VOCABULARY LEARNING STRATEGIES EMPLOYED BY ENGLISH AND NON-ENGLISH UNDERGRADUATE SAUDI LEARNERS: SELF-REPORTED USES AND PERCEIVED USEFULNESS

Submitted by

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ABSTRACT

The present study examines and describes the use of vocabulary learning strategies (VLSs) used to learn L2 vocabulary, as reported by Najran University students in Saudi Arabia. It examines changes in learners' strategic behaviour when employing VLSs over time. It further investigates why learners use or neglect the use of certain VLSs. Furthermore, the study examines the use and evaluation of VLSs across academic fields of study (AFoS), by sampling English and Computer Science majors using English as a medium of instruction. The participants numbered 158 students enrolled in four-year Bachelor's programmes at Najran University (82 English majors and 76 Computer Science majors). To achieve the aims of the study, a mixed methods data collection process was used. Firstly, a questionnaire survey was conducted, including questions about learners' background information and sets of VLSs. The questionnaire was divided into three main categories: 1) discovering strategies; 2) vocabulary note taking strategies; and 3) retention and memorisation strategies. The learners were asked to rate their use of, and then evaluate the VLSs according to a five-point Likert scale. Semi-structured interviews were then conducted to identify the reasons for learners' preferences for particular VLSs. Data analysis procedures included means testing, a Friedman test, a Wilcoxon Signed Ranks test, an Independent Samples t-test, and an ANOVA General Linear Model of repeated measurement. One of the main contributions of this research is the discovery that the learners generally remained consistent over time in terms of their use of VLSs. The results showed both majors relied on translation to L1 to understand new words, routinely noting down new words with their L1 meaning. Furthermore, both majors, showed little interest in organizing the words they recorded (e.g. organizing words in alphabetical order, or on cards). However, few changes were noted. Furthermore, it was found that the English majors used significantly more deep processing strategies than Computer Science majors, e.g. analysing the structure of new words, also rating the self-reported usefulness of VLS of the VLSs more highly. The conclusion suggests implications for teaching lexis, and offers recommendations for future studies.

TO MY

Beloved parents Talya and Awadh Alyami for EVERYTHING,

Dear wife Alnuri for her love, patience, and support,

Precious little daughters, Elyana and Delara;

My love for you all is infinite!

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LIST OF ABBREVIATIONS

Item	Description
AFoS	Academic Filed of Study
CompS	Computer Science
CompSML	Computer Science Major Learner
CompSMLs	Computer Science Major Learners
CompS.M.P	Computer Science Male Participant
CompS.F.P	Computer Science Female Participant
DMV	Discovering the meaning of unknown words
EFL	English as a Foreign Language
E.M.L	English Major Learner
E.M.Ls	English Major Learners
E.M.P	English Male Participant
E.F.P	English Female Participant
GLM	General Linear Model
LLS	Language Learning Strategy
LLSs	Language Learning Strategies
L1	The mother tongue, (i.e. Arabic)
L2	The second/foreign language is learning, (i.e. English)
MEMs	Retention and Memorisation
NTS	Note Taking Strategies
PU	Perceived Usefulness
Q	Questionnaire
RQ	Research Questions
SLA	Second Language Acquisition
TL	Target Language
VLS	Vocabulary Learning Strategy
VLSs	Vocabulary Learning Strategies
VLSD	Vocabulary Learning Strategy Dimension
VLSQ	Vocabulary Learning Strategy Questionnaire
VNTS	Vocabulary Note Taking Strategy

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Chapter One: Overview of the thesis

1.1   Introduction

This chapter includes five sections, which collectively provide an overview of the thesis. The first sections offer a list of the key terms used in the study alongside their definitions (1.2). In the second section, I state the main problem to which the current study responds. That section presents the theoretical background to the study (1.3). The third presents the objectives of the current study and explains the reasons for conducting the research 1.4). Section four section covers the education system in Saudi Arabia and examines the teaching of English as a foreign language at a university level (0) Section five, covers curriculum differences between English major and Computer Science major (1.6). Finally, an overview of the research questions and the seven chapters constituting the thesis is given (1.7 and 1.8).

