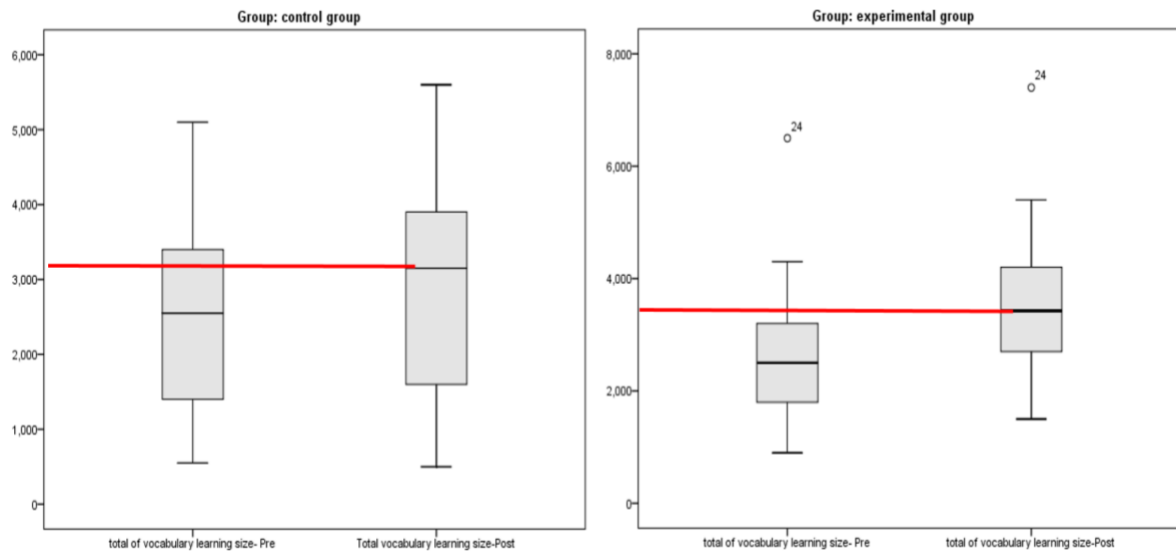


Figure 4-14 The boxplot comparisons of vocabulary size for experimental and control groups

4.5.2.2 The vocabulary size for the three streams

In the following section, statistical analyses are performed to compare the significance of each stream for the total vocabulary size in pre and post-training groups. Two hypotheses were formulated, one for the experimental group and another for the control group.

H_0 : There is no difference in the total vocabulary size before and after the training for the experimental group in each stream.

H_1 : There is a significant difference in the total vocabulary size before and after the training for the experimental group in each stream.

H_0 : There is no difference in the total vocabulary size before and after the training for the control group in each stream.

H_1 : There is a significant difference in the total vocabulary size before and after the training for the control group in each stream.

The Wilcoxon rank-sum test was used to test these hypotheses. Results for the experimental group proves that there is an improvement in the total size of learnt vocabulary after training (see Table 4.18). The p-value of the test is < 0.0001 . With regards to the control group, the Wilcoxon rank-sum test showed that the two groups (pre-training and post-training) are statistically different, with a p value < 0.001 . This indicates that there are other factors that need to be included when carrying out statistical significance testing.

As proved with the Wilcoxon rank-sum test, results in all three streams were significant for the experimental group (when comparing the training and testing groups). However, when comparing the control groups, although there were significant differences between pre- and post-intervention in the groups for Science and Health, there were none for the Humanity stream.

Table 4-23 Wilcoxon rank-sum test for two related samples (pre and post-training)

Stream	Experimental Group	Control Group
Humanity	< 0.01	0.72
Science	< 0.01	0.014
Health	< 0.01	< 0.01

Box plots are included below to present the above hypothesis testing results graphically. In each boxplot, the pre and post-training comparison is shown for the two groups (experimental and control). This figure supports the results calculated in Table 4.23 (above). Each plot compares the experimental group (pre and post-total vocabulary size) and the control group (pre and post-total vocabulary size). In addition, a comparison of pre-training TVS (blue boxes) is shown for the control and experimental groups. The pre-training results (Figure, 4.15) indicate that there are no significant differences between the two groups at the pre-training stage. However, there is a slight difference post-vocabulary size between the control and experimental groups.

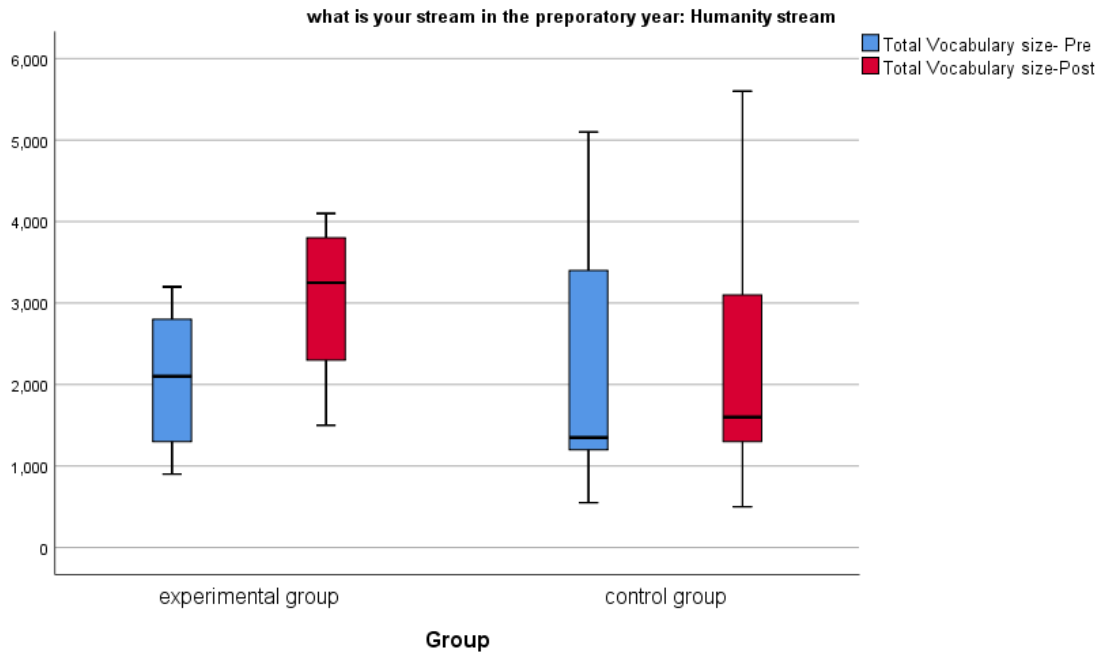


Figure 4-15 A comparison of pre and post- total vocabulary size for humanity stream in the experimental and control group

In the following Figure 4.16, it can be seen that for the Science stream, the two groups (pre and post-total vocabulary size) are significantly different in the experimental group as well as the control group. Furthermore, when comparing pre-training (experimental vs. control groups), the results are again significantly different from each other (blue boxes). It can also be seen that the post-test of vocabulary size between the experimental and control groups are significantly different.

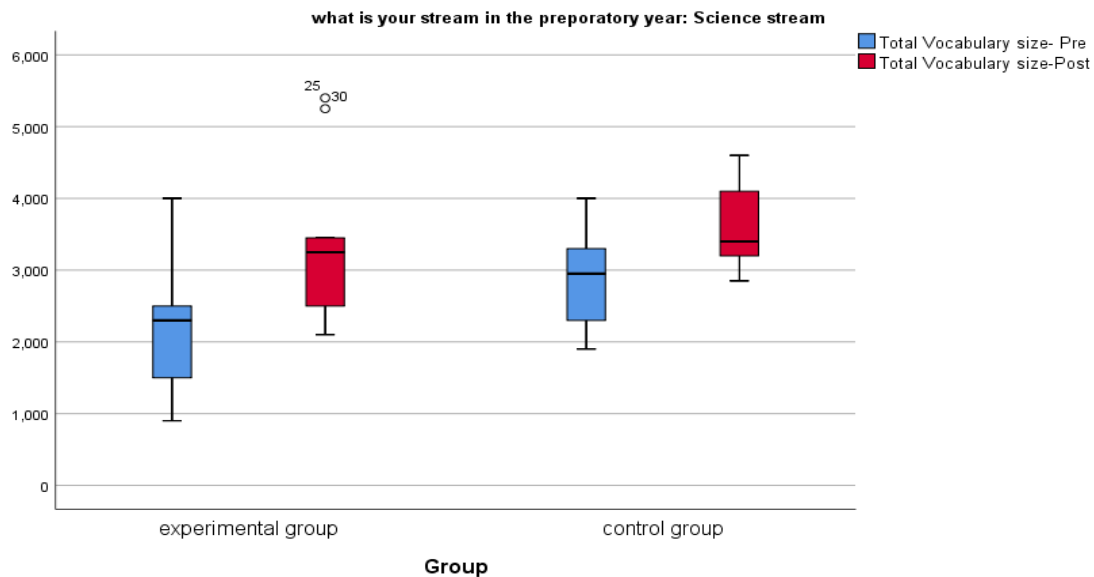


Figure 4-16 A comparison of pre and post-total vocabulary size for science stream in the experimental and control groups.

The results for the Health stream are presented in the figure 4.17 below. In the left side, a significant difference can be seen between pre and post-training for the experimental group. In contrast, no significant difference for the control group can be seen when comparing pre and post-vocabular size. Finally, there is no significant difference with regards to pre-training when comparing the experimental and control groups (blue boxes). On the other hand, for the post training VLS (red boxes), the experimental and control groups are significantly different.

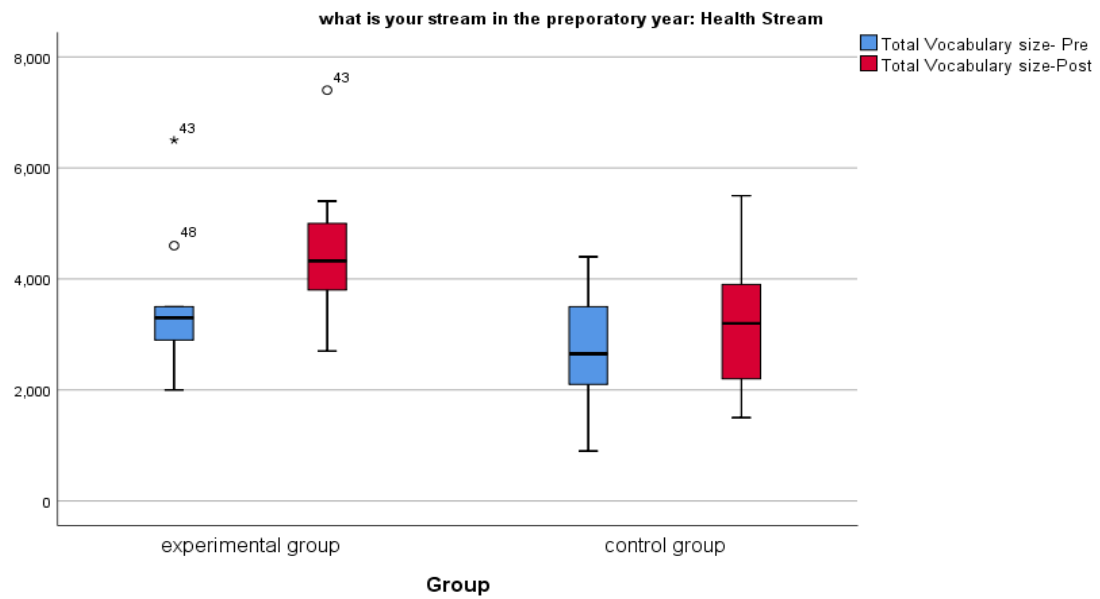


Figure 4-17 A comparison of pre and post-total vocabulary size for health stream in the experimental and control groups.

4.5.3 Research Question Three

Is there any relationship between the VLSs employed by preparatory year students and their vocabulary size?

The hypothesis which was tested to answer this question is:

H₀: There is no significant relationship between VLSs used and vocabulary size.

H₁: There is a significant relationship between VLSs used and vocabulary size.

4.5.3.1 The relationship between VLSs and vocabulary size for experimental group

To determine whether there is a statistically significant relationship between the VLSs employed by the preparatory year students and their vocabulary size in the pre-training and post-training tests, Spearman's correlation coefficient was run. Spearman's correlation was used as the data is at nominal scale for the VLSs. To analyse how vocabulary learning strategies, influence the experimental group, a separate analysis considering only the experimental group and the relationship between VLSs and corresponding vocabulary sizes was performed.

Table 4-24 The correlation between the VLSs and total vocabulary size

Vocabulary learning strategies (pre-training for experimental group)	Total vocabulary size	
	Spearman's correlation	P-value
Determination strategies	0.187	0.322
Social strategies	-0.122	0.522
Memory strategies	0.020	0.916
Cognitive strategies	-0.054	0.776
Meta-cognitive strategies	0.409	0.025*
Vocabulary learning strategies at total	0.123	0.517

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Table 4.24 shows no statistically significant correlation between the VLSs used and the size of experimental groups' vocabulary in the pre-test, except in the case of meta-cognitive strategies, confirming that they are sometimes used by the students. A non-significant negative

correlation indicates a reverse effect on vocabulary size. Correlation values showing that with increase in social VLS, the vocabulary size decreases. The reason might be that participants prefer to talk in local language rather in foreign language. The same concept could be imposed on cognitive strategies. Therefore, a negative correlation is indication that higher that specific VLS training resulted in decrease in vocabulary size.

Table 4.25 shows the correlation between vocabulary size and VLSs use in the post-test for experimental groups to find out if there is any significance correlation between the two variables.

Table 4-25 The correlation between VLS and total vocabulary size

Vocabulary learning strategies (post-training for experimental group)	Total vocabulary size	
	Spearman's correlation	P-value
Determination strategies	0.547	0.002**
Social strategies	0.146	0.442
Memory strategies	0.533	0.002**
Cognitive strategies	0.237	0.207
Meta-cognitive strategies	0.639	<0.001**
Vocabulary learning strategies at total	0.458	0.011**

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

For the experimental post-training group, vocabulary sizes and three of the strategies are significantly associated. Furthermore, the total of vocabulary learning strategies indicates a strong relationship between the VLSs and vocabulary size. Therefore, these results confirm that training the students on the use of VLSs can significantly improve their vocabulary size. The social and cognitive strategies were not found to be statistically significant in the post-training VLSs test.

4.5.3.2 The relationship between VLSs and vocabulary size for control group

The Spearman's correlations for the pre-training control group are presented in Table 4.26 below. Total vocabulary size is only significantly associated with memory strategies. the

total vocabulary size of participants with a good memory may be larger. No other VLS was found to have a significant impact on total vocabulary size.

Table 4-26 The correlation between VLS and total vocabulary

Vocabulary learning strategies (pre-training for control group)	Total vocabulary size	
	Spearman's correlation	P-value
Determination strategies	0.089	0.641
Social strategies	0.012	0.95
Memory strategies	0.419	0.021*
Cognitive strategies	-0.021	0.914
Meta-cognitive strategies	0.246	0.19
Vocabulary learning strategies at total	0.121	0.525

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

For the post-training control group, once again, only the memory strategy showed significant results (see Table 4.27). All other strategies had no influence on the vocabulary size. For the control group, no difference in vocabulary size was found, even when students were in the same environment, receiving regular classes. This indicates that learning strategies training could be the key to vocabulary acquisition.

Table 4-27 The Correlation between VLS and total vocabulary

Vocabulary learning strategies (post-training for control group)	Total vocabulary size	
	Spearman's correlation	P-value
Determination strategies	0.164	0.387
Social strategies	0.010	0.959
Memory strategies	0.418	0.021*
Cognitive strategies	-0.009	0.961
Meta-cognitive strategies	0.176	0.353
Vocabulary learning strategies at total	0.131	0.491

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

It can be concluded from the analysis of experimental group data, showing a significant relationship between their VLSs and vocabulary size. In contrast, for the control group, only

the memory VLSs are significant, which might only be due to the regular classes. Therefore, it could be concluded that having VLS training outperforms the experimental group as compared to those who did not have VLS training.

4.5.3.3 The Linear Regression Model and Scatter Plots for the relationship between VLSs and vocabulary size for both groups after the treatment

The linear regression model was applied to show the relationship and its statistical significance between each strategy and vocabulary size. For each strategy, the R-square value showing the strength of the relationship between each VLS and vocabulary size is presented. After that, the F-test values, along with the corresponding p-values, are displayed (Note: The F-test value indicates whether a significant relationship exists between the VLS and the vocabulary size). It is evident that other than the memory strategy, no other can be said to be significant for the control group. In contrast, for the experimental group, the determination, memory, meta-cognitive and total VLSs are all significant.

Table 4-28 The linear regression model, showing each strategy's relationship with the vocabulary size (post-training for experimental and control group)

Vocabulary learning strategies	Experimental Group			Control Group		
	R-square	F-test	P-value	R-square	F-test	P-value
Determination strategies	0.257	9.665	0.004**	0.063	1.896	0.182
Social strategies	0.003	0.071	0.793	0.004	0.113	0.739
Memory strategies	0.209	7.359	0.011*	0.174	5.9	0.022*
Cognitive strategies	0.032	0.931	0.343	0.000	0.006	0.939
Meta-cognitive strategies	0.312	12.715	0.001**	0.069	2.065	0.162
Vocabulary learning strategies at total	0.182	6.245	0.019*	0.058	1.717	0.201

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Scatter plots for each VLS along with vocabulary sizes are shown in the figures 4.18 to figure 4.28 below in order to visualise the correlation between VLSs and vocabulary size for both groups after the training sessions. The individual points represent the participants, and the straight line is the line of best fit. It is very clear that for the determination, memory, meta-cognitive and total VLSs in the experimental group, a more consistent scatter that is close to

the line of best fit can be seen. However, for the control group, the points are less consistent with the line of best fit.

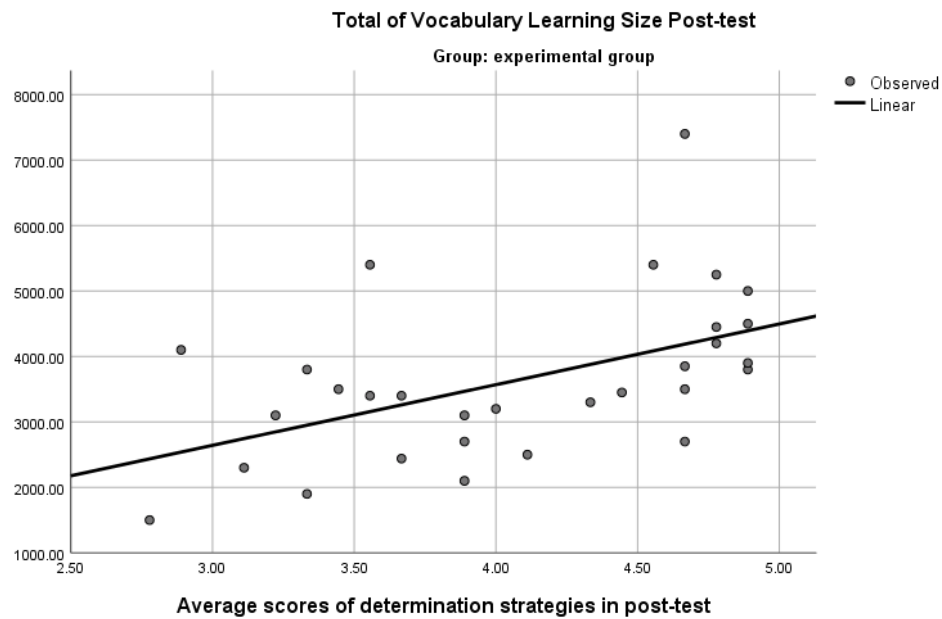


Figure 4-18 Scatter plots for Determination strategies along with vocabulary size after the training for experimental group

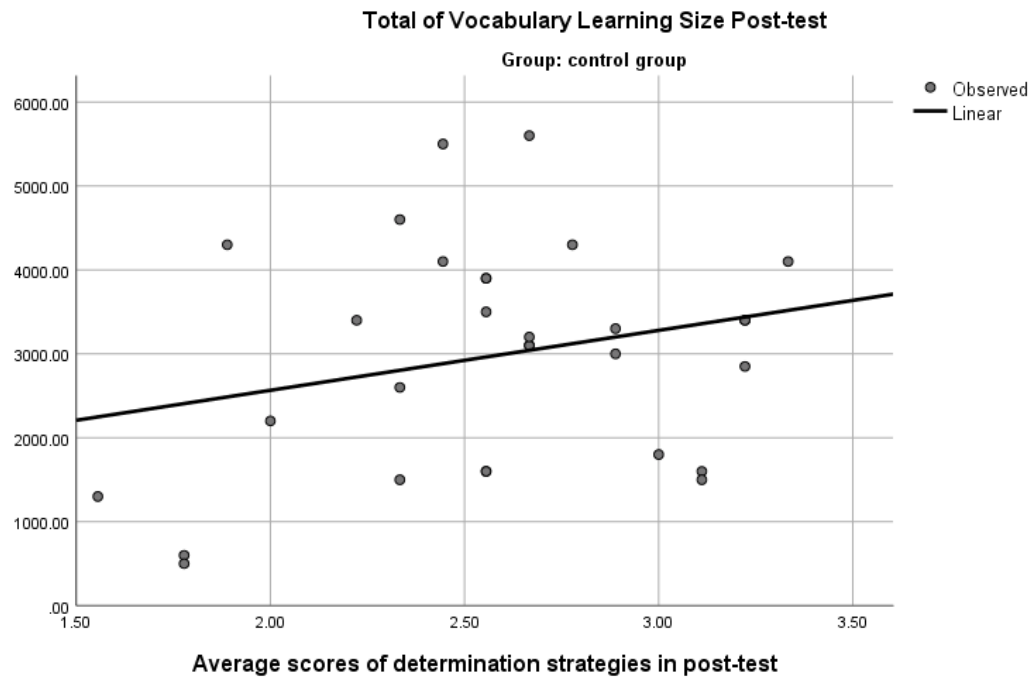


Figure 4-19 Scatter plots for Determination strategies along with vocabulary size after the training for control group

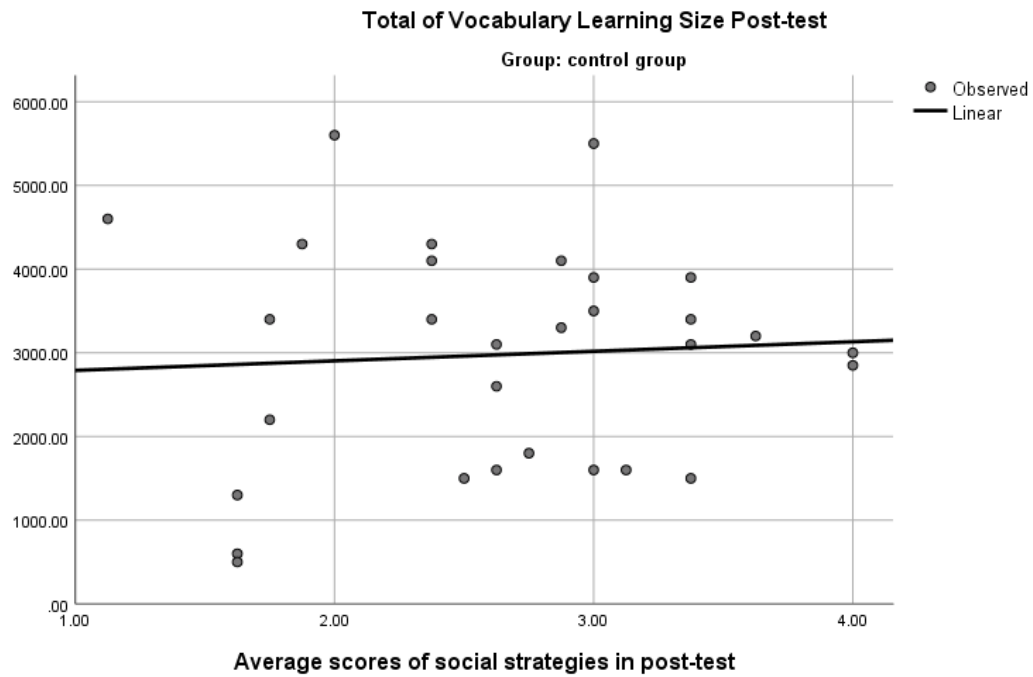


Figure 4-20 Scatter plots for social strategies along with vocabulary size after the training for control group

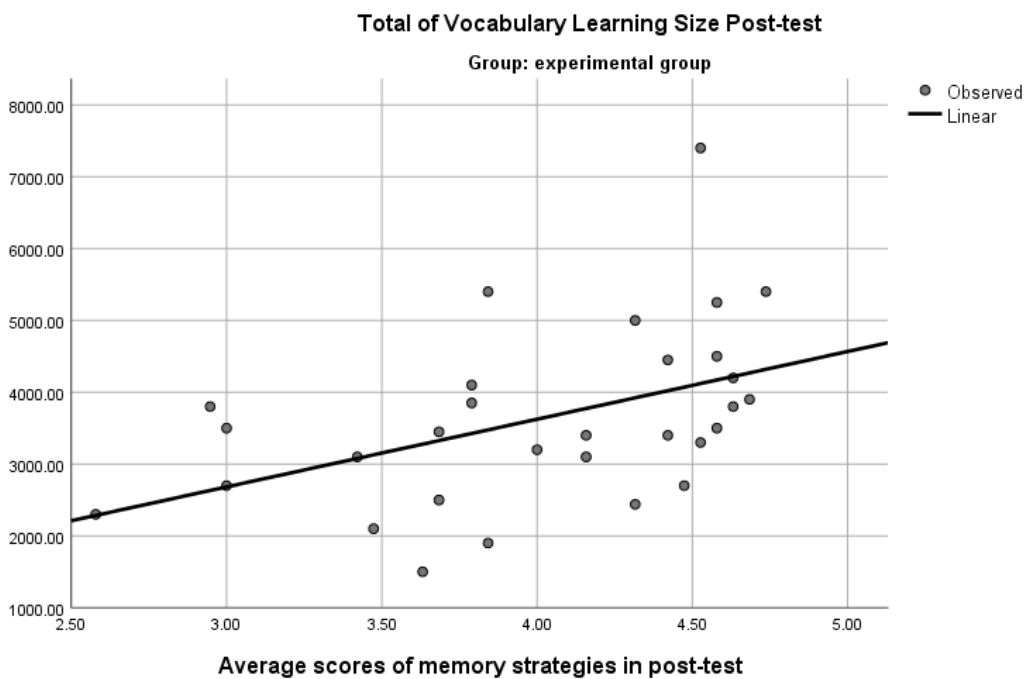


Figure 4-21 Scatter plots for memory strategies along with vocabulary size after the training for experimental group

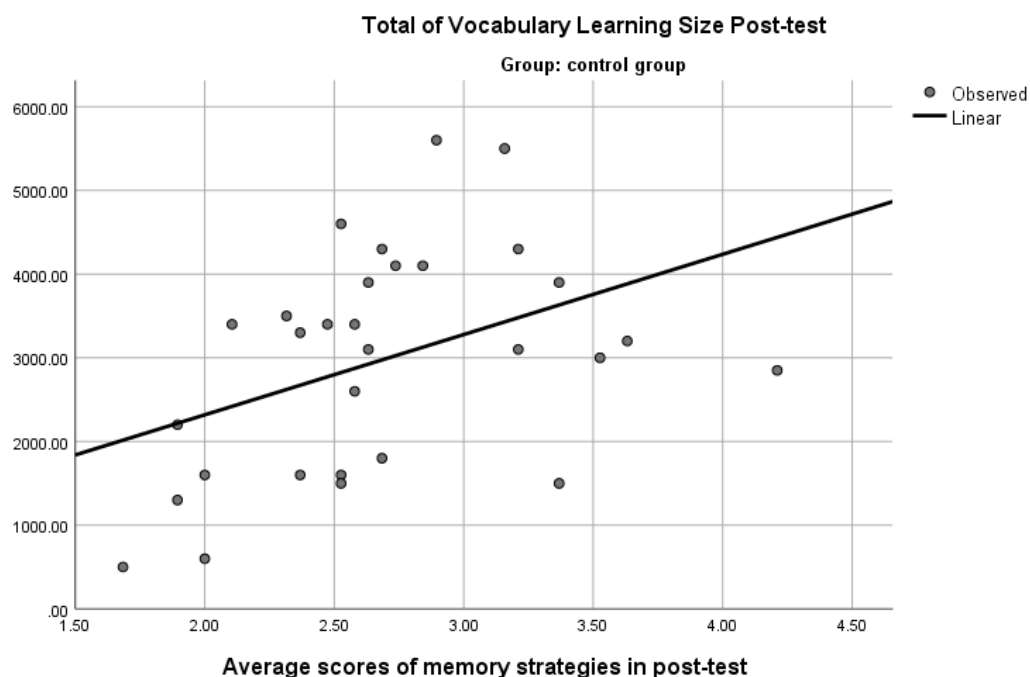


Figure 4-22 Scatter plots for memory strategies along with vocabulary size after the training for control group

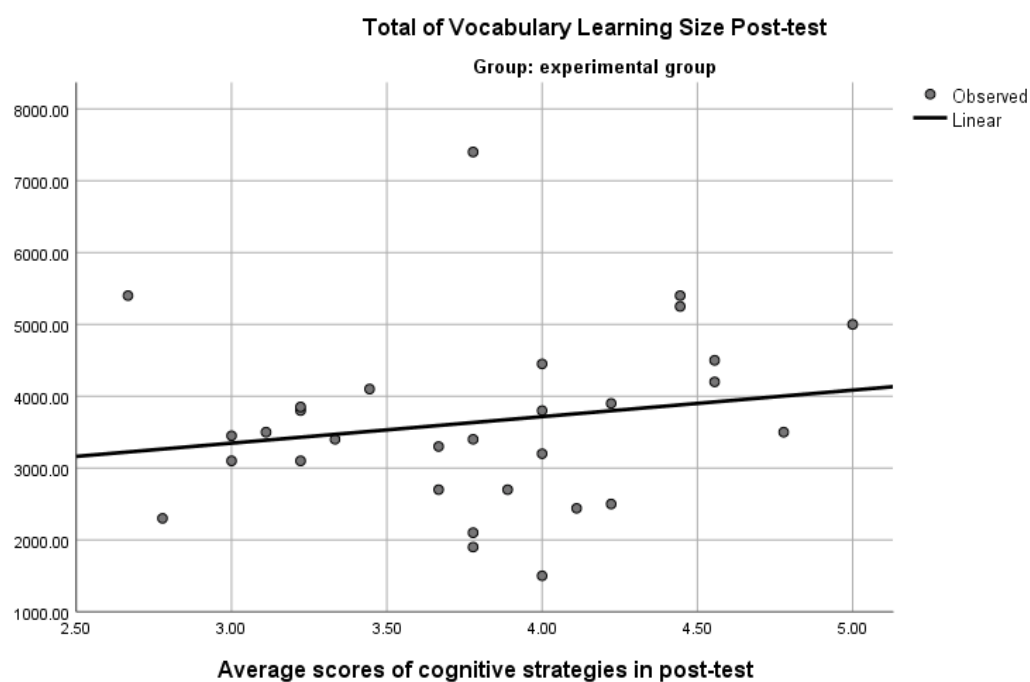


Figure 4-23 Scatter plots for cognitive strategies along with vocabulary size after the training for experimental group

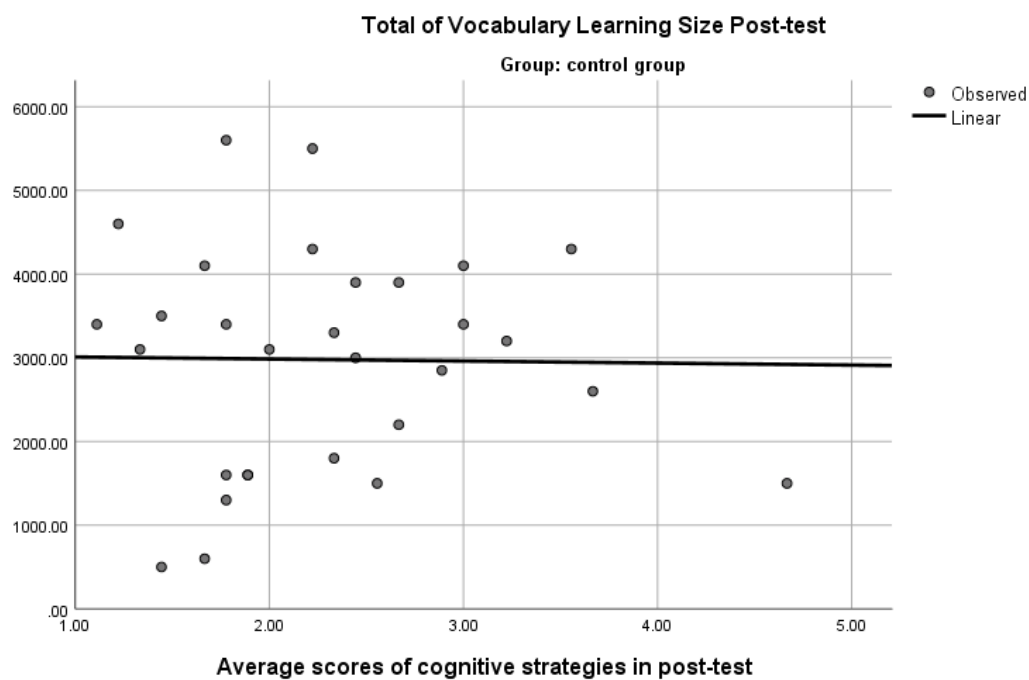


Figure 4-24 Scatter plots for cognitive strategies along with vocabulary size after the training for control group

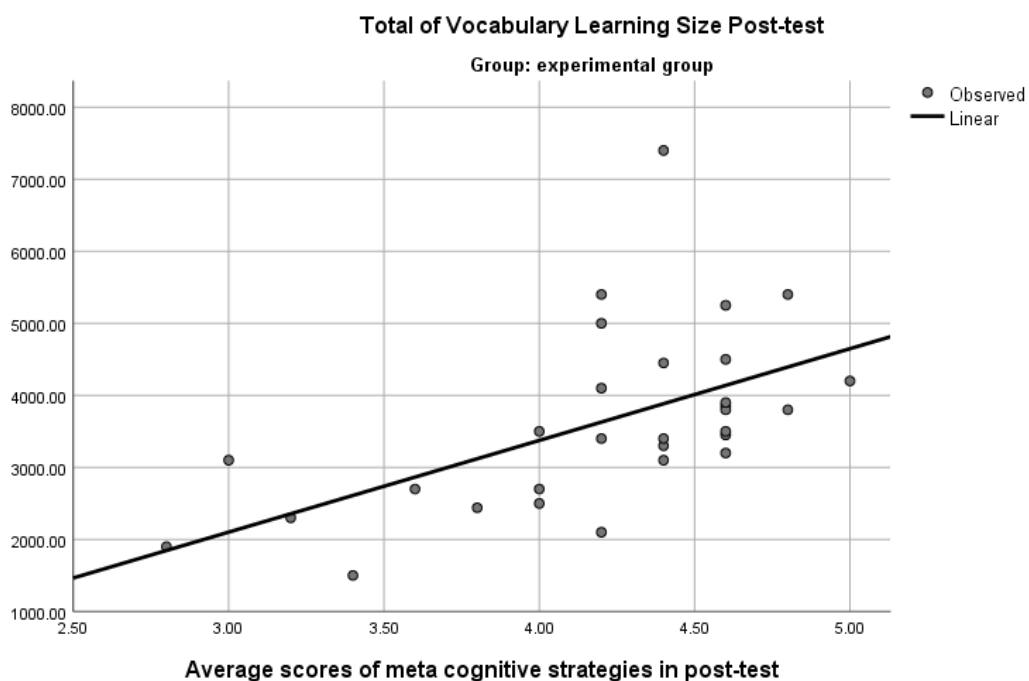


Figure 4-25 Scatter plots for metacognitive strategies along with vocabulary size after the training for experimental group

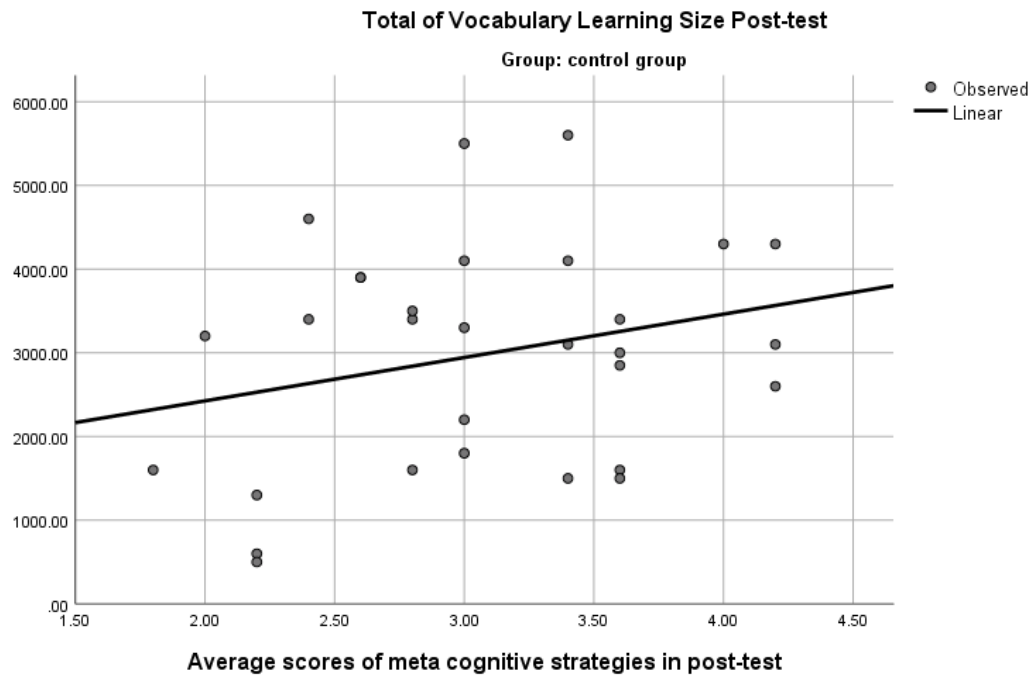


Figure 4-26 Scatter plots for metacognitive strategies along with vocabulary size after the training for control group

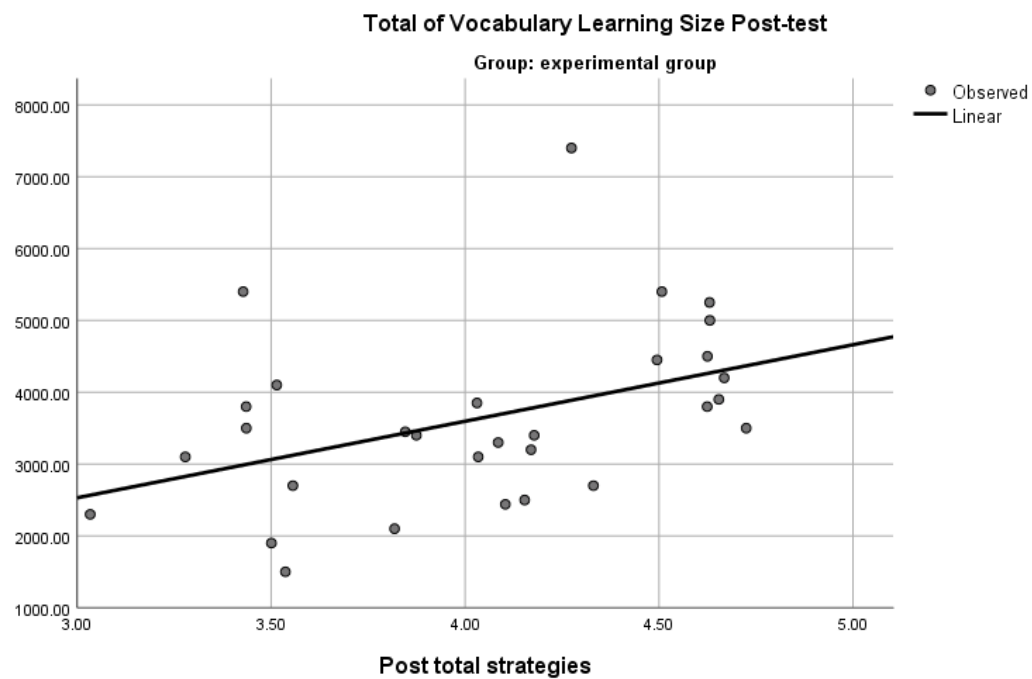


Figure 4-27 Scatter plots for all categories of VLSs along with vocabulary size after the training for experimental group

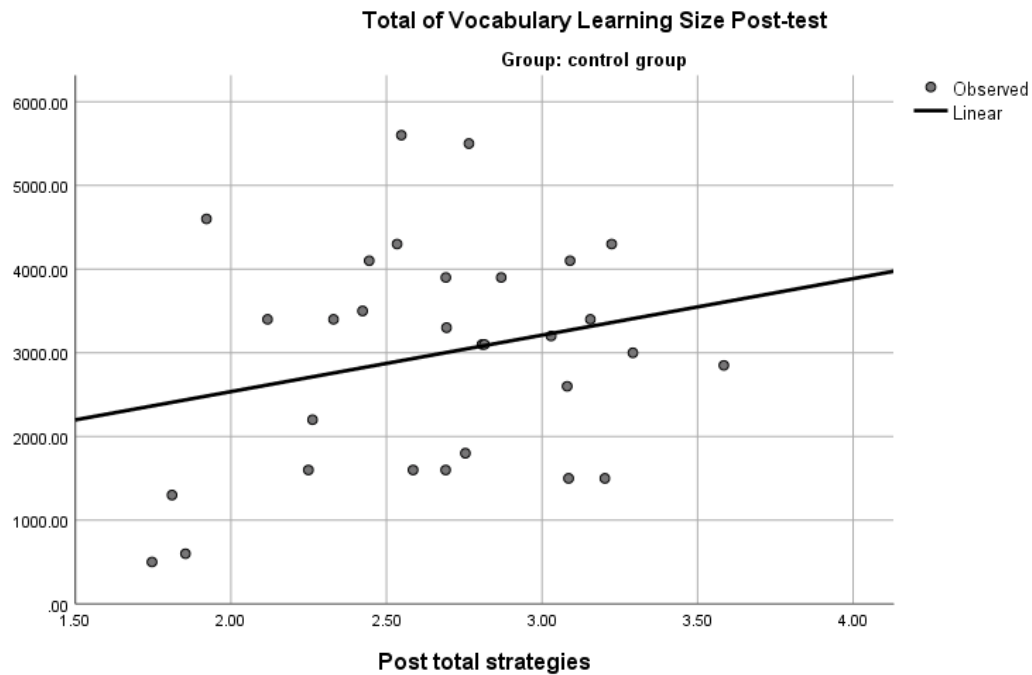


Figure 4-28 Scatter plots for all categories of VLSs along with vocabulary size after the training for experimental group

The differences between the pre and post-intervention average scores for each strategy were computed and analysed in order to investigate the significant differences with regards to pre and post-training average scores for each VLS on the pre and post-training vocabulary size. The correlation between the differences in average scores for each strategy and the post intervention vocabulary size was then calculated. It is worth noting that the experimental group show a significant difference for determination, social, memory and total scores, while for the control group, none of the result are statistically significant. Consequently, it can be said that VLS training has a significant influence on participants' total vocabulary size.