1.2   Key terms in the study

- **Strategy:** "General tendencies or overall characteristics of the approach employed by the language learner" (Stern, 1983:405).

- **Perceived Usefulness (PU)**: defined as the degree to which a learner believes that a singular VLS would enhance his/her lexical development (Schmitt, 1998).

- **Language Learning Strategy (LLS):** "Specific behaviours that are used by learners to simplify their language learning" (Oxford, 1990:8).

- **Vocabulary Learning Strategy (VLS):** "Knowledge about the mechanisms (processes) used in order to learn vocabulary as well as steps or actions taken by students (a) to find out the meaning of unknown words, (b) to retain them in long-term memory, (c) to recall them at will, and (d) to use them in oral or written

mode" (Catalán, 2003:55-56).

- **English as a Foreign Language (EFL):** Learners learning English in their native environment; this is Arabic in the case of the participants of this study.

- **L1:** The mother tongue; i.e. Arabic in my study.

- **L2:** The second/foreign language learned; i.e. English in my study.

- **Vocabulary, words and lexical items**: words are used interchangeably in this study based on what I found in the literature (e.g. Nakamura (2000)).

1.3   Background to the study: Statement of the problem

The history of vocabulary has been summarized by Schmitt (2000:10). He noted that:

> *People have attempted to learn second languages from at least the time of the Romans, and perhaps before. In this period of more than two thousand years, there have been numerous different approaches to language learning, each with a different perspective on vocabulary. At times, vocabulary has been given pride of place in teaching methodologies and at other times neglected.*

He continues by explaining that:

> *Language teaching methodology has swung like a pendulum between language instruction as language analysis and as language use. Likewise, vocabulary has had differing fortunes in the various approaches. However, a recurring thread is that most approaches did not really know how to handle vocabulary, with most relying on bilingual word lists or hoping it would just be absorbed naturally. Systematic work on vocabulary did not begin in earnest until the twentieth century.* (ibid.:15)

Vocabulary is seen in the literature as "the most sizable and unmanageable component in the learning of any language, whether a foreign or one's mother tongue, because of tens of thousands of different meanings" (Oxford, 1990:39-40). Although, as stated by Meara (1984) many researchers have neglected vocabulary, others assert its vital position in L2 acquisition and learning (Schmitt, 2000).

According to previous researchers an L2 learning environment, the four skills were most likely to receive attention from teachers, while vocabulary was rarely mentioned. This was supported by Hedge (2000:110-112) who confirms that vocabulary did not receive much attention as an important aspect of language acquisition. This might be because learners themselves did not consider vocabulary a vital aspect and probably did not emphasise ways to discover the meaning of new lexical items. Teachers might also focus on grammar and the four skills more frequently than vocabulary. Therefore, teachers might not encourage learners to look for better ways to figure out the meaning of new words, which then resulted in a lack of awareness of the need to teach vocabulary. In fact, in this author's experience, learners are typically only given the new words for a particular course without instruction about how to discover the meaning of new words when they encounter them during their learning, such as in reading or listening tasks.

Thornbury (2002:14) argued that "for a long time, teaching approaches such as direct method and audiolingualism gave greater priority to teaching of grammatical structure". Elsewhere, Finnegan (2007: 46) stated that "Languages have three principal ways of extending their vocabulary: (1) New words can be formed from existing words and word parts (2) Words can be "borrowed" from another language and (3) New words can be made up, created from scratch." According to Murray and Christison (2011:91), EFL learners encounter unique challenges when asked to use English outside the classroom setting. Moreover, acquiring new vocabulary in a second or foreign language is one of the most challenging tasks for second language learners, particularly those who are heavily reliant on the L2 classroom experience, because the target language is not widely spoken outside the classroom.