Table 4-29 The Correlation between post-training vocabulary size and the difference in pre and post training for each VLS

Correlation between post-training vocabulary size and the difference in pre and post training	Experimental Group		Control Group	
Difference between Pre and Post Determination Strategies Score	0.415	0.023*	-0.069	0.716
Difference between Pre and Post Social Strategies Score	0.462	0.010*	0.332	0.073
Difference between Pre and Post Memory Strategies Score	0.428	0.018*	-0.119	0.530
Difference between Pre and Post Cognitive Strategies Score	0.236	0.210	-0.088	0.646
Difference between Pre and Post Meta Cognitive Strategies Score	0.153	0.420	-0.139	0.465
Difference between Pre and Post Total Score	0.422	0.020*	-0.196	0.300

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

First, the differences in scores between the pre and post-training values were computed to indicate an increase or decrease in the learning outcomes. In the event that the VLSs influence vocabulary size, there might be a strong correlation between the two.

From Table 4.29, it is clear that determination, social, memory and total strategies have a significant impact on vocabulary size for experimental group. However, for the control group, there is no significant difference. Therefore, it can be concluded that the use of vocabulary strategies has a significant influence on the vocabulary size of the participants.

4.5.4 Research Question Four

Are there statistically significant differences in the use of VLSs related to factors addressed in the demographic questions?

This section examines the participating subjects' characteristics as shown in their answers to the demographic questions. Before participants were surveyed, they answered demographic questions which explored the characteristics of subjects before they had the treatment and answered the questionnaire and test. The demographic questions focused on the age of the participants, their field of study, their previous experience with VLS, the environment in which they were learning English and some practices for improving the language. This information was obtained as it may reveal characteristics which might affect the participants' use of VLSs as well as their vocabulary test results. As mentioned earlier in

Chapter Three, participants answered the questionnaire both before and after the training; therefore, the next section will explore whether there are statistically significant differences between students' use of VLSs in the pre and post-test, in relation to the characteristics addressed in the demographic questions.

4.5.4.1 Does age have a statistically significant impact on the use of VLSs pre and post training?

To answer this question, a Mann-Whitney U test and Analysis of Variance (ANOVA) were conducted to establish the effect of age as an independent variable on VLSs before and after training, as shown in Tables 4. 30 – 4.35.

The following table compares the two age groups for both the experimental and control groups using the Mann-Whitney U test. The mean and standard deviation for the two groups and their age groups are displayed below.

Table 4-30 Summary table for the two groups and participants' ages (pre-training)

Group	Experimental Group				Control Group			
VLS	18-20 years		21-23 years		18-20 years		21-23 years	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	2.67	0.62	3.33	1.26	2.53	0.49	1.96	0.63
Social	2.98	0.79	2.94	0.27	2.70	0.74	2.13	0.66
Cognitive	2.70	0.59	3.18	0.11	2.64	0.61	2.25	0.43
Memory	2.37	0.75	2.11	0.31	2.26	0.84	2.11	0.29
Meta-cognitive	3.08	0.73	3.80	0.57	2.99	0.64	3.07	0.90
Total – pre	2.76	0.43	3.07	0.35	2.62	0.48	2.30	0.47

Table 4-31 Pre-training: Comparison between the age groups in each VLS category

Pre-test for two groups ages compared	Experimental Group (pre-training)		Control Group (pre-training)	
	Mann-Whitney test statistic	P-value	Mann-Whitney test statistic	P-value
Determination	37.0	0.506	21.0	0.2
Social	26.0	0.901	22.5	0.226
Cognitive	23.5	0.707	39.5	0.948
Memory	46.0	0.166	25.5	0.315
Meta-cognitive	44.0	0.225	41.5	0.948
Total - pre	45.0	0.193	26.0	0.350

The above table indicates that there is no significant difference between the age groups in terms of pre-training mean scores. The experimental and control groups were compared separately for the 18-20 years and 21-23 years age groups.

Analysis for Age groups 18-20 and 21-23 after the training

The post-test analysis of the results for the experimental and control groups are presented in the table below, including the mean and standard deviation for the two age groups. The results from the non-parametric analysis which was used to compare the age groups showed no statistical significance.

Table 4.32 displays the summary statistics for different age groups (for post-training), split into the experimental and control groups.

Table 4-32 To examine whether there are statistically significant differences between students' use of VLSs in the post-test, related to age

post-test comparison of the two groups by age	Experimental Group				Control Group			
	18-20 years		21-23 years		18-20 years		21-23 years	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	4.07	0.68	4.11	0.79	2.63	0.42	2.11	0.69
Social	4.12	0.64	4.00	0.18	2.71	0.74	2.13	0.66
Cognitive	4.02	0.62	3.97	0.26	2.73	0.59	2.32	0.40
Memory	3.83	0.61	3.28	0.08	2.31	0.85	2.11	0.29
Meta-cognitive	4.19	0.56	4.40	0.28	3.07	0.67	3.07	0.90
total - pre	4.05	0.51	3.95	0.11	2.69	0.47	2.35	0.47

Statistical significance testing was applied for different VLSs to compare the experimental and control groups. The Mann-Whitney U test was applied to the two independent samples.

Table 4-33 Post-training: Comparison between the age groups in each VLS category

post-test comparison of the two groups by age	Experimental Group		Control Group	
	Mann-Whitney test statistic	P-value	Mann-Whitney test statistic	P- value
Determination	27.0	0.966	21.5	0.200
Social	25.5	0.837	21.5	0.200
Cognitive	13.0	0.257	36.5	0.795
Memory	23.0	0.717	23.5	0.253
Meta-cognitive	32.5	0.717	40.0	1.000
Total	22.0	0.662	23.0	0.253

The following table (Table 4.34) compares the pre and post-training scores for the different strategies, within the experimental group only. The 18-20 age group have 28 participants, whereas the 21-23 age group only has 2. Therefore, the analysis was carried out for the experimental, 18-20 age group. Given that the control group did not receive training, the comparison for pre and post-training was not performed.

The mean and standard deviation for pre and post-test for the different strategies is presented, along with the statistical comparison using the Wilcoxon signed rank-sum test.

Table 4-34 To examine whether there are statistically significant differences between students' use of VLSs in the pre vs. post-test (for the experimental group only), related to the 18-20 years age group.

Vocabulary learning strategies Pre and post	Age 18-20 years				Wilcoxon test
	Pre- training		Post-Training		
	Mean	SD	Mean	SD	
Determination strategies	2.67	0.62	4.07	0.68	-4.63***
Social strategies	2.98	0.79	4.12	0.64	-4.63***
Memory strategies	2.70	0.59	4.02	0.62	-4.62***
Cognitive strategies	2.37	0.75	3.83	0.61	-4.63***
Meta-cognitive strategies	3.08	0.73	4.19	0.56	-4.64***
Total learning strategies	2.76	0.43	4.05	0.51	-4.62***

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Interestingly, all vocabulary learning strategies have significant p-values in the experimental group for the 18-20 years age group. This indicates that all VLS approaches are effective in producing useful vocabulary for the 18-20 years age group. The mean scores for each VLS nearly doubled after VLS training was received.

For the age group 21-23 years, it is interesting to see that only determination, memory and total VLSs are significant between pre-training and post-training for the experimental group (see Table 4.35). Even so, a generalised conclusion cannot be made due to the small the sample size of the age 21-23 years group.

Overall, as the 18-20 age group shows significant results, it can be said that age has statistically significant impacts, which was not evident from comparing age without splitting the groups with the six categories.

Table 4-35 To examine whether there are any statistically significant differences between students' use of VLSs in the pre vs. post-test, in relation to the 21-23 years age group. Experimental group only.

Vocabulary learning strategies (Pre vs Post) <u>Age 21-23</u>	Age 21-23 years				Mann-Whitney test	P-value
	Mean	SD	Mean	SD		
Determination strategies	2.51	1.08	2.91	1.26	-2.032	0.042*
Social strategies	2.45	0.66	2.88	1.13	-1.342	0.180
Memory strategies	2.62	0.6	2.98	0.96	-2.032	0.042*
Cognitive strategies	2.11	0.26	2.58	0.67	-1.342	0.180
Meta-cognitive strategies	3.36	0.8	3.6	0.98	-1.342	0.180
Total learning strategies	2.61	0.56	2.99	0.94	-2.023	0.043*

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

Grouped box plots are included below in figures 4.29 and 4.30 to graphically display the results in Tables 4.34 and 4.35, where the pre and post-training comparisons for each age group were compared. Each colour represents a strategy, as explained in the legend. It is clearly visible that all the strategies have lower scores in all the categories as compared to post-training

scores. The diagram also demonstrates that different VLSs have significant impacts due to the training.

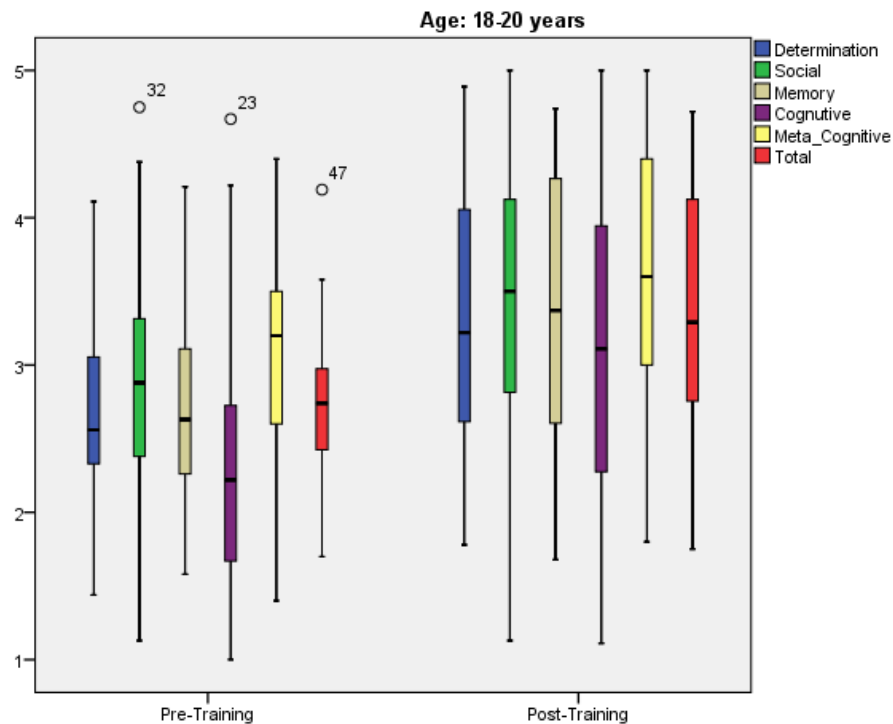


Figure 4-29 the comparing of pre-training and post-training VLSs scores for the 18-20 years age group

A similar graph is included for the age group 21-23; interestingly, no significant differences between the pre-training and post-training scores can be seen for some of the strategies.

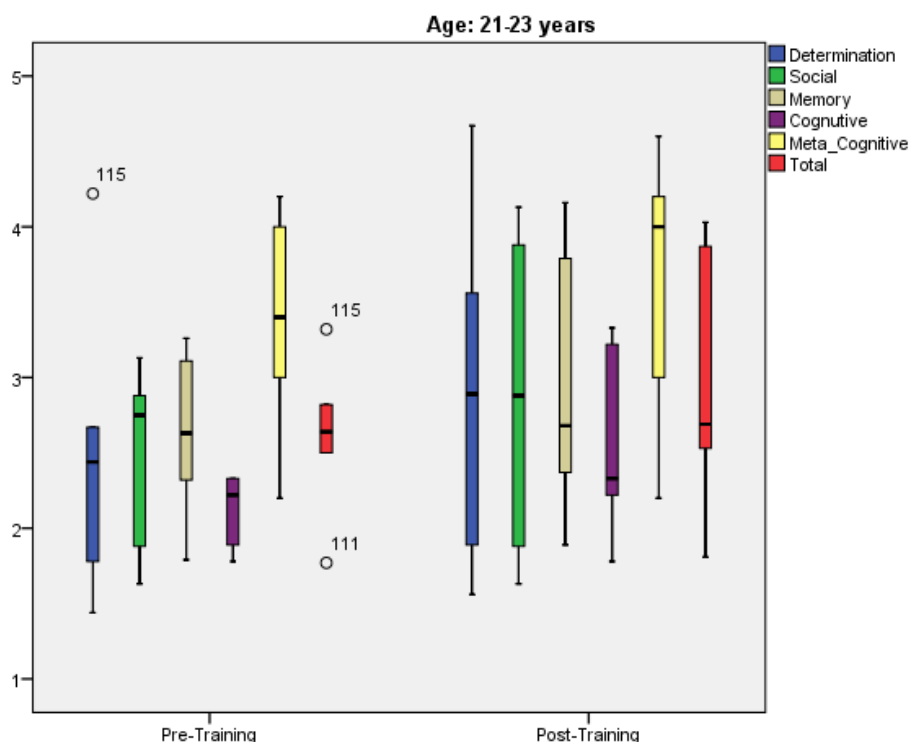


Figure 4-30 the comparing of pre-training and post-training VLSs scores for the 21-23 years age group

4.5.4.2 Do streams have a statistically significant impact on the scores of VLSs in the pre and post-training?

To investigate whether streams have a statistically significant impact on the vocabulary learning strategies, the ANOVA test was performed in order to compare the three streams. The other confounding factor 'Group' was not included, as splitting both by stream and group only left 10 participants in each sub-category, which is not suitable for statistical analysis. Therefore, the scores of VLSs pre and post- training for different streams were considered, and the control-experimental groups ignored.

In the following section, a summary of the statistics is first presented, along with the scores of VLSs pre-post training testing for each stream. For this purpose, the parametric t-test or non-parametric Wilcoxon test was applied, depending on whether the normality assumption was satisfied or not.

For the ANOVA test, the three groups must have equal variances and fulfil the normality assumptions. If they fail to do so, the nonparametric ANOVA test must be used instead.

If results are significant after the ANOVA test, the pair-wise comparison test must be applied, using the least significant difference (LSD) and Bonferroni correction tests. The ANOVA tests for pre-training and post-training are presented separately.

The following two tables present the means and standard deviations for each of the streams, which are further split into the control and experimental groups. The first table displays the pre-training results, whilst the second displays the post-training results for each VLS, split by control and experimental groups.

Table 4-36 The mean and standard deviation for each stream, split into two groups (control and experimental)

Pre-Training												
VLS	Humanity Stream				Science Stream				Health Stream			
	Control		Experimental		Control		Experimental		Control		Experimental	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	2.37	0.57	2.41	0.80	2.51	0.48	2.73	0.67	2.53	0.56	3.00	0.40
Social	2.39	0.67	2.76	0.48	2.64	0.90	3.05	1.02	2.91	0.60	3.11	0.73
Memory	2.37	0.61	2.52	0.63	2.71	0.68	2.99	0.67	2.72	0.51	2.67	0.36
Cognitive	1.87	0.58	2.33	0.60	1.98	0.71	2.33	0.85	2.89	0.73	2.40	0.80
Meta-cognitive	2.88	0.83	3.04	0.89	2.92	0.59	3.42	0.55	3.20	0.50	2.92	0.69
Total	2.37	0.51	2.61	0.37	2.55	0.49	2.91	0.56	2.85	0.33	2.82	0.29

For the three streams, the means (SD) for experimental and control groups are 2.61(0.63), 2.91(0.72), 2.82(0.55) and 2.38(0.63), 2.55(0.64), 2.85(0.54) respectively. This indicates that there are no significant changes for the two groups in all three streams (pre-training).

Table 4-37 The mean and standard deviation for each stream, split into two groups (control and experimental)

VLS	Post-training											
	Humanity Stream				Science Stream				Health Stream			
	Control		Experimental		Control		Experimental		Control		Experimental	
	M	S	M	S	M	S	M	S	M	S	M	S
Determination	2.46	0.56	3.42	0.54	2.61	0.42	4.03	0.39	2.67	0.43	4.77	0.12
Social	2.40	0.66	3.63	0.35	2.64	0.90	4.11	0.66	2.93	0.60	4.60	0.38
Memory	2.52	0.62	3.42	0.51	2.77	0.65	4.07	0.39	2.78	0.47	4.56	0.13
Cognitive	1.97	0.65	3.36	0.37	1.99	0.69	3.69	0.57	2.91	0.75	4.32	0.41
Meta-cognitive	3.02	0.89	3.78	0.68	2.94	0.60	4.32	0.27	3.24	0.50	4.52	0.29
Total	2.47	0.54	3.52	0.28	2.59	0.48	4.04	0.31	2.90	0.30	4.55	0.15

After training, the scores for the experimental groups in all three streams increased, while no large changes were found for the control groups. Overall, the means (SD) for the experimental and control groups for the three streams are 3.52(0.46), 4.04(0.43), 4.55(0.25) and 2.47(0.65), 2.59(0.62), 2.91(0.51) respectively. This indicates that experimental group scores have changed significantly, with 2.61(0.63), 2.91(0.72), 2.82(0.55) and 3.52(0.46), 4.04(0.43), 4.55(0.25) respectively for the pre and post-training. However, with regards to the control groups, there are no changes in the mean scores, which are 2.38(0.63), 2.55(0.64), 2.85(0.54) and 2.47(0.65), 2.59(0.62), 2.91(0.51). Consequently, the analysis of variance (ANOVA) testing was only performed for the experimental group, as shown in the following section.

The analysis of variance (ANOVA) was performed to compare the three streams in relation to each strategy. Only the cognitive strategies category was found to be statistically significant, meaning that this significance needs to be investigated further in relation to the three streams. For this purpose, the pair wise comparison was performed using the LSD test (see table next page).

Table 4-38 Results of analysis of variances (ANOVA) to examine differences in VLS use related to stream in pre-test (Experimental group)

Vocabulary learning strategies	Means by stream			F-test	P-value
	Humanity	Science	Health		
Determination strategies	2.39	2.62	2.77	2.034	0.140
Social strategies	2.58	2.84	3.01	1.703	0.191
Memory strategies	2.45	2.85	2.69	2.488	0.092
Cognitive strategies	2.10	2.16	2.64	3.331*	0.043*
Meta-cognitive strategies	2.96	3.17	3.06	0.456	0.636
Vocabulary learning strategies at total	2.49	2.73	2.84	3.10	0.053

*indicates that the difference is significant at the 0.05 significance level.

Table 4.38 shows statistically significant variations between students' scores with regards to the use of cognitive strategies at the 0.05 significance level related to streams, but no significant variations between students' scores regarding the other four VLSs, namely determination, social, memory, and meta-cognitive strategies. Given that only the cognitive strategies are significantly different at the 5% level of significance, post-hoc analyses used the least significant difference (LSD) test only for cognitive strategies. The LSD test helps to identify the pair of streams that differ significantly in the two streams. The results are presented in Table 4.38.

As shown above in Table 4,38, the ANOVA test showed that only cognitive strategies are statistically significant (P-value = 0.043). Therefore, pairwise comparison testing was performed to see which pair of streams are significantly different from one other. The humanity and health streams are significantly different from each other with a p-value = 0.05. This indicates that cognitive strategies for vocabulary learning have different results for the humanity stream compared to the health one. In the health stream, the mean value is 4.32 for the health stream, and 3.36 for the humanity stream.

Table 4-39 Multiple comparison analysis of the significant difference in the use of cognitive strategies in the pre-test related to stream (experimental group)

(I) what is your stream in the preparatory year?	(J) what is your stream in the preparatory year?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Humanity stream	Science	-0.233	0.169	0.222	-0.612	0.145
	Health	-0.378	0.129	0.050	-0.756	0.001
Science stream	Humanity	0.233	0.189	0.222	-0.145	0.612
	Health	-0.144	0.169	0.448	-0.523	0.234
Health Stream	Humanity	0.378	0.139	0.050	-0.001	0.756
	Science	0.144	0.159	0.448	-0.234	0.523

Table 4.39 shows that the difference in the use of cognitive strategies in the pre-test is significant and positive in favour of the students in the health stream. In other words, cognitive strategies were used more by health stream students in the pre-test. In the following table 4.40, the Wilcoxon rank sum test was used for pair wise comparison to present the gain scores and the corresponding p-values of the use of VLSs for the experimental group in the three streams.

Post training comparison for different streams are performed. P values computed using Mann Whitney test. The gain scores are computed using the difference between each pair of streams.

Table 4-40 To present the gain scores and the corresponding p-values, the Wilcoxon rank sum test was used for pair wise comparison (experimental group –post training)

VLS (post)	Humanity Vs. Science		Humanity Vs. health		Science Vs. Health	
	Gain	P-Val	Gain	P-Val	Gain	P-Val
Determination	0.38	0.174	0.78	0.076	0.4	0.201
Social	0.37	0.242	0.75	0.02*	0.38	0.265
Memory	0.45	0.086	0.7	0.028*	0.25	0.192
Cognitive	0.18	0.565	0.96	0.004**	0.78	0.023*
Meta-cognitive	0.23	0.369	0.48	0.086	0.25	0.314
Total	0.32	0.174	0.73	0.028*	0.41	0.063

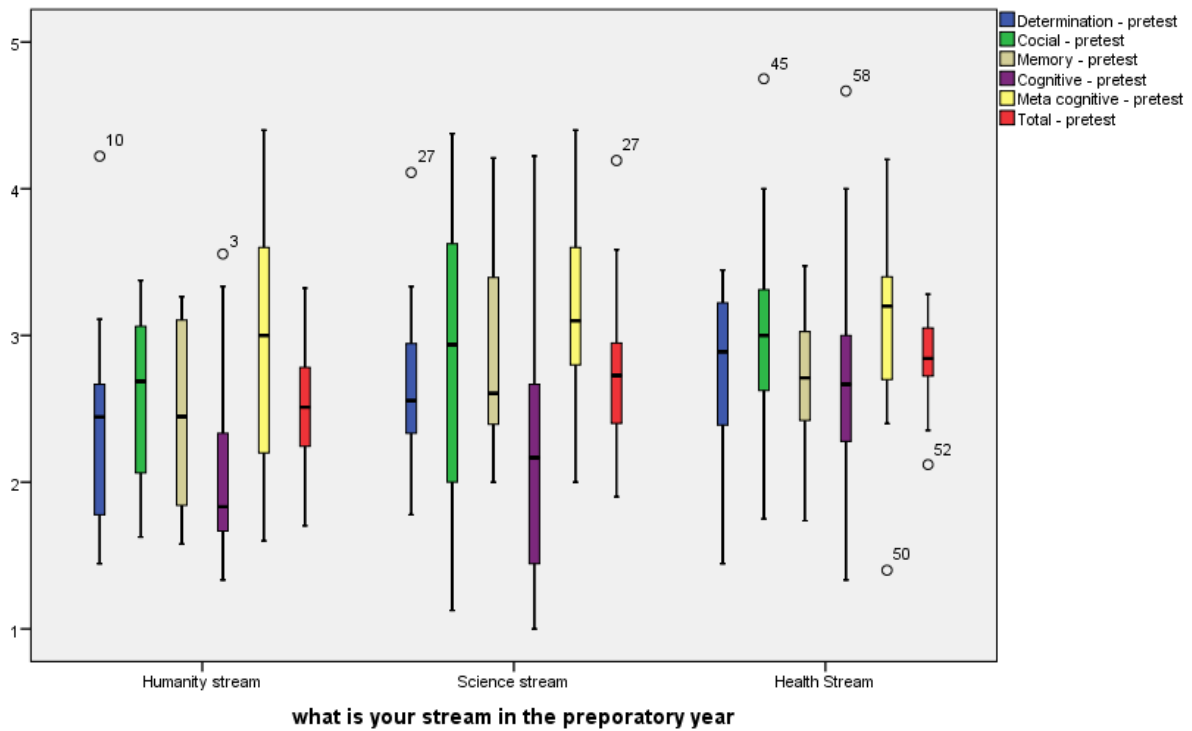


Figure 4-31 the difference between the stream regarding the use of VLSs pre the training

Multiple box plots are included in the figure 4.31 (pre-test scores only). The colours represent the different strategies. The horizontal axis shows the three streams. From the graph, it is evident that only the cognitive strategies show any significant difference between the humanity and health streams. However, for every other VLS, the boxes overlap in their vertical axis, indicating that there is no significant difference between them.

Table 4.41 shows the results of an Analysis of Variance performed in order to examine significant differences related to stream in the post-VLSs training.

Table 4-41The results of ANOVA to examine significant differences related to stream in the post-test regarding the use of VLSs (experimental group)

Vocabulary learning strategies (experimental group)	Means by stream			F-test	P-value
	Humanity	Science	Health		
Determination strategies	2.94	3.32	3.72	3.666*	0.032
Social strategies	3.01	3.38	3.76	3.012	0.057
Memory strategies	2.97	3.42	3.67	3.489*	0.037
Cognitive strategies	2.66	2.84	3.62	5.579**	0.006
Meta-cognitive strategies	3.40	3.63	3.88	1.691	0.193
Vocabulary learning strategies at total	3.00	3.32	3.73	4.165*	0.020

**indicates that difference is significant at the (0.01) significance level

*indicates that difference is significant at the (0.05) significance level.

Table 4.41 shows that there are statistically significant differences between students' use of determination, memory, and cognitive strategies for vocabulary learning in the post-test, and of the overall use of all strategies, in relation to their academic stream. But there are no significant differences with regards to the use of social and meta-cognitive strategies. Therefore, the strategies used most by the students in the post-test are the determination, memory and cognitive ones. The p-value for social strategies is 0.057, meaning that two of the three groups might be significantly different from one another. For this reason, the multiple comparison test was also applied on social VLS.

To examine the significant differences in the use of determination, memory, and cognitive VLSs in the post-test, and of overall VLSs, a multiple comparison analysis was conducted using the Least Square difference method; the results are presented in Table 4.37.

Table 4-42 Multiple comparison analysis to examine significant differences regarding the use of VLSs in the post-test related to stream (experimental group)

Dependent Variable			Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Determination	Humanity stream	Science	-0.383	0.287	0.187	-0.959	0.192
		Health	-0.778	0.287	0.009**	-1.353	-0.203
	Science stream	Humanity	0.383	0.287	0.187	-0.192	0.959
		Health	-0.394	0.287	0.175	-0.970	0.181
Social	Humanity stream	Science	-0.363	0.306	0.241	-0.975	0.250
		Health	-.75000*	0.306	0.017**	-1.362	-0.138
	Science stream	Humanity	0.363	0.306	0.241	-0.250	0.975
		Health	-0.388	0.306	0.210	-1.000	0.225
Memory	Humanity stream	Science	-0.453	0.270	0.099	-0.993	0.087
		Health	-.70263*	0.270	0.012**	-1.243	-0.163
	Science stream	Humanity	0.453	0.270	0.099	-0.087	0.993
		Health	-0.250	0.270	0.358	-0.790	0.290
Cognitive	Humanity stream	Science	-0.178	0.304	0.561	-0.787	0.432
		Health	-.95556*	0.304	0.003**	-1.565	-0.346
	Science stream	Humanity	0.178	0.304	0.561	-0.432	0.787
		Health	-.77778*	0.304	0.013*	-1.387	-0.168
Meta-cognitive	Humanity stream	Science	-0.230	0.261	0.382	-0.753	0.293
		Health	-0.480	0.261	0.071	-1.003	0.043
	Science stream	Humanity	0.230	0.261	0.382	-0.293	0.753
		Health	-0.250	0.261	0.342	-0.773	0.273
Post total	Humanity stream	Science	-0.321	0.255	0.212	-0.831	0.189
		Health	-.73319*	0.255	0.006**	-1.243	-0.223
	Science stream	Humanity	0.321	0.255	0.212	-0.189	0.831
		Health	-0.412	0.255	0.111	-0.922	0.098
**indicates that difference is significant at the (0.01) significance level							
* The mean difference is significant at the 0.05 level.							

From both the LSD test and the Wilcoxon rank-sum test, it is clear that humanity and sciences are not significantly different in all six strategies. However, with regards to the humanity and health streams, significant results were found for social ($P = 0.009^{**}$), memory ($P = 0.012^{**}$), cognitive ($P = 0.003^{**}$) and total ($P = 0.006^{**}$) strategies, but not for meta-cognitive ($P = 0.071$). Finally, for the science and health stream, only significant differences were found for cognitive strategies ($P = 0.013^{*}$).

The Wilcoxon rank-sum test was applied to obtain the gain scores and corresponding p-values. The gain score is defined as the difference between the positive and negative ranks for the two variables.

Table 4-43 The difference between the streams regarding VLS use after training (experimental group)

VLS (post)	Humanity Vs. Science		Humanity Vs. Health		Science Vs. Health	
	Gain Score	P-Value	Gain Score	P-Value	Gain Score	P-Value
Determination	102.0	0.174	131.0	0.076	96.0	0.201
Social	88.0	0.242	171.0	0.02*	83.0	0.265
Memory	127.0	0.086	161.0	0.028*	98.0	0.192
Cognitive	44.0	0.565	210.0	0.004**	167.0	0.023*
Meta-cognitive	68.0	0.369	127.0	0.086	76.0	0.314
Total	102.0	0.174	162.0	0.028*	138.0	0.063

For the four streams and the determination, memory, cognitive and total strategies, the ANOVA test was significant at the 5% level of significance. It is interesting to note that although social strategies were not significant overall, the post-hoc LSD test analysis showed a significant difference between the humanity and health streams.

The clustered box plot below confirms these findings visually. The colours represent the strategies and the horizontal axis indicates the different streams.

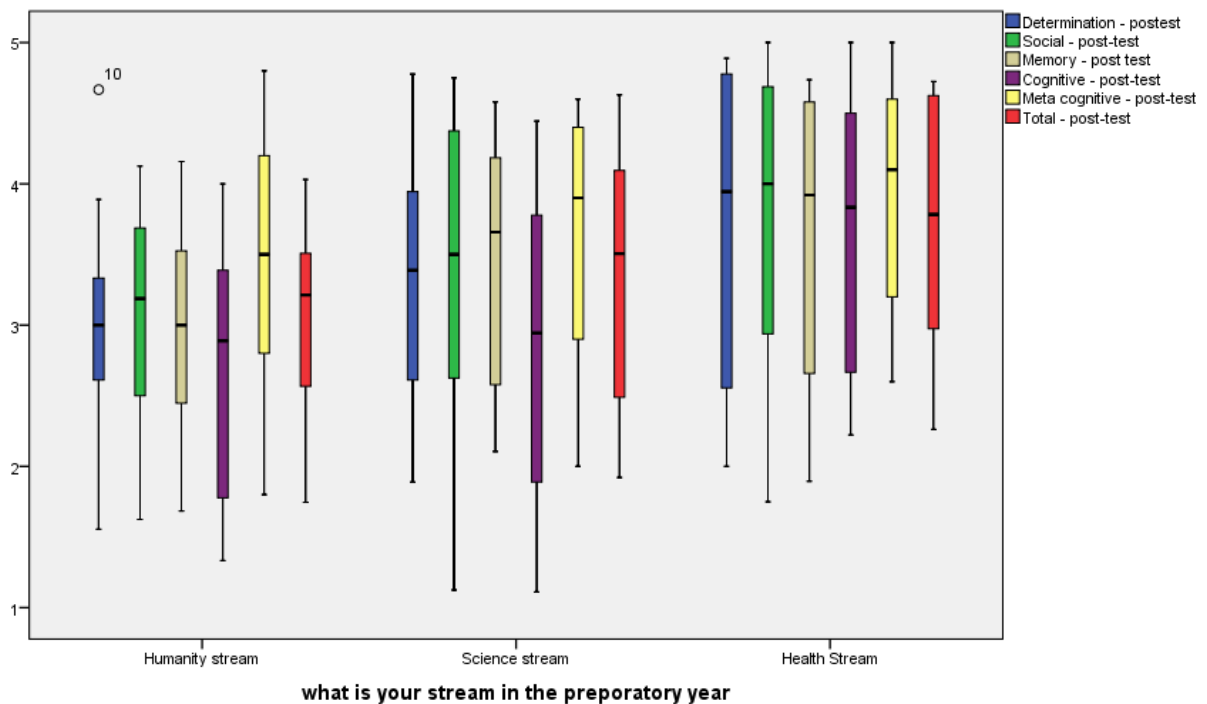


Figure 4-32 the difference between the stream regarding the use of VLSs post the training

Table 4.43 shows that the significant difference is positive in favour of the students in the health stream with regards to the use of determination, memory and cognitive strategies, and overall use of VLSs in the post-test. This confirms that determination, memory and cognitive strategies were the most used strategies in the post-test, particularly by the health stream students.

4.5.4.3 Extended Stay in an English country and VLS

Out of 60 students, only six have had an extended stay in an English-speaking country. Due to this, the simple parametric testing method e.g. t-test, is not suitable for this situation. Therefore, the Kruskal–Wallis test was applied for two independent samples. However, due to the small sample size for the number of students having had an extended stay in an English-speaking country, the results are not generalisable.