The interest now is on how vocabulary is learnt and therefore its strategies (Alkahtani, 2016). In other words, since vocabulary is a part of language learning and teaching, we should investigate ways and techniques (i.e. strategies) for acquiring L2 words, because such strategies now are indispensable parts of vocabulary learning and teaching. Therefore, it is helpful for L2 learners to be trained and taught strategies to discover both the meaning of new words, how to retain newly acquired words and how to store them in their memories and use them in practise. Such strategies are in fact included in my vocabulary learning strategies questionnaire.

Research into language learning strategies (LLS) began in the 1970s. There is some research on LLS that clearly show that L2 learners' principal use of LLS is for vocabulary learning (e.g. Rubin 1987). Hence, we can see a relationship between LLS and vocabulary learning strategies (VLS). For example, Segler (2001:31) stated that Oxford's classification of LLS can be applied to vocabulary learning tasks; this then resulted in VLS. This is similar to Rubin (1987), O'Malley and Chamot's (1999) classifications of LLS (see 2.4). Therefore, the researcher was encouraged to test the VLSs with his participants. A further reason for my interest in VLSs is that there are individual differences among L2 learners with regard to vocabulary learning, and the importance of vocabulary leads us to investigate further to discover more about how L2 learners acquire new lexical items. The best learners would be expected to know the different strategies available for practising new lexical items, how to discover the meaning of new words, how to memorise and retrieve acquired words in the target language, and to know different strategies and note taking methods. Nation (2001) argued that university level students will encounter a much larger quantity of vocabulary and therefore, teaching strategy use would benefit students.

There have been a number of VLS studies in the last few years. Ahmed (1988) was amongst the first researchers to investigate the use of VLS. He examined Sudanese EFL learners and reported their frequent use of certain VLSs (see 3.4). Schmitt (1997) carried out a study, which resulted in a VLS classification that is now widely used (see 3.3.2). Nakamura (2000) also examined the various uses of VLSs among Japanese EFL learners (see 3.4), and Marin (2005) investigated the use of VLSs among Mexican learners. Some studies of VLSs have already been conducted in the Saudi context, e.g. Al-Qahtani (2005), Alyami (2011) and Al-Akloby (2001). However, there have been gaps in each of those studies. For example, Al-Qahtani did not focus solely on language learning at university level, as I will do. Instead, he looked at students in intermediate schools. Moreover, he did not focus on the role of academic field of study as a factor informing choice of VLSs, which I will consider. In addition, he did not examine the reported value of VLSs. Furthermore, although Alyami (2011) looked at university level EFL students, he only examined participants who were majoring in English and did not investigate the reported value of various VLSs. Moreover, one important category was missing from his classification of VLSs, namely the reason why note-taking strategies are used, this lack is addressed in my questionnaire.

Thus, to the best of the researcher's knowledge, there is no previous VLS study that focuses on a comprehensive set of VLSs as I do. Moreover, there is no study in the Saudi context that focuses on academic field as a factor influencing strategy use. Specifically, the research investigates English and Computer Science majors (i.e. Academic field of study) and compares their reported use of various VLSs, exploring their reasons for using them. Also, no study to date has focused on the most self-reported usefulness strategies used by Saudi learners or compared relative usefulness proceeding from the learners' academic field. This can be done based on learners' perceptions and their experiences. Moreover, no previous study has focused on learners'

strategic behaviour of VLS uses. Therefore, my research is novel, as is apparent from the research questions posed (see 1.7).

1.4 Aims and the scope of investigation

The main objective of the current study is to examine Saudi English and Computer Science learners' use of vocabulary learning strategies (VLSs) and their perceptions of their usefulness. To achieve these objectives, the following aims and gaps in the research are proposed:

1.4.1 Learners' strategic behaviours in terms of their use of various VLSs over time

A primary aim of the study is to measure learners' vocabulary strategic behaviours in terms of their use over time (i.e. a one-year gap), by consulting the same participants twice, so we will first elaborate on this aim. There are two main reasons for including this dimension (i.e. Time) in the study. One is that studies with the longitudinal design are valuable yet rare in this field (as will be shown in our literature review II). The second is that there is a gap in our knowledge with respect to how VLS (and indeed strategies more widely) develop over time in the absence of strategy training. This in turn relates to the key issue of the teaching of strategies - whether it is essential or whether development of strategy repertoire and use over time can proceed without it, and if so, what factors cause or affect that.

Three main kinds of learner strategy study are to be found in which time appears in some way as a key variable of interest. They differ essentially in their design: cross-sectional, longitudinal, or experimental (Mackey and Gass, 2012). Cross-sectional studies are conducted at a single point in time but include groups of students at different stages of the educational process, often at different grades in school or different years of

study at university. Consequently, naturally occurring changes over time can only be detected through a comparison of the strategic behaviour of different groups. This has often been viewed as a convenient type of study for researchers with limited research time, including many PhD students. Multiple studies on learner English-related strategies in Saudi Arabia and elsewhere compared years of study or educational levels at one point in time (e.g. Schmitt, 1997; Al- Al-Fuhaid, 2000; Akloby, 2001; Al-Hammadi, 2004; Al-Qahtani, 2005; Alyami, 2011; Sarani and Shirzaei, 2016). One of the limitations of these studies, however, is that the groups differ over time, with different time points represented by different people, resulting in additional individual student differences involved, including, for instance, differences of personality, motivation and home circumstances, which then add in unknown variables clouding the validity of the findings.

This explains why it is often regarded by research experts as preferable to perform longitudinal studies, which by definition involve the same people at each time point, so as to control for such individual differences (Mackey and Gass, 2012). Therefore, that is the design used in the present study. This is however a challenging design, because the researcher has to wait for time to pass to complete the study, and may encounter problems in terms of attrition rate, as students who were available on the first occasion might not be subsequently. This may be why, although examples of such studies emerged in the early days of strategy research (e.g. Chamot et al., 1988) longitudinal research into learning strategy use over time is generally lacking (Chamot, 2001). As Ellis (1994) comments, almost all studies in this area have been cross-sectional, and this continues to be true. As a result we know rather little about how natural learner strategy use develops within the same individuals (Ellis, 1994:559). One recent exception, which will be discussed later (see 3.7.2), is Al-Hatmi (2012) who

gathered data on two occasions in different years from the same Saudi students, concerning their vocabulary note-taking strategies. His study however differed in scope from my study in that the only examined EMLs and was interested only in their vocabulary note taking strategies (VNTS). Furthermore, he examined the effect of time as only a minor part of the study making no reference to the courses the students were following at the time, or whether there was an intervention or not. By contrast, my study will cover two different academic fields and evaluate a full range of VLSs, including VNTS. It will also consider any courses or exposure to the English language that might have influenced learners' strategies over time.

A weaker version of the longitudinal design which is sometimes found is that where data is elicited from students at one point in time, but they are asked to report (whether in interview or questionnaire etc.) about their strategy use at an earlier time as well as the current time. This overcomes the problem of having to wait, and participant attrition, but obviously suffers from the fact that students may have difficulty recalling accurately what they really did months or years previously, and be unable to separate what they do now from what they did before, and so may falsely report. An example of this is Gao's (2006) study, which looked at Chinese students' reported changes in strategy use between when they were learning/using English in their home countries and when using English in the target language country while studying in the UK. It is also a rare example of a study which attempted to examine the reasons for change in depth (which I will also attempt).

The third type of study which involves time is the experimental study, which involves the researcher intervening in a carefully planned and targeted way, typically teaching students some strategies. Time is involved because the students are measured both before and after the intervention to assess its effectiveness. In its classical form, an

educational experiment will involve two groups of students: one receiving the intervention (experimental group) and the other simply progressing with whatever normally happens in between the two times (control group). The researcher then aims to establish whether the change in strategies (or some other relevant measure) is greater in the group that received the intervention than in the group that did not. Although the present study is not experimental, the findings relating to the control groups in experimental studies remain relevant, since these groups progressed naturally in a similar way to the groups that participate in non-experimental longitudinal studies. Unfortunately, however, reports of experiments often fail to fully describe or explain the changes that occurred in the control group, beyond just reporting the scores obtained, since the researcher's interest always lies with the experimental group and the periods of time involved are usually quite short. While some of these studies have no control group at all (e.g. Lai, 2013), others do have a control group that receives no VLS teaching intervention (e.g. Ismaiel & Al Asmari, 2017; Rabab'ah, 2015; Tassana-ngam, 2004).