Table 4-44 The results of the t-tests to examine whether there are statistically significant effects of having an extended stay in an English-speaking country on the use of VLSs

Vocabulary learning strategies	Means for having had an extended stay				Mean difference scores	P-value
	Yes (6)		No (54)			
	Mean	SD	Mean	SD		
Determination strategies in pre-test	2.72	0.44	2.58	0.63	0.14	0.405
Determination strategies in post-test	3.81	0.85	3.27	0.95	0.54	0.153
Social strategies in pre-test	3.69	0.67	2.71	0.72	0.98	0.005*
Social strategies in post-test	4.25	0.75	3.29	0.98	0.96	0.025*
Memory strategies in pre-test	3.01	0.44	2.63	0.60	0.38	0.108
Memory strategies in post-test	3.94	0.86	3.29	0.87	0.65	0.120
Cognitive strategies pre-test	2.33	0.53	2.30	0.79	0.03	0.674
Cognitive strategies post-test	3.52	1.04	2.99	1.03	0.53	0.259
Meta-cognitive strategies pre-test	3.27	0.33	3.04	0.72	0.23	0.391
Meta-cognitive strategies post-test	4.10	0.65	3.59	0.84	0.51	0.126
Overall strategies pre-test	3.00	0.25	2.65	0.46	0.35	0.026*
Overall strategies post-test	3.92	0.79	3.28	0.84	0.64	0.078

*indicates that the difference is significant at the (0.05) level

The results in Table 4.44 show that there is only a significant difference between students' use of social strategies in the pre and post-test related to having had an extended stay in an English speaking country, and it is obvious that the difference is positive towards the students who have had such an extended stay. This mean that the use of social strategies by the students who have had an extended stay was enhanced compared to the students who did not.

The clustered box plot (in Figure 4.33 below) shows the pre and post test scores for those having had an extended stay in an English-speaking country (Yes/ No). It can be seen that social strategies (both pre and post) show a significant difference (looking at the vertical alignment). Moreover, the pre-total shows a significant difference between the two groups. The p-values from Kruskal–Wallis confirm these findings (see table above).

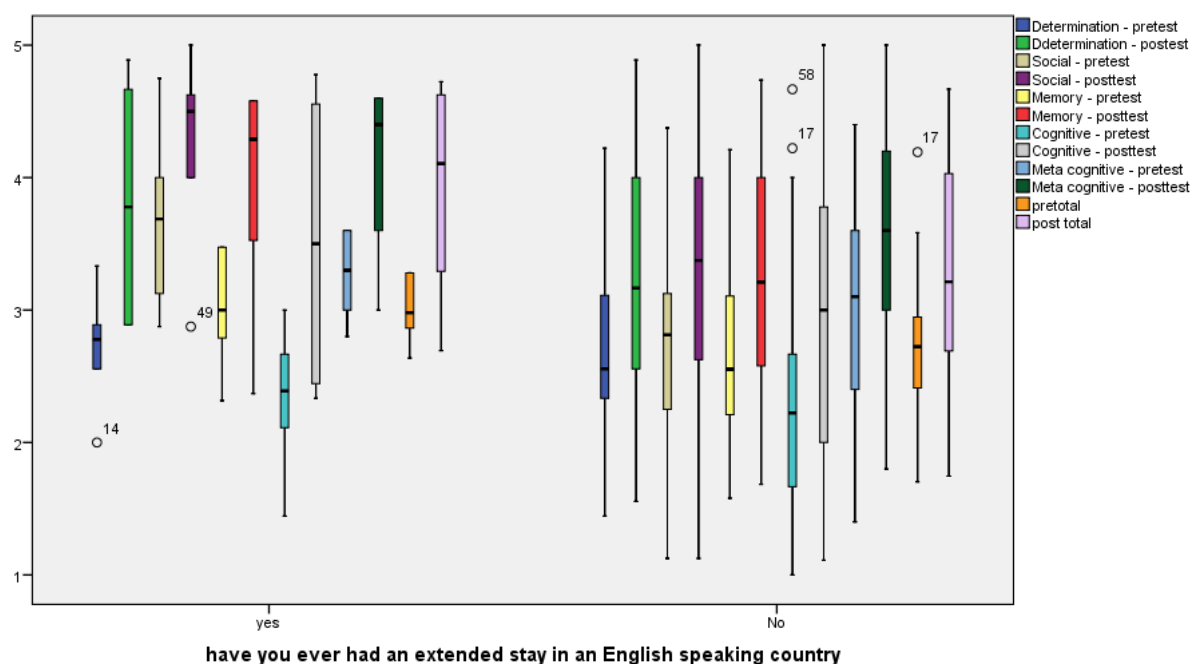


Figure 4-33 the pre and post test scores for those having had an extended stay in an English-speaking country and its effects on the use of VLSs

This means that the performance of students who have had an extended stay in an English-speaking country was significantly different with regards to social vocabulary learning strategies compared to the students who have not. All other VLSs show insignificant results for the two groups, both in pre-training and post-training.

Due to the small sample size of those having had an extended stay, the results were not split between control and experimental groups.

4.5.4.4 Duration of studying English Vs VLSs

In the following section, statistical analysis is performed to test whether studying English for numerous years has an impact on the vocabulary learning strategies training scores. First, the mean and standard deviations are presented, followed by the statistical comparison between the two age groups.

Although there were four available options to choose from in the questionnaire (1-3 years, 4-6 years, 7-9 years and more than 9 years), 4-6 and 7-9 years were the only two options selected by participants when asked about how long they had been studying English. Therefore, the testing and graphical representation only includes these two categories.

The results in Table 4.45 show that there are no statistically significant differences between participants' use of VLSs, and the duration of their study, meaning that the differences in years spent studying English have no significant effect on learners' use of strategies.

It should be noted that none of the VLS (neither in pre-training nor post-training) have significant results. **This meant that further splitting the data into control and experimental groups would not be useful.** Furthermore, 10 students responded that they had been studying the language for 7-9 years, while 50 selected “4-6 years”. Given the small number of participants in the 7-9 years group, **further splitting data into the experimental and control groups might result in misleading conclusions.**

Table 4-45 Results of Mann-Whitney U test to examine whether there are statistically significant differences related to how long students have been studying English and its effects on VLSs

Vocabulary learning strategies	Means of duration of study English				Mean difference scores	P-value
	4-6 years		7-9 years			
	Mean	SD	Mean	SD		
Determination strategies in pre-test	2.59	0.57	2.62	0.80	0.03	0.921
Determination strategies in post-test	3.30	0.91	3.46	1.15	0.16	0.532
Social strategies in pre-test	2.74	0.71	3.15	0.95	0.41	0.173
Social strategies in post-test	3.32	0.96	3.70	1.18	0.38	0.204
Memory strategies in pre-test	2.62	0.60	2.88	0.53	0.26	0.119
Memory strategies in post-test	3.30	0.87	3.62	0.97	0.32	0.346
Cognitive strategies pre-test	2.32	0.81	2.22	0.45	-0.1	0.992
Cognitive strategies post-test	3.01	1.05	3.17	1.00	0.16	0.706
Meta-cognitive strategies pre-test	3.01	0.70	3.34	0.58	0.33	0.151
Meta-cognitive strategies post-test	3.57	0.83	3.96	0.80	0.39	0.143
Overall strategies pre-test	2.65	0.46	2.84	0.47	0.19	0.088
Overall strategies post-test	3.30	0.83	3.58	0.96	0.28	0.341

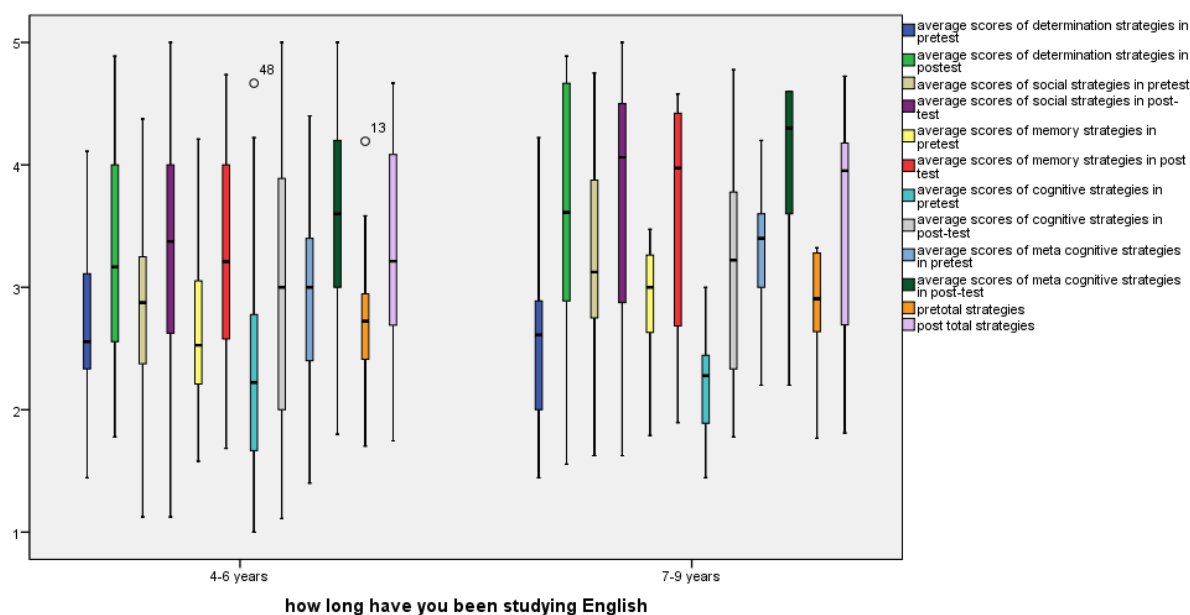


Figure 4-34 the scores of the effects of duration of study English on the use of VLSs before and after the intervention

The figure, 4.34 displays the comparison between the two age groups, showing the duration of English study (4-6 years and 7-9 years). None of the boxes in the clustered box plot point to any significant difference. It can therefore be concluded that the amount of time spent studying English had no significant impact on the VLS scores.

4.5.4.5 Speaking English outside the university vs. VSL scores

This section explores the use of the English language outside university and its impact on VLS training scores. There are five options to answer the survey question (never, seldom, sometimes, often and always) and students responded for only one of these five options. Due to the lack of normality for the different levels of the response variable (i.e. speaking English outside the university), a non-parametric replacement of ANOVA, the Kruskal – Wallis test, was applied. The K-W test compares each of the VLS for pre-training and post-training

separately. The test is therefore repeated for each of the pre and post variables of the six strategies. The P-value for the K-W test is displayed along with the K-W test statistic.

Table 4-46 The results of Kruskal-Wallis test to examine whether there are statistically significant differences related to speaking English outside the university and its effects on the use of VLSs

Vocabulary learning strategies	Means of speaking English outside the university					Kruskal-Wallis test	P-value
	Never	Seldom	Sometimes	Often	Always		
Determination - pre-test	2.32	2.49	2.62	2.75	3.04	3.829	0.430
Determination – post-test	2.94	3.20	3.28	3.72	3.85	4.763	0.312
Social strategies in pre-test	2.53	2.66	2.76	3.05	3.79	8.432	0.077
Social strategies in post-test	2.99	3.29	3.24	3.79	4.38	7.467	0.113
Memory strategies in pre-test	2.11	2.66	2.72	2.82	3.39	11.351	0.023*
Memory strategies in post-test	2.78	3.29	3.34	3.71	3.96	6.716	0.152
Cognitive strategies pre-test	2.47	2.002	2.16	2.48	3.44	9.120	0.058
Cognitive strategies post-test	2.99	2.69	2.89	3.53	3.96	7.684	0.104
Meta-cognitive strategies pre-test	2.27	2.90	3.37	3.30	3.00	17.238*	0.002
Meta-cognitive strategies post-test	2.96	3.46	3.88	3.93	3.53	9.472*	0.050
Overall strategies pre-test	2.34	2.55	2.72	2.88	3.34	12.862*	0.012
Overall strategies post-test	2.93	3.19	3.33	3.74	3.94	6.334	0.176

**Indicates that the difference is significant at the (0.01) level

*Indicates that the difference is significant at the (0.01) level

The results in Table 4.46 are significant for the memory (pre-training), meta-cognitive (both pre and post-training) and overall total (pre-training) strategies; post-hoc testing is

therefore only required for these variables. The results for post-hoc testing are presented in Table 4.47.

The findings in Table 4.46 show that there are statistically significant differences between the students' use of meta-cognitive strategies in the pre and post-test, and the overall strategies in the pre-test, in relation to speaking English outside the university.

It can therefore be said that speaking English outside the university only has a significant effect on the use of meta-cognitive strategies. With regards to other strategies, the results are only significant for pre-training, indicating that the students are quite similar after training, with no much significant effects of speaking English outside the university on the students' use of VLSs before and after the intervention.

In the post-hoc analysis for the significant variables, the P-values for the significant pairs are highlighted in grey. The pairwise comparisons testing shows that there are large differences in pre-training scores for memory and meta-cognitive strategies. All other pairwise comparisons are significantly different only for some categories.

Table 4-47 The post-hoc analysis for the significant variables

Dependent Variable			Mean Difference (I-J)	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Average scores of memory strategies in <u>pre-test</u>	never	seldom	-.55263*	0.020	-1.015	-0.090
		sometimes	-.60766*	0.006	-1.036	-0.179
		often	-.71930*	0.004	-1.197	-0.242
		always	-1.28070*	0.001	-2.002	-0.559
	seldom	never	.55263*	0.020	0.090	1.015
		sometimes	-0.055	0.767	-0.425	0.315
		often	-0.167	0.436	-0.593	0.259
		always	-.72807*	0.039	-1.417	-0.039
	sometimes	never	.60766*	0.006	0.179	1.036
		seldom	0.055	0.767	-0.315	0.425
		often	-0.112	0.567	-0.500	0.277
		always	-.67305*	0.048	-1.339	-0.007
	often	never	.71930*	0.004	0.242	1.197
		seldom	0.167	0.436	-0.259	0.593
		sometimes	0.112	0.567	-0.277	0.500
		always	-0.561	0.113	-1.260	0.137

Average scores of cognitive strategies in pre-test	never	seldom	0.453	0.144	-0.159	1.066
		sometimes	0.313	0.274	-0.255	0.880
		often	-0.012	0.969	-0.644	0.620
		always	-.97531*	0.046	-1.931	-0.020
	seldom	never	-0.453	0.144	-1.066	0.159
		sometimes	-0.141	0.567	-0.631	0.349
		often	-0.466	0.104	-1.030	0.098
		always	-1.42857*	0.003	-2.341	-0.517
	sometimes	never	-0.313	0.274	-0.880	0.255
		seldom	0.141	0.567	-0.349	0.631
		often	-0.325	0.211	-0.839	0.190
		always	-1.28788*	0.005	-2.170	-0.406
	often	never	0.012	0.969	-0.620	0.644
		seldom	0.466	0.104	-0.098	1.030
		sometimes	0.325	0.211	-0.190	0.839
		always	-.96296*	0.042	-1.888	-0.038
Average scores of meta-cognitive strategies in pre-test	never	seldom	-.63333*	0.015	-1.139	-0.128
		sometimes	-1.10606*	0.000	-1.574	-0.638
		often	-1.03333*	0.000	-1.555	-0.512
		always	-0.733	0.068	-1.522	0.055
	seldom	never	.63333*	0.015	0.128	1.139
		sometimes	-.47273*	0.023	-0.877	-0.068
		often	-0.400	0.091	-0.865	0.065
		always	-0.100	0.791	-0.853	0.653
	sometimes	never	1.10606*	0.000	0.638	1.574
		seldom	.47273*	0.023	0.068	0.877
		often	0.073	0.733	-0.352	0.497
		always	0.373	0.309	-0.355	1.101
	often	never	1.03333*	0.000	0.512	1.555
		seldom	0.400	0.091	-0.065	0.865
		sometimes	-0.073	0.733	-0.497	0.352
		always	0.300	0.434	-0.464	1.064
Average scores of meta-cognitive strategies in post-test	never	seldom	-0.502	0.142	-1.176	0.173
		sometimes	-.92626*	0.004	-1.551	-0.302
		often	-.97778*	0.007	-1.674	-0.282
		always	-0.578	0.276	-1.630	0.475
	seldom	never	0.502	0.142	-0.173	1.176
		sometimes	-0.425	0.121	-0.964	0.115
		often	-0.476	0.130	-1.097	0.145
		always	-0.076	0.880	-1.080	0.928
	sometimes	never	.92626*	0.004	0.302	1.551
		seldom	0.425	0.121	-0.115	0.964
		often	-0.052	0.856	-0.618	0.515
		always	0.348	0.475	-0.623	1.320

	often	never	.97778*	0.007	0.282	1.674
		seldom	0.476	0.130	-0.145	1.097
		sometimes	0.052	0.856	-0.515	0.618
		always	0.400	0.435	-0.619	1.419
Pre-total strategies	never	seldom	-0.207	0.243	-0.559	0.145
		sometimes	-.38484*	0.022	-0.711	-0.059
		Often	-.54366*	0.004	-0.907	-0.180
		always	-1.00126*	0.001	-1.550	-0.452
	seldom	Never	0.207	0.243	-0.145	0.559
		sometimes	-0.178	0.212	-0.459	0.104
		Often	-.33632*	0.042	-0.660	-0.012
		always	-.79392*	0.004	-1.318	-0.270
	sometimes	never	.38484*	0.022	0.059	0.711
		seldom	0.178	0.212	-0.104	0.459
		often	-0.159	0.286	-0.454	0.137
		always	-.61642*	0.018	-1.123	-0.109
	often	never	.54366*	0.004	0.180	0.907
		seldom	.33632*	0.042	0.012	0.660
		sometimes	0.159	0.286	-0.137	0.454
		always	-0.458	0.090	-0.989	0.074

*. The mean difference is significant at the 0.05 level.

The summary tables include data for both the experimental and control groups as well. The Analysis of Variance and pair wise comparisons were not performed for the control and experimental groups as there are no significant results for post-training VLSs. The following section is dedicated to the summary tables. Some categories are merged to due to small sample sizes for the five categories associated with speaking English outside University.

Table 4-48 The differences related to speaking English outside the university and its effects on the use of VLSs for two groups (pre-test)

Pre-test	Experimental						Control					
VLS	Never		Sometimes		Often		Never		Sometimes		Often	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	2.89	0.41	2.49	0.66	3.00	0.67	1.87	0.49	2.63	0.42	2.44	0.59
Social	2.97	0.36	2.75	0.87	3.34	0.58	2.18	0.70	2.69	0.69	2.93	0.94
Memory	2.29	0.60	2.67	0.49	2.99	0.65	1.96	0.31	2.71	0.40	2.83	1.07
Cognitive	2.94	0.80	2.08	0.63	2.56	0.73	2.09	0.53	2.12	0.69	2.91	1.19
Meta-cognitive	2.20	0.78	3.16	0.65	3.44	0.56	2.32	0.52	3.21	0.55	2.84	0.71
Total	2.66	0.16	2.63	0.37	3.06	0.47	2.08	0.32	2.67	0.37	2.79	0.70

For the pre-training analysis, the scores vary between 2 and 3 (see Table 4.48). The overall grand mean (SD) scores for the experimental and control groups are 2.79(0.58) and 2.52 (0.62) respectively.

As is evident here, the participants who spoke English outside the university and had VLS training had higher mean values compared to those who had not received any VLS training. The group that often speaks English outside university shows the highest differences between the control and experimental groups. In conclusion, VLS training boosts vocabulary learning by twice compared to those who did not receive any training.

Table 4-49 The differences related to speaking English outside the university and its effects on the use of VLSs for two groups (post-test)

Post-test	Experimental						Control					
VLS	Never		Sometimes		Often		Never		Sometimes		Often	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	4.00	0.65	3.93	0.72	4.33	0.58	2.09	0.45	2.70	0.38	2.58	0.55
Social	3.97	0.52	3.97	0.69	4.40	0.46	2.20	0.73	2.70	0.68	2.93	0.94
Memory	3.66	0.56	3.99	0.63	4.19	0.55	2.08	0.31	2.79	0.39	2.88	1.02
Cognitive	4.06	0.63	3.61	0.61	3.97	0.54	2.13	0.49	2.17	0.72	2.91	1.19
Meta-cognitive	3.70	0.66	4.24	0.57	4.36	0.34	2.36	0.46	3.30	0.58	2.84	0.71
Total	3.88	0.52	3.95	0.53	4.25	0.40	2.17	0.36	2.73	0.38	2.83	0.68

The post-training results clearly indicate a significant change due to different VLSs (see Table 4.49).

The overall mean (SD) for experimental and control groups are 4.33(0.56) and 2.58(0.55) respectively. This shows that for the experimental group, the overall mean score increased from 2.79 to 4.02, while no big change occurred for the control group, as the value only increased from 2.52 to 2.58.

To determine whether there are any significant differences between the control and experimental results for each sub-category (never, sometimes, often), the non-parametric Wilcoxon rank-sum test, which is used on two independent samples, was applied. For each sub-category (never, sometimes, often) of this demographic question (do you speak English outside the University), the results are significant for most of the comparisons in the post-training dataset.

The most significant difference can be seen in the middle category ‘sometimes’, while the sub-category ‘often’ shows insignificant results for cognitive VLS only.

Table 4-50 Wilcoxon Rank-Sum test for the effects of speaking English outside the university on the use of VLSs

Post-test	Wilcoxon Rank-Sum Test					
	Test statistic	Never	Test statistic	Sometimes	Test statistic	Often
Determination	15.0	0.016*	20.5	<0.001**	15.0	0.001**
Social	15.0	0.016*	27.5	<0.001**	18.0	0.005*
Memory	15.0	0.016*	20.0	<0.001**	20.0	0.013*
Cognitive	15.0	0.016*	20.5	<0.001**	11.5	0.099
Meta-cognitive	16.0	0.032*	39.5	<0.001**	15.0	0.001**
Total	15.0	0.016*	7.0	<0.001**	16.0	0.001**

For this demographic question, the five response options were combined into three categories to achieve sufficient sample sizes for statistical testing. Mean (SD) values are shown for both pre-test and post-test data. With regards to the post-test data, the mean values are quite different for the control and experimental groups in each VLS. These values indicate that statistical testing for differences should be applied between the groups within each sub-category.

With three categories (never, sometimes and often), the Wilcoxon rank-sum test for two-independent samples was applied for comparing the control and experimental groups for each sub-category. The p-values indicate that the results are strongly different between the two groups, proving that VLSs use by students after training are very different (in statistical sense) between the two groups.

4.5.4.6 How the VLS scores vary in relation to watching TV in English

This demographic question seeks to determine whether there are any significant results for the VLS scores (pre and post-training) in association with the habit of watching English language TV programs (dramas, films, talk shows, etc.). Due to non-normality issues, the non-parametric Kruskal-Wallis test was employed instead of one-way ANOVA. As all the results are insignificant, further investigation through post-hoc testing was unnecessary.

Results indicated that watching English TV programs had no significant effect on the use of VLSs.

Table 4-51 The results of the Kruskal-Wallis test to determine whether there are statistically significant differences related to watching English TV programs and its effects on VLSs

Vocabulary learning strategies	Means for watching English language TV					Kruskal-Wallis Test	P-value
	never	seldom	sometimes	often	always		
Determination strategies in pre-test	2.31	2.72	2.45	2.92	2.57	3.343	0.502
Determination strategies in post-test	3.03	3.43	3.04	3.54	3.39	2.842	0.585
Social strategies in pre-test	2.84	2.75	2.58	3.11	2.84	3.149	0.533
Social strategies in post-test	3.41	3.42	2.90	3.64	3.49	3.034	0.552
Memory strategies in pre-test	2.18	2.50	2.52	2.82	2.80	6.188	0.186
Memory strategies in post-test	2.86	3.30	3.01	3.43	3.55	4.640	0.326
Cognitive strategies pre-test	1.97	2.54	2.15	2.46	2.29	3.357	0.500
Cognitive strategies post-test	2.72	3.33	2.61	3.06	3.15	3.079	0.545
Meta-cognitive strategies pre-test	2.40	2.98	3.05	2.97	3.21	4.523	0.340
Meta-cognitive strategies post-test	2.95	3.69	3.42	3.57	3.81	4.497	0.343
Overall strategies pre-test	2.34	2.70	2.55	2.86	2.74	4.120	0.390
Overall strategies post-test	2.99	3.43	2.99	3.45	3.48	3.780	0.437

The summary table for the pre-test and post-test display results for the control and experimental groups. The five response categories (never, seldom, sometime, often and always) have been merged into three categories (never, sometimes and often) due to small sample sizes.

Table 4-52 The differences related to watching English TV programs and its effects on VLSs (pre-test)

Pre-test	Experimental						Control					
VLS	Never		Sometimes		Often		Never		Sometimes		Often	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	2.11	0.79	2.68	0.66	2.78	0.66	2.50	0.08	2.51	0.58	2.43	0.53
Social	2.50	0.00	2.96	1.09	3.02	0.68	3.19	0.27	2.49	0.78	2.71	0.74
Memory	1.84	0.22	2.60	0.37	2.85	0.60	2.53	1.04	2.46	0.44	2.74	0.68
Cognitive	1.89	0.47	2.32	0.92	2.41	0.70	2.06	0.55	2.33	1.03	2.19	0.62
Meta-cognitive	2.70	0.71	2.94	0.80	3.23	0.72	2.10	0.71	3.06	0.56	3.07	0.67
total	2.21	0.44	2.70	0.43	2.86	0.39	2.47	0.53	2.57	0.50	2.63	0.49

The mean (SD) for each VLS in experiment and control groups (see Table 4.52) show the extent of scoring in each strategy. A large SD in any sub-category points to diversity among the participants. For example, for the cognitive VLS, the SD is sometimes smaller for the experimental group than the control group. Their mean scores are nearly the same, but the SD values are higher compared to all other sub-categories. The overall average scores for the experimental and control group are 2.66 and 2.56 respectively.

Table 4-53 The differences related to watching English TV programs and its effects on VLSs (post-test)

Post-test	Experimental						Control					
VLS	Never		Sometimes		Often		Never		Sometimes		Often	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Determination	3.50	0.55	4.33	0.79	4.04	0.63	2.56	0.00	2.62	0.49	2.55	0.50
Social	3.63	0.18	4.32	0.87	4.09	0.53	3.19	0.27	2.49	0.78	2.73	0.73
Memory	3.03	0.63	4.30	0.35	4.01	0.58	2.68	0.97	2.51	0.42	2.84	0.65
Cognitive	3.28	0.71	4.00	0.79	3.77	0.52	2.17	0.39	2.36	1.04	2.24	0.64
Meta-cognitive	3.70	0.71	4.31	0.23	4.22	0.60	2.20	0.57	3.12	0.58	3.13	0.72
Total	3.43	0.55	4.25	0.55	4.03	0.44	2.56	0.44	2.62	0.49	2.70	0.49

It is evident that after training, the average scores increased significantly (Table 4.53). The overall mean scores for the experimental and control groups are 3.90 and 2.63 respectively. The average score increased from 2.66 to 3.90 for the experimental group, whilst for the control group, the value only increased from 2.56 to 2.63.

To identify any significant differences between the control and experimental results for each sub-category, the Wilcoxon rank-sum test for two independent variables was applied. For each sub-category (never, sometimes, often) of this demographic question (do you watch English programs on TV?), the results are significant for most of the comparisons in the post-training dataset except for the sub-category= ‘never’. Due to sample size issue, the ‘never’ sub-category cannot be conclusive. On the other hand, the results for the ‘sometimes’ and ‘often’ sub-categories are strongly significant.

Table 4-54 Wilcoxon Signed Rank-Sum Test for the differences related to watching English language TV programs and its effects on VLSs after the training

POST-TEST	Wilcoxon Signed Rank-Sum Test					
VLS	Never		Sometimes		Often	
	test statistic	P-value	test statistic	Sometimes	test statistic	Often
Determination	3.0	0.333	95.5	<0.001	125.0	<0.001
Social	3.0	0.333	96.5	<0.001	139.5	<0.001
Memory	4.0	0.667	91.0	<0.001	148.5	<0.001
Cognitive	3.0	0.333	100.5	<0.001	131.5	<0.001
Meta-cognitive	3.0	0.333	93.5	<0.001	157.0	<0.001
Total	3.0	0.333	91.0	<0.001	126.0	<0.001

P-values for Wilcoxon Signed Rank sum test are presented in Table 4.54 Control vs. experimental groups are compared to each sub-category of “watching English language TV programs and its effects on VLSs after the training”. The results showing that all the strategies have significant effect on this question.

4.5.4.7 How the VLS scores vary in relation to reading books, journals or newspapers

This section explores the impact of reading books, journals or newspapers on VLS training scores. Five possible responses are provided for the survey question (never, seldom, sometimes, often and always) where students could only choose only one of these five options. Due to lack of normality for the different levels of the response variable (i.e. speaking English outside the university), a non-parametric replacement of ANOVA, the Kruskal-Wallis (K-W) test was applied. It compared each of the VLS for pre-training and post-training separately.

The test was therefore repeated for each of the pre and post-variables of the six strategies. The P-value for the K-W test is also indicated along with the test statistic.

Table 4-55 The results of the Kruskal-Wallis test to examine whether there are statistically significant differences related to reading English language books, journals or newspapers and its effects on VLSs

Vocabulary learning strategies	Means of reading books, journals or newspaper					Kruskal-Wallis test
	never	seldom	sometimes	often	always	
Determination strategies in pre-test	2.20	2.56	2.96	3.11	2.56	13.3**
Determination strategies in post-test	2.87	3.28	3.64	4.26	4.11	8.763
Social strategies in pre-test	2.69	2.73	2.99	3.00	3.63	3.220
Social strategies in post-test	3.11	3.22	3.73	4.04	4.75	6.699
Memory strategies in pre-test	2.38	2.75	2.80	2.86	2.42	5.114
Memory strategies in post-test	2.95	3.38	3.58	3.98	3.68	6.041
Cognitive strategies pre-test	2.04	2.30	2.47	2.67	2.89	5.114
Cognitive strategies post-test	2.65	3.01	3.29	3.70	4.22	6.014
Meta-cognitive strategies pre-test	2.66	3.23	3.24	3.07	2.60	9.034
Meta-cognitive strategies post-test	3.20	3.67	3.93	4.07	4.00	6.843
Overall strategies pre-test	2.39	2.71	2.89	2.94	2.82	9.545*
Overall strategies post-test	2.96	3.31	3.64	4.01	4.15	6.783

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

The results in Table 4.55 show that there are statistically significant differences between the subjects' use of determination strategies in the pre-test, and on the overall level of use of vocabulary strategies in the pre-test, in relation to the reading of books, journals or newspapers. This confirms that reading books, journals, or newspaper written in English has a significant effect on students' use of VLSs.

Post-hoc testing was performed for the significant variables (determination, pre-test and pre-total strategies) only; significant results are highlighted in grey.

Table 4-56 The post-hoc test for the significant variables (determination, pre-test and pre-total strategy)

Dependent Variable			Mean Difference (I-J)	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Average scores of determination strategies in pre-test	never	seldom	-0.171	0.510	-0.688	0.345
		sometimes	-0.295	0.221	-0.773	0.183
		often	-0.429	0.112	-0.962	0.104
		always	-0.753	0.066	-1.559	0.053
	seldom	never	0.171	0.510	-0.345	0.688
		sometimes	-0.124	0.550	-0.537	0.289
		often	-0.258	0.282	-0.733	0.218
		always	-0.582	0.135	-1.351	0.187
	sometimes	never	0.295	0.221	-0.183	0.773
		seldom	0.124	0.550	-0.289	0.537
		often	-0.134	0.539	-0.568	0.300
		always	-0.458	0.223	-1.202	0.286
	often	never	0.429	0.112	-0.104	0.962
		seldom	0.258	0.282	-0.218	0.733
		sometimes	0.134	0.539	-0.300	0.568
		always	-0.324	0.409	-1.104	0.456
Pre-total strategies	never	seldom	-0.207	0.243	-0.559	0.145
		sometimes	-.38484*	0.022	-0.711	-0.059
		often	-.54366*	0.004	-0.907	-0.180
		always	-1.00126*	0.001	-1.550	-0.452
	seldom	never	0.207	0.243	-0.145	0.559
		sometimes	-0.178	0.212	-0.459	0.104
		often	-.33632*	0.042	-0.660	-0.012
		always	-.79392*	0.004	-1.318	-0.270
	sometimes	never	.38484*	0.022	0.059	0.711
		seldom	0.178	0.212	-0.104	0.459
		often	-0.159	0.286	-0.454	0.137
		always	-.61642*	0.018	-1.123	-0.109
	often	never	.54366*	0.004	0.180	0.907
		seldom	.33632*	0.042	0.012	0.660
		sometimes	0.159	0.286	-0.137	0.454
		always	-0.458	0.090	-0.989	0.074

*. The mean difference is significant at the 0.05 level.

The summary tables for pre and post-test of the differences related to reading books, journals or newspapers written in English and its effects on the use of VLSs before and after

the intervention for both the experimental and control groups are presented below. Splitting the data into five categories would result in an insufficient sample size to compare the groups. For this reason, the five categories (never, seldom, sometime, often and always) were combined into three (never, sometimes and often).

Table 4-57 The differences related to reading books, journals or newspapers written in English and its effects on VLSs before the training

Pre-test	Experimental						Control					
VLS	Never		Sometime s		Often		Never		Sometime s		Often	
	Mea n	SD	Mea n	SD	Mea n	SD	Mea n	SD	Mea n	SD	Mea n	S D
Determinatio n	2.28	0.63	2.86	0.66	2.96	0.39	2.13	0.45	2.58	0.51	3.00	--
Social	3.00	0.50	2.91	0.90	3.29	0.29	2.38	0.64	2.74	0.79	2.75	--
Memory	2.60	0.64	2.78	0.61	2.77	0.34	2.16	0.49	2.76	0.58	2.68	--
Cognitive	2.36	0.71	2.27	0.79	2.85	0.17	1.72	0.42	2.44	0.85	2.33	--
Meta- cognitive	2.70	0.65	3.33	0.74	3.00	0.53	2.63	0.80	3.15	0.55	2.80	--
Total	2.59	0.33	2.83	0.47	2.98	0.14	2.20	0.41	2.74	0.44	2.71	--

From the table below, which displays data pertaining to the post-test analysis, a large difference can be found between the mean values for control and experimental groups for each sub-category. For this reason, non-parametric testing was performed to compare each sub-category (never, sometimes, often) in the two groups.

Table 4-58 The differences related to reading books, journals or newspapers written in English and its effects on VLSs after the training

Post-test	Experimental						Control					
VLS	Never		Sometime s		Often		Never		Sometime s		Often	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	S D
Determination	3.4 9	0.6 6	4.23 5	0.5 5	4.6 3	0.4 5	2.2 5	0.4 6	2.68 2	0.4 2	3.0 0	--
Social	3.8 3	0.4 2	4.14 7	0.6 7	4.7 1	0.1 9	2.3 9	0.6 5	2.75 8	0.7 8	2.7 5	--
Memory	3.6 3	0.6 4	4.13 4	0.5 4	4.3 2	0.5 5	2.2 6	0.4 9	2.85 5	0.5 5	2.6 8	--
Cognitive	3.5 6	0.5 7	3.80 1	0.6 1	4.3 3	0.1 9	1.7 5	0.4 2	2.49 5	0.8 5	2.3 3	--
Meta-cognitive	3.7 0	0.7 6	4.39 8	0.2 8	4.4 0	0.3 5	2.7 0	0.8 1	3.21 9	0.5 9	3.0 0	--
Total	3.6 4	0.5 0	4.14 2	0.4 2	4.4 8	0.2 8	2.2 7	0.4 2	2.80 3	0.4 3	2.7 5	--

To determine whether there are any significant differences between the control and experimental results for each sub-category, the Wilcoxon rank-sum test for two independent samples was applied. For each sub-category (never, sometimes, often) of this demographic question (do you read English newspapers /journals/ magazines etc.), the results are significant for most of the comparisons in the post-training dataset, except for the sub-category ‘often’, as the sample size is very small and statistical testing is not possible.

Table 4-59 Wilcoxon Signed Rank-Sum Test for demographic question (do you read English newspapers /journals/ magazines etc.)

Post-test	Wilcoxon Signed Rank-Sum Test					
VLS	Never		Sometimes		Often	
	test statistic	P-value	test statistic	P-value	test statistic	P-value
Determination	36.0	<0.001	231.5	<0.001	--	--
Social	39.0	<0.001	265.5	<0.001	--	--
Memory	36.0	<0.001	253.0	<0.001	--	--
Cognitive	46.0	<0.001	269.0	<0.001	--	--
Meta-cognitive	36.0	<0.001	243.0	<0.001	--	--
Total	37.0	<0.001	269.0	<0.001	--	--

4.5.4.8 Have you ever received training in vocabulary learning strategies?

This question is used to determine whether having previous training in VLS has any impact on the frequency of use VLS strategies. The analysis was performed both before and after training. The objective is to establish the statistical significance of receiving training in VLSs prior to this training.

Table 4-60 Mann-Whitney U test to examine whether there are statistically significant differences related to receiving training in VLSs and its effects on the use of VLSs in the pre and post-test

Vocabulary learning strategies	Means by receiving training in VLS		Mann-Whitney test
	Yes (5)	No (55)	
Determination strategies in pre-test	2.82	2.57	130.5
Determination strategies in post-test	3.24	3.33	151.5
Social strategies in pre-test	2.63	2.83	146.5
Social strategies in post-test	3.08	3.41	158.0
Memory strategies in pre-test	2.88	2.65	95.0
Memory strategies in post-test	3.37	3.35	137.5
Cognitive strategies pre-test	1.93	2.33	179.5
Cognitive strategies post-test	2.49	3.09	183.5
Meta-cognitive strategies pre-test	3.36	3.04	97.0
Meta-cognitive strategies post-test	3.6	3.64	138.0
Overall strategies pre-test	2.73	2.68	116.0
Overall strategies post-test	3.16	3.36	156.0

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

According to the participants' responses to demographic questions about receiving previous VLS training (see Figures 4-7), the results in the above table show that there are no statistically significant differences between the students' use of VLSs in relation to receiving previous training in VLSs. It can therefore be said that the training received prior to participating in this current study had no significant influence on the students' use of learning strategies. The analysis for the control and experimental groups was not possible due to an insufficient sample size in the "Yes" category.

4.5.5 The Main Research Question

Does training in the use of VLSs affect the vocabulary size of Saudi students at University level?

To measure the extent to which training in the use of VLSs affects the vocabulary size of the students at a Saudi University, a multiple regression analysis was conducted. A multiple linear regression will provide an estimated model to predict the vocabulary size based on the VLS training score.

To obtain a suitable multiple linear regression model, certain assumptions need to be satisfied.

1. The variance of the response variable (vocabulary size) is constant.
2. The response variable follows normal distribution.
3. The model residuals follow normal distribution and have constant variance.
4. There should be no autocorrelations between the residuals.
5. Residuals should not have correlation with fitted values and actual values.

A number of graphs and tables are included in this section to validate the linear regression model assumptions.

The correlation matrix for the different learning strategies is presented in the following table. As can be seen, there are strong correlations between all strategies. Therefore, a multiple regression model will consider only a few, due to high collinearity issues. The linear regression model will consist of a few VLs rather than all six strategies, indicating that participants receive good scores when using any of the strategies.

Table 4-61 The Correlation Matrix between the five strategies for experimental group (post-training).

	Determination strategies	Social strategies	Memory strategies	Cognitive strategies	Meta cognitive strategies	Total vocabulary size
Determination strategies	1	0.834**	0.846**	0.737**	0.750**	0.547**
Social strategies	0.834**	1	0.854**	0.774**	0.624**	0.146
Memory strategies	0.846**	0.854**	1	0.767**	0.746**	0.533**
Cognitive strategies	0.737**	0.774**	0.767**	1	0.686**	0.237
Meta-cognitive strategies	0.750**	0.624**	0.746**	0.686**	1	0.639**
**. Correlation is significant at the 0.01 level (2-tailed).						

The Spearman's correlation values for the total vocabulary size with different strategies are also presented in Table 4.61.

A regression model between vocabulary size (post-training) and the overall test scores (post-training) is another way in which the impact of the five strategies could be determined. Due to high collinearity, a simple linear regression model would not be a suitable approach. Therefore, to investigate which of the strategies are more important than others and have a regression model for all five strategies, the Analysis of Covariance (ANCOVA) approach was selected. The model with 2-way and 3-way factors was also tested, but no significant results were found; therefore, ANCOVA based on a single factor is presented.

Overall, the ANCOVA is significant ($P\text{-value} < 0.001$); data gathered from the post-hoc analysis in Table 4.62, for which the non-parametric Wilcoxon test for paired data was applied.

Table 4-62 The Analysis of Covariance (ANCOVA) between vocabulary size (post-test) and the five vocabulary learning strategies (for the experimental group)

Tests of Between-Subjects Effects								
Dependent Variable: total of vocabulary learning size post-training								
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	41098519.431 ^a	5	8219703.886	7.271	<0.0001	.402	36.353	0.998
Intercept	1239236.4	1	1239236.4	1.096	0.300	0.020	1.096	0.177
Determination	3338852.2	1	3338852.2	2.953	0.091	0.052	2.953	0.393
Social	9602251.5	1	9602251.5	8.493	0.005	0.136	8.493	0.817
Memory	11749061.8	1	11749061.8	10.392	0.002	0.161	10.392	0.886
Cognitive	2047644.0	1	2047644.0	1.811	0.184	0.032	1.811	0.262
Meta-cognitive	852089.6	1	852089.6	.754	0.389	0.014	0.754	0.137
Error	61049578.9	54	1130547.7					
Total	758786100.0	60						
Corrected Total	102148098.3	59						
a. R Squared = .402 (Adjusted R Squared = .347)								
b. Computed using alpha = .05								

The social and memory strategies are the only significant strategies with regards to total vocabulary size (post-test). The power for each coefficient indicates the strength of that predictor in estimating the vocabulary size. Only memory and social strategies have power > 0.7 and also its effects on vocabulary size was evident through the p-value. All other strategies show a power value of less than 0.3, meaning that they do not at all contribute to the model's performance.

The P-value indicates the statistical significance of the pairs. The difference between the mean scores points to which variable is dominant over the other. If the difference is positive, then the second variable is more important, while if the difference is negative, the first variable is more important. Out of ten post hoc-tests, seven reached a P-value < 0.05. This means that although vocabulary size is influenced by all these strategies, the actual relationship is dimmed due to the presence of collinearities.

Furthermore, Table 4.63 shows that the VLSs with the most significant effect on vocabulary size are memory strategies, as the mean square value for this category is the highest in the ANCOVA table, along with a p-value = 0.0002. This confirms that there is a significant and positive association between training on memory strategies and improvement of vocabulary size for students at the Saudi University.

Table 4-63 Post-hoc testing to compare the five strategies (for the experimental group, post-test).

Post-hoc testing	Difference of Mean Ranks	Z-test
Social vs. determination strategies	4.75	-.972
Memory vs. determination strategies	4.24	-.359
Cognitive vs. determination strategies	-4.55	-3.462**
Meta-cognitive vs. determination strategies	6.68	-3.235**
Memory vs. social strategies	-1.25	-.810
Cognitive vs. social strategies	-17.25	-3.939**
Meta-cognitive vs. social strategies	8.36	-2.144*
Cognitive vs. memory strategies	-6.95	-3.668**
Meta-cognitive vs. memory strategies	10.90	-3.512***
Meta-cognitive vs. cognitive strategies	11.34	-4.956***
a. Wilcoxon Signed-Ranks Test		
b. Based on negative ranks.		
c. Based on positive ranks.		

***indicates that the difference is significant at the (0.001) significance level.

**indicates that the difference is significant at the (0.01) significance level.

*indicates that the difference is significant at the (0.05) significance level.

In post-hoc testing for comparing each pair of Vocabulary strategies, it is found that memory strategies has most different from meta-cognitive strategies. The other strategies that are pair wise significantly different include meta-cognitive vs cognitive strategies, cognitive vs memory strategies, meta-cognitive vs social strategies, Meta-cognitive vs. determination strategies and Cognitive vs. determination strategies.

4.5.5.2 Why is the control group (pre and post-training) not included in the regression analysis?

The control group has shown no statistically significant results when comparing the pre-training and post-training groups. The p-values for the pre and post-training data does not need to be modelled using the ANCOVA approach due to these insignificant results (see Table 4.29).

4.6 Analysis of the Notebook data

4.6.1 Introduction

This section covers the analysis of the data in the notebook (see appendix 7), in which I recorded what the trainees said about their attitudes and feelings during the five training sessions in VLSs and the training itself. The notebook data did not directly answer any of my research questions, but they were useful when it came to the interpretation of the quantitative findings, in the discussion chapter.

The notebook data required a qualitative data analysis method. The analysis of qualitative data is quite complicated because it includes a number of processes such as collecting the data, coding the participants' responses, and finding associations between significant parts of information. In the current research, the collected data in the notebook were translated from Arabic to English as shown in appendix (8) because the researcher used the participants' mother tongue to ask and note down their responses. Then, the most significant pieces of information were highlighted, for instance, similar words used by different students and expressions showing participants' attitudes. After that, links between these pieces of information were identified.

The participants were asked three questions at the end of each session; firstly, they were asked whether they experienced any difficulties in understanding or using any of the strategies they had learnt during the session. This was to check whether they fully understood the strategies and how to use them appropriately. Secondly, the trainees were asked about their opinions and reactions to the strategies they had been trained in and whether they felt they were useful. Lastly, they were questioned about their attitudes towards the training sessions they received and whether they found them beneficial. It was hoped that this information would assist in understanding the significance of training for the use of these strategies, and to what extent attitudes positively or negatively affected the results, with regards to the impact of VLSs on the vocabulary size of the experimental group.

The data collected was recorded in the notebook by me personally (i.e. not audio-recorded). There are multiple reasons as to why I decided to do it that way. The first is that

they were encouraged to ask questions about the strategies on which they received training. If they did have questions, these needed to be answered on the spot to guarantee that at the end of the session, participants left with a full understanding of the strategies. I noted the trainees' feedback regarding their understanding of the categories of strategies in the notebook directly at the end of each training session. The reason for asking verbally and writing down the students' feedback was that if I had asked them to write it down, the participants may have felt reluctant to answer the same questions at the end of each training session; providing answers verbally is easier. The third and final reason was that I was unable to obtain permission to interview the participants after the training sessions because the students have intensive courses during their foundation year. Asking the trainees for their feedback at the end of each session and noting their answers directly in the notebook was a reasonable alternative solution.

4.6.2 Thematic Analysis of Students' Responses

In order to place the qualitative data into a thematic framework, and because there was a relatively small quantity of data, the relevant words and phrases were coded manually and without using any software program. After that, it was found that a number of words were repeated many times. They are shown in the following table with the number of occurrences.

Word	Number of times
Useful	9
Ways, tools, options	8
clear	7
understand	6
practical	6
help	6
Benefit	5
Enough, adequate, sufficient	4
Effective	3
Systematic	3
Easy	3
new	3

These words were mentioned in thirty-nine responses for the experimental group's attitudes and opinions toward VLSs and their training on the use of VLSs in the three streams.

After listing the most mentioned words, they were categorized into themes such as positivity, clarity, usefulness, enthusiasm, enjoyment and engagement. Some words were categorised under more than one theme; for example, the word “understand” could be categorised under the passivity as well as the clarity theme. The advantage of thematic analysis is can reveal patterns or trends in the data. One trend, the single most striking observation to emerge from the data comparison, was that all were very **positive** about the training, but the question here is what precisely was it that they liked? When they responded to the second question delved into the feelings of the students in all three streams towards the VLSs, some extracts showed that they felt that they had learnt something **new**, and it had given them **more tools**/option/ways of dealing with vocabulary. Their responses were mostly identical; they expressed their positive attitudes regarding, for instance, the nine types of determination strategies and stated that they found them useful in figuring out the meaning of new words. One of the responses from a student in the health stream was:

“I feel more confident using the determination strategies and I have learnt new ways to find the meaning of new words” (see appendix, 8).

Similarly, one of the students in the humanities stream stated:

“I always use the bilingual dictionary to find the meaning of a new word, but after the first training session, I can use nine strategies to determine the meaning of new words” (see appendix, 8).

In the same vein, another student felt that using the monolingual dictionary instead of a bilingual one could help them improve their English language proficiency more effectively and rapidly as it might expose them further to the target language. Likewise, a trainee from the science stream said:

“I feel that these strategies are useful and give me more options to find the meaning of new words” (see appendix, 8).

As shown by these responses, students in the three streams had positive attitudes towards VLSs and felt they were provided with a variety of options to learn vocabulary in more strategic ways. Moreover, students felt that the training sessions were effective in helping them to become more proficient in applying and using these strategies.

Two words led to another theme which is the **usefulness** of training sessions: they liked the training because it was **easy** and they thought what they learnt was **useful**. Participants expressed that they benefitted from the sessions and learned new, useful and effective tools

and techniques that could support them in accelerating the growth of their vocabulary and thus improve and develop their English language proficiency successfully, in the four language skills (Listening, Reading, Writing, and Speaking). A trainee in the health stream responded that

“the training sessions are useful, and I learnt many ways to find and consolidate the meaning of new words” (see appendix, 8).

Similarly, a student from the science stream replied;

“the time of training and the content were convenient and introduced us to a variety of tools that can support me in language learning” (see appendix, 8).

Furthermore, a humanities stream student commented on the efficacy of the training:

“the workshops are good, and I learnt new strategies in only five training sessions”.

When asked for their opinions regarding the training sessions on using VLSs, one trainee’s response was:

“strategies and techniques that I expect will accelerate the process of learning vocabulary in effective way” (see appendix, 8).

Similarly, another student from the science stream said that

“the good thing about this strategies training is that I learnt some strategies that will help me to develop my vocabulary size in an easy way” (see appendix 10).

These responses indicate that both students felt that VLSs will influence positively their vocabulary size. The participants on the whole demonstrated their opinions regarding the usefulness of the training on VLSs, expecting that they would be beneficial for enhancing their vocabulary size. Their responses on the usefulness of training is related to another theme which is the **enthusiasm and engagement**. Students showed their enthusiasm and engagement with the training as in the following extracts:

“I didn’t know most strategies under the category of cognitive strategies, but I learnt them today in this training session and I feel that they will benefit me in learning vocabulary in an effective way” (see appendix, 8).

Commenting on his case before and after the intervention, one of the trainees said:

“I was memorizing words using repetition, but after this training session, I discovered and learnt a variety of strategies for memory and memorization that will benefit me a lot in enhancing my skills in learning vocabulary” (see appendix, 8).

It can be seen from the three experimental groups' answers that they were motivated to learn VLSs, especially as they had great expectations that the training on using VLSs would benefit them and develop their learning skills. They expressed their approval of the category of strategies they learnt in each training session. Their enthusiastic responses could be an indication of their engagement and enjoyment of the training sessions. It seems that they had these positive feelings because they had been learning something new that could be valuable and support them especially in their first year at the university.

Other repeated words in the students' responses were **clear** and **understand** which indicate the trainees' understanding of and ability to use the strategies successfully. Students in all three streams expressed that they had understood and were able to apply the strategies in different situations. These two repeated words can be grouped under the theme of **clarity**. After the first training session, one of the students from the humanity stream was questioned about whether they remained confused about the strategies and how to use them, and responded:

“No, I don't have any more confusion about these strategies. I understood the social strategies and I can use them in the right way” (see appendix, 8).

A similar response was given by another student in the science stream, who stated that

“the memory strategies for learning vocabulary are now clear and I don't have any questions” (see appendix, 8).

Likewise, when asked about their comprehension of VLSs, one trainee's response from health stream was:

“I applied some of the metacognitive strategies in the past but now I understand more about them and I will apply them in a systematic way because I feel that they are useful” (see appendix, 8).

It is worth noticing that students use the terms 'clear' and 'understand' about 15 times through their responses in the three streams. It can be understood from the positive answers regarding the clarity of the explanation of VLSs and their comprehension of the different categories of VLSs that the training sessions reach a high level of clarity and was introduced successfully to the experimental group. A recurrent theme in the notebook, through the repetition of some words such as 'practical' and 'systematic', was a sense of trainees' engagement with the training sessions, as shown in the following excerpts:

“the explanation and practical application of these strategies were clear and helpful on learning words in different ways” (see appendix, 8).

“they were introduced in systematic way and classified in a way that makes it easy to understand” (see appendix, 8).

It seems that students found the classification of VLSs used in the current study organized and methodical. It could be understood from their opinions toward the classification of VLSs that could be a reasonable sign of their engagement in the training sessions. Their responses confirmed the practicality of introducing and using VLSs during the training sessions. Commenting on this case before and after the intervention, one of the trainees from the health stream said:

“the explanation and practical application of these strategies were clear and helpful on learning words in different ways” (see appendix, 8).

Similarly, another student from humanity’s stream expressed his opinion about training on social strategies:

“the social strategies help me with learning vocabulary with others and in a practical way” (see appendix, 8).

The positive reaction of trainees after each training session indicates that the design, framework and classification used in the sessions were successful. The practicality and systematic method of the intervention could interpret the high level of engagement of the students according to their responses after each session.

In feedback on the last session, concerning their general beliefs about the training sessions on VLS use, a health stream student said:

“I have a positive attitude towards these training sessions where in a short time I have learnt more information that will be useful in learning the language generally and vocabulary specifically” (see appendix, 8).

Likewise, another student in the same stream commented on the training sessions and the classification of VLSs, expressing that

“they were introduced in systematic way and classified in a way that makes it easy to understand, comprehend and apply them, also I didn’t spend long learning them and it

was an adequate period of time to introduce all these categories of strategies” (see appendix, 8).

These responses indicate that trainees were able to understand and learn the VLSs during the five training sessions, and the participating subjects have positive beliefs towards the VLSs, as expressed initially through their enthusiasm to participate in this study and in their responses at the end of each training session. For instance, one of the students in the humanity’s stream said:

“I always used only a bilingual dictionary to find the meaning of a new word, but after the first training session, I can use nine strategies to determine the meaning of new words” (see appendix, 8).

Similarly, when questioned on their beliefs about the social strategies for vocabulary learning, one of the students from the science stream responded that

“after learning and training on the use of social strategies, I believe that they will be useful and will help me in communicating with my teacher and my friends to learn from them” (see appendix 8).

These responses demonstrate that the subjects in the experimental group held positive beliefs about the VLSs and training, which could be one of the factors that led to them achieving significantly positive results in the current study.

4.6.3 A reflection on training sessions

The report written by the researcher after each training session, in the notebook (see appendix 10), included a general description of the process of training, and a description of students’ interactions during the five training sessions in the three streams. These notes will be discussed below as they provide an impression of the training session environment and the participants’ interactions during the sessions.

The report on the five training sessions firstly explains the progression of the sessions; for example,

“The strategies were explained and clarified, after which the students tried to apply them by repeating some words loudly during the training session, until they pronounced them correctly” (see appendix 10).

As this excerpt demonstrates, a training session consisted of three stages: presenting, explaining and applying. This aimed to allow the learners to reach an acceptable level of understanding and the ability to use VLSs by themselves.

Secondly, the notes show that trainees from all three streams were given the opportunity to comment or ask about any of the strategies; as reported after the first training session:

“students in the three streams insisted that they found using the monolingual dictionary more useful than the bilingual dictionary, where their way of thinking focused on one system” (see appendix 10).

Thirdly, the report illustrates the contrasts in the reaction toward certain VLSs depending on the stream of the students. For example, the health stream trainees appreciated the advantages of practicing social strategies; as mentioned in the report:

“Students in the health stream mentioned that these strategies are useful for them and that they need to use them daily during their studying and training in the medical field to communicate with teachers and doctors, whether at the university or hospital” (see appendix 10).

On the other hand, the students in the science and humanity streams expressed that they struggled to benefit from the social strategies due to the lack of English language speakers or practices especially during their study. Their reaction to these strategies confirms that there are different factors which affect the learning process, such as the field of study.

Lastly and most significantly, the students expressed that their attitudes toward the VLSs and the training sessions that they attended in general. As mentioned in the analysis of the trainees’ responses, their opinions and feelings toward the VLSs and training sessions were positive (see

section 4.6.2), as confirmed by the report. The researcher noticed the trainees' eagerness and engagement during the training sessions throughout all three streams. As written in the report:

“The students were enthusiastic in the three streams about the training on vocabulary learning strategies” (see appendix 10).

The positive interactions during the training sessions suggests that the learners were self-motivated to improve their learning techniques. This conclusion highlights the significance of the motivation factor and how it interacts with other factors, such as attitudes and beliefs, in a way which leads to a successful learning process.

4.6.4 Conclusion

The data obtained from the notebook concerns the trainees' responses about their comprehension of, opinions on and feelings towards the VLSs and the training. The results revealed that trainees' responses indicate their positive beliefs and attitudes towards the VLSs and the training; these may be effective factors that motivated participants in the experimental group to use and integrate the strategies they had been trained in within their regular English language course.

Chapter 5

DISCUSSION OF FINDINGS

5.1 Overview of the Chapter

This chapter discusses the findings of my study and compares them with that of the studies discussed in Chapter 2. The first section discusses the research questions and compares them to those of previously conducted studies in the same area. In the second section, the main research question will be discussed, and the outcomes of this current study will be described. The experimental group's responses recorded in the notebook during the training sessions and analysed in Chapter 4, will help in the interpretation of the current study's findings. At the end of the chapter, a general discussion of the overall outcomes of the data analysed in the main study will be provided.

5.2 Discussion of the Results

This section starts by exploring the sub-questions of this research before addressing the main research question and drawing conclusions from this study through a general discussion. The order of the results discussion will be the same as that of the analysis chapter. The focus will be on the quantitative data which answer my research questions. Furthermore, the research has some implications and raises issues that will be considered in the discussion.

5.2.1 Research Question One

What are the similarities and differences between the VLSs used by the students before and after the VLST?

As mentioned in Chapter 3, Section 4, the subjects participating in the study answered Schmitt and McCarthy's (1997) VLS questionnaire before the training sessions and again three months after training. With regards to the students' use of VLSs in the pre and post-test, there were statistically significant differences between the experimental group and the control group. They were positive in favour of the experimental group, indicating that significant benefits were gained from the intervention by the students in the experimental group. This result supports the findings of Tassana-ngam (2004), who conducted a study aiming to examine the

effect of VLST on Thai University Students' word retention in the second language classroom. She focuses on five VLSs: 'dictionary work', the 'keyword method', 'semantic context', 'grouping word families', and 'semantic mapping'. She found that the control group subjects' learning of new vocabulary was much less effective than that of the experimental group due to the minimal use of VLSs by both teachers and students. In the current study, the experimental group reported that they used the bilingual and monolingual dictionary more frequently than the control group after the training sessions. Moreover, the experimental group's use of memory strategies such as grouping word families and semantic mapping was more significant, with a mean score of 3.4 compared to the control group's mean score of less than 2.0. It may be that these participants benefitted from the training sessions, which enhanced their use of these types of VLSs. It can indeed be argued that the positive results were due to the intervention as a significant difference was found between the two groups regarding the use of the dictionary, keyword method, semantic context, grouping word families and semantic mapping before the training sessions (section, 4.5.1).

With regards to the main objective of this study, the level of VLS use was significantly higher in the post-test than in the pre-test, although the students reported using the same determination strategies in the pre and post-test. One interesting finding is that the flash cards strategy achieved the highest gain scores for both the experimental and control group after the intervention, compared to the other types of determination strategies, with gain scores of 0.46 and 0.73 respectively, (Tables 4.7 and 4.8). It is possible, therefore, that smart usage of flash cards has a highly positive influence on the cognitive approach to learning vocabulary. Furthermore, the determination strategies that the experimental group students used most after the intervention were "using word lists" and "analysing affixes and roots", with gain scores of 2.20 and 1.90, respectively (Figure 4.17). This finding indicates that they may have been influenced by strategy instruction, which could have enhanced their strategic behaviour. This is supported by the experimental group's positive opinion towards the determination strategies and the fact that they felt that they were able to use more strategies to determine the meaning of new words (section 4.6.2).

After they had completed VLSs training, the experimental group used meta-cognitive VLSs significantly more than before, and significantly more than the control group. This is in line with the findings of Mahdavi (2014), who found that meta-cognitive strategy training was

highly effective in enhancing EFL learners' vocabulary knowledge. He states that "metacognitive strategy training is highly effective in enhancing EFL learners' vocabulary knowledge in an input-poor environment, where focusing consciously on learner strategies undoubtedly warrants closer consideration and is more critical than unconscious acquisition occurring through exposure to ample foreign language input outside the classroom" [sic] (2014: 389).

Furthermore, the study concluded that meta-cognitive instruction positively influenced the learners' awareness of vocabulary strategies in the experimental group. In addition, the current study supports the findings of Zhao's (2009) research, which aimed to examine the relationship between meta-cognitive strategy training and vocabulary learning by Chinese college students. It was found that the training was effective, as the experimental group outperformed the control group with regards to the post-test vocabulary size. My findings also match those of Rasekh and Ranjbary (2003), who sought to shed light on the issue of strategy training, in particular to investigate the effect of metacognitive strategy training through the use of explicit strategy instruction on the development of EFL students' lexical knowledge. The study found that explicit meta-cognitive strategy training had a significant positive effect. In my study, it was also found that the meta-cognitive strategies correlated significantly with the improvement of vocabulary size, suggesting that this strategy was effective in the development of the students' vocabulary size, even in the pre-test.

Regarding the comparison between the experimental and control group's use of VLSs, the overall patterns show that the difference in gain scores of VLS use between the experimental and control group is significant after the treatment (Figure, 4.22). The difference between the two groups in the use of the five kinds of VLSs is ranked as follows: 1) determination strategies, 2) memory strategies, 3) social strategies, 4) cognitive strategies, and finally, 5) metacognitive strategies. It can be noticed that the largest difference between the two group was in determination strategies and the smallest in metacognitive strategies. A possible explanation for this might be that the most impactful VLS among the five strategies is determination, followed by the memory strategy. This suggests that memorising information and self-determination to learn the English language has far more impact than the meta-cognitive or cognitive strategies, while the social strategies are very similar to the determination VLS. This indicates that social strategies have an impact on the vocabulary

learning capabilities of an individual learner; a notion which supports previous studies such as those of Tassana-ngam (2004), Rasekh & Ranjbary (2003) and Mahdavi (2014), which focused on training in metacognitive strategies and demonstrated a positive effect of VLSs training in favour of the experimental group. However, they differ from the current study in terms of the duration of training and the targeted category of strategies. These studies focused solely on metacognitive strategies, while the current study focused on all types of strategies for learning vocabulary in a foreign language. Additionally, I sought to promote learner independence by training the students on using the major VLSs over a short period of time, and I gave them the opportunity to monitor their learning by practising the strategies within their normal EFL classes to increase their vocabulary repertoire. My experimental group participated in only one session a day for five days, after which their use of VLSs increased significantly. Most previous studies, such as Rasekh and Ranjbary (2003); Tassana-ngam (2004); Tezgiden (2006); and Mahdavi (2014) dedicated extended periods of time to VLS training , ranging between 10 weeks and more than three months, to help participants use VLSs more frequently (see section, 2.12).

5.2.2 Research Question Two

Is there any statistically significant difference between the vocabulary size of the control and experimental groups before and after training in the use of VLSs?

This study set out to assess the vocabulary size of the participants in the experimental and control groups before and after the training sessions. The most interesting finding was that the mean values of the experimental groups' vocabulary size are greater in the post-training test than in the pre-training test, whereas the control group showed no significant difference in their vocabulary size before and after the intervention (Figure, 4.24). This result supports the findings of Rasekh and Ranjbary (2003), who investigated a group of Iranian university students to observe the enhancement of their vocabulary size. They tested the participants before administering a 10-week (three days a week, four hours a day) pre-intermediate English language course; the course included some instruction on using meta-cognitive strategies. Once the course ended, the test was repeated. Their research intended to answer the following question: "does the metacognitive strategies instruction significantly increase the lexical knowledge of Iranian EFL students?" Their findings revealed that the learners' vocabulary

knowledge improved after the instructions. Therefore, the intervention could be a major factor, if not the only one, causing the significant improvement in the experimental group's vocabulary size.

One unanticipated finding is that there were no statistically significant variances between the experimental and control groups' vocabulary size before and after the training on VLS use, as the significance level of the t-test was larger than the significance level 0.05 (Table, 4.17). Both groups had low vocabulary sizes in their vocabulary test before and after the training. The experimental group's vocabulary size increased, but the increase was not statistically significant. These results seem to be consistent with other research which found that Saudi students have poor vocabulary repertoires and lack linguistic competence (Al-Masrai, 2009) (Alsaif, 2011). It has been proven that the language learning environment plays an important role in the improvement of learners' language level (section 2.13.2.5). Furthermore, the insignificant difference between the two groups of their vocabulary size pre and post-training could be due to the fact that the XK-lex test which was used has the limitation of measuring participants' vocabulary size more precisely than other types of vocabulary test (see section, 2.12). Another possible explanation for this is that with a small sample size, caution must be applied, as the findings might not be generalizable to other contexts. On the other hand, when considering the stream of the students, there was a statistically significant difference between the vocabulary size of the experimental group in their vocabulary test results before and after the treatment. This suggests that VLS training could be an influential factor in the expansion of the students' vocabulary size. As shown in Table 4.18, the variances between the aggregate vocabulary size of the experimental group only, before and after training are significant at the significance level 0.01 and positive in favour of post-training. This suggests that training on the use of major VLSs and their subsequent increased use by learners might have a substantial influence on their vocabulary repertoire. This supports the findings of Alahmadia et al. (2018) and Alqarni (2019), who found that strategy instruction could enhance learners' vocabulary size.

When comparing the vocabulary size of the experimental and control groups in the three streams before and after the intervention, the findings showed significant differences. This has been hypothesised by Bernardo and Gonzales (2009), Mingsakoon's (2002) and Akbari (2017), who found that field of study had an influence on the type of strategies used by

participants generally specialised in arts, science or medical majors. Their research concentrated only on the type of strategies used but did not measure the participants' vocabulary size and did not have the participants attend a VLS training programme. In the current study, a factor to consider while comparing the pre and post-training differences between the experimental and control groups is the stream (humanity, science and health). A pre-post comparison showed that the field of study made a significant difference (table 4.18). Students in the humanities stream benefitted considerably less from VLS training than students in the health stream. A possible explanation for these results is that health studies include a lot of terminology as shown in the students' schedule for preparatory year that health stream students have subjects related to medical field of study (see appendix, 17). In contrast, for the humanities stream, the study found only a slight difference between the pre and post-training results of the experimental group (Figure, 4.15). It seems that when comparing between the participants' vocabulary test results while taking the stream factor into account, the XK-lex test shows that the training was successful, as it was able to identify students who are in different streams and provide a reasonable variance between field of study, which has been proved by a number of researchers (section 2.6).

To conclude the discussion surrounding the second research question, the present results are significant in at least two ways; the difference between pre and post-training for the experimental group's vocabulary size was significant without considering the participants' stream, but the stream also turned out to have a significant effect on the students' use of VLSs. The influence of the stream factor on the use of VLSs between the experimental and control groups will be discussed in detail in relation to the fourth question, where a number of other factors such as age and language learning experience will also be discussed.

5.2.3 Research Question Three

Is there any correlation between the VLSs employed by the students and their vocabulary size?

After discussing foundation year Saudi students' vocabulary size before and after the training sessions, this research question investigates in more detail the correlation between VLS use and vocabulary size. There was a significant increase in experimental groups' use of

VLSs generally in the pre-training test and the post-training test which may indicate that using VLSs after attending VLS training played a significant role in the improvement of the students' vocabulary size (Figure 4.27).

There was a statistically significant correlation between the experimental group's total vocabulary size and their use of determination, memory, metacognitive and total VLSs post-training. On the other hand, the control group shows no correlation between their vocabulary size and their use of VLSs before and after the intervention, except for memory strategies (Tables, 4.21 and 4.22). Moreover, the linear regression model and scatter plots confirmed the outcome of Spearman's correlation analysis, where the experimental group reached the significant level of correlation between their vocabulary size and determination, memory, metacognitive and total VLSs, with mean scores 0.004, 0.011, 0.001 and 0.019 respectively, while the control group have a positive correlation with memory strategies only, both before and after the intervention, with mean scores of 0.021 and 0.022 respectively, as shown Table 4.28. The consistent correlation between memory strategies and vocabulary size for the control group pre and post-training confirms the validity of the results and that students have not made any significant improvement in their vocabulary learning to enhance their vocabulary size. Furthermore, these results confirm that training the experimental group on VLS use can significantly improve the students' vocabulary size. This supports the findings of Al Qahtani (2005); Hamzah, Kafipour and Abdullah (2009); Fahim and Komijani (2011); and Kalajahi and Pourshahian (2012), who conducted their studies in the middle east contexts on learners at different levels, and found a significant correlation between the use of VLSs employed by participating subjects and their vocabulary size. As mentioned in the literature, the observed correlation between students' vocabulary size and determination, social, memory, cognitive and metacognitive strategies was investigated once and without considering the training factor. In contrast, in the current study, the correlation was examined both before and after the intervention. Another connection with these studies that were conducted in a Saudi context, such as Al Qahtani (2005), or similar contexts such as the middle east. Despite the positive correlation found between the experimental group's vocabulary size and the use of most VLSs after treatment, these findings cannot be extrapolated to similar kinds of contexts, as other factors may also play a role in this improvement.

In the pre-test there was no significant correlation between vocabulary size and reported use of VLSs overall for neither of the two groups. Nevertheless, in the experimental group has a significant correlation between their use of meta-cognitive strategies and their vocabulary size and in the control group only memory strategy has a significant association with their vocabulary size. A possible explanation is that meta-cognitive and memory strategies might sometimes be used by students despite them not having received any kind of strategy instruction. These findings support those of Gu and Johnson (1996), who explored the VLSs used by Chinese university learners of English and the relationship between the strategies and outcomes in the learning of English. They concluded that the best students, who represented a very small group, believed in learning by using the strategies of normal exposure and careful study, but not the strategy of memorisation. This could be due to the fact that the students may not be aware of the other types of strategies and therefore use those that are normally employed when learning a language, such as note taking or paying attention to the speaker. The results also support those of Prayitno (2015), who explored the relationship between vocabulary size and the VLSs used by fourth-semester students of English in Indonesia and found no association between participants' use of VLSs and their vocabulary size. This shows that might it be that learners who have not been trained in VLSs, and who are thus not aware of a greater range of strategies and their usefulness, are not effective VLS users? In that case, the lack of correlation between VLS use and vocabulary size would be precisely what we'd expect in untrained learners. Therefore, it is important to explore different settings to establish whether the relationship between these two elements is positive or negative, and attempt to identify relevant causes and factors; individual differences between learners and social and situational factors, for instance, may significantly affect the vocabulary learning process. These factors will be addressed in the discussion of research question number 4.

Regarding the correlation between post-training vocabulary size and the difference in pre and post-training scores for each VLS, the outcome partly contradicts the conclusion drawn in the previous paragraphs. It shows no correlation between the control group participants' post-results for vocabulary size and the difference of each VLSs use (Table, 4.24). It might be that this result is to be expected, given that the control group has had no exposure to any kinds of programmes that could improve their VLS use or vocabulary size, other than their regular language classes, which do not focus on improving their use of VLSs. In addition, although the control group participants were influenced by other factors that could enhance their VLSs use

and vocabulary size, three months might be an insufficient time frame to show any statistically significant difference regarding these two variables. Moreover, there is no significant correlation between the post vocabulary size and the difference in the use of cognitive and metacognitive strategies with regards to the control group. These results therefore need to be interpreted with caution. This inconsistency in some findings may be due to the limitation of the self-report methods used in the current study, or the lack of more precise detail on each category of VLSs.

Generally speaking, when discussing the third research question, having statistically significant relationships between some categories of VLSs and vocabulary size for the experimental group after the intervention that it was necessary to check whether any factors other than the treatment contributed the improvement. The training sessions on VLS use may not be the only factor that influenced the participants' result, therefore, the next research question focuses on the extent to which other factors such as age, stream, length of English language study and experience of language learning may have influenced the participants' results in the VLS questionnaire and vocabulary test before and after the training on using VLSs. Factors such as these have been identified by other studies as having an influence on vocabulary learning as mentioned in the literature (section 2.13); this is why they are being focused on in this current study.

5.2.4 Research Question Four

Are there statistically significant differences in the use of VLSs related to factors addressed in the demographic questions?

To answer this research question, the participating subjects' responses to the demographic questions (see appendix 3) were analysed and correlated with their use of VLSs and vocabulary size both before and after the training sessions (section, 4.5.4). The demographic questions provided information about the participants' age, stream, and learning experience with regards to the English language in general and vocabulary learning in particular; these are all factors which may play a significant role in the vocabulary learning process and explain the relatively good correlation between participants' VLS use and their vocabulary repertoire. The control group were not trained on using VLSs so that's the reason

for comparing with the control group is not to determine the effect of training (as they have not had any) but to make sure that there are no other factors which might have had an effect and which might therefore result in a gain in both groups.

Regarding the age of the participants in both the experimental and control group, all were between 18 and 23 years old (Table 4.2). This is because they were first year university students, with some possibly beginning university study a few years after having finished school, or having failed to pass the foundation year in their first attempt. The current study found that there are no statistically significant differences between the experimental and control groups' use of VLSs in pre and post-treatment in relation to age (Table, 4.27 and 4.28). A possible reason for this may be that the two age groups are close: 54 students were aged between 18 and 20 years old, while six students were aged between 21 and 23 years old (see Table 4.2). In order to examine the age factor more closely, the Wilcoxon test was used to determine whether there is any significant variation between the use of VLSs in the pre and post-test for experimental group only, in relation to the participants' ages; as Table 4.29 and 4.30 show, the subjects were split into two age groups. It is interesting to note that there is a significant difference between pre and post-training frequency for the use of all categories of VLSs for the age group 18-20 (see Table 4.29), and the use of determination and memory strategies for the age group 21-23 (see Table 4.30). This finding broadly supports the work of other studies in this area linking the age factor with language learning (see section, 2.13). This factor may explain the relatively good correlation between learners' characteristics and VLSs use. The advantage of training sessions might have featured the younger learners more and has been proved in a number of studies. This indicates that age could play an enormous role in the process of language learning. However, given the small sample size in the current study, caution must be applied, as the findings cannot be generalised, especially with relation to the 21-23 years age group, which includes only 2 students. Furthermore, the ages of all participants in the experimental and control groups are quite close to each other, and the outcome should therefore be cautiously interpreted. The important point is, though, that the sample size for each age group was too small to draw any conclusions at all about the effect of age.

Concerning social and situational factors, participants were asked whether they were from the humanity, science or health stream. the most interesting finding was a statistically

significant increase in VLS use after training for the experimental group in the three streams, while the control group did not show any change in their use of VLSs

Regarding the different kinds of strategies that were used by participants in the three streams, Table 4.33 shows significant differences between the use of cognitive strategies only, by experimental group participants in the different streams before the training sessions. There are no statistically significant differences between the streams and the corresponding participants' use of strategies falling within other categories. The reason for this is not clear; it may be related to learners' experiences with learning the language and the mental processes they use to acquire the language. In contrast, after the treatment, the differences between the three streams for the experimental group are statistically significant in the case of determination, memory, and cognitive strategies, as well as the total VLSs. It is likely that the consistency in the positive difference regarding the cognitive strategies before and after the intervention could be a sign of the validation of the outcome from the questionnaire used in the current study. It could be argued that the positive results were due to the effectiveness of the training on VLS use, because participants' level of use increased dramatically in the experimental group only, depending on their field of study. These findings support those of Bernardo and Gonzales (2009), who conducted a study on the use of five types of VLSs by Filipino pupils taking five different majors. About 200 students participated in the study and answered Schmitt's (1997) VLS questionnaire. The results revealed noteworthy variances in the use of determination strategies by the arts and medical students and social strategies by the students specialised in computer engineering, business education and hospitality management, while there were no significant differences in the use of the other types of VLSs such as memory, cognitive and metacognitive strategies between university students majoring in different disciplines. It seems that there are conflicts with my study in the use of social, memory, and metacognitive strategies in relation to field of study, but there is an agreement on the use of determination and cognitive strategies. A possible explanation for this is that the different contexts within which the studies were conducted may have an influence on the outcome, particularly with regards to the social strategies, where English language is used as an official language in the Philippines. Consequently, students in the Philippines may use social strategies more frequently than Saudi students. Another possible explanation for this contradiction is that participants of Bernardo and Gonzales' study (2009) did not attend in training programs to increase their awareness of the use of VLSs. Generally speaking, the field

of study may have a positive effect on the use of VLSs, however, in the following paragraph, it is necessary to explain which one of the three streams is the most frequent user of the different categories of strategies and discuss this outperformance.