Hence, in my study the inclusion of time as a longitudinal variable is justified for two main reasons: 1) It affords the best way to obtain insights concerning two largely neglected areas of strategy research: the influence of time on strategy use by students of different majors, and the areas where learner strategy development over time takes place; and 2) It enables us to examine what effects, if any, mere changes in the exposure to, and demands made on, English arising from the curriculum which students normally follow alter strategy use, in the absence of any special strategy training intervention by a researcher.

1.4.2 Academic field of study

Typically studies of learning strategies in the Saudi Arabian context, and elsewhere, are based on people taking English courses, in schools, during a preparatory /pre-sessional year, or as a major at university. Thus, there has been minimal attention directed towards the learning strategies used by those students not taking English courses, but who nevertheless have to use English language in their majors (certainly in the Saudi context), and towards examining learners' self-reported value of usefulness (henceforth 'perceived usefulness') although this is a growing phenomenon worldwide. Several recent studies have compared the use of English language learning strategies among students of different majors. Many EFL countries (e.g. Saudi Arabia, Oman, Thailand, and Taiwan) are currently striving to join the globalised economy and view English as the key to doing so. In Saudi Arabia the ongoing "Saudisation" policy has the same implication: if Saudis are going to take over from expatriates many jobs in the oil, telecommunications and indeed higher education fields, they will need good English. Hence, governments want to ensure their graduates can speak and write English well, so that they can work in companies or government departments with international connections. One way to do this is to require university students to learn English by using English to teach their majors.[1] Thus, the issue of how non-English majors negotiate the requirement to know English to complete their course of study is very relevant today in Saudi Arabia and other countries that are introducing English medium tertiary education, such as Oman. Yet certainly in the field of VLS it is under-researched.

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[1] Other countries use different means; for example, Taiwanese universities teach majors such as engineering in L1 Chinese, but all students have to take English classes alongside their majors and the universities do not allow students to graduate unless they obtain a high level score in an international English test (TOEIC)

Chapter 1: Overview of the thesis

The Saudi government has of course recognised that it is a considerable challenge for students to take courses at university through the medium of English, straight from school where many studies have shown exit levels of English proficiency to be very poor (e.g. Masrai & Milton, 2012). The solution that has been widely adopted in Saudi Arabia is to introduce what is often called a preparatory year between school and starting in earnest on university majors. This year is largely devoted to intensive English teaching, in the expectation that this will raise students' English to a level where they can pursue their major through English.

It is, however, widely agreed that the preparatory year is not in fact very successful in this. Alenezi (2016) showed that the English texts read in the preparatory year were way below the level of those that Medicine or Engineering students had to read in English in the first year as majors. By contrast the preparatory year texts were not so far below the level of the texts read by English majors in their first year as majors. This was partly due to the fact that English majors in Saudi Arabia in the first year of their major program typically continue with courses designed to improve their English, rather than moving at once to courses about English language and literature. Majors in other subjects in the first major year by contrast move straight to courses devoted to their major discipline.

Based on the above, one might expect that English majors would have fewer vocabulary problems than Computer Science majors. This in turn might show up in their frequency of use of some strategies. Yet to the best of my knowledge, nobody has looked at this in Saudi context before, or indeed for VLS much in any context. Hence, I judged field of study as an important variable to include in my study.

1.4.3 Perceptions of use and usefulness

The study focuses on students' perceptions, measuring VLS use by what students self-report in a questionnaire, and the reasons they give for their selections in interview. Thus, it is entirely consistent that the measure of usefulness should also be based on students' perceptions. Beliefs drive what people do. A person's beliefs have a huge influence on their practises, and if as a teacher, you wish to change student practises for the better, then you must first transform their beliefs. A considerable body of research in this area concerns teachers' beliefs, but there are also well recognised research studies into students' beliefs.