The comparison between the three different streams revealed that students in the health stream of the experimental group achieved the highest level of VLS use, followed by the science stream and, lastly, the humanity stream. The reason for these differences may be that participants' exposure to English teaching differs in terms of the amount of materials used and number of classes provided in the preparatory year. As mentioned in Chapter 3, the participants in the health stream have five English language classes every week and complete two English language course books, while those in the science stream have four classes a week and complete one and a half course books, and those in the humanities stream have three classes a week and complete just one course book. The results showed a significant difference between the three streams which is positive in favour of the health stream. It seems possible that these results are due to the number of classes, the amount of available course materials and the opportunities to practice the language. All of these factors could play an enormous role in enhancing the input and output of language learners. The outperformance of the health stream students in the current study supports the findings of a study conducted by Akbar (2017), who compared 137 medical and paramedical university students and discovered that the medical students used more elaborative strategies to learn and consolidate specialized medical terminology in order to communicate appropriately with their classmates, doctors or professors, than paramedical university students.

In addition to the effect that the field of study has on the differences in the results between the three streams, the level of the class and the type of course could also be factors that lead to the superiority of the health stream students in their use of the VLSs explored in this research. A number of studies, such as Siriwan (2007), Mongkol (2008) and Doczi (2011), have investigated the differences between learners and how they relate to their VLS use. Their findings support the results of this current study and show the impact of learners' field of study, class level and course type on the use of VLSs. Table 4.48 shows that the significant difference is positive in favour of the experimental group in the health stream with regards to the use of determination, memory and cognitive strategies, as well as the overall VLSs in the post-test.

This confirms that determination, memory and cognitive strategies were the most used strategies in the post-test, particularly by the health stream.

The reason for the fact that the health stream students use different kinds of strategies the most frequently may lie in their language proficiency and vocabulary knowledge. Generally, the health stream includes many technical terms compared to the humanity stream. Moreover, a lot of work is based on objective observations, memory and linking cognitive reasoning with learning new words. Furthermore, the impact of social connectivity between students may also promote academic development. Due to these reasons, significant differences can be found in the current study between the humanity and health streams for social, memory and cognitive strategy use (Table, 4.37). On the other hand, the science and health streams are significantly different with regards to cognitive strategies; a possible explanation is that they can be similar in certain aspects, such as the use of observational studies, pre-defined rules in experimental studies, and reasoning based on those rules. Surprisingly, no significant differences were found in the use of VLSs between the science and humanity streams for the experimental group after the intervention. This was unexpected and suggests that the type of stream may have no effect on language learning. It is important to bear in mind the possible bias in these responses and consider the mechanism of self-report, which means that these results should be interpreted with caution. In the current study, the differences between each pair of streams in the experimental group are also evident from the P-values and gain scores for each VLS after the training sessions (see Table 4.38).

These factors such as age, field of study, and the context are known to influence learners' use of VLS and their vocabulary size (Suppasetserree and Saitakham, 2008; Celik and Toptas, 2010; Waldvogel, 2013). Participants in each stream are exposed to the language differently during the semester in terms of the amount of input and output. Suppasetserree and Saitakham (2008) found that higher achieving students use VLSs more frequently than lower achieving learners. Moreover, according to Celik and Toptas (2010), there is a significant correlation between the learners' language proficiency and their use of VLSs. Most importantly, Waldvogel (2013) undertook a study of about 500 language learners at different language levels to identify the correlation between vocabulary size and VLS use. He found that there is a positive relationship between the vocabulary repertoire of language learners and their use of VLSs. Furthermore, the advanced level learners used more VLSs than beginners, who

faced some difficulties in controlling their vocabulary learning process, and thus had poor vocabulary knowledge. The outcomes of these studies support the results of this current one and confirm the health stream students' superiority in terms of using VLSs and achieving higher results in the vocabulary test. A possible explanation for these results may be the science and humanity streams participants' lack of adequate exposure to the language, which may in turn lead to a lack of linguistic competence and achievement.

Regarding the effect of the environment on learning a language, participants were also asked whether they had experienced an extended stay in a native English-speaking country. The learning environment may influence the use of VLSs and affect the learner's vocabulary knowledge. Table 4.39 shows that out of sixty students, only six in both the experimental and control groups had a stay in a native English-speaking country, which varied between 1 month and approximately 9 months. Table 4.39 displays the results of a T-test which was applied to examine whether there are statistically significant differences in VLS use, in relation to having experienced an extended stay in an English-speaking country without splitting the participants into two groups. It must be noted that given the small sample size, the results must be interpreted with caution. The findings show that the only substantial variance among participants for both groups in relation to having experienced an extended stay in an English-speaking country is in the use of social strategies in the pre and post-treatment, and only pre-treatment for total of VLSs use, which are higher for students who have experienced an extended stay in an English-speaking country (see Table 4.39). The use of social strategies by the students who experienced an extended stay increased significantly compared with students who did not (Figure, 4.33). This finding broadly supports the work of other studies in this area, such as Asgari and Mustapha (2011); Kameli et al. (2012); and Akbari (2017), linking the learning environment with the use of VLSs. They found that a supportive learning environment which includes teachers, peers, and parents could encourage learners to use VLSs more frequently. The significant correlation between the use of social strategies and students who had an extend stay in an English-speaking country is logical, given that they had exposure to the language more frequently than other participants and had the opportunity to use social strategies to enhance their speaking skill and their vocabulary repertoire. Overall, having experienced an extended stay in an English-speaking country might confirm the effectiveness of the social and situational factor of the environment on VLS use.

Considering the learners' attitudes towards and beliefs about language learning in general and its correlation with VLSs use, participants were asked how many years they had been studying the English language. The responses were correlated with their use of VLSs before and after the treatment. The results show no statistically significant differences between the participants' years of studying the English language and their VLS use, for both groups. This means that the differences in years of studying English language have no significant effect on learners' use of VLSs. Table 4.40 shows the results of a T-test which was conducted to determine whether there are statistically significant differences in subjects' use of VLSs in relation to how long subjects have been studying English. The reason that the number of years studying the English language was linked with the learners' beliefs about and attitudes towards learning the language in this current study is that all participating subjects had studied English for about 6 years, but their use of VLSs was low, and their level of English fell within the category that would be classified as low, depending on their achievement and the size of their vocabulary. This supports the findings of Rajab (2013) and Alrabai (2014), who found that Saudi students rely on only one or two types of VLSs, which leads to low English language proficiency. One of the reasons for this can be attributed to the centred learning method, where the teacher is the dominant during the learning process and the students become dependable on their teacher. This kind of method limits exposure to the language to only occurring during the classes, with no self-regulated learning or technique improvement. It has been proved that self-determination or self-regulated learning may enhance learners' behaviours towards language learning and encourage them to more achievements (Bozpolat, 2016; Panadero, 2017; Hashamdar & Maleki, 2018; Rose, Briggs, Boggs, Sergio & Ivanova-Slavianskaia, 2018). Most Saudi students study English language for three years in intermediate school and three years in school, but they lack the linguistic competence to function appropriately and academically during the English language courses and in their field of study. It has been suggested that one of the reasons for this is that Saudi students believe that English language learning has no purpose, as English is not used in Saudi society for communication, and only used by people who specialize in English language majors or medical majors (Alqahtani, 2011). The reason is not clear, but it may have something to do with Saudi students' poor English language level, as has been proved by a number of studies, such as Al-Masrai (2009); Alsaif (2011); Alahmadia et al. (2018); and Alqarni (2019).

Individual differences between learners, such as, their beliefs, attitudes and motivation, may affect their VLS use, as mentioned in Chapter 2. The current study has investigated the individual differences between the participants through demographic questions. One of the questions that students were asked is whether, and how frequently, they speak English outside the classroom. The reason for asking this question is to establish whether the learners have opportunities and the motivation to learn the English language. The experimental and control group participants' responses to this question were correlated to their use of VLSs before and after the training sessions in order to find out whether speaking English outside university has any effect on VLS use. Table 4.43 shows that there are statistically significant differences between the experimental and control groups' use of VLSs in the pre-test, and in the level of overall strategies use in the post-test (see Table 4.44), in relation to speaking English outside the university. This may be due to the fact that speaking English outside the university has a significant effect on the use of VLSs, including the four categories of VLSs. Similarly, the studies by Fu (2003), Martinen (2008), and Akbari (2017) indicate that motivation has a positive relationship with VLS use insofar as learners who are highly motivated use VLSs more frequently than those with low motivation. The findings were confirmed by applying the Wilcoxon Rank-Sum test to determine the effects of speaking English outside the university on VLS use for the experimental and control groups in the current study (Table, 4.45). As can be seen, the p-values indicate that the results are very different between the two groups, proving that VLS use by students after training differs greatly between the two groups. These findings may help to understand the significance of motivation as well as opportunity for learning any language. It seems that some participants are motivated to practise English outside the university, especially their speaking skills, which could have a positive effect on their use of VLSs. There is abundant room for further progress to be made in determining alternative solutions to encourage students to practice English outside the classroom, especially in non-English-speaking countries.

In relation to some popular practices of language learning such as reading books, journals or newspapers, or watching TV and English language programmes, students responded about them in the demographical questions (see appendix, 14). In order to figure out the extent to which these two practices of exposure to the language (reading and watching) had an effect on VLSs used by the experimental and control group before and after the intervention, participants' responses were analysed. Results showed that reading books and watching TV

had a positive effect on the use of VLSs for the experimental group only (see Table 4.48 and 4.53). The majority of students rarely read English language books, journals or newspapers, other than those required for their course, and as mentioned in Chapter 2, this is a negative aspect of studying English in Saudi Arabia which may hinder students' progress. A potential reason for this finding is that participants in each group have been exposed to English language materials differently in terms of the amount of input and output when learning the language. Another reason for the experimental group's improvement may involve the training that they received on metacognitive VLS use in the current study. Therefore, they showed statistically significant improvement after the intervention (Table, 4.16).

Regarding language learning experience, participants were asked whether they had had training in the use of VLSs; only five students across both groups received such training. Their responses were linked to their VLS use. It should be noted that the findings should be interpreted while taking into consideration the five students could not be split into their respective groups due to the small sample size, which might lead to misleading conclusions. Table 4.55 shows no statistically significant differences between the subjects' use of VLSs in relation to having received VLS training. Moreover, the table also shows that previous training on VLS use had no significant influence on the students' use of VLSs; this may be due to the low number of participating subjects who reported that they had received training. Another reason may be that the five students were not trained successfully or that they had forgotten how to use and apply VLSs in the English language learning process. A number of studies have confirmed the results shown in Table 4.55 and the importance of the language learning experience to subsequent VLS use. For example, Siriwan (2007) investigated a group of Taiwanese students to establish the extent to which their experience of language learning affected their use of VLSs, and found a substantial correlation between the two variables. However, the results obtained in the current study with regards to the effect of previous VLS training effects on the use of VLSs are not sufficient to draw a conclusion, due to the limitation of the sample size and the merging of the two groups. A further study with more focus on the influence of previous strategy learning experience is therefore suggested.

5.2.5 The Main Research Question

Does training in the use of VLSs affect the vocabulary size of preparatory year students at Saudi University?

Having discussed and answered the four research sub-questions, it is possible to find an answer to the main research question, which seeks to determine whether training on the use of VLSs had a positive effect on the experimental group participants in the current study. In the following paragraphs, the answer to this question will be discussed and related to similar existing studies.

The current study found no significant differences between the control group participants' use of VLSs, and their vocabulary size pre and post-treatment (see Table 4.24). It did, however, find a significant improvement in the level of use of all VLSs by the experimental group in the post-training test. Furthermore, for the experimental group there were significant correlations between post-training vocabulary size and the difference in pre and post-training scores for determination, social and memory strategies, as well as total VLSs. Therefore, an analysis of covariance (ANCOVA) was conducted in order to determine which category of VLSs had the most impact on the experimental group's vocabulary size. The social and memory strategies were the only strategies that significantly impacted the post-training vocabulary size. Similarly, Uhl Chamot (2004) found that strategy training had a positive effect on vocabulary size, and that looking a word up in a dictionary had the highest correlation coefficient among all strategies. It could be argued that there is a positive association between memory and social strategies training, and improvement of vocabulary size for students at the Saudi University.

Generally speaking, the statistically significant results of the current study confirm that students' attitudes, beliefs and motivation in relation to VLSs and training play an important role in the achievement of significant results regarding the impact of the training sessions on learners' vocabulary size. The results support the conclusion reached by Tezgiden (2006), whose study revealed that strategy instruction had a positive impact on strategy use, and that both teachers and learners had positive attitudes towards strategy instruction. A number of factors were investigated through the demographical questions, pre and post-questionnaire of

VLSs and the vocabulary test before and after the intervention for both the experimental and control groups. The positive findings for the experimental groups in regard to the four research sub-questions and the main research question indicate that the findings showed that the VLS training had a positive effect on vocabulary size of preparatory year students at Saudi University. In the next section, the analysed data obtained from the questionnaires, tests and notebook will be discussed and compared with previous literature.

5.3 The General Discussion

Having previously discussed the findings in light of the research questions, this section will outline the objectives, implications, contributions and issues while considering the research methods, collected data, assumptions and the context of the present study. In the current study, students used certain VLSs more frequently than others before and after the intervention. It could be argued that the experimental group used specific kinds of VLSs more frequently after the intervention because they had recently been trained in their use. It is less obvious why they used specific kinds of strategies more than others before the intervention. A possible explanation could lie in students opting for specific strategies that suit their learning styles. The learning style could be an influential factor with regards to the selection of VLSs styles (Al-Habaishi, 2012; Muniandy & Shuib, 2016; Sahragard, Khajavi & Abbasian, 2016; Balci, 2017) (see section, 2.13.1.5).

Shifting the focus to the study's second objective, which was to explore the effects of VLST on the vocabulary size, the current study found significant differences in the median value of the experimental group students' vocabulary size between the pre and post-training test, while control group has no significant difference in the median value of their vocabulary size between pre and post-intervention (see figure, 4.14). Moreover, when taking into account the streams of the participants, the results in the post-training test showed statistically significant differences between the experimental and control groups' vocabulary size in each stream. Therefore, the experimental group had a significantly larger vocabulary than the control group after the intervention.

The positive outcome of the training sessions shows that VLS training could prove useful, a notion supported by a number of studies in the literature (Tassana-ngam, 2004;

Tezgiden, 2006; Zhao, 2009; Mahdavi, 2014; Alamri and Rogers, 2018) (see section, 2.12). In the current study, the experimental group participants had positive reactions to VLS training after each session (see section 4.6), and a significant increase in VLS was found after the intervention (section, 4.1). Despite the limitation of teaching methods used by teachers in Saudi Arabia, it could be argued that the teachability of VLS can help teachers to enhance their students' general language learning skills or vocabulary learning in particular. Another possible explanation of the experimental group's improvement in their use of VLSs or vocabulary size is that their learning behaviours were enhanced, and the participants became more self-dependent learners, which is one of the advantages of self-regulated learning, as mentioned in the relevant literature (Bozpolat, 2016; Ardasheva, et al. (2017). Panadero, 2017; Hashamdar & Maleki, 2018; Rose, Briggs, Boggs, Sergio & Ivanova-Slavianskaia, 2018) (section 2.11.3).

The research methods used in the present study (see section 3.4) were useful in measuring participants' use of VLSs and vocabulary size. However, some issues arose during the data collection and analysis stages using these methods, as noticed in Chapter 4. The first issue concerns Schmitt's VLSs questionnaire (1997); given that it was translated into Arabic, participants found the long list of strategies confusing, as well as the interactions between the consolidation determination strategies, for instance, using flash cards as a strategy to discover the meaning of new words, which is categorised under determination strategies, or the use of flash cards to consolidate the meaning of new words, which is categorised under memory strategies (section, 2.6). It could be more useful to design or use another kind of questionnaire that is easier to understand and not too long. The other issue concerns the XK-lex vocabulary test which was used to measure participants' receptive vocabulary size. The test failed to show any significant differences between experimental group and control group without considering the streams of the participants before and after the treatment. When considering the streams, the difference was significant between the two groups. It could be more fruitful to use more than one method to measure participants' vocabulary size, or to measure their productive vocabulary size rather than the receptive vocabulary, as this may yield more accurate results.

Regarding the comparison between the short and long duration of training on VLS use, the positive findings for the short training duration used in the present study should be interpreted with caution for many reasons. The first is that there might be other factors which influenced the learners' use of VLSs and vocabulary size. Therefore, the conclusion that the

brief training lead to this positive result should be interpreted more cautiously because there are other factors could have a role in this improvement. The other reason lies in the fact that the brief and long training durations must be examined in light of the same circumstances in order to successfully compare between the two. Therefore, results would be more reliable if the participants attended training sessions of different durations and discussed which is better. The final reason that the correlation between VLSs and vocabulary size or between the intervention and improvement in the use of VLSs and vocabulary repertoire should be treated with caution is that correlation does not indicate causation. Any causal interpretation of the results of the present study is considered as a one observed factor that lead to the improvement. In other words, what is the most likely reason for that improvement? Since the difference between the control and experimental groups is the treatment, a reasonable assumption is that the treatment was a major contributor to the improvement. There could be other contributing factors, e.g. the students' knowledge that they had been chosen for 'special' treatment, but this is likely to be a minor contributor.

The subjects in this study shared a number of features regarding their knowledge of vocabulary and strategies. The results show no statistically significant differences between the experimental and control groups' use of VLSs and their vocabulary size in the pre-training test for the three streams. This could be evidence of the homogeneity of the participants, particularly given that there was a statistically significant difference between the experimental and control groups in the post-training test across all three streams. This could be used as evidence that the two groups were found to be comparable. Also, this may confirm that after students were trained on the main VLSs, their use of the strategies improved, in turn suggesting that training in VLSs could have a significant effect on students' vocabulary size. The current study considered factors which could affect participants' use of VLSs such as gender, age, and field of study (Susanti, 2018; Kobayashi & Little, 2020; Kazamia, 2016; Bai, 2018; Baharudin, 2019). Therefore, participants in both the experimental and control groups showed no significant difference before the intervention, while after the intervention, the experimental groups outperformed in contrast to the control groups. The present study found statistically significant correlations between total vocabulary size and three categories of VLSs (determination, memory, and metacognitive) in the post-training test for the experimental groups, while the control groups have only memory strategies associated with their vocabulary size after the intervention. A number of studies conducted in the Saudi context found that most Saudi students have a low English language level due to their poor knowledge of vocabulary

and unawareness of VLSs (Al-Hazemi, 1993; Al-Akloby, 2001; Alqahtani, 2005; Alyami, 2006; and Alharthi, 2012). The current study sought to enhance the Saudi learners' VLSs and their vocabulary size through brief training sessions. It might be challenging to enhance the language competence of Saudi learners who have had limited exposure to the English language (section 1.4).

In the context of Saudi Arabia, only a few studies such as Alqarni (2017); Al-Bidawi (2018); Alqurashi (2018); and Ali & Zaki (2019) (see section, 1.7), focusing on the participants' VLS use and vocabulary size have been conducted in Saudi Arabia. However, the topic of training on VLS use and its relationship with participants' vocabulary repertoire required more investigation, both in the Saudi context or other similar contexts, for a number of reasons. The first is to discover the types of VLSs used by Saudi students and link them to their vocabulary size. The replication studies are needed to confirm the findings of the current study. The second is to develop some practical training programmes on the use of VLSs that could be used by language instructors, while the third reason is to raise awareness regarding the significance of such types of programmes in enhancing learners' self-regulated learning. In the current study, a number of implications have been achieved in terms of proving a clearer idea of the effectiveness of training on the enhancement of VLS use for experimental group, and could be a factor that increase their vocabulary repertoire. In relation to the aims of the current study, the overall conclusion of the findings may encourage course designers or language teachers to employ strategies such as those discussed within their language curriculums. It might be a practical solution to overcoming the poor vocabulary knowledge of Saudi students, as mentioned in the literature (section 1.4 & 1.7). There are limited opportunities to practice the language, especially in countries where a language taught as a foreign one could deprive learners from learning it successfully. As participants mentioned in the demographic questions, they had spent at least 4 years learning the English language (see Table 4.3), but still lacked knowledge of the variety of VLS (see Tables 4.6, 4.8, 4.10, 4.12 and 4.14) and had poor knowledge of vocabulary before the intervention (see Table 4.17). After the intervention, however, they reported that their use of VLSs increased and obtained better results for their vocabulary size. Moreover, question 4 discovered that there is no significant correlation between the length of time spent learning English and participants' VLS use before and after the intervention. Therefore, it could be argued that the absence of effective teaching

of the English language which provides the learners with all necessary skills and techniques might be a reason, if not the only one, for Saudi students' proficiency level in the English language being low. The outcomes of the current study and of previous studies in this area should be used to support the enhancement of the educational system surrounding the teaching of the English language in Saudi, or in other similar contexts, to facilitate the learning process and behaviours for language learners.

The research diary was in the form of a notebook, which was practical and handy during the training sessions. The participants were asked and answered the questions verbally, in the Arabic language, and their answers were noted down in the notebook. The reason for using a research diary was that it could provide a reference point for what happened during the strategy training process. Trainees had the opportunity to express their reactions, feelings, opinions and ideas about VLSs at the end of each session, to explain the extent to which they found the training useful and whether they understood and were able to use the strategies successfully. It is worth noting that all students' responses in experimental group were positive which could be shown in their use of VLSs and results of vocabulary test after the intervention (section 4.6). The notebook data was helpful in understanding possible reasons for the test outcomes. The participants showed their motivation to use VLSs through their beliefs, opinions and reactions towards the five categories of VLSs and the training programme. Their positivity can be seen through their repeated use of certain words which showed their understanding of VLSs, and the feeling they expressed of the strategies being useful for them in improving their vocabulary learning.

The experimental group's responses could be used as a supportive evidence of some raised issues regarding the brief period of time for training sessions and the efficiency of the designed programme. There are issues surrounding the duration of training sessions being for one week and whether one hour each day is sufficient to train the participants on using VLSs. This has been debated and there is no consensus among researchers on what a sufficient period of time to train learners on VLS use might be. However, the significant and positive results that this current study might be an indication that the five training sessions were adequate period to enhance the use of VLSs by experimental groups and improve their vocabulary size. Concerning the students' beliefs and their effect on the process of language learning, Ellis (1994), Gu and Johnson (1996) and Sixiang and Strikhao (2009) have suggested that belief can

influence vocabulary learning. They categorise it as an aspect of individual differences between learners. Their positive responses towards the adequacy of the training were reinforced and validated when an improvement in their level of VLS use was statistically confirmed (section 4.6). The brief treatment is more likely that play a significant role in the enhancing of experimental group's use of VLSs and the increasing of their vocabulary repertoire. The advantage of small size training class could lead to this positive outcome for the current study. Also the small size class could play enormous role in proving that brief training could be sufficient.

5.4 Conclusion

This chapter started with an overview of the results discussion. Then, the sub-research questions and the main research questions were explored in light of the data analysed in Chapter 4, the literature review of related studies and their results, and the objectives of the current study. After that, a general discussion of the research as a whole took place, which highlighted some issues and implications in the research methods and the results, as well as the most significant outcome of the current study. Furthermore, this chapter sought to shed light on the positive and limitation regarding the results and the methodologies of the present research, along with that of previously conducted similar research. The general story of this research and some limitations, implications and suggestions for future research will be presented in the next chapter.

Chapter 6

RESULTS SUMMARY & CONCLUSION

6.1 Overview of the Chapter

This chapter will firstly provide a general picture of the current study by outlining a brief summary of the research aims and the most significant outcomes. The next section will shed light on some pedagogical implications for the current study. Following this, a number of significant contributions made by the current study to the field of applied linguistics will be explained. After that, the limitations of the study will be recognised and the extent to which the outcome of the present study can be generalised to other contexts will be explored. Finally, suggestions and recommendations for future research will be introduced.

6.2 Summary of final results

The main purpose of this study was to explore the effectiveness of training preparatory year students at a university in Saudi Arabia in the use of VLSs to improve their vocabulary size. The research questions of the current study have been answered in the analysis and discussion chapter. The most important finding was that the increase in the experimental group's vocabulary size was significantly larger than that of the control. This result supports the view that training on the use of major VLSs has a significant effect on vocabulary size. The vocabulary sizes of the two groups were comparable from the outset. This confirms that after students received training on the use of major VLSs, their scores improved, which implies that the training had a significant effect on participants' vocabulary size. The study also identified statistically significant correlations between total vocabulary size and the use of VLSs after training. Therefore, it can be concluded that training the students on the use of VLSs has a significant effect on improving their vocabulary size.

The current study is consistent with previous research in the area of VLSs training, where explicit training has had a positive effect on raising the awareness about VLSs of the language learners. The study found statistically significant differences between the experimental and the control group regarding the VLSs use in the post-test, and it was evident that the differences were positive in favour of the experimental group, who had been trained on the use of major VLSs. It seems that the experimental and control groups had limited

knowledge of VLSs and their regular language classes had no significant influence on their VLS use. The course may have included some VLSs, but the implicit teaching and learning could have prevented control groups in the current study from comprehending and practicing the strategies consciously. Therefore, it can be concluded that explicit training in the use of VLSs could have a significant effect on improving students' use of these strategies and their vocabulary size. The outcome of this study and previous similar studies could be used as evidence that learners might greatly benefit from tools that help them to enhance their language level independently. Furthermore, learners have different learning styles (see section 2.13.1.5), a point which may not be considered when designing the language curriculum. Moreover, some courses do not consider the enhancement of learners' self-regulated learning, which could lead to them depending on one particular source of knowledge, the teacher in this case. The dominance of the teacher role in language learning in Saudi Arabia has a negative effect on learners' language proficiency (Rajab, 2013; Alrabai, 2014). This negative effect is reinforced given that in Saudi, English is taught as a foreign language and learners have a lack of practice and exposure to the English language (Alqahtani, 2011). The positive effect of training found in this study and previous studies (Rasekh & Ranjbary, 2003; Tassana-ngam, 2004; Tezgiden, 2006; Zhao, 2009; Mahdavi, 2014; Alamri and Rogers, 2018) in the area of explicit training in VLSs could provide ideas for overcoming the issues of learning English as a foreign language, not only in Saudi but in different contexts. Learners could have the opportunity to choose the strategies that suit their learning style and become more independent learners.

Furthermore, the present research findings were consistent with those of previous research that proved the influence of the field of study on the use of VLSs and vocabulary size (see section 2.13.2.1). The study showed statistically significant variations between the experimental groups' scores in the three streams with regards to the use of cognitive strategies in the pre-test in relation to their academic stream. The differences were most significant for the students in the health stream, whilst the results show no significant variations between experimental groups' scores with regards to the other four types of VLSs, namely the determination, social, memory, and meta-cognitive strategies. The study found statistically significant differences between experimental groups' scores in their use of VLSs in the post-test, including determination, memory, and cognitive strategies, and in the overall use of all strategies, in relation to stream, and positive in favour of the students in the health stream. On the other hand, the results did not indicate any significant differences in the use of social and

meta-cognitive strategies. The strategies used most by the students in the post-test are determination, memory, and cognitive strategies. The difference in gain was positive in favour of the health stream in most cases. A number of reasons have been explored (see section 5.2.4), but the final conclusion is that the main reason might be that the three streams' exposure to the language differs in terms of the input and output. The students in the humanity or science streams could have more limited exposure to the language, which could lead to a low level of language proficiency.

This study aimed to help language learners by encouraging them to expand their knowledge of VLSs in order to become more self-regulated learners, regardless of the context or field of the study. It has been proven that self-regulated learning could enhance the learners' strategic behaviours, the metacognitive process of learning, and motivation to adapt strategies in their learning, which might lead to gaining more achievements (Dörnyei, 2005, 2009; Vohs & Baumeister, 2004; Cohen, 2007; Ardasheva, 2017). Significant differences in the use of VLSs by the participants in the experimental groups, and the increase in their vocabulary size in the current study may be due to the fact that the learners became more self-regulated compared to those in the control groups. Moreover, the experimental groups' positive attitudes toward VLSs at the end of the training sessions showed their motivation to adapt and integrate VLS use into the VLSs into their language learning.

One of the most significant outcomes of the current study that achieved the goals and main concepts of strategy instruction (section, 2.11.5). The training sessions were a significant factor in the crucial improvement of the experimental groups' VLS use and vocabulary size in this study. However, there could be other advantages gained from the intervention which were not observed. Rutherford (1987), Wenden (1991) and Cohen (2007, 2014) have mentioned numerous benefits of strategy instruction and its significance to language learners (see section 2.11.4). Broadly speaking, the overall aims of strategy instruction are to raise students' consciousness, support their self-determination and help them to become more autonomous. It could be argued that the experimental group's improvement in the use of VLSs meant that they had achieved these goals.

With regards to ways of delivering strategy training (explicit, implicit or a combination of both), each technique has its advantages (section 2.11.6). The current study investigated the explicit way of conducting strategy training, which involves trainers instructing the trainees

directly in the strategies. This may be the best choice, particularly in light of the fact that the training in this study was brief.

One of the aims of this research is to help learners to become more independent (see section, 1.6); however, delivering the strategy training implicitly might encourage learners to become more dependent on their teachers (Raja et al., 2020). In the explicit instruction, learners would be more consciously trained on the strategies while in the implicit instruction, learners might not deduce the integrated strategy. Therefore, the explicit way of delivering the strategies was used in this study, and its success can be seen through the positive outcomes of the training and the achievement of its goal.

The current study is consistent with a number of studies that found a relationship between students' VLS use and their vocabulary knowledge without providing participants with any kind of training (Gu and Johnson, 1996; Al Qahtani, 2005; Hamzah, Kafipour and Abdullah, 2009; Fahim and Komijani, 2011; Kalajahi and Pourshahian, 2012). The study detected a statistically significant correlation between most main VLSs and vocabulary size in the pre-test; however, while a statistically significant association between meta-cognitive strategies and vocabulary size was found for the experimental groups, before the intervention the control groups' vocabulary size associated only with memory strategy. Grenfell & Harris (2017) have suggested expanding the investigation into the effectiveness of training on the relation between VLSs and vocabulary size in order to overcome the lack of awareness of VLSs and poor vocabulary knowledge. Therefore, it can be concluded that training the students in the use of VLSs can have a significant effect on improving their vocabulary size. The study showed statistically significant differences between the VLSs used by experimental and control groups at Saudi University before and after training in the use of VLSs, and the difference is positive in favour of the experimental groups' scores in the post-test.

One of the aims of the current study was to help learners to communicate effectively and enable them to retain vocabulary successfully. This aim can be achieved by providing the learners with the tools and skills they need to enhance their language learning, which might increase their repertoire. The positive outcome of the current study could be seen as suggesting solution for the students' lack of communication skills, given that their vocabulary size was increased. It is not possible to confirm the depth of the participants' knowledge and the extent to which they are able to successfully use the vocabulary, as the study measured their receptive

vocabulary knowledge. Generally speaking, with regards to participants' communication skills, the experimental group made significant progress after brief training, which could motivate them to use different strategies to increase their input and output more effectively. Having summarised the most significant findings of the current study and explained them in light of the aims of this study, the following section will outline some of the pedagogical implications of the study.

6.3 Pedagogical Implications

As mentioned earlier in section 1.4 & 1.7, Saudi students have poor vocabulary knowledge for a number of reasons. However, the limitation of exposure to the language is the most important one, particularly within contexts in which English is taught as a foreign language, meaning that students likely have little opportunity to practice outside the classroom. Finding an alternative way to overcome the lack of vocabulary knowledge could present a partial solution for this issue. Previous studies' findings regarding the effectiveness of VLS training corroborate that of the current study, which found that VLS training may lead to an improvement in the students' scores in vocabulary size tests. This suggests that it could be advantageous for tertiary level institutions in the Saudi Arabia, and those in other countries, to offer students training courses in the use of VLSs. Such a training program would require English language teachers to first undergo training of their own to understand how to deliver the sessions to the students. The development of teachers' skills could allow them to acquire successful language teaching strategies. The teacher plays an important role in the achievement of language learning objectives. Qualified teachers would be capable of enhancing their students' language learning skills by raising their awareness of the significance of VLS strategies and implementing them within their language classes. It would be interesting to explore whether students and teachers in contexts very different from that of Saudi Arabia might also benefit from this type of training.

As the positive impact of VLS training on the students' improvement in their use of strategies has been examined in a real context, stakeholders and course designers may be encouraged to integrate training on the use of VLSs or LLSs in general into the English language syllabuses in Saudi universities and beyond. Although busy curriculums might prove to be a stumbling block with regards to time constraints, the arguments for integrating this kind

of training within the course include the possibility of helping students to become more independent learners, be able to control their vocabulary learning process and increase their vocabulary repertoire more effectively using a variety of VLSs. Participants in this study were eager to learn strategies that could enhance their self-regulated learning and select those that suit their learning style. Language courses often have a very limited number of strategies included within the content of their coursebooks. Based on the current findings, it is predicted that including more strategies within the language coursebook would be beneficial for the language learners; moreover, the implementation of various strategies within its content by a professional course designer, might also support the teacher in delivering the strategies to the students successfully. However, this implementation would be a long-term process, particularly in terms of designing a new coursebook.

As an alternative solution, the university could design some brief training sessions or workshops on the learning of VLSs, which students could attend voluntarily to raise their awareness of the strategies. However, the limitations of the current study should be taken into consideration before implementing such training sessions. Furthermore, stakeholders should be aware that the correlation found here between participants' VLS use and increase in vocabulary size does not necessarily imply direct causation; there may be unknown factors that contributed to the positive outcome of the current study.

6.4 The Original Contributions of the Study

A number of contributions have been made by the current study to the field of applied linguistics. The first contribution is showing that training in the use of VLS for even brief periods could have a positive impact on trainees' vocabulary size. The findings confirmed this contribution through the outperformance of the experimental groups and the positive correlation between participants' VLS use and their vocabulary size. A number of studies have found that VLS training is useful for enhancing students' learning. The current study confirmed these findings. The second contribution is showing that this effect can occur across different categories of strategies including determination, social, memory, cognitive and metacognitive strategies. Unlike in other studies, which focused only on one or two categories of VLSs, in this current study, students were trained on the five categories of VLSs which included more than fifty strategies. Such a comprehensive investigation contributes to the field of knowledge

in terms of comparing between the five categories and concluding which is the most affected by the training, and has a strong impact on participants' vocabulary size. The third contribution of the current study to the field of knowledge is that the training empowered the students by making them more independent. Introducing learners to a variety of tools and strategies could make them more independent and enable them to regulate their learning by themselves. Generally speaking, the current study has contributed substantially to the field of applied linguistics, as mentioned in this section, but there are some limitations that should be taken into consideration, especially in future research replicating it.

6.5 Limitations of the study

The limitations of the current study pertain to the research methods used, and access and time constraints. A causal interpretation of the results is not suitable, as the study looks at the correlation between VLS training and participants' vocabulary size, and this correlation does not necessarily imply linear causation. It would be more appropriate to interpret the correlation as showing that the training was one of the main factors that influenced the use of VLSs and vocabulary size, rather than the sole cause of the improvement. Therefore, the correlation between these two variables should be interpreted with caution. Secondly, data collection had to be confined to a three-month period, which is one university semester. It would be advantageous to analyse the results of a more longitudinal study. Giving students more time to apply one or two of the strategies they received training on could be useful, as it would help the pupils to become more proficient in using said strategies, and enable them to eventually use the VLSs spontaneously. After that, they can move on to other categories of strategies. In this way, learners can learn and consolidate the strategies and become more confident when using them. Another limitation lies in the fact that the training sessions lasted only five days, due to time constraints. Participants had their own, separate classes and busy timetables, and their teachers gave permission for the students to train for no longer than five days. It is possible that learners would benefit from more training time, which may lead to better results, especially for students who may forget to use VLSs in the future.

Another limitation of the current research study is that the participating subjects were all male students studying at the same level and mostly from the same age group. According to Richards (2015) and Gass (2017), gender could be an influencing factor in language learning, so it would

be interesting to replicate the study with female participants. Also, most students in this study fell within the same age group, and age could be an influencing factor in the language learning process; therefore, it would be interesting to investigate students at different levels of education and in different age groups. Moreover, the current study used quantitative and partly qualitative research methods: questionnaires, tests, a research diary and the data analysed in the SPSS programme. Including qualitative research methods might lead to more robust results and clarify how learners employ the strategies during their vocabulary acquisition. Due to access limitations, participants could not be interviewed for more precise information to be obtained about the VLSs training and their ideas about its effects on the development of their learning process. Furthermore, it was not possible to obtain permission to observe students in their regular language learning classes because of university regulations.

It was not possible to design a complete English language course and integrating VLSs within it. The foundation year students need to cover an enormous number of subjects and had classes every weekday. Their English language curriculum was demanding and needed to be completed by the end of the semester; consequently, it was not possible to train a group of students on a regular basis on using VLSs for a whole term, nor could the training program be integrated into their course. It might be more beneficial to design a course which allowed students to gradually learn the VLSs and have more opportunity to practice the strategies.

The next limitation concerns the self-reported questionnaire that was used to collect data about the participants' use of VLSs. This data collection method has some drawbacks, such as the possibility that students' responses to the questionnaire may report what they believe they do as oppose to reflecting their actual actions when they are learning vocabulary. Another drawback of the questionnaire is that it does not show how exactly the students use the strategies; for instance, students who reported that they always use flash cards or word lists suggest that they frequently use these strategies but give no information about how they use them. It would be more valuable to use other kinds of research methods to obtain more information about the manner in which the strategies are used.

Despite the experimental group participants' positive reactions, the data should be interpreted with caution due to the fact that only verbal answers were collected. It is possible that learners were not able to express negative attitudes or feedback regarding the VLSs and the training programme while in the researcher's presence. The notebook data did not answer any of the research questions directly. However, it helped provide some background against which to interpret the other data. In a future study, the notebook method should be substituted by

interviews or written questions at the end of training sessions to obtain the trainees' opinions and attitudes.

The most impactful limitation of the current research is the small number of students in each language class in the three streams; the study could not be conducted using a large number of participants. The selection criterion for the targeted subjects was that students who participated in the study must be in the same learning environment, have the same English language course instructor, and the same classroom and teaching materials, as differences in these factors might lead to unreliable findings. The small sample size, however, had a negative effect on the statistical analysis of the data. Splitting the participants into experimental and control groups, according to the three different streams, resulted in a very small sample size and potentially misleading conclusions. The sample size issue emerged more than once when analysing the data. Factors such as age and previous experience of learning English language, which may influence VLS's use, varied extensively in the groups and so the findings have to be treated with caution. Furthermore, some comparisons between the experimental and control groups could not be carried out due to the sample size. Further investigation on a larger number of participants regarding the effect of VLS training on vocabulary size is recommended in order to arrive at results that are generalisable to range of contexts.