A student's self-efficacy, for example, is their belief in their capability to achieve a goal or an outcome such as 'reading self-efficacy'. This phenomenon is a key component of Bandura's (1982) theory of learning and has been widely researched, often using questionnaires that ask the students themselves how they conduct described actions. Student beliefs about language learning have also often been researched using a version of the famous BALLI questionnaire (Horwitz, 1985).

In VLS research it is the norm to investigate frequency of strategy use via student self-report, often using questionnaires, but much rarer to research students' views on the perceived usefulness of strategies. Furthermore, to the best of my knowledge, no study of this has been done in combination with comparison between majors. Nevertheless, this topic is important as attested by the fact that it was included by Schmitt in his seminal work (Schmitt & Schmitt, 1993), under the label 'helpfulness'. Clearly researchers, and indeed teachers, are interested not just in what strategies students use but also which they judge to be the most useful. Yet many studies tell us only about the former.

Ideally, of course, we would be able to construct a universal list of useful and non-useful or ineffective strategies, based on some objective criteria. As many experts have noted, however, research shows that this cannot be done because what is useful depends on many individual features of learners such as their personality type and motivation, and on features of the context such as the type of task being done and what resources (e.g. dictionaries) are available (Oxford, 1989). The factors related to the individual person are at least eliminated if we ask the student him/herself to say which strategies they find useful, since each respond with respect to their own personality, etc. It is true that potentially the information may be inaccurate due to the student not in fact knowing where their strategies were successful or not. Nevertheless, we feel that adult learners in an instructed setting where there is constant monitoring of their success by peers and teachers would have gained a reasonably accurate picture of which VLS were in fact successful and so useful to them.

Broadly speaking, two main methods have been used in studies evaluating the usefulness of VLSs. Firstly, there are studies that have investigated the usefulness of strategies for success in specially-designed vocabulary learning tasks (e.g. Cohen and Aphek, 1981; Lawson and Aphek, 1996; Erten, 1998). Other studies have used students' self-reports about how useful they perceive strategies to be, based on their prior learning experiences (e.g. Fan, 2003; Wu, 2005). The latter method was chosen for this study for two reasons. Firstly, only English major students carry out dedicated vocabulary learning tasks in their studies. It would be quite artificial to set such tasks for computing or engineering students who are no longer engaged in English instruction, simply to measure their success in relation to the strategies they use. Their engagement with vocabulary learning is somewhat incidental to their subject learning and not easy to mimic in a research task. Secondly, it is not possible to use methods such as think aloud

procedures with female participants in the Saudi context to determine learners' actual use of VLSs (i.e. gender restrictions).

1.4.4 Gender

The current study also includes gender, to a lesser extent, as a variable of interest for several reasons. Firstly, the nature of society in Saudi Arabia dictates that all state education institutions up to and including universities are gender segregated. This means that not only is each gender taught on a separate campus, but also (unlike in single sex institutions in the UK or US) only teachers of the same gender as the students may meet the students face-to-face. Consequently, it is difficult for a male researcher to perform many types of research with female students. This in turn means that many Saudi studies are conducted using one gender only, which limits the generalisability of the findings compared to studies performed in other contexts around the world which usually include both genders. The researcher wished to avoid this limitation in the current study in order to make the research more representative of the population of Najran university learners, which was made possible with the use of the questionnaires.

A second reason for including gender as a variable in the study is that, as the literature review shows, previous research has produced mixed findings regarding its effects. Some classic studies (e.g. Oxford, Nyikos, and Ehrman, 1988) have argued that it has widespread effects on strategy use, whereas others (e.g. Alkahtani, 2011) have found few or no significant differences between the genders. Hence, it is interesting to include data for female learners in this study in order to contribute to existing research.

1.4.5 Section conclusion

The above sections have specified the scope of the current study. However, it is useful to mention here some of the things the study does not cover. It should be noted

that the study does not cover the impact of variables such as teaching methods, vocabulary proficiency level, or training sessions on learners' use of VLSs. It is impossible to include all possibly relevant variables in a study; it is necessary to be selective, otherwise the data becomes