6.6 Suggestions for Future Research

In addition to the suggestions for improvements made in the previous section, I encourage researchers in the area of applied linguistics in general and vocabulary acquisition in particular to focus on identifying the most effective and significant topics for the development of the area of VLS training. These suggested areas of research could expand the idea of the current study and overcome its limitations. These suggestions might include:

Firstly, improving the quality of strategies instruction and developing instructors' ability to train learners on using VLSs. Evidently, the quality of the training is dependent on the teachers and the extent to which they are able to deliver valuable and effective sessions on using VLSs. Future studies might also investigate teachers' attitudes towards training and instructional programs on using VLSs. Moreover, it would be useful to enrol teachers from different teaching contexts in classes on how to train students on strategy use. Additionally, future research can seek to develop an instruction module for VLSs that can be used in different contexts. It would also be interesting to explore the design of a program for teachers to enhance

their teaching strategies and developing training sessions on the integration of such strategies into their teaching. This might lead to an improvement in the quality of teaching VLSs in different contexts.

The integration of technology within a VLS training program for the convenience of both learners and instructors is also worth exploring. Designing a programme or website that can be easily accessed by a language learner to develop his or her vocabulary acquisition would be especially valuable, as would a study on the effect of using technology to encourage learners to use VLSs to enhance their vocabulary knowledge. Such a website would include instructions and advice in the Arabic language, or the learners' L1, and could be helpful, especially in the EFL context. Furthermore, more extensive longitudinal studies to investigate the effect of delivering training to a larger number of language learners with different levels of language proficiency, in different age groups and of both genders, could be conducted. This would enhance our understanding of the effects of VLS training on learners' four language skills. Researchers could also investigate the factors that affect the use of VLSs and compare training for mixed gender classes and separated gender classes to see the extent to which these demographics affect the use of VLSs.

In this study, the VLSs were taught to the participants in sessions which occurred away from their regular classes. It would be useful for future research to integrate VLS training within the regular English language classes so that learners can have more extensive practice. Moreover, researchers could compare two groups of students; one trained explicitly on how to use VLSs, and the other trained implicitly on using VLSs. Such a comparison might be useful for instructors to establish which method is more effective. In addition to this, researchers can conduct more studies within the Saudi context on the perceptual learning styles of Saudi students and help them to become aware of effective learning styles which can support them in their learning process and develop their learning successfully, especially with regards to language acquisition.

Finally, it would be interesting to investigate the effects of VLS training on the students in intermediate and secondary school, which is when Saudi students typically begin the study of the English language. Focusing on this period of learning and seeking to help the learner to facilitate their competence in the new language may lead to a positive result and overcome the problems associated with English language acquisition in Saudi Arabia. Researchers can seek to develop a suitable program for these students, which would develop their learning process from the initial stages of learning the English language.

6.7 The Overall Conclusion

The current research explored the effects of VLS training by focusing on the relationship between vocabulary size and training in the use of VLS among Saudi preparatory year students at a university in the Kingdom of Saudi Arabia. The study used three main instruments to obtain data about students' frequency of VLS use and their vocabulary size before and after a total of 15 training sessions, for three experimental groups in three streams. The research questions have been answered successfully through the analysis and discussion of the collected data. Despite the limitations that were discussed earlier in this chapter, the study provided some contributions to and pedagogical implications for the field of language learning in the form of demonstrating the effectiveness of explicit strategy instruction on experimental groups' use of VLSs and their vocabulary size, in relation to the field of study. It can be concluded that the main objectives of the study were achieved, these being: (i) to discover VLSs that can be utilized by preparatory year students at Saudi University before and after the training sessions; (ii) to identify the English vocabulary size of Saudi students studying English at the preparatory year at Saudi University; and lastly, (iii) to examine the effects of VLST on the results of vocabulary size tests taken by Saudi preparatory year students. In terms of the pedagogical implications, the overall positive outcome of this study could contribute towards the integration of this type of training for students in other contexts. However, further investigation in the area of VLS training while considering the limitations of this study would lead to a better understanding of the effectiveness of training on enhancing the use of VLSs and whether it could overcome the lack of EFL learners' vocabulary knowledge.

REFERENCES

- Ahmed, M. O. (1989). Vocabulary learning strategies. *Beyond words*, 3-14.
- Akbari, Z. (2017). Developing a taxonomy of vocabulary learning strategies for an ESP context. *Journal of Applied Linguistics and Language Research*, 4(1), 90-108.
- Akbarian, I. H. (2010). The relationship between vocabulary size and depth for ESP/EAP learners. *System*, 38(3), 391-401.
- Akmajian, A., Farmer, A. K., Bickmore, L., Demers, R. A., & Harnish, R. M. (2017). *Linguistics: An introduction to language and communication* (7th Ed.). MIT press.
- Alahmadia, A., Shanka, C., & Foltzb, A. (2018). Vocabulary learning strategies and vocabulary size: insights from educational level and learner styles. *Vocabulary Learning and Instruction*, 14.
- Al-Akloby, S. (2001). *Teaching and learning English vocabulary in Saudi Arabian public schools: An exploratory study of some possible reasons behind students' failure to learn English vocabulary* (Unpublished doctoral thesis). University of Essex, Colchester, United Kingdom.
- Alamri, K., & Rogers, V. (2018). The effectiveness of different explicit vocabulary-teaching strategies on learners' retention of technical and academic words. *The Language Learning Journal*, 46(5), 622-633.
- Aldhahi, M., Davies, L., & Fernández-Parra, M. (2017). Investigating the Relationship Between Vocabulary Size and Cultural Competences in English-Arabic Translation. *Athens Journal of Philology*, 4(1), 21-52.
- Al-Habaishi, S. M. (2012). Investigating the relationship between learning styles, strategies and the academic performance of Saudi English major. *International Interdisciplinary Journal of Education*, 1 (8), 510-520.

- Alhawsawi, S. (2014). *Investigating student experiences of learning English as a foreign language in a preparatory programme in a Saudi university* (Unpublished doctoral thesis). University of Sussex, Brighton, United Kingdom.
- Al-Hazemi, H. (1993). *Low level EFL vocabulary tests for Arabic speakers* (Unpublished doctoral thesis). University of Wales, Swansea, United Kingdom.
- Alharthi, T. (2012). *Vocabulary Attrition for Saudi EFL Learners Graduating at Jeddah Teachers Collage* (Unpublished doctoral thesis). University of Essex, Colchester, United Kingdom.
- Alhaysony, M. (2017). Language learning strategies use by Saudi EFL students: The effect of duration of English language study and gender. *Theory and Practice in Language Studies*, 7(1), 18-28.
- Al-Johani, H. M. (2009). *Finding a way forward: the impact of teachers' strategies, beliefs and knowledge on teaching English as a foreign language in Saudi Arabia* (Unpublished doctoral thesis). University of Strathclyde, Glasgow, United Kingdom.
- Allen, V. F. (1983). *Techniques in Teaching Vocabulary*. Oxford: Oxford University Press.
- Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality progress*, 40(7), 64-65.
- AlQahtani, M. (2005). *The use of vocabulary learning strategies by EFL learners at three different educational levels* (Unpublished doctoral thesis). University of Essex, Colchester, United Kingdom.
- AlQahtani, M. (2011). *An investigation into the language needs of Saudi students studying in British postgraduate programmes and the cultural differences impacting on them* (Unpublished doctoral thesis). University of Southampton, Southampton, United Kingdom.
- AlQahtani, M. (2015). The importance of vocabulary in language learning and how to be taught. *International Journal of Teaching and Education*, 3(3), 21-34.

- Alqarni, I. R. (2019). Receptive vocabulary size of male and female Saudi English major graduates. *International Journal of English Linguistics*, 9(1), 111-119.
- Arabai, F. (2014). Motivational practices in English as a foreign language classes in Saudi Arabia: Teachers beliefs and learners perceptions. *Arab World English Journal*, 5(1), 224-246.
- Alsager, R., & Milton, J. (2016). Investigating the relationship between vocabulary knowledge and academic success of Arabic undergraduate learners in Swansea University. *Language in Focus*, 2(2), 88-124.
- Al Seghayer, K. (2013). The impact of four reading motivational constructs on motivating EFL learners to read online texts in English. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)*, 3(2), 56-81.
- Al-Seghayer, K. (2014). The four most common constraints affecting English teaching in Saudi Arabia. *International Journal of English Linguistics*, 4(5), 17.
- Al-Shammary, E. A. (1984). *A study of Motivation in the learning of English as a foreign language in intermediate and secondary schools in Saudi Arabia* (Unpublished doctoral thesis). Indiana University, State of Indiana, United States.
- Al-Shuwairekh, S. (2001). *Vocabulary learning strategies used by AFL (Arabic as a foreign language) learners in Saudi Arabia* (Unpublished doctoral thesis). University of Leeds, Leeds, United Kingdom.
- Alyami, S. (2006). *Vocabulary learning strategies in reading an English text* (Unpublished master's dissertation). University of Exeter, Exeter, United Kingdom.
- Alzahrani, I. (2017). *Exploring the effects of language learning strategy instruction on Saudi EFL college students' strategy awareness and proficiency* (Doctoral dissertation, University of Southampton).

- Anwar, K. (2015). A Constructive teaching model in learning research concept for English language teaching students. *International Education Studies*, 8(5), 62-68.
- Ardasheva, Y., Wang, Z., Adesope, O. O., & Valentine, J. C. (2017). Exploring effectiveness and moderators of language learning strategy instruction on second language and self-regulated learning outcomes. *Review of Educational Research*, 87(3), 544-582.
- Arjomand, M., & Sharififar, M. (2011). The most and least frequently used vocabulary learning strategies among Iranian EFL freshman students and its relationship to gender. *Iranian EFL Journal*, 7(1), 90-100.
- Asgari, A. & Mustapha, G. B. (2011). The influence of informal language learning environment (Parents and Home environment) on the vocabulary learning strategies. *English Language and Literature Studies*, 1(1), 7-13.
- Bahanshal, D. A. (2013). The Effect of Large Classes on English Teaching and Learning in Saudi Secondary Schools. *English Language Teaching*, 6(11), 49-59.
- Baharudin, S. N. (2019). THE USE OF VOCABULARY LEARNING STRATEGIES AMONG ESL UNDERGRADUATES. *International Journal*, 2(7), 66-79.
- Bai, Z. (2018). An analysis of English vocabulary learning strategies. *Journal of Language Teaching and Research*, 9(4), 849-855.
- Balci, Ö. (2017). An Investigation of the Relationship between Language Learning Strategies and Learning Styles in Turkish Freshman Students. *English Language Teaching*, 10(4), 53-61.
- Bernardo, A. S. & Gonzales, T. H. (2009). Vocabulary learning strategies of Filipino college students across five disciplines. *TESOL Journal*, 1, 17-27.
- Bertram, D., 2007. Likert scales. *Retrieved November, 2, p.2013.*

- Bogaards, P., & Laufer, B. (Eds.). (2004). *Vocabulary in a second language: Selection, acquisition, and testing* (Vol. 10). John Benjamins Publishing.
- Bowen, JD, Madsen H, and Hilferty, A. (1985). *TESOL: Techniques and Procedures*. Rowley, MA: Newbury House Publishers.
- Brown, H. D. (1994). *Principles of language learning and teaching*. Englewood Cliffs, NJ: Prentice Hall.
- Brown, H. D. (2001) *Teaching by Principles: An interactive approach to language pedagogy*. (2nd Ed) New York: Longman.
- Cameron, L. (2001). *Teaching languages to young learners*. Ernst Klett Sprachen.
- Carter, R. (1998). *Vocabulary: Applied linguistics perspectives*. London: Routledge.
- Catalan, R. M. J. (2003). Sex differences in L2 vocabulary learning strategies. *International Journal of Applied Linguistics*, 13(1), 54-77.
- Catalán, R. M. J., & De Zarobe, Y. R. (2009). The receptive vocabulary of EFL learners in two instructional contexts: CLIL versus non-CLIL instruction. *Content and language integrated learning: Evidence from research in Europe*, 81-92.
- Chamot, A. U., & O'Malley, J. M. (1986). *A cognitive academic language learning approach: An ESL content-based curriculum*. National Clearinghouse for Bilingual Education: Wheaton.
- Chamot, A. U., & Rubin, J. (1994). Comments on Janie-Miller's "A critical appraisal of learner training: Theoretical bases and teaching implications." *TESOL Quarterly*, 28, 771-776.
- Chamot, A. U., Barnhardt, S., El-Dinary, P. B., & Robbins, J. (1999). *The Learning Strategies Handbook*. London: Longman.

- Chamot, A. U. (2004). Issues in language learning strategy research and teaching. *Electronic journal of foreign language teaching*, 1(1), 14-26.
- Chen, C., Lee, S. Y., & Stevenson, H. W. (1995). Response Style and Cross-Cultural Values, Parents beliefs and Children's Achievement in the United States and China. *Human Development*, 6(3), 170-175.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT
- Celce-Murcia, M. (ed.) (1991). *Teaching English as a second or foreign language* (2nd ed.). Boston, Massachusetts: Heinle & Heinle Publishers.
- Celce-Murcia, M. (2001). Language teaching approaches: An overview. *Teaching English as a second or foreign language*, 2, 3-10.
- Çelik, S., & Toptaş, V. (2010). Vocabulary learning strategy use of Turkish EFL learners. *Procedia-Social and Behavioural Sciences*, 3, 62-71.
- Coady, J., & Huckin, T. (1997). *Second language vocabulary acquisition: A rationale for pedagogy*. Cambridge University Press.
- Cohen, A. D. (1987). The use of verbal and imagery mnemonics in second language vocabulary learning. *Studies in Second Language Acquisition*, 9, 43-62.
- Cohen, A. D. (1990). *Language learning: Insight for learners, teachers, and researchers*. Boston: Heinle & Heinle.
- Cohen, A.D. (1998): *Strategies in Learning and Using a Second Language*. Essex, U.K: Longman.
- Cohen, A. D. (2007). Becoming a strategic language learner in CALL. *Applied Language Learning*, 17(1-2), 57-71.
- Cohen, A. D. (2014). *Strategies in learning and using a second language*. London: Routledge.

- Cohen, A. D., & Macaro, E. (2007). *Language learner strategies: Thirty years of research and practice*. Oxford: Oxford University Press.
- Cook, V. (2001). *Second language learning and teaching* (3rd ed.). London: Arnold.
- Cook, V. (2016). *Second language learning and language teaching*. London: Routledge.
- Daofa, L., Wanbo, L., & Jiayuan, Y. (1992). Speaker-dependent Medium Vocabulary Continuous Speech Recognition Based on HMM and VQ [J]. *Acta Electronica Sinica*, 7.
- Davies, P., & Pearse, E. (2000). *Success in English teaching: A complete introduction to teaching English at secondary school level and above*. Oxford: Oxford University Press.
- Doczi, B. (2011). The vocabulary learning strategies of high school and university students: A pilot study. *WoPaLP*, 5, 138-158.
- Dörnyei, Z. (2018). Motivating students and teachers. *The TESOL encyclopedia of English language teaching*, 1-6.
- Dörnyei, Z., & Muir, C. (2019). Creating a motivating classroom environment. *Second Handbook of English Language Teaching*, 719-736.
- Dörnyei, Z., Henry, A., & Muir, C. (2015). *Motivational currents in language learning: Frameworks for focused interventions*. Retrieved from <http://ebookcentral.proquest.com>
- Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited*. Retrieved from <http://ebookcentral.proquest.com>
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Retrieved from <http://ebookcentral.proquest.com>

- Drummond, A. (2018). Investigating the Relationship between IELTS Scores and Receptive Vocabulary Size. *Journal of the Foundation Year Network, 1*.
- Eliah, K., & Kiran, K. S. (2019). VOCABULARY LEARNING STRATEGIES: EXPANSION OF THE KNOWLEDGE OF VOCABUALRY. *Global Journal For Research Analysis, 8*(9).
- Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University Press.
- Eyckmans, J. (2004). *Measuring receptive vocabulary size. Reliability and validity of the Yes/No vocabulary test for French-speaking learners of Dutch*. Utrecht: LOT.
- Fahim, M., & Komijani, A. (2011). Critical thinking ability, L2 vocabulary knowledge, and L2 vocabulary learning strategies. *Journal of English studies, 1*, 23-38.
- Faliyanti, E., & Arlin, M. (2018). The correlation between students' habit in watching English movie and vocabulary mastery at the sixth semester at English education study program in Muhammadiyah University of Metro. *Intensive Journal, 1*(2), 94-102.
- Fan, Y. M. (2003). Frequency of use, perceived usefulness, and actual usefulness of second language vocabulary strategies: A study of Hong Kong learners. *The modern language journal, 87*(2), 222-241.
- Finn, J. D., Gerber, S. B., Achilles, C. M., & Boyd-Zaharias, J. (2001). The enduring effects of small classes. *Teachers College Record, 103*(2), 145-183.
- Flaitz, J. & Feyten, C. (1996). A two-phase study involving consciousness raising and strategy use for foreign language learners. In R. Oxford (Ed.). *Language Learning Strategies around the World: Cross-Cultural Perspectives*. Hawaii: University of Hawaii Press, 211-225.
- Fu, Y. (2003). *Motivation and vocabulary learning strategies* (Unpublished Master Thesis). Southwest Jiao tong University, Chengdu, China.

- Gairns, R., & Redman, S. (1986). *Working with words: A guide to teaching and learning vocabulary* (pp. 74-80). Cambridge: Cambridge University Press.
- Gass, S., & Selinker, L. (2001). *Second language acquisition: An introductory course*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gass, S. M. (2017). *Input, interaction, and the second language learner*. Routledge.
- Ghazal, L. (2007). Learning vocabulary in EFL contexts through vocabulary learning Strategies. *Novitas-Royal*, 1(2), 84-91.
- Gidey, G. (2008). *Vocabulary -learning strategy use: The case of high and low achiever students in Gondar College of teacher education* (Unpublished Master Thesis). Addis Ababa University, Addis Ababa, Ethiopia.
- Grandy, J. (1996). Differences in the survey responses of Asian American and White science and engineering students. *ETS Research Report Series*, 1996(2), i-23.
- Green, J. & Oxford, R.L. (1995). A closer look at learning strategies, L2 proficiency, and Gender. *TESOL Quarterly*, 29, 261-297.
- Grenfell, M. J., & Harris, V. (2017). *Language learner strategies: Contexts, issues and applications in second language learning and teaching*. Retrieved from <http://ebookcentral.proquest.com>
- Grisso, L. C. (2018). *The Relationship Between English Language Proficiency and Academic Achievement in English Language Learners* (Doctoral dissertation, Liberty University).
- Gu, P. Y. & Johnson, R. K. (1996). Vocabulary learning strategies and language learning outcomes. *language learning*, 46(4), 643-679.
- Gu, P. Y. (2002). Gender, academic major and vocabulary learning strategies of Chinese EFL learners. *RELC Journal*, 33(1), 35-54.

- Gyllstad, H., Vilkaitė, L., & Schmitt, N. (2015). Assessing vocabulary size through multiple-choice formats: Issues with guessing and sampling rates. *ITL-International Journal of Applied Linguistics*, 166(2), 278-306.
- Hamzah, M. S. G., Kafipour, R. & Abdullah, S. K. (2009). Vocabulary learning strategies of Iranian undergraduate EFL students and its relation to their vocabulary size. *European Journal of Social Sciences*, 1(1), 39-50.
- Harrington, M. (2017). *Lexical facility: Size, recognition speed and consistency as dimensions of second language vocabulary knowledge*. Retrieved from <http://ebookcentral.proquest.com>
- Harris, V. (2003). Adapting classroom-based strategy instruction to a distance learning context. *Tesol-ej*, 7(2), 1-19.
- Hornby, A. S., Cowie, A. P., & Gimson, A. C. (1984). *Oxford advanced dictionary of current English*. Oxford: Oxford University Press.
- Hutson, B (Ed.) (1983). *Advances in reading/language research: A research annual* (pp. 231-256). Greenwich, CTL: JAI Press.
- Jackson, H., & Amvela, Z. (2000). Etienne. *Words, meaning, and vocabulary: An introduction to modern English lexicology*. London: Continuum.
- Jones, R. (2006). Vocabulary learning strategy use among tertiary students in the United Arab Emirates. *Perspective*, 14(1), 4-8.
- Kalajahi, S. A. R., & Pourshahian, B. (2012). Vocabulary learning strategies and vocabulary size of ELT students at EMU in Northern Cyprus. *English Language Teaching*, 5(4), 138-149.
- Kamali, S., Mostapha, G., B. & Baki, R., B. (2012). The influence of formal language learning environment on vocabulary learning strategies. *Journal of Language Teaching and Research*, 3(1), 23-29.

- Kazamia, V. (2016). Gender and age impact on language learning strategy use: A study of Greek EFL learners. *Language learning strategies in the Greek setting: Research outcomes of a large-scale project*, 76-100.
- Ketabi, S., & Shahraki, S. H. (2011). Vocabulary in the approaches to language teaching: from the twentieth century to the twenty-first. *Journal of Language Teaching and Research*, 2(3), 726-731.
- Khan, I. A. (2011). Learning difficulties in English: Diagnosis and pedagogy in Saudi Arabia. *Educational Research*, 2(7), 1248-1257.
- Khan, R. M. I., Radzuan, N. R. M., Shahbaz, M., Ibrahim, A. H., & Mustafa, G. (2018). The Role of Vocabulary Knowledge in Speaking Development of Saudi EFL Learners. *Arab World English Journal (AWEJ)*, 9(1), 406-418.
- Khatib, M. & Hassandeh, M. (2011). Vocabulary learning strategies of Iranian upper intermediate EFL learners. *International Education Studies*. Retrieved from <http://www.ccsenet.org/journal/index.php/ies/> article.
- Kilgarriff, A. (2006). *BNC database and word frequency lists*. Retrieved September 17, 2020, from <http://www.kilgarriff.co.uk/bnc-readme.html#lemmatised>.
- Kobayashi, K., & Little, A. (2020). Gender Differences in the Effects of Explicit Vocabulary Learning Strategies Training. *Journal of Second Language Teaching & Research*, 8(1), 23-51.
- Komol, T. & Sripetpun, W. (2011). Vocabulary learning strategies employed by undergraduate students and its relationship to their vocabulary knowledge. Paper presented at *the 3rd International Conference on Humanities and Social Sciences*, Faculty of Liberal Arts, Prince of Songkla University.

- Kramsch, C. J. (1979). Word watching: Learning vocabulary becomes a hobby. *Foreign Language Annals*, 12, 2: 153-158.
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford: Pergamon.
- Kudo, Y. (1999). *L2 vocabulary learning strategies*. Honolulu: University of Hawaii.
- Lachini, K. (2008). Vocabulary learning strategies and L2 proficiency. In K. Bradford Watts, T. Muller, & M. Swanson (Ed.), *JALT 2007 Conference Proceedings* (pp. 283-293). Tokyo: JALT.
- Larsen-Freeman, D. (2000). *Techniques and principles in language teaching*. Oxford: Oxford University Press.
- Laufer, B., & Goldstein, Z. (2004). Testing vocabulary knowledge: Size, strength, and computer adaptiveness. *Language Learning*, 54(3), 399–436.
- Lawson, M. J. & Hogben, D. (1996). The vocabulary learning strategies of foreign-language students. *Language Learning*, 46(1), 101-135.
- Li, A. (1983). Low frequency words in scientific writing. (Unpublished paper). Cited in Nation, 1990.
- Liao, Y. F. (2004). A Survey study of Taiwan EFL freshmen vocabulary learning strategies. *Journal of National Pin-Tung Normal College*, 21, 271-288.
- Llach, M. P. A., & Alonso, A. C. (2019). *Vocabulary strategy training to enhance second language acquisition in English as a foreign language*. Retrieved from <http://ebookcentral.proquest.com>
- Loewen, S., & Plonsky, L. (2015). *An a-z of applied linguistics research methods*. Retrieved from <http://ebookcentral.proquest.com>

- Long, M. H., & Porter, P. A. (1985). Group work, interlanguage talk, and second language acquisition. *TESOL quarterly*, 19(2), 207-228.
- Loucky, J. P. (2003). Enhancing the learning, teaching and testing of new vocabulary by systematically using a depth of lexical processing scale and a vocabulary learning strategies taxonomy. *Japan Language Testing*, 3(2), 25-35.
- Leńko-Szymańska, A. (2019). *Defining and assessing lexical proficiency*. Retrieved from <http://ebookcentral.proquest.com>
- Letchumanan, K., Muthusam, P., Govindasamy, P., & Farashaiyan, A. (2016). An overview of preferred vocabulary learning strategies by learners. *Asian Social Science*, 12(10), 174-179.
- Mahdavi, M. (2014). Metacognitive strategy training and vocabulary learning in an “input poor” environment. *International Journal of Multidisciplinary and Current Research*, 2, 389-398.
- Malone, H., Nicholl, H. and Tracey, C. (2014). Awareness and minimisation of systematic bias in research. *British Journal of Nursing*, 23(5), pp.279-282.
- Manuel, N. N. (2017). Evaluating vocabulary learning strategies (VLS): Gender differences, the most and least used (VLS) among Angolan EFL students at the faculty of Arts (Luanda, Angola). *International Journal of Scientific Research in Education*, 10(5), 483-504.
- Masrai A., & Milton, J. (2012). The Vocabulary knowledge of university students in Saudi Arabia. *TESOL Arabia Perspectives*, 19(3), 13-20.
- Masrai, A., & Milton, J. (2018). Measuring the contribution of academic and general vocabulary knowledge to learners' academic achievement. *Journal of English for Academic Purposes*, 31, 44-57.
- Martinen, M. (2008). *Vocabulary learning strategies used by upper secondary school students Studying English as a Second Language* (Unpublished master's dissertation). University of Jyväskylä, Jyväskylä, Finland.

- McCarthy, M. (1990). *Vocabulary*. Oxford: Oxford University Press.
- McKinley, J. (Ed.), Rose, H. (Ed.). (2020). *The Routledge Handbook of Research Methods in Applied Linguistics*. London: Routledge, <https://doi-org.ezproxy4.lib.le.ac.uk/10.4324/9780367824471>
- Meara, P. (1980). Vocabulary acquisition: A neglected aspect of language learning. *Language Teaching*, 13(3-4), 221-246.
- Meara, P. and Buxton, B. (1987). An alternative to multiple choice vocabulary tests. *Language Testing* 4, 142–51.
- Meara, P. (1990). A note on passive vocabulary. *Second Language Research* 6 (2), 150-154.
- Meara, P., & Milton, J. (2006). X-Lex: the Swansea Vocabulary Levels Test. In C. Coombe, P. Davidson, & L. D. (Eds.). *The 7th and 8th Current Trends in English Language testing (CTELT) Conference* (pp. 29–39). Dubai: TESOL Arabia.
- Melouah, A. (2013). Foreign language anxiety in EFL speaking classrooms: A case study of first-year LMD students of English at Saad Dahlab University of Blida, Algeria. *Arab World English Journal*, 4(1).
- Milton, J. (2009). *Measuring second language vocabulary acquisition* 45. Multilingual Matters.
- Milton, J. (2013). Measuring the contribution of vocabulary knowledge to proficiency in the four skills. C. Bardel, C. Lindqvist, & B. Laufer (Eds.) *L*, 2, 57-78.
- Mingsakoon, P. (2002). *A comparative study of vocabulary learning strategies between Mattayom Suksa six Students in Science and Arts programs at Hunkhapittakom School, Chainat Province* (Unpublished master's dissertation). Mahidol University, Nakhon Pathom, Thailand.

- Mongkol, N. (2008). *A study of vocabulary learning Strategies of the first and second year students from English department at Phetchaburi Rajabhat University* (Unpublished master's dissertation). Kasetsart University, Bangkok, Thailand.
- Mokhtar, A. A., Rawian, R. M., Yahaya, M. F., Abdullah, A., & Mohamed, A. R. (2017). Vocabulary learning strategies of adult ESL learners. *The English Teacher*, 12.
- Moskovsky, C., & Picard, M. (Eds.). (2018). *English as a foreign language in Saudi Arabia: New insights into teaching and learning English*. Retrieved from <http://ebookcentral.proquest.com>
- Muniandy, J., & Shuib, M. (2016). Learning styles, language learning strategies and fields of study among ESL learners. *Malaysian Journal of ELT Research*, 12(1).
- Nandy, M. (1994). *Vocabulary and grammar for G.C.E. "O" level English*. Singapore: Composite Study Aids.
- Nassaji, H. (2004). The relationship between depth of vocabulary knowledge and L2 learners' lexical inferencing strategy use and success. *The Canadian Modern Language Review* 61, 107-134.
- Nation, I. S. P. (1990). *Teaching and Learning Vocabulary*. New York: Newbury House.
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- Nation, P. (2005). Teaching and learning vocabulary. In E. Hinkel (Ed.). *Handbook and research in second language teaching and learning* (pp. 581-595). New Jersey: Lawrence Erlbaum.
- Nation, P. (2013). Designing reading tasks to maximize vocabulary learning. *Applied Research on English Language*, 3(1), 1-8.
- Newman, J. A. (2016). A Corpus-Based Comparison of the Academic Word List and the Academic Vocabulary List.

- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13.
- Nyikos, M. (1996). The conceptual shift to learner-centered classrooms: Increasing teacher and student strategic awareness. In R. L. Oxford (Ed.), *Language learning strategies around the world: Cross-cultural perspectives* (pp. 109–117). Honolulu: University of Hawaii, Second Language Teaching and Curriculum Centre.
- O'Mally, J. M. (1990). Chamot. *Language learning strategies in second language acquisition*. Cambridge: Cambridge University Press.
- Oxford, R. & Leaver, B. L. (1996). A synthesis of strategy instruction for language learners. In R. L. Oxford (Ed.) *Language Learning Strategies Around the World: Cross-Cultural Perspectives*. Hawaii: University of Hawaii Press, 229-246.
- Oxford, R. & Nyikos, M. (1989). Variables affecting choice of language learning strategies by university students. *The Modern Language Journal*, 79(3), 291- 300.
- Oxford, R., Crookall, D., Cohen, A., Lavine, R., Nyikos, M. & Sutter, W. (1990). Strategy training for language learners: Six situational case studies and a training model. *Foreign Language Annals*, 22, 97-216.
- Oxford, R.L. (1990). *Language learning strategies: What every teacher should know*. Boston: Heinle & Heinle.
- Oxford, R. L., & Griffiths, C. (2016). Teaching and researching language learning strategies: Self-regulation in context, second edition. Retrieved from <http://ebookcentral.proquest.com>
- Pavičić, V. (2008). *Vocabulary learning strategies and foreign language acquisition*. Buffalo, NY: Multilingual Matters.
- Pecorari, D., Shaw, P., & Malmström, H. (2019). Developing a new academic vocabulary test. *Journal of English for Academic Purposes*, 39, 59-71.

- Peng, S. X., & Srikhao, S. (2009). English vocabulary learning strategies of Miao students in senior high-school in China-A Pilot Study. *US-China Foreign Language*, 7(12), 12-17.
- Politzer, R. L. (1983). An exploratory study of self-reported language learning behaviours and their relation to achievement. *Studies in Second Language Acquisition*, 6, 54-68.
- Porte, G. (1988). Poor language learners and their strategies for dealing with new vocabulary. *ELT Journal*, 42(3), 167-171.
- Prayitno, T. (2015) *The correlation between vocabulary learning strategies and vocabulary size of the fourth semester students of English Department of IAIN Palangka Raya academic year 2013* (Unpublished doctoral thesis), IAIN Palangka, Palangkaraya, Indonesia.
- Rasekh, Z. E., & Ranjbary, R. (2003). Metacognitive strategy training for vocabulary learning. *Tesol-Ej*, 7(2), 1-15.
- Rajab, H. (2013). Developing speaking and writing skills of L1 Arabic EFL learners through teaching of IPA phonetic codes. *Theory and Practice in Language Studies*, 3(4), 653-659.
- Raja, P., Bambang, A., & Agustine, F. (2020). DEVELOPING STRATEGY USE AND LANGUAGE PERFORMANCE THROUGH IMPLICIT STRATEGY TRAINING. *Humanities*, 8(2), 194-201.
- Read, J. (2000). *Assessing vocabulary* (pp. 1-85). Cambridge: Cambridge university press.
- Reid, J. (1987). The Learning Style Preferences of ESL Students. *Tesol Quarterly*, 21(1), 87-110.
- Riazi, A. M. (2016). *The Routledge encyclopaedia of research methods in applied linguistics*. Retrieved from <http://ebookcentral.proquest.com>
- Richards, J., Platt, J., & H. Weber. (1985). *Longman dictionary of applied linguistics*. London: Longman.

- Richards, J. C., & Renandya, W. A. (Eds.). (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge: Cambridge University Press.
- Richards J. C. & Rodgers, T. S. (2003). *Approaches and methods in language teaching* (2nd Ed.). Cambridge: Cambridge University Press.
- Richards, S., Ruch, G., & Trevithick, P. (2005). Communication skills training for practice: the ethical dilemma for social work education. *Social work education*, 24(4), 409-422.
- Richards, J. C. (2015). *Error analysis: Perspectives on second language acquisition*. Routledge.
- Rubin, J., and Thompson, I. (1994). *How to be a more successful language learner: Toward learner autonomy* (2nd Ed.). Boston, MA: Heinle & Heinle.
- Rutherford, W. E. (1987). *Second language grammar: Learning and teaching*. Harlow, Essex: Longman.
- Sahragard, R., Khajavi, Y., & Abbasian, R. (2016). Field of study, learning styles, and language learning strategies of university students: are there any relations? *Innovation in Language Learning and Teaching*, 10(3), 255-271.
- Scharle, A., & Szabó, A. (2000). *Learner autonomy: A guide to developing learner responsibility*. Ernst Klett Sprachen.
- Schmitt, N., & Schmitt, D. (1995). Vocabulary notebooks: Theoretical underpinnings and practical suggestions. *ELT journal*, 49(2), 133-143.
- Schmitt, N. (1997). Vocabulary Learning Strategies. In McCarthy, M. and Schmitt, N. (Eds.), *Vocabulary: Description, acquisition and pedagogy*. Cambridge: Cambridge University Press.

- Schmitt, N., & McCarthy, M. (Eds.). (1997). *Vocabulary: Description, acquisition, and pedagogy*. Cambridge: Cambridge University Press.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Ernst Klett Sprachen.
- Schmitt, N. (2010). *Researching vocabulary: A vocabulary research manual*. Springer.
- Schmitt, N. (2014). Size and depth of vocabulary knowledge: What the research shows. *Language Learning*, 64(4), 913-951.
- Scrivener, J. (1994). *Learning teaching*. Oxford: Macmillan Heinemann.
- Seddigh, F. (2012). Vocabulary learning strategies of medical students at Shiraz University of medical sciences. *English Language Teaching*, 5(2), 160- 166.
- Sesnan, B. (2000). *How to teach English*. Oxford University Press. New York. Hong Kong.
- Sheeler, W. D. & Markley, R. W. (2000). *Words around us and effective ways to use them*. Michigan: The University of Michigan Press.
- Shi, H. (2017). Learning strategies and classification in education. *Institute for Learning Styles Journal*, 1(Fall), 24.
- Siriwan, M. (2007). *English vocabulary learning strategies employed by Rajabhat University students* (Unpublished doctoral thesis). Suranaree University of Technology, Nakhon Ratchasima, Thailand.
- Sistani, M., & Hashemian, M. (2016). Investigating the Role of Multiple Intelligences in Determining Vocabulary Learning Strategies for L2 Learners. *English Language Teaching*, 9(6), 242-251.
- Spada, N., & Tomita, Y. (2010). Interactions between type of instruction and type of language feature: A meta-analysis. *Language learning*, 60(2), 263-308.

- Stæhr, L. S. (2008). Vocabulary size and the skills of listening, reading and writing. *Language Learning Journal*, 36(2), 139-152.
- Stassen, H. M., & Carmack, H. J. (2019). 12 Questionnaire Design. *Advanced Research Methods for the Social and Behavioural Sciences*, 191.
- Stoffer, I. (1995). *University foreign language students' choices of vocabulary learning strategies as related to individual difference variables* (Unpublished doctoral thesis). The University of Alabama, Alabama, United States.
- Sunderland, J. (2006). *Gender and language: An advanced resource book*. London: Routledge.
- Suppasetseree, S., & Saitakham, K. (2008). English vocabulary learning strategies employed by Thai EFL university students with different levels of academic achievement. In *CamTESOL Conference on English Language Teaching: Selected Papers 4*, 138.
- Susanti, D. E. (2018). VOCABULARY LEARNING STRATEGY USED BY FEMALE STUDENTS OF IAIN SALATIGA MAJORED IN ENGLISH EDUCATION AND TEACHER TRAINING FACULTY: A GENDER PERSPECTIVE. *LET: Linguistics, Literature and English Teaching Journal*, 8(1), 91-109.
- Svalberg, A. M. L. (2017). Researching language engagement; current trends and future directions. *Language Awareness*. 27(1-2) pp.21-39.
- Swan, M. & Walter, C. (1984). *The Cambridge English Course 1*. Cambridge: Cambridge University Press.
- Swan, M. (1997). The influence of the mother tongue on second language vocabulary acquisition and use. In Schmitt, N., & McCarthy, M. (Eds.) *Vocabulary: Description, acquisition, and pedagogy*. Cambridge: Cambridge University Press.
- Takefuta, Y. (1997). *Eigo kyouiku no kagaku* (in Japanese). Tokyo: Alc Press.


- Tassana-ngam, I. (2004). *The effect of vocabulary learning strategies training on Thai University students' word retention in the second language classroom* (Unpublished doctoral thesis). University of Essex, Colchester, United Kingdom.
- Tezgiden, Y. (2006). *Effects of instruction in vocabulary learning strategies* (Unpublished master's dissertation). Bilkent University, Ankara, Turkey.
- Thornbury, S. (2002). *How to teach vocabulary*. United Kingdom: Pearson Education Limited.
- Thorndike, E. L. & Lorge, I. (1944). *The teacher's word book of 30,000 words*. New York: Columbia University.
- Tilfarlioglu, F. F. Y. & Bozgeyik, Y. (2012). The relationship between vocabulary learning strategies and vocabulary proficiency of English language learners. *International Journal of Applied Linguistics & English Literature*, 1(2), 91-101.
- Toro, L. V., Pinza, E. I., Vargas, A. B., Zuniga, A., Paredes, F. M., & Espinosa, F. O. (2019). Teachers and Students' Perceptions of Teaching and Learning English in Small Classes: A Case of Ecuador. *Turkish Online Journal of Educational Technology-TOJET*, 18(1), 95-104.
- Tsai, H. Y., Wu, C. C., Lee, C. Y., & Shih, E. P. (2009). Microbial fuel cell performance of multiwall carbon nanotubes on carbon cloth as electrodes. *Journal of Power Sources*, 194(1), 199-205.
- Underwood, M. J. (1977). Machines that understand speech. *Radio and Electronic Engineer*, 47(8), 368-376.
- Waldvogel, D. A. (2011). *Vocabulary learning strategies among adult learners of Spanish as a foreign language* (Unpublished doctoral thesis). University of Texas, Austin, United States.

- Waldvogel, D.A. (2013). The relationships between vocabulary learning strategies and vocabulary size among adult Spanish foreign language learners. *Journal of Language Teaching and Research*, 4(2), 209-219.
- Webb, S. (2009). The effects of receptive and productive learning of word pairs on vocabulary knowledge. *RELC journal*, 40(3), 360-376.
- Webb, S., & Chang, A. (2012). Second language vocabulary growth. *RELC Journal*, 43 (1), 113-126.
- Webb, S., & Chang, A. C. S. (2015). How does prior word knowledge affect vocabulary learning progress in an extensive reading program? *Studies in Second Language Acquisition*, 37(4), 651-675.
- Wei, M. (2007). An examination of vocabulary learning of college-level learners of English in China. *The Asian EFL Journal*, 9(2), 93-114.
- Wenden, A. (1991). *Learning strategies for learner autonomy: planning and implementing learner training for language learners*. Hemel Hempstead, Hertfordshire: Prentice Hall.
- Wenden, A. & Rubin, J. (1987). *Learner strategies in language learning*. New York: Prentice Hall.
- Wilkins, D. A. (1972). *Linguistics in language Teaching* (Doctoral dissertation). London.
- Zareva, A. (2005). Models of lexical knowledge assessment of second language learners of English at higher levels of language proficiency. *System*, 33(4), 547-562.
- Zhang, B., & Li, C. (2011). Classification of L2 vocabulary learning strategies: Evidence from exploratory and confirmatory factor analyses. *RELC journal*, 42(2), 141-154.
- Zhao, N. (2009). Metacognitive strategy training and vocabulary learning of Chinese college students. *English Language Teaching*, 2(4), 123-129.


Zimmerman, C. B. (1997). Historical trends in second language vocabulary instruction. *Second language vocabulary acquisition*, 5-19.

Appendices


Appendix (1) The Diagnostic Test



جامعة الطائف
Preparatory Year Deanship



مركز اللغة الإنجليزية
ENGLISH LANGUAGE CENTRE
TAIF UNIVERSITY



جامعة الطائف
TAIF UNIVERSITY

Student Name: _____ Date: _____

Student ID #: _____ College: _____

Invigilator: _____ Room #: _____

Score: _____ Percentage: _____

Direction: Match the questions with the correct reply. Write the letter of the correct answer in the blank opposite each number.

____ 1. How can I help you?	A. S-U-S-A-N
____ 2. What's your name?	B. Jan and Ivan.
____ 3. How do you spell that?	C. At work.
____ 4. What are their names?	D. Susan, what's yours?
____ 5. Where do you have lunch?	E. Do you have a table for two?
____ 6. How old is Abdullah?	F. They're 75 Saudi riyals.
____ 7. Do you want a sandwich?	G. Exactly 8:00 PM
____ 8. What would you like to drink?	H. No, thanks. I'm not hungry.
____ 9. How much are those jeans?	I. Pineapple juice, please.
____ 10. What time is it?	J. He's ten.

Please turn to Page 2 of 4.

Direction: Choose the correct answer. Write the letter of the correct answer in the blank opposite each number.

___ 11. Mother puts on the diamond ring. ___ is thinking of buying it.

(A) She (B) He (C) I (D) We (E) It

___ 12. Fahad wears a pair of glasses. ___ needs them to see clearly.

(A) We (B) He (C) I (D) She (E) They

___ 13. Ali and I love to do things together. We ___ good friends.

(A) are (B) is (C) am (D) has (E) will

___ 14. My friends and I ___ playing football.

(A) have (B) is (C) are (D) am (E) has

___ 15. Saud ___ opening the door.

(A) has (B) am (C) is (D) are (E) shall

___ 16. I ___ usually in the school library every Thursday to borrow books.

(A) has (B) is (C) are (D) am (E) must

___ 17. The little boy is looking at ___ black birds flying over there.

(A) that (B) this (C) those (D) these (E) a

___ 18. A caterpillar changes ___ a butterfly.

(A) from (B) on (C) into (D) of (E) in

___ 19. The horse ___ around the desert now.

(A) run (B) are running (C) is running (D) running (E) is run

Please turn to Page 3 of 4.

___20. Ronaldo is able to carry the heavy box. He is ___ than Messi.

- (A) stronger (B) strongest (C) strong (D) more stronger (E) most strongest

Direction: Read the following paragraphs (in bold italic letters) carefully and answer the questions after them. Choose the letter of the correct answer and write it in the blank opposite each number.

I love to see the birds fly. I love to hear their pretty songs. Birds are our friends. They eat harmful insects from our plants. They are very pretty. They make us happy. We must be kind to birds.

___21. What do we love to see?

- (A) birds (B) chickens (C) butterflies (D) flowers (E) trees

___22. What do birds do?

- (A) They talk. (B) They fly. (C) They swim. (D) They cry. (E) They bite.

___23. What do we love to hear?

- (A) birds' songs (B) birds' talk (C) birds' call (D) birds' cry (E) birds' shout

___24. What do birds do for us?

- (A) They make us sad. (B) They make us happy. (C) They make us angry. (D) They make us cry. (E) They make us sing.

___25. How do birds help us?

- (A) They eat sweet fruits. (B) They eat harmful insects. (C) They eat green plants. (D) They eat green seeds. (E) They eat pretty plants.

I wish I were a good and wise farmer. I want to help my country by growing lots of rice.

___26. What does the boy want to be?

- (A) a farmer (B) a fireman (C) a seller (D) a teacher (E) a policeman

Please turn to Page 4 of 4

___ 27. What does he want to help?

(A) his town (B) his school (C) his country (D) his family (E) his government

___ 28. What does he want to grow?

(A) lots of rice (B) lots of corn (C) lots of roses (D) lots of oats (E) lots of wheat

___ 29. What kind of farmer does he want to be?

(A) a lazy one (B) a big one (C) a good one (D) a good and wise one (E) a bad one

___ 30. What is the best title for this paragraph?

(A) My Wish (B) Rice is Good for You (C) My Good and Wise Friend (D) Eat Rice
(E) Wishes and Good Luck

Direction: Choose the letter of the word that has a wrong spelling. Write the letter of the correct answer in the blank opposite each number.

___ 31. (A) microscop (B) breakfast (C) school (D) mother (E) teacher

___ 32. (A) street (B) window (C) computar (D) paper (E) university

___ 33. (A) pencil (B) wallet (C) football (D) bycycle (E) restaurant

___ 34. (A) machine (B) number (C) tecnology (D) balloon (E) table

___ 35. (A) sciance (B) pizza (C) house (D) weather (E) television

*The roots of education are bitter
but the fruit is sweet.*

Appendix (2) The Students' Scores in the Diagnostic Test

Humanity	Science	Health
2	5	6
7	8	9
9	8	12
9	11	13
9	11	15
9	11	15
14	12	16
14	12	16
14	12	20
14	13	21
16	15	22
16	15	22
17	15	24
17	15	24
19	16	25
21	19	25
25	20	25
26	21	25
29	22	26
29	22	28
29	24	28
30	26	28
31	29	29

Appendix (3) A Taxonomy of Vocabulary Learning Strategies

✓ Please tick the appropriate box

❖ The degree of frequency:

- 1 = never
- 2 = seldom
- 3 = sometimes
- 4 = often
- 5 = always

A) Strategies for the Discovery of a New Word's Meaning

When I find a new English word that I don't know, I discover its meaning by.....		Degree of Frequency				
<u>Determination Strategies</u>		1	2	3	4	5
1	Analysing its part of speech					
2	Analysing its affixes and roots					
3	Checking for L1 cognate (e.g. Cotton قطن)					
4	Analysing any available pictures or gestures					
5	Guessing its meaning from textual context					
6	Using bilingual dictionary (e.g. English-Arabic dictionary)					
7	Using monolingual dictionary (e.g. English-English dictionary)					
8	Using word lists					
9	Using flash cards					
<u>Social Strategies</u>						
1	Asking teacher for an L1 translation					
2	Asking teacher for paraphrase or synonym of new word					
3	Asking teacher for a sentence including the new word					
4	Asking classmates for meaning					
5	Discovering new meaning through group work activity					

B) Strategies for Consolidating a Word Once it has been Encountered

When I want to remember new words and improve my vocabulary size, I consolidate its meaning by.....		Degree of Frequency				
<u>Social Strategies</u>		1	2	3	4	5
1	Studying and practicing meaning in a group					
2	Asking teacher to check flash cards or word lists for accuracy					
3	Interacting with native-speakers					
<u>Memory Strategies</u>						
1	Studying word with a pictorial representation of its meaning					
2	Imaging word's meaning					
3	Connecting word to a personal experience					
4	Associating the word with its coordinates (words follow a new word)					
5	Connecting the word to its synonyms and antonyms					
6	Using Semantic maps (hyponymy e.g. Oxygen is part of air and Meronymy e.g. A cheetah is a kind of cat)					
7	Using 'scales' for gradable adjectives (e.g. good, better, best)					
8	Grouping words together to study them					
9	Using new word in sentences					
10	Grouping words together within a storyline					
11	Studying the spelling of a word					
12	Studying the sound of a word					
13	Saying new word aloud when studying					
14	Imaging word form (e.g. a new word has a noun form and verb form)					
15	Remembering the word using its affixes and roots (e.g. happy=root OR happy + ness affixes= happiness)					

16	Remembering the word using its part of Speech (e.g. noun, verb, adjective)					
17	Paraphrasing the words' meaning					
18	Using cognates in study (e.g. Cotton قطن)					
19	Using Physical action when learning a word					
<u>Cognitive Strategies</u>						
1	Repeating the words aloud many times					
2	Writing the words many times					
3	Making list of new words					
4	Putting the new words in flash cards					
5	Taking notes in class					
6	Using the vocabulary section in your textbook					
7	Listening to tape of word lists					
8	Putting English labels on physical objects					
9	Keeping a vocabulary notebook					
<u>Metacognitive Strategies</u>						
1	Using English-language media (songs, movies, newscasts, etc.)					
2	Testing oneself with word tests					
3	Continuing in studying new words many times					
4	Skipping or passing new word					
5	Paying attention to English words when someone is speaking English.					

Appendix (4) The Arabic version for the questionnaire of vocabulary learning strategies:

تصنيف استراتيجيات تعلم مفردات اللغة

✓ فضلا قم باختيار الإجابة المناسبة

❖ درجات التكرار:

- ١ = أبدا
٢ = نادرا
٣ = بعض الأحيان
٤ = غالبا
٥ = دائما

(أ) استراتيجيات اكتشاف معاني الكلمات الجديدة:

درجات التكرار					عندما أجد كلمة انجليزية جديدة لا أعرف معناها، أنا أكتشف معناها عن طريق.....
٥	٤	٣	٢	١	استراتيجيات التحديد
					١ تحليل أجزاء الكلام
					٢ تحليل أجزاء الكلمة
					٣ إيجاد مماثل في اللغة العربية مثل قطن Cotton
					٤ تحليل أي صور أو إشارات متوفرة
					٥ تخمين معناها من سياق النص
					٦ استخدام قاموس ثنائي اللغة مثل قاموس انجليزي - عربي
					٧ استخدام قاموس أحادي اللغة مثل قاموس انجليزي - انجليزي
					٨ استخدام قوائم الكلمات
					٩ استخدام البطائق المشعة
الاستراتيجيات الاجتماعية					
					١ سؤال المعلم عن المعنى في اللغة العربية
					٢ سؤال المعلم عن صيغه أخرى أو مرادف للكلمة الجديدة
					٣ سؤال المعلم عن جملة تتضمن الكلمة الجديدة
					٤ سؤال زملائي عن المعنى
					٥ اكتشاف المعنى الجديد من خلال النشاط العملي في مجموعات

(ب) استراتيجيات تعزيز معنى الكلمة عندما تواجهها:

درجات التكرار					عندما أريد تذكر كلمات جديدة و أطور من حجم مفرداتي، أنا أقوم بتعزيز معناها عن طريق.....
٥	٤	٣	٢	١	الاستراتيجيات الاجتماعية
					١ دراسة والتمرن على المعنى في مجموعة
					٢ سؤال المعلم للتأكد من صحة قوائم المفردات والبطائق المشعة
					٣ التفاعل مع المتحدث الأصلي للغة الانجليزية
استراتيجيات الذاكرة					
					١ دراسة الكلمة مع تمثيل تصويري لمعناها
					٢ تصوير معنى الكلمة
					٣ ربط الكلمة بالخبرة الشخصية
					٤ ربط الكلمة مع نظيرها (الكلمات التي تأتي بعد الكلمة الجديدة)
					٥ ربط الكلمة مع مرادفاتها و مضاداتها

٦	استخدام الخرائط الدلالية (hyponymy e.g. Oxygen is part of air and Metonymy e.g. A cheetah is a kind of cat)				
٧	استخدام ميزان الكلمة لأتلم الصفات التي تستخدم للمقارنات مثل (good-better-best)				
٨	وضع الكلمات في مجموعات لدراساتها				
٩	استخدام الكلمة الجديدة في جمل مختلفة				
١٠	وضع الكلمات معا في مجموعات ضمن قصة				
١١	دراسة تهجئة الكلمة				
١٢	دراسة صوت الكلمة				
١٣	نطق الكلمة الجديدة بصوت عالي عندما أقوم بدراساتها				
١٤	تصوير صيغة الكلمة (على سبيل المثال الكلمة الجديدة لها صيغة اسم وكذلك صيغة فعل)				
١٥	تذكر الكلمة باستخدام ملحقاتها وجذرها (happy=root OR happy +ness affixes=happiness)				
١٦	تذكر الكلمة باستخدام أجزاء الكلام (على سبيل المثال الفعل، الاسم، الصفه)				
١٧	إعادة صياغة معاني الكلمات				
١٨	استخدام المرادف في اللغة العربية مثل قطن Cotton				
١٩	استخدام النشاط الحسي عندما أتلم الكلمة				
الاستراتيجيات المعرفية					
١	تكرار نطق الكلمات بصوت عالي عدة مرات				
٢	كتابة الكلمات عدة مرات				
٣	عمل قائمة بالكلمات الجديدة				
٤	وضع الكلمات الجديدة في بطائق مشعة				
٥	كتابة ملاحظات في الفصل				
٦	استخدام قسم المفردات في كتاب المنهج الدراسي				
٧	الاستماع لشريط يتضمن قوائم الكلمات				
٨	وضع ملصقات انجليزية على الأشياء المحسوسة				
٩	الاحتفاظ بمفكرة أدون فيها المفردات				
الاستراتيجيات فوق المعرفية					
١	استخدام وسائل الإعلام الانجليزية (الاعاني، الأفلام)				
٢	اختبار المفردات الذاتي				
٣	الاستمرار في دراسة المفردات الجديدة عدة مرات				
٤	تخطي أو تجاهل الكلمة الجديدة				
٥	الانتباه للكلمات الانجليزية عندما شخص ما يتحدث الانجليزية				

. إذا يوجد لديك استراتيجيات أو طرق أخرى تقوم باستخدامها في تعلم المفردات لم تذكر في الاستبيان،
أذكرها:

.....
.....

~ في حال وجود أي نموذج في الجمل أو العبارات والكلمات المذكورة في الاستبيان، الرجاء ذكرها:

.....
.....

الشكر الجزيل لمشاركاتك

Appendix (5) English XK-Lex Vocabulary Test 1

Please look at these words. Some of these words are real English words and some are not but are made to look like real words. Please tick the words that you know or can use. Here is an example.

Version: A

cat ✓

Your student number:

New	Commerce	Organise	Accuse	Victory
Gummer	Tindle	Wookey	Candish	Skave
Word	Dust	Fountain	Tend	Jewel
Near	Nonsense	Movement	Landing	Reliable
Peace	Fond	Likely	Volume	Harden
Produce	Sweat	Provide	Tube	Sorrow
You	Cap	Castle	Liner	Dial
Wife	Worry	Steam	Previous	Enclose
Do	Plenty	Steady	Style	Sneeze
Add	Guide	Pole	Outline	Apparatus
Kilp	Broy	Orrade	Plaudate	Overend
Build	Pump	Guest	Keeper	Roast
Prosecutor	Addict	Gulp	Idleness	Carnation
Samphirate	Treadway	Darch	Callisthemia	Mordue
Referral	Detachment	Thud	Blizzard	Plaintively
Illuminate	Unsure	Assassin	Rut	Gurgle
Gown	Reinforcement	Wrench	Incessant	Heal
Verge	Enlightenment	Backdrop	Blunder	Go-between
Counsellor	Workman	Unfold	Springboard	Common-low
Skipper	Feudal	Upheaval	Shrapnel	Locket
Authorise	Quarter	Animation	Skip	Nudge
Sour	Psychic	Banish	Bastion	Anger
Neminary	Fallity	Treggle	Snape	Tearle
Holly	Appropriation	Peninsula	Maroon	Contrive

Thank you for your help

Appendix (6) English XK-Lex Vocabulary Test 1

Please look at these words. Some of these words are real English words and some are not but are made to look like real words. Please tick the words that you know or can use. Here is an example.

Version: **B**

cat ✓

Your student number:

Make	Advice	Generous	Cure	Victory
Anand	Trudgeon	Snell	Hammond	Arbus
Turn	Perform	Rabbit	Pat	Opponent
Doubt	Luck	Cough	Court	Feast
Start	Fierce	Sense	Reaction	Item
Ready	Strict	Announce	Workshop	Fortune
Person	Collar	Prepare	Leadership	Simplicity
Open	Wire	Drag	Reference	Overlook
Fact	Comfort	Sight	Emphasise	Scorn
Sure	Discipline	Situation	Seed	Respect
Widgery	Inertible	Loring	Craddock	Encopulate
Write	Pour	Dive	Calculate	Junction
Dependency	Convergence	Cape	Tireless	Cylinder
Chibbery	Fallology	Atone	Lebrucious	Outpanner
Descendent	Alley	Conscientious	Eloquence	Allure
Playground	Cutter	Paw	Spurt	Atone
Attachment	Consultative	Reap	Recoup	Ruby
Hurdle	Contamination	Extremist	Buoyancy	Dicey
Offering	Hierarchical	Adorn	Squeak	Coterie
Denote	Cram	Rejoin	Sighting	Conundrum
Accumulation	Rivalry	Admirer	Stout	Chipboard
Simplify	Shark	Animated	Braid	Barn
Proom	Skave	Splading	Coath	Charlett
Binary	Severity	Questionable	Breed	Maggot

Thank you for your help

Appendix (7) The Arabic version from Notebook for participants' responses after each training session:

إجابات الطلاب على الأسئلة في نهاية كل جلسة تدريبية في المسارات الثلاث:

تم طرح الأسئلة التالية على الطلاب:

- (١) هل كانت هناك أي صعوبات في فهم واستخدام أي من الاستراتيجيات التي تم التدرب عليها في هذه الجلسة التدريبية؟
- (٢) ما رأي الطلاب في الاستراتيجيات التي قاموا بالتدرب على استخدامها في هذه الحصة التدريبية؟
- (٣) ما هو انطباع الطلاب تجاه الجلسات التدريبية على استخدام استراتيجيات تعلم المفردات؟

(١) الدورة التدريبية الأولى:

المسار الإنساني:

إجابة مطابقة في المسارات الثلاث على السؤال الأول: "لا، ليس لدي أي غموض حول هذه الاستراتيجيات، لقد فهمت استراتيجيات التحديد وباستطاعتي استخدامها بشكل صحيح".
إجابته على السؤال الثاني: "أنا دائماً أستخدم قاموس ثنائي اللغة فقط للبحث عن معاني الكلمات الجديدة، ولكن بعد هذه الجلسة التدريبية الأولى، أصبح لدي تسع استراتيجيات لتحديد معنى الكلمات الجديدة".
إجابته على السؤال الثالث: ستكون في نهاية الدورات التدريبية لكي نخرج بانطباع كامل من الطلاب تجاه هذا البرنامج التدريبي.

المسار العلمي:

إجابته على السؤال الأول: "لقد فهمت واستوعبت استراتيجيات التحديد التي تم التدرب عليها اليوم وبإمكاني استخدامها بشكل مناسب".
إجابته على السؤال الثاني: "أشعر أن هذه الاستراتيجيات مفيدة وتمنحني الكثير من الخيارات للبحث عن المعنى للكلمات الجديدة".

المسار الصحي:

إجابته على السؤال الأول: "الشرح والتطبيق العملي لهذه الاستراتيجيات كانا واضحين ومفيدين في تعلم الكلمات بطرق مختلفة".
إجابته على السؤال الثاني: "أنا باستطاعتي الآن أن أجد المعنى بسهولة وبطرق فعالة لتعلم المفردات بالطريقة الصحيحة".
وأضاف طالب آخر: "أشعر بثقة أكبر في استخدام استراتيجيات التحديد ولقد تعلمت طرقاً جديدة للعثور على معنى الكلمات الجديدة".

الجلسة التدريبية الثانية:

المسار الإنساني:

إجابته على السؤال الأول: "لا، ليس لدي أي غموض حول هذه الاستراتيجيات، أنا استوعبت الاستراتيجيات الاجتماعية وأستطيع استخدامها بالطريقة الصحيحة".

إجابته على السؤال الثاني: "الاستراتيجيات الاجتماعية تساعدني في تعلم المفردات مع الآخرين وبطريقة عملية" ورد الطالب الآخر "أحب مناقشة معنى الكلمات مع زملائي في الفصل لأنني أتعلم الكثير من الأشياء".

المسار العلمي:

إجابته على السؤال الأول: "كان التفسير واضحاً وليس لدي أي سؤال أو استفسار حول استخدام الاستراتيجيات الاجتماعية".

إجابته على السؤال الثاني: "بعد تعليمي وتدريب على استخدام الاستراتيجيات الاجتماعية، أعتقد أن ذلك سيكون مفيداً وسيساعدني في التواصل مع أستاذي وأصدقائي لأتلم منهم".

المسار الصحي:

إجابته على السؤال الأول: "كانت الاستراتيجيات واضحة والتطبيق العملي سهّل لنا عملية استخدامها بالطريقة الصحيحة"

إجابته على السؤال الثاني: "يمكنني استخدامها مع زملائي وكذلك مع الأطباء في المستشفى لسؤالهم عن بعض المصطلحات الطبية التي تحتاج إلى شرح وتوضيح من المتخصصين في المجال الطبي"

الجلسة التدريبية الثالثة:

المسار الإنساني:

إجابته على السؤال الأول: "ليس هناك أي سؤال حول استراتيجيات الذاكرة فالشرح والتطبيق العملي كانا كافيين"

إجابته على السؤال الثاني: "هناك مجموعة كبيرة ومتنوعة في الاستراتيجيات التي تعتمد على الذاكرة وسأطبقها لمحاولة تعلم المفردات بطرق مختلفة"

المسار العلمي:

إجابته على السؤال الأول: "استراتيجيات الذاكرة لتعلم المفردات أصبحت واضحة الآن وليس لدي أي سؤال"

إجابته على السؤال الثاني: "كنت أحفظ الكلمات بطريقة التكرار، لكن بعد هذه الجلسة التدريبية، اكتشفت وتعلمت العديد من الاستراتيجيات ومجموعة متنوعة تخص الذاكرة والحفظ والتي سوف تفيدني كثيرًا في تعزيز مهاراتي في تعلم المفردات".

المسار الصحي:

إجابته على السؤال الأول: "لست بحاجة إلى مزيد من الشرح أو التوضيح لتلك الاستراتيجيات لأنني من قراءتي للقائمة والدورة التدريبية، فهمت واستوعبت استراتيجيات الذاكرة".

إجابته على السؤال الثاني: أضاف الطالب نفسه "ولم يتبقى علي إلا تطبيقها بطريقة عملية في دراستي الجامعية لأنها ستفيدني كثيرًا"

الجلسة التدريبية الرابعة:

المسار الإنساني:

إجابته على السؤال الأول: "لا ، ليس لدي أي سؤال ، والشرح في الجلسة التدريبية وضح لي المقصود بالاستراتيجيات المعرفية"

إجابته على السؤال الثاني: "لم أكن أعرف معظم الاستراتيجيات ضمن فئة الاستراتيجيات المعرفية، لكنني تعلمتها اليوم في هذه الدورة التدريبية وأشعر بأن ذلك سيفيدني في تعلم المفردات بطريقة فعالة"

المسار العلمي:

إجابته على السؤال الأول: "كانت الدورة التدريبية كفيلة بتوضيح وشرح كل ما يدور حول فهم واستخدام الاستراتيجيات المعرفية"

إجابته على السؤال الثاني: أضاف طلاب آخرون في الإجابة على السؤال الثاني "ولدي شعور بأنها مفيدة وسوف تدعمني في تعلم المفردات بصورة ذهنية"

المسار الصحي:

إجابته على السؤال الأول: "تمت كتابة الاستراتيجيات بلغة واضحة يمكن فهمها بسهولة، وكذلك النسخة المترجمة إلى اللغة العربية أفادتنا كثيرًا وساعدتنا في فهم الاستراتيجيات والقدرة على تطبيقها بطريقة عملية خلال هذه الدورة التدريبية"

إجابته على السؤال الثاني: "الاستراتيجيات المعرفية ستساعدنا كثيرًا في البقاء في تواصل مع المفردات الجديدة وتمكننا من تذكرها واستعادتها ومراجعتها بشكل دائم"

الجلسة التدريبية الخامسة:

المسار الإنساني:

"إجابته على السؤال الأول: "الاستراتيجيات واضحة وليس لدي أي أسئلة"

إجابته على السؤال الثاني: "لقد استخدمنا بعضًا من هذه الاستراتيجيات جزئيًا ولكن بعد الجلسة التدريبية، لدينا شعور مختلفة تجاه الاستراتيجيات وراء المعرفة وبدأنا الشعور بأهميتها"

إجابته على السؤال الثالث: "كانت الجلسات التدريبية حول تعلم استخدام استراتيجيات تعلم المفردات مفيدة للغاية وتعلمنا الكثير من التقنيات التي من شأنها أن تدعمنا كثيرًا في رحلتنا في تعلم اللغة الإنجليزية" وطالب آخر أضاف "ورش العمل كانت جيدة وتعلمنا استراتيجيات جديدة في خمس جلسات تدريبية فقط"

المسار العلمي:

"إجابته على السؤال الأول: "لا، ليس لدي أي سؤال لأن الشرح كان واضحًا وكانت المعلومات كافية"

إجابته على السؤال الثاني: ستكون الاستراتيجيات فوق المعرفة مفيدة لنا وسنقوم بالتركيز عليها أكثر وبطريقه منظمة"

إجابته على السؤال الثالث: "الشيء الجيد من هذه الجلسات التدريبية أننا تعلمنا بعض الاستراتيجيات التي سوف تساعدنا في تطوير حجم المفردات لدينا بطريقة سهلة" وطالب آخر أضاف "وقت التدريب والمحتوى كانت ملائمين وقدمتنا إلى عدة أدوات التي يمكن أن تدعمنا في تعلم اللغة" وأضاف طالب آخر في المسار العلمي "نشعر حقيقة بفائدة كبيرة من هذه الدورات التدريبية التي لم تستغرق الكثير من الوقت لكننا تعلمنا من خلالها الكثير والكثير من المعلومات المفيدة والاستراتيجيات والتقنيات التي نتوقع أنها ستسرع من عملية تعلم المفردات بطريقة فعالة"

المسار الصحي:

إجابته على السؤال الأول: "ليس لدي أي صعوبات في فهم واستخدام استراتيجيات فوق المعرفة"

إجابته على السؤال الثاني: "لقد طبقنا بعض الاستراتيجيات فوق المعرفة في الماضي ولكن لدينا الآن فهمًا أكبر لها وبطريقة منهجية وسنطبقها لأننا شعرنا أنها مفيدة"

إجابته على السؤال الثالث: "الدورات التدريبية زودتنا بشرح وتطبيق مبسط ورائع لتلك الاستراتيجيات والتي كانت مفيدة جدًا لتعلم وتعزيز المعنى للكلمات الجديدة" وأضاف طالب آخر "لقد تم تقديمها بطريقة منهجية وتصنيفها بطريقة سهلت لنا فهمها واستيعابها وتطبيقها، أيضاً لم نقض مدة طويلة في تعلمها حيث أنها كانت مدة كافية وكفيلة بتقديم كل هذه الأنواع من الاستراتيجيات" وأضاف طالب آخر "إن الدورات التدريبية مفيدة وتعلمت فيها طرق عديدة للعثور على معنى الكلمات الجديدة وترسيخها" وأضاف طالب آخر "لدي مواقف إيجابية تجاه هذه الدورات التدريبية حيث تعلمت في وقت قصير الكثير من المعلومات التي ستكون مفيدة في تعلم اللغة بشكل عام والمفردات على وجه التحديد"

Appendix (8) Notebook Data (translated to English):

The students' responses to the questions at the end of each training session in the three streams:

The students were asked the following questions:

- 1- Were there any difficulties in understanding or using any of the strategies you learnt during the session?
- 2- What are your opinions about the strategies you were trained in using during this training session?
- 3- What are your attitudes to training sessions on using VLSs?

1- The first training session:

➤ The humanity stream:

- **A typical response to the first question:** “no, I don't have any more confusion about these strategies. I understood the determination strategies and I can use them in the right way”.
- **Their response to the second question:** “I always use the bilingual dictionary to find the meaning of a new word, but after the first training session, I can use nine strategies to determine the meaning of new words”.
- **Their response to the third question:** this will be at the end of the training sessions in order to gain complete insight into the students' attitude towards this training programme.

➤ The science stream:

- **Their response to the first question:** “I understood and comprehended the determination strategies that we trained on today and I can to use them in a suitable way”.
- **Their response to the second question:** “I feel that these strategies are useful and give me more options to find the meaning of new words”.

➤ The health stream:

- **Their response to the first question:** “the explanation and practical application of these strategies were clear and helpful on learning words in different ways”.
- **Their response to the second question:** “Now, I can find the meaning easily in effective ways and learn vocabulary in the right way”. Another student added:

“I feel more confident using the determination strategies and I have learnt new ways to find the meaning of new words”.

2- The second training session:

➤ The humanity stream:

- **Their response to the first question:** “no, I don’t have any more confusion about these strategies. I understood the social strategies and I can use them in the right way”.
- **Their response to the second question:** “the social strategies help me with learning vocabulary with others and in a practical way”. Another student’s response was: “I like discussing the meaning of the words with my classmates because I learn a lot of things”.

➤ The science stream:

- **Their response to the first question:** “the explanation was clear, and I don’t have any questions or inquiries about the use of social strategies”.
- **Their response to the second question:** “after learning and training on the use of social strategies, I believe that they will be useful and will help me in communicating with my teacher and my friends to learn from them”.

➤ The health stream:

- **Their response to the first question:** “the strategies were clear and practical. The application makes it easy for me and use them in right way”
- **Their response to the second question:** “I can use them with my classmates and also with doctors in the hospital to ask about medical terms that I need explaining and clarifying from the specialists in the medical field”.

3- The third training session:

➤ The humanity stream:

- **Their response to the first question:** “I don’t have any questions about memory strategies because the explanation and practical applications were enough”.
- **Their response to the second question:** “a large variety of strategies depend on memory and I will apply them in order to try learning vocabulary in different ways”.

➤ **The science stream:**

- **Their response to the first question:** “the memory strategies for learning vocabulary are now clear and I don’t have any questions”.
- **Their response to the second question:** “I was memorizing words using repetition, but after this training session, I discovered and learnt a variety of strategies for memory and memorization that will benefit me a lot in enhancing my skills in learning vocabulary”.

➤ **The health stream:**

- **Their response to the first question:** “I don’t need any more explanations or clarifications for those strategies because from reading the list and the training session, I understood and comprehended the memory strategies”.
- **Their response to the second question:** the same student added “I will make sure to apply them in practical ways and integrate them in my university study because it will benefit me a lot”.

4- The fourth training session:

➤ **The humanity stream:**

- **Their response to the first question:** “no, I don’t have any questions and the explanations in the training session clarified for me the meaning of cognitive strategies”.

- **Their response to the second question:** “I didn’t know most strategies under the category of cognitive strategies, but I learnt them today in this training session and I feel that they will benefit me in learning vocabulary in an effective way”.

➤ **The science stream:**

- **Their response to the first question:** “the training session was enough in clarifying and explaining everything about understanding and using the cognitive strategies”.
- **Their response to the second question:** when answering this question, another student added “and I have an attitude that they are useful and will support me in learning vocabulary using a cognitive way”.

➤ **The health stream:**

- **Their response to the first question:** “the strategies were written in clear language that can be understood easily. Also, the translated version in the Arabic language benefits me a lot and helped me in understanding the strategies and how to apply them in a practical way during this training session”.
- **Their response to the second question:** “the cognitive strategies will help me a lot to acquire new vocabulary and enable me to remember, retrieve and review words in a consistent way”.

5- The fifth training session:

➤ **The humanity stream:**

- **Their response to the first question:** “the strategies are clear, and I don’t have any questions”.
- **Their response to the second question:** “I used some of these strategies partly but after the training session, I have different attitudes towards the metacognitive strategies and are now more aware of their importance”

- **Their response to the third question:** “the training sessions about the use of vocabulary learning strategies were very useful and I learnt a lot of techniques that will support me a lot on our journey of learning the English language”. Another student added: “The workshops are good, and I learnt new strategies in only five training sessions”.

➤ **The science stream:**

- **Their response to the first question:** “no, I don’t have any questions because the explanations were clear and the information was sufficient”.
- **Their response to the second question:** the metacognitive strategies will be useful for me and I will focus on them more in a systematic way”.
- **Their response to the third question:** “the good thing about this strategies training is that I learnt some strategies that will help me to develop our vocabulary size in an easy way”. Another added: “the time of the training sessions and the content were convenient and introduced us to a variety of tools that can support me in language learning”. Moreover, another student in the science stream responded: “actually, I felt a large benefit from these training sessions which did not take up much time. I learnt from them useful information about strategies and techniques that I expect will accelerate the process of learning vocabulary in an effective way”.

➤ **The health stream:**

- **Their response to the first question:** “I don’t have any difficulties in understanding and using metacognitive strategies”.
- **Their response to the second question:** “I applied some of the metacognitive strategies in the past but now I understand more about them and I will apply them in a systematic way because I feel that they are useful”.

- **Their response to the third question:** “the training sessions provided us with a great and simple explanation for those strategies that were very useful for learning and consolidating the meaning of new words” and another said “they were introduced in systematic way and classified in a way that makes it easy to understand, comprehend and apply them, also I didn’t spend long learning them and it was an adequate period of time to introduce all these categories of strategies”. Another student added: “the training sessions are useful, and I learnt many ways to find and consolidate the meaning of new words”. Furthermore, another student said that: “I have a positive attitude towards these training sessions where in a short time I have learnt more information that will be useful in learning the language generally and vocabulary specifically”.

Appendix (9) The original data from notebook in Arabic language for the reports after each training session:

التقارير بعد جلسة التدريب

(١) الجلسة التدريبية الأولى:

الطلاب كانوا متحمسين في المسارات الثلاث على التدريب على استراتيجيات تعلم المفردات ولقد تم شرح آلية التدريب وأنواع الاستراتيجيات وأنهم سوف يتدربون على استخدامها بشكل عملي وسيتم التأكد من فهمها واستخدامها بشكل صحيح من قبل الطلاب.

بعد الانتهاء من تدريب الطلاب على الفئة الأولى من الاستراتيجيات والتي هي استراتيجيات التحديد، الطلاب في المسار الإنساني والعلمي وكذلك الصحي أعربوا عن مواقفهم الإيجابية تجاه استراتيجيات التحديد ووجدوا أنها مفيدة جداً وأنها تساعدهم كثيراً في إيجاد معاني الكلمات في اللغة الإنجليزية، وكذلك الجميع عبر عن فهمهم واستيعابهم لتلك الاستراتيجيات وكيفية استخدامها بشكل صحيح. كذلك الطلاب في المسارات الثلاثة أكدوا على أنهم وجدوا أن استخدام القاموس أحادي اللغة أكثر فائدة من القاموس ثنائي اللغة بحيث أن طريقة تفكيرهم تتركز على نظام واحد.

(٢) الجلسة التدريبية الثانية:

ركزت الجلسة التدريبية الثانية على الفئة الثانية من استراتيجيات تعلم المفردات والتي هي الاستراتيجيات الاجتماعية. تم تدريب الطلاب بشكل عملي على استخدام تلك الاستراتيجيات. الطلاب في المسار الصحي أشاروا أن هذه الاستراتيجيات مفيدة لهم وأنهم بحاجة لاستخدامها بشكل يومي أثناء دراستهم. وتدريبهم في المجال الطبي بالتواصل مع الأساتذة والأطباء سواء في الجامعة أو في المستشفى. من جهة أخرى عبر الطلاب في مساري العلمي والإنساني استفادتهم من هذا النوع من الاستراتيجيات لاستخدام المفردات التي تعلموها في المنهج لكن يرون أن فرص التحدث قليلة لندرة وجود أشخاص متمكنين من اللغة الإنجليزية.

(٣) الجلسة التدريبية الثالثة:

تم التركيز في هذه الجلسة على استراتيجيات الذاكرة، وتم توضيح أن هذه الاستراتيجيات تعتمد على ذاكرة المتعلم وحفظ وتخزين المفردات فيها ولكن من خلال طرق مختلفة مساعده في تذكر الكلمات بشكل بسيط. الطلاب في المسارات الثلاث تم تدريبهم وشرح تلك الاستراتيجيات لهم وتطبيقها بشكل عملي. عبر الطلاب في المسارات الثلاث عن عدم معرفتهم بتلك الاستراتيجيات وماهية استخدامها، لكن في نهاية الجلسة التدريبية الثالثة فهم الطلاب المقصود بتلك الاستراتيجيات وكيفية استخدامها بشكل صحيح، كذلك أعربوا عن أهمية هذه الاستراتيجيات وشعروا بأنها ستكون مفيدة جداً لهم في تطوير مهاراتهم في تعلم المفردات في اللغة الإنجليزية وأن لديهم الحماس لتطبيقها عملياً في دراستهم الجامعية.

(٤) الجلسة التدريبية الرابعة:

كانت الجلسة مركزة على الاستراتيجيات المعرفية أو الذهنية والتي تتضمن تسعة أنواع من الاستراتيجيات المعرفية، كان الطلاب على دراية ببعض منها ولكن لم يكونوا يطبقوها بشكل فعلي. تم شرح تلك الاستراتيجيات وتوضيحها للطلاب، ثم قام الطلاب بتطبيقها بشكل عملي من خلال تكرار بعض الكلمات بصوت عالٍ خلال الجلسة التدريبية حتى أجادوا نطق الكلمة بشكل صحيح، وعبروا عن أنه من المفيد الاستماع للكلمة والمتعلم يكررها عدة مرات لكي يتعود سماعك عليها ويتم تخزينها في الذاكرة. أشار الطلاب إلى فهمهم واستيعابهم لتلك الاستراتيجيات وأنهم قادرين على تطبيقها بشكل صحيح من خلال دراستهم للغة الإنجليزية وسوف تكون مفيدة جداً لهم وقد تسهل عليهم تذكر المفردات وتطور من لغتهم.

(٥) الجلسة التدريبية الخامسة:

ركزت الجلسة التدريبية الخامسة على آخر فئة من استراتيجيات تعلم المفردات ألا وهي الاستراتيجيات فوق المعرفية والتي تتضمن خمس استراتيجيات. معظم الطلاب أبدوا تفاعلهم مع استراتيجية استخدام وسائل الإعلام التي باللغة الإنجليزية كالفنون والأفلام والموسيقى وأنهم يطبقوها بشكل جزئي.

تم شرح وتوضيح كل الاستراتيجيات وتطبيقها بشكل عملي، وأبدا الطلاب استيعابهم لتلك الاستراتيجيات وأنهم قادرين على استخدامها بشكل صحيح. شعر الطلاب بأن هذه الاستراتيجيات فوق المعرفية مهمة جداً وكذلك مفيدة وقد تساعد في تعلم المفردات بشكل ناجح وسهل.

في ختام الدورات التدريبية حول استخدام استراتيجيات تعلم المفردات، قال المشاركون إنهم استفادوا من هذه الدورات التدريبية وتعلموا أدوات وتقنيات جديدة ومفيدة وفعالة قد تدعمهم في تسريع نمو مفرداتهم وبالتالي تحسين وتطوير مستوى إجادتهم للغة الإنجليزية بنجاح في المهارات اللغوية الأربع (الاستماع والقراءة والكتابة والتحدث).

Appendix (10) The reports after the training sessions (Translated into English)

1) The first training session:

The students were enthusiastic in the three streams about the training on vocabulary learning strategies. I have explained the process of training and the categories of strategies, and they will be trained on using them in a practical way. I will make sure that students understand them and how to use them in the right way.

After having finished the training on the first category of strategies, which is determination strategies, the students in the humanity, science and health streams expressed their positive attitudes toward them. They found that they are very useful and help them a lot in finding the meaning of words in the English language. Also, all of them they confirmed understanding and comprehension of those strategies and the way to use them appropriately. Moreover, students in the three streams insisted that they found using the monolingual dictionary more useful than the bilingual dictionary, where their way of thinking focused on one system.

2) The second training session:

The second training session focused on the second category of vocabulary learning strategies which is the social strategies. Students have been trained practically on using those strategies. Students in the health stream mentioned that these strategies are useful for them and that they need to use them daily during their studying and training in the medical field to communicate with teachers and doctors, whether at the university or hospital.

Students in the science and humanity streams indicated that they can benefit from these kinds of strategies for the vocabulary that they learn in their course book, but expressed that their chances of practicing their oral skills is limited because there are just a few people who are skilled in the English language.

3) The third training session:

This session focused on the memory strategies and explained that these strategies rely on the learner's memory to memorise and store the vocabulary in different ways that

help to remember words easily. The strategies were explained to the students in the three streams, who were trained in how to apply them practically.

Students in the three streams indicated that they did not know about most of these strategies and how to use them, but at the end of the third training session, they understood the meaning of these strategies and how to use them properly. Also, they mentioned the importance of these strategies and felt that they will be very useful to them in developing their skills in learning English vocabulary; they have the enthusiasm to apply them practically in their university study.

4) The fourth training session:

The session concentrated on the cognitive strategies that consist of nine types of strategies. Students knew some of these but couldn't apply them practically. The strategies were explained and clarified, after which the students tried to apply them by repeating some words loudly during the training session, until they pronounced them correctly. They commented on this kind of strategy, saying that it is useful to listen to the word and repeating it loudly many times allows you to familiarise yourself with its pronunciation, thus storing it in your memory.

Students indicated their understanding and comprehension of those strategies and their ability to apply them successfully to their study of the English language. They also felt that they will be very useful for them and may enhance their retention of vocabulary and develop their language.

5) The fifth training session:

The fifth training session concentrated on the last category of vocabulary learning strategies, metacognitive strategies, which include five strategies. Most students showed enthusiasm towards the strategy of using media that is in English such as channels, films and music, and expressed that they already use them partially. The strategies were explained, clarified and applied practically. The students demonstrated their comprehension of those strategies and were able to use them appropriately. They felt that these metacognitive strategies are very important and useful, and may help in successfully learning vocabulary in an easy way.

At the end of the training sessions on using vocabulary learning strategies, participants said that they benefitted from them and learned new, useful and effective tools and techniques that might support them in accelerating their vocabulary growth, thus improving and developing their English language proficiency level successfully in the four language skills (Listening, Reading, Writing, and Speaking).

Appendix (11) A permission to Survey the students

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Kingdom of Saudi Arabia

Ministry of Higher Education

Taif University



المملكة العربية السعودية
وزارة التعليم العالي
جامعة الطائف

To Whom It May Concern

Upon his request, this is to certify that Mr. Naif Abdullah Alqurashi, a PhD candidate at the University of Leicester, has been granted a permission to conduct his PhD research at the English Language Centre, Taif University during the academic year 2016. With the participants' consent, this permission allows him to do the following:

1. Disseminating surveys to the selected participants.
2. Conducting a language test to Preparatory Year students.
3. Working with a number of English as a Foreign Language (EFL) students in training sessions.

Should you have any further quires on this matter, please do not hesitate to contact me.

AbdulRahman Al Asmari, PhD (Melb)
Associate Professor of Applied Linguistics
Dean, Preparatory Year Deanship
Director, English Language Centre
P.O. Box 888
Zip Code: 21974
Taif University
Office: +966127272020 (2141)
Fax: +966127243100
abdulasmari@gmail.com

Appendix (12) An Ethical Approval for Main Study



University Ethics Sub-Committee for Science and Engineering
and Arts Humanities

19/12/2016

Ethics Reference: 8807-naa25-schoolofmodernlanguages

TO:

Name of Researcher Applicant: Naif Alqurashi

Department: Modern Languages

Research Project Title: The Relationship between Vocabulary Size and Training in
Vocabulary-Learning Strategies: A Case Study of Preparatory Year Students at Taif University,
Kingdom of Saudi Arabia

Dear Naif Alqurashi,

RE: Ethics review of Research Study application

The University Ethics Sub-Committee for Science and Engineering and Arts Humanities has reviewed and discussed the above application.

1. Ethical opinion

The Sub-Committee grants ethical approval to the above research project on the basis described in the application form and supporting documentation, subject to the conditions specified below.

2. Summary of ethics review discussion

The Committee noted the following issues:

Your application has now been approved by the University Research Ethics Committee. We wish you all the best with the research, Kind Regards Dr. Elizabeth T Hurren

3. General conditions of the ethical approval

The ethics approval is subject to the following general conditions being met prior to the start of the project:

As the Principal Investigator, you are expected to deliver the research project in accordance with the University's policies and procedures, which includes the University's Research Code of Conduct and the University's Research Ethics Policy.

If relevant, management permission or approval (gate keeper role) must be obtained from host organisation prior to the start of the study at the site concerned.

4. Reporting requirements after ethical approval

You are expected to notify the Sub-Committee about:

- Significant amendments to the project
- Serious breaches of the protocol
- Annual progress reports
- Notifying the end of the study

5. Use of application information

Details from your ethics application will be stored on the University Ethics Online System. With your permission, the Sub-Committee may wish to use parts of the application in an anonymised format for training or sharing best practice. Please let me know if you do not want the application details to be used in this manner.

Best wishes for the success of this research project.

Yours sincerely,

Prof. Paul Cullis
Chair

Appendix (13) The English Version of Consent Form

CONSENT FORM **University of Leicester** FORM OF CONSENT TO TAKE PART IN A RESEARCH PROJECT

➤ CONFIDENTIAL

Note: All information obtained in this questionnaire will be used with the exclusive purpose of the research and will be dealt with anonymously. It will not be used in any manner which would allow identification of your individual response. Your participation will not affect in any way your academic status in the College. Thank you very much for agreeing to participate in this survey.

Anonymised research data will be archived at the Modern Languages School, University of Leicester in order to make them available to other researchers in line with current data sharing practices.

➤ A Title of the Project

The Relationship between Vocabulary Size and Training in Vocabulary-Learning Strategies: A Case Study of Preparatory Year Students at Taif University, Kingdom of Saudi Arabia

➤ A Brief Outline of the Project

The present study investigates the relationship between vocabulary size and training in vocabulary-learning strategies among preparatory year students at Taif University, KSA.

➤ Participant's Name

I..... *(participant's full name) agree to take part in the above named project / investigation, the details of which have been fully explained to me and described in writing.

Signed.....

Date/...../2016

I Naif Abdullah Alqurashi certify that the details of this project / investigation have been fully explained and described in writing to the subject named above and have been understood by him.

Signed:

Date: 01/10/2016



Appendix (14) The Demographical Questions

Please tick the appropriate box:

1) Your name (optional).....

2) Your nationality.....

3) How old are you?

A. 18 to 20 years ☐ B. 21 to 23 years ☐ C. 24 to 26 years ☐ D. Over 26 years ☐

4) What is your stream in the preparatory year?

A. Humanity stream ☐ B. Science stream ☐ C. Medicine stream ☐

5) Have you ever had an extended stay in an English speaking country?

A. Yes ☐ B. No ☐ , if yes please specify how long you stayed there?

B. 1 to 3 months ☐ B. 4 to 6 months ☐ C. 7 to 9 months ☐ D. over 9 months ☐

6) How long have you been studying English in intensive courses?years

7) What are your reasons for studying English?

A. Personal Interest ☐ C. Finding a job easily ☐

B. Travelling abroad ☐ D. Other ☐

,If other please specify.....

Questions	Degree of frequency				
	1	2	3	4	5
9) Do you speak English outside the university?					
10) Do you watch English language T.V programs?					
11) Do you read English language books, journals, or newspapers other than what's required for the course?					
12) Do you enjoy studying English?					

13) Do you use any kind of learning strategies that improve your vocabulary?

A. Yes ☐ B. No ☐

,if yes please specify.....

14) Do you use vocabulary learning strategies?

A. Never ☐ B. Seldom ☐ C. Sometimes ☐ D. Often ☐ E. Always ☐

15) Have you ever received training in vocabulary learning strategies?

A. Yes ☐ B. No ☐

,if yes please specify where and when.....

16) What is the skill that improves your vocabulary size most effectively?

Listening ☐ B. Reading ☐ C. Speaking ☐ D. Writing ☐

Appendix (15) Arabic version of Consent Form

استمارة مشاركة في بحث علمي

جامعة ليستر

❖ سري:-

ملاحظه: إن جميع المعلومات والحقائق التي سيتم الحصول عليها من قبل المشاركين ستكون مقتصرة على أهداف هذا البحث ، وسوف تعامل بسريه تامة. ولن تستخدم بأي طريقه تسمح بكشف هوية إجابتك كفرد معين. علماء النتائج لن تؤثر بشكل أو بآخر على مستوى الطالب الأكاديمي. والشكر الجزيل للموافق على المشاركة في هذا البحث.

سوف تحفظ بيانات البحث السريه في قسم اللغات الحديثة في جامعة ليستر من أجل أن تكون متاحه للباحثين الآخرين في سلسله من مشاركة التجارب بالبيانات الحاليه.

❖ عنوان البحث:-

ماهي العلاقة بين حجم المفردات و التدريب في استراتيجيات تعلم المفردات: دراسة واقعية لطلاب السنة التحضيرية في جامعة الطائف في المملكة العربية السعودية.

❖ وصف مختصر للبحث:-

ستقوم الدراسة الحالية بالتحقق من العلاقة بين حجم المفردات و التدريب في استراتيجيات تعلم المفردات لدى طلاب السنة التحضيرية في جامعة الطائف في المملكة العربية السعودية و مدى استفادتهم من تلك الطرق في زيادة حجم المفردات المكتسبة.

❖ اسم المشارك كاملا

أنا.....
أوافق على المشاركة في البحث الموضح أعلاه حيث أن جميع التفاصيل وصفت لي كاملة.

التوقيع..... التاريخ...../...../..... ١٤ هـ

أشهد بأن تفاصيل البحث قد وصفت و شرحت للطالب المذكور اسمه أعلاه

التوقيع..... التاريخ...../...../..... ١٤ هـ

Appendix (16) some instructions before answering the questionnaire:

❖ A questionnaire on vocabulary learning strategies in English

Dear students

Before you answer this questionnaire, please read the instructions carefully:

- Please answer the statistical questions at the beginning of this questionnaire.
- There is no right or wrong answer.
- Please choose the answer based on your strategies in learning English vocabulary, not what you think is useful in learning vocabulary.
- Please answer questions sequentially from beginning to end.
- Please write any methods, strategies or other techniques you use to learn new vocabulary in English if they are not mentioned in the questionnaire. Add them at the end of the questionnaire and point to their use (never-rarely-sometimes-often-always).
- Please write any sentences or phrases that were not clear at the end of the questionnaire.
- Finally, my thanks and full appreciation for your participation and your secretariat in answering this questionnaire.

❖ استبيان عن استراتيجيات تعلم المفردات في اللغة الانجليزية

أعزائي الطلاب

قبل القيام بإجابة هذا الاستبيان، الرجاء قراءة الإرشادات بعناية: -

- الرجاء الإجابة على الأسئلة الإحصائية في بداية هذا الاستبيان.
- لا يوجد إجابة صحيحة أو خاطئة.
- الرجاء اختيار الإجابة بناءً على ما تقوم به من استراتيجيات في تعلم مفردات اللغة الانجليزية، وليس ما تعتقد أنه مفيد في تعلم المفردات.
- الرجاء إجابة الأسئلة بشكل تسلسلي من البداية إلى النهاية.
- الرجاء كتابة أي طرق أو استراتيجيات أو تقنيات أخرى تستخدمها في تعلم المفردات الجديدة في اللغة الانجليزية في حال أنها لم تذكر في الاستبيان. أضيفها في نهاية الاستبيان وأشر إلى مدى استخدامها (أبداً- نادراً- أحياناً- غالباً- دائماً).
- الرجاء كتابة أي جمل أو عبارات لم تكن واضحة في نهاية الاستبيان.
- أخيراً، الشكر الجزيل وكامل التقدير لمشاركتكم وأمانتكم في إجابة هذا الاستبيان.

Appendix (17) Students' Timetable for the Preparatory Year

Science Stream's Timetable:

First	2004101-2 Islamic Culture (1)	202110-3 Mathematics (1)	203102-3 General Physics	316101-2 Thinking and Learning Skills	500101-2 Computer and Information Technology	981501-3 English Language (1)
Second	103101-3 Arabic Language I	202120-3 Mathematics (2)	204102-3 General Chemistry	600130-2 Communication Skills	981502-3 English Language (2)	

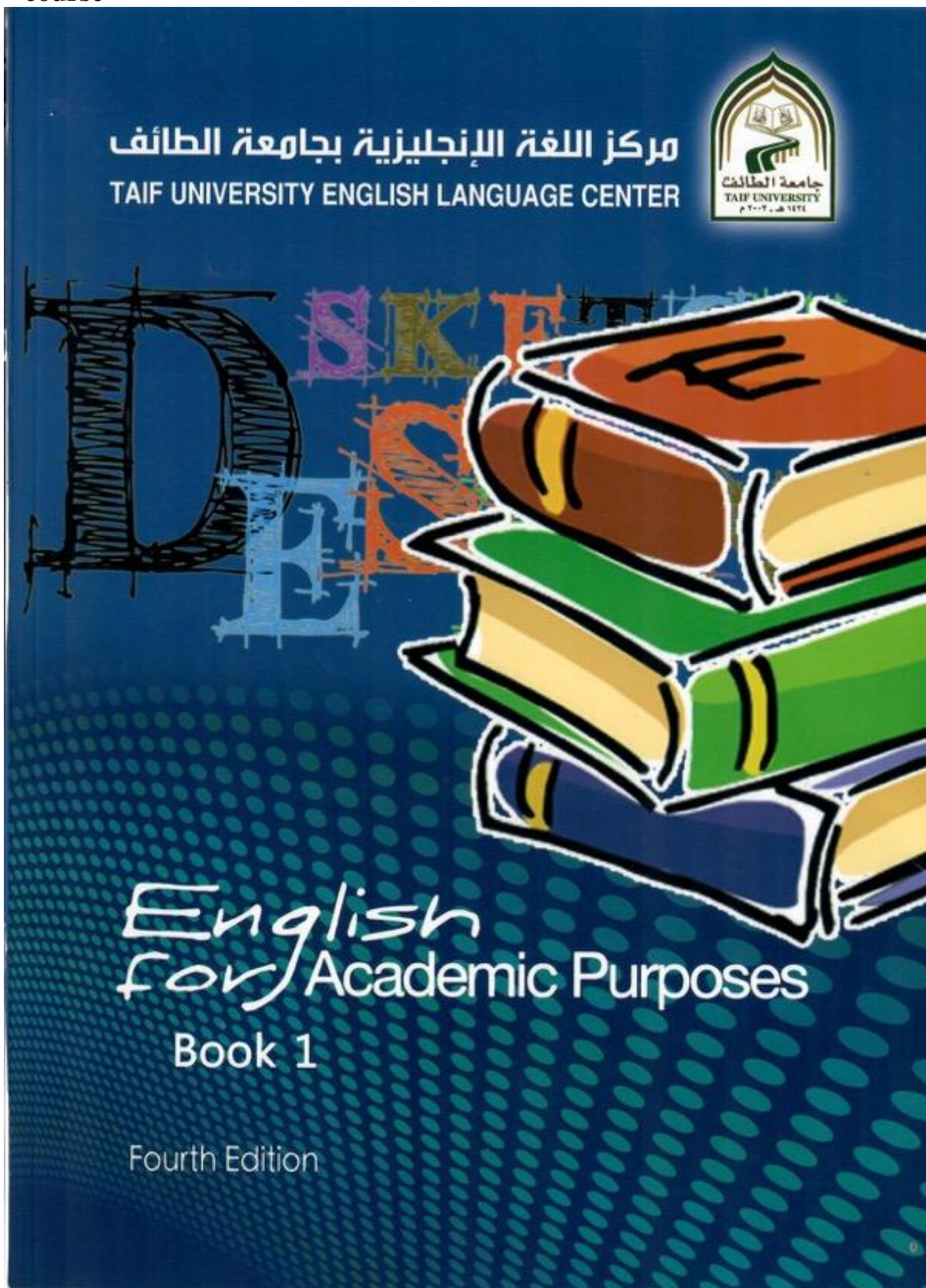
Humanity Stream's Timetable

First	103101-3 Arabic Language I	2004101-2 Islamic Culture (1)	202111-3 Basic concepts in mathematics	600130-2 Communication Skills	981501-3 English Language (1)
Second	103102-3 Arabic Language (2)	2004202-2 Islamic Culture (2)	316101-2 Thinking and Learning Skills	500101-2 Computer and Information Technology	981502-3 English Language (2)

Health Stream's Timetable

103101-3 Arabic Language I	400106-2 Communication Skills I	400111-3 Medical Biology (1)	400121-3 Medical Chemistry I	500101-2 Computer and Information Technology	984106-3 English language
2004101-2 Islamic Culture (1)	202107-3 Medical Statistics	400112-4 Medical biology II	400122-4 Medical Chemistry II	400131-3 Medical Physics I	984107-3 English language

Appendix (18) Cover Page and Table of content for the English Language course



English Book 1

Units 1 to 7

Unit 1: Nice to meet you

1

Contents	Page	Outcomes
Salutations	2	Reading: find and understand simple information in a calendar; understand basic textbook instructions
Classroom English	7	
The Alphabet and Numbers	17	Writing: write the alphabet in upper and lower cases; correctly capitalise names, days of the week and months of the year
Days of the Week and Months of the Year	33	Listening: spell words correctly from dictated spelling; understand basic classroom instructions; understand spoken names, ages and birthdays
Review	40	Speaking: make introductions and use basic greeting and leave-taking expressions

Unit 2: Personal Information

51

Contents	Page	Outcomes
Giving Personal Information	52	Reading: find specific information on personal information forms, and read simple sentences
More About Me	63	
Where are you from?	72	Writing: fill out personal information on a form, write simple sentences with a clear S + V + O structure, and write a short paragraph about yourself
What is your job?	83	
Review	95	Listening: listen for information to complete a personal information form, and listen for simple descriptive information about other people
		Speaking: provide personal information in a role play activity.

Unit 3: People and Family

105

Contents	Page	Outcomes
Describing People	106	Reading: identify information about people and their families from a short text
Family Members	117	
Referring to People and Things	128	Writing: write a short description of people use the error correction code to correct your written work
My Presentation Today is About...	135	
Review	144	Listening: predict information based on pictures and photographs listen to personal descriptions and identify key information
		Speaking: give a short presentation about your family

Unit 4: Personal Possessions

155

Contents	Page	Outcomes
Which one do you mean?	156	Reading: read for detailed information; read for specific information
Whose is it?	168	Writing: write a description of someone
How do you know him?	178	Listening: listen for details about people's favourite possessions
It's mine	189	Speaking: describe your favourite possession; explain your basic family structure; use determiners to refer to things
Review	201	

Unit 5: Daily Routines

213

Contents	Page	Outcomes
Daily Routines	214	Reading: comprehend a simple text about daily routines
Telling the Time	222	Writing: use adverbs of frequency and prepositions of time to write about daily routines
What do you usually do?	230	Listening: identify simple information from a spoken text about times and calendar events
How often do you?	240	Speaking: participate in a guided exchange about daily routines
Review	251	

Unit 6: Leisure Time

259

Contents	Page	Outcomes
Like and Dislikes	260	Reading: find specific details in short texts about people's abilities, likes and dislikes
Free Time and Shopping	270	Writing: write simple compound sentences about people's abilities, likes and dislikes
What can you do?	277	Listening: identify simple information from short spoken texts about people's abilities, likes and dislikes
True Stories	286	Speaking: manage simple, routine exchanges about people's abilities, likes and dislikes.
Review	291	

Unit 7: Mid-Semester Review

297

Contents	Page	Outcomes
Reading Text 1	298	The review unit contains reading, listening and writing activities.
Reading Text 2	300	
Reading Text 3	302	Activities cover topics and skills learnt throughout the first 6 units and aim to prepare you for your mid-semester English exam.
Listening 1	303	
Writing 1	309	
Speaking 1	310	
Reading Text 4	312	The activities are similar to the exam, but there may be some differences.
Reading Text 5	314	
Reading Text 6	315	
Reading Text 7	317	Try to complete every activity and ask questions where necessary.
Listening 2	318	
Listening 3	321	
Writing 2	323	You can use your dictionary for the review unit however you cannot use it in the exam.
Speaking 2	325	

Appendix (19) Ethical Approval for Pilot Study

University Ethics Sub-Committee for Science and Engineering and Arts Humanities

18/04/2016

Ethics Reference: 6060-naa25-schoolofmodernlanguages

TO:

Name of Researcher Applicant: Naif Alqurashi

Department: Modern Languages

Research Project Title: The Relationship between Vocabulary size and Training in Vocabulary-Learning Strategies : A case study of Preparatory Year Students at Taif University, Kingdom of Saudi Arabia

Dear Naif Alqurashi,

RE: Ethics review of Research Study application

The University Ethics Sub-Committee for Science and Engineering and Arts Humanities has reviewed and discussed the above application.

1. Ethical opinion

The Sub-Committee grants ethical approval to the above research project on the basis described in the application form and supporting documentation, subject to the conditions specified below.

2. Summary of ethics review discussion

The Committee noted the following issues:

This is a low risk application with the appropriate safe guards in place.

3. General conditions of the ethical approval

The ethics approval is subject to the following general conditions being met prior to the start of the project:

As the Principal Investigator, you are expected to deliver the research project in accordance with the University's policies and procedures, which includes the University's Research Code of Conduct and the University's Research Ethics Policy.

If relevant, management permission or approval (gate keeper role) must be obtained from host organisation prior to the start of the study at the site concerned.

4. Reporting requirements after ethical approval

You are expected to notify the Sub-Committee about:

- ☐ Significant amendments to the project
- ☐ Serious breaches of the protocol
- ☐ Annual progress reports
- ☐ Notifying the end of the study

5. Use of application information

Details from your ethics application will be stored on the University Ethics Online System. With your permission, the Sub-Committee may wish to use parts of the application in an anonymised format for training or sharing best practice. Please let me know if you do not want the application details to be used in this manner.

Best wishes for the success of this research project.

Yours sincerely,

Prof. Paul Cullis
Chair

Appendix (20) Table for Normality Testing of Major Determination Strategies for learning vocabulary used before and after training in the use of VLSs

	Major Determination Learning Strategies	Kolmogorov-Smirnov ^a	Shapiro-Wilk
		Statistic (df= 60)	Statistic (df= 60)
1	Analysing its part of speech (pre-training)	0.177***	0.887***
	Analysing its part of speech (post training)	0.191***	0.871***
2	Analysing its affixes and roots (pre-training)	0.199***	0.876***
	Analysing its affixes and roots (post training)	0.191***	0.868***
3	Checking for L1 cognate(e.g. Cotton (pre-training)	0.164***	0.908***
	Checking for L1 cognate(e.g. Cotton (post training)	0.197***	0.87***
4	Analysing any available pictures or gestures (pre-training)	0.202***	0.892***
	Analysing any available pictures or gestures (post training)	0.238***	0.845***
5	Guessing its meaning from textual context (pre-training)	0.224***	0.824***
	Guessing its meaning from textual context (post training)	0.391***	0.637***
6	Using bilingual dictionary (e.g. English-Arabic dictionary) (pre-training)	0.195***	0.819***
	Using bilingual dictionary (e.g. English-Arabic dictionary) (post training)	0.284***	0.8***
7	Using monolingual dictionary (e.g. English-English dictionary) (pre-training)	0.305***	0.778***
	Using monolingual dictionary (e.g. English-English dictionary) (post training)	0.2***	0.87***
8	Using word lists (pre-training)	0.322***	0.712***
	Using word lists (post training)	0.209***	0.867***
9	Using flash cards(pre-training)	0.43***	0.531***
	Using flash cards (post training)	0.246***	0.823***

*** indicates that the result is highly significant at the (0.01) significance level.

Appendix (21) Table for Normality Testing of Major Social Strategies for learning vocabulary used before and after training in the use of VLSs

Tests of Normality	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Asking teacher for an L1 translation-Pre	0.180	60	0.000	0.865	60	0.000
Asking teacher for an L1 translation-Post	0.285	60	0.000	0.780	60	0.000
Asking teacher for paraphrase or synonym of new word-Pre	0.191	60	0.000	0.876	60	0.000
Asking teacher for paraphrase or synonym of new word-Post	0.247	60	0.000	0.823	60	0.000
Asking teacher for a sentence including the new word-Pre	0.146	60	0.003	0.902	60	0.000
Asking teacher for a sentence including the new word-Post	0.195	60	0.000	0.863	60	0.000
Asking classmates for meaning-Pre	0.164	60	0.000	0.876	60	0.000
Asking classmates for meaning-Post	0.249	60	0.000	0.831	60	0.000
Discovering new meaning through group work activity-Pre	0.198	60	0.000	0.855	60	0.000
Discovering new meaning through group work activity-Post	0.167	60	0.000	0.900	60	0.000
Studying and practicing meaning in a group-Pre	0.293	60	0.000	0.836	60	0.000
Studying and practicing meaning in a group-Post	0.159	60	0.001	0.904	60	0.000
Asking teacher to check flash cards or word lists for accuracy-Pre	0.248	60	0.000	0.809	60	0.000
Asking teacher to check flash cards or word lists for accuracy	0.191	60	0.000	0.880	60	0.000
Interacting with native-speakers-Pre	0.200	60	0.000	0.880	60	0.000
Interacting with native-speakers-Post	0.232	60	0.000	0.840	60	0.000

Table for Normality Testing (Post training)

VLS	Kolmogorov-Smirnov		Shapiro-Wilk	
	Experimental Group	Control group	Experimental Group	Control group
Asking teacher for an L1 translation-Post	0.000	0.003	0.000	0.001
Asking teacher for paraphrase or synonym of new word-Post	0.000	0.037	0.000	0.004

Asking teacher for a sentence including the new word-Post	0.000	0.052	0.000	0.010
Asking classmates for meaning-Post	0.000	0.036	0.000	0.002
Discovering new meaning through group work activity-Post	0.007	0.010	0.001	0.003
Studying and practicing meaning in a group-Post	0.000	0.000	0.000	0.000
Asking teacher to check flash cards or word lists for accuracy	0.000	0.000	0.000	0.000
Interacting with native-speakers-Post	0.000	0.003	0.000	0.003

Appendix (22) Table for Normality Testing of Major Memory Strategies for learning vocabulary used before and after training in the use of VLSs

Tests of Normality	Kolmogorov-Smirnov	Shapiro-Wilk
	Statistic (df= 60)	Statistic (df= 60)
Studying word with a pictorial representation of its meaning	0.174***	0.914***
Studying word with a pictorial representation of its meaning	0.224***	0.862***
Imaging word's meaning	0.187***	0.911***
Imaging word's meaning	0.185***	0.902***
Connecting word to a personal experience	0.174***	0.890***
Connecting word to a personal experience	0.203***	0.860***
Associating the word with its coordinates (words follow a new word)	0.201***	0.900***
Associating the word with its coordinates (words follow a new word)	0.185***	0.881***
Connecting the word to its synonyms and antonyms	0.183***	0.912***
Connecting the word to its synonyms and antonyms	0.207***	0.871***
Using Semantic maps (hyponymy e.g. Oxygen is part of air and	0.267***	0.800***
Using Semantic maps (hyponymy e.g. Oxygen is part of air and	0.264***	0.875***
Using 'scales' for gradable adjectives (e.g. good, better, best)	0.156**	0.886***
Using 'scales' for gradable adjectives (e.g. good, better, best)	0.211***	0.843***
Grouping words together to study them	0.278***	0.783***
Grouping words together to study them	0.223***	0.887***
Using new word in sentences	0.141**	0.891***
Using new word in sentences	0.216***	0.853***
Grouping words together within a storyline	0.294***	0.753***
Grouping words together within a storyline	0.179***	0.891***
Studying the spelling of a word	0.175***	0.894***
Studying the spelling of a word	0.223***	0.850***
Studying the sound of a word	0.190***	0.864***
Studying the sound of a word	0.236***	0.818***
Saying new word aloud when studying	0.179***	0.878***
Saying new word aloud when studying	0.299***	0.791
Imaging word form (e.g. a new word has a noun form and verb form)	0.216***	0.835***
Imaging word form (e.g. a new word has a noun form and verb form)	0.168***	0.899***
Remembering the word using its affixes and roots	0.239***	0.822***
Remembering the word using its affixes and roots	0.201***	0.880***

Remembering the word using its part of Speech (e.g. noun, verb, adjective)	0.208***	0.883***
Remembering the word using its part of Speech (e.g. noun, verb, adjective)	0.212***	0.906***
Paraphrasing the words' meaning	0.261***	0.785***
Paraphrasing the words' meaning	0.217***	0.856***
Using cognates in study (e.g. Cotton قطن)	0.157**	0.873***
Using cognates in study (e.g. Cotton قطن)	0.203***	0.861***
Using Physical action when learning a word	0.199***	0.855***
Using Physical action when learning a word	0.194***	0.872***

Tests of Normality	Kolmogorov-Smirnov		Shapiro-Wilk	
	Experimental Group	Control Group	Experimental Group	Control Group
Studying word with a pictorial representation of its meaning	0.000	0.003	0.000	0.012
Imaging word's meaning	0.001	0.000	0.000	0.010
Connecting word to a personal experience	0.000	0.007	0.000	0.016
Associating the word with its coordinates (words follow a new word)	0.000	0.002	0.000	0.016
Connecting the word to its synonyms and antonyms	0.000	0.000	0.000	0.005
Using Semantic maps (hyponymy e.g. Oxygen is part of air and	0.020	0.000	0.001	0.000
Using 'scales' for gradable adjectives (e.g. good, better, best)	0.000	0.001	0.000	0.003
Grouping words together to study them	0.010	0.000	0.001	0.000
Using new word in sentences	0.000	0.056	0.000	0.003
Grouping words together within a storyline	0.004	0.000	0.001	0.000
Studying the spelling of a word	0.000	0.020	0.000	0.005
Studying the sound of a word	0.000	0.005	0.000	0.005
Saying new word aloud when studying	0.000	0.055	0.000	0.006
Imaging word form (e.g. a new word has a noun form and verb form)	0.000	0.003	0.000	0.001
Remembering the word using its affixes and roots	0.000	0.000	0.000	0.000
Remembering the word using its part of Speech (e.g. noun, verb, adjective)	0.002	0.000	0.001	0.001
Paraphrasing the words' meaning	0.000	0.000	0.000	0.000
Using cognates in study (e.g. Cotton قطن)	0.000	0.144	0.000	0.014
Using Physical action when learning a word	0.000	0.008	0.000	0.001

Appendix (23) Table for Normality Testing of Major Cognitive Strategies for learning vocabulary used before and after training in the use of VLSs

	Kolmogorov-Smirnov	Shapiro-Wilk
Tests of Normality	Pre-training	Post-training
Repeating the words aloud many times	0.000	0.000
Repeating the words aloud many times	0.000	0.000
Writing the words many times	0.000	0.000
Writing the words many times	0.000	0.000
Making list of new words	0.000	0.000
Making list of new words	0.000	0.000
Putting the new words in flash cards	0.000	0.000
Putting the new words in flash cards	0.000	0.000
Taking notes in class	0.000	0.000
Taking notes in class	0.000	0.000
Using the vocabulary section in your textbook	0.000	0.000
Using the vocabulary section in your textbook	0.000	0.000
Listening to tape of word lists	0.000	0.000
Listening to tape of word lists	0.000	0.000
Putting English labels on physical objects	0.000	0.000
Putting English labels on physical objects	0.000	0.000
Keeping a vocabulary notebook	0.000	0.000
Keeping a vocabulary notebook	0.000	0.000

Table for Normality testing

Tests of Normality	Kolmogorov-Smirnov		Shapiro-Wilk	
	Experimental Group	Control Group	Experimental Group	Control Group
Repeating the words aloud many times	0.000	0.003	0.000	0.001
Writing the words many times	0.000	0.001	0.000	0.001
Making list of new words	0.000	0.000	0.000	0.000
Putting the new words in flash cards	0.000	0.000	0.002	0.000
Taking notes in class	0.002	0.000	0.000	0.000

Using the vocabulary section in your textbook	0.000	0.000	0.001	0.002
Listening to tape of word lists	0.000	0.000	0.001	0.000
Putting English labels on physical objects	0.004	0.000	0.001	0.000
Keeping a vocabulary notebook	0.001	0.000	0.003	0.000

Appendix (24) Table for Normality testing of Major Metacognitive Strategies for learning vocabulary used before and after training in the use of VLSs

Tests of Normality	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Using English-language media (songs, movies, newscasts, etc.)	0.384	60	0.000	0.630	60	0.000
Using English-language media (songs, movies, newscasts, etc.)	0.415	60	0.000	0.584	60	0.000
Testing oneself with word tests	0.182	60	0.000	0.863	60	0.000
Testing oneself with word tests	0.186	60	0.000	0.884	60	0.000
Continuing in studying new words many times	0.197	60	0.000	0.909	60	0.000
Continuing in studying new words many times	0.189	60	0.000	0.879	60	0.000
Skipping or passing new word	0.248	60	0.000	0.829	60	0.000
Skipping or passing new word	0.161	60	0.000	0.917	60	0.001
Paying attention to English words when someone is speaking English.	0.286	60	0.000	0.753	60	0.000
Paying attention to English words when someone is speaking English.	0.353	60	0.000	0.710	60	0.000

Table for Normality testing

Normality testing	Kolmogorov-Smirnov ^b		Shapiro-Wilk	
	Experimental Group	Control Group	Experimental Group	Control Group
Using English-language media (songs, movies, newscasts, etc.)	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Testing oneself with word tests	< 0.0001	0.004	< 0.0001	0.005
Continuing in studying new words many times	< 0.0001	< 0.0001	< 0.0001	0.001
Skipping or passing new word	0.002	0.002	0.003	0.002
Paying attention to English words when someone is speaking English.	< 0.0001	0.001	< 0.0001	< 0.0001

Appendix (25) Table for Normality testing of overall strategies for learning vocabulary used before and after training in the use of VLSs

Normality Testing	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
average scores of determination strategies in pretest	0.108	60	0.081	0.972	60	0.179
average scores of determination strategies in posttest	0.105	60	0.163	0.943	60	0.008
average scores of social strategies in pretest	0.084	60	.200*	0.987	60	0.790
average scores of social strategies in post-test	0.068	60	.200*	0.969	60	0.127
average scores of memory strategies in pretest	0.060	60	.200*	0.979	60	0.386
average scores of memory strategies in post test	0.107	60	0.085	0.943	60	0.008
average scores of cognitive strategies in pretest	0.103	60	0.177	0.949	60	0.013
average scores of cognitive strategies in post-test	0.095	60	.200*	0.968	60	0.119
average scores of meta cognitive strategies in pretest	0.101	60	0.198	0.976	60	0.289
average scores of meta cognitive strategies in post-test	0.150	60	0.002	0.946	60	0.010
pretotal strategies	0.075	60	.200*	0.972	60	0.174
post total strategies	0.090	60	.200*	0.961	60	0.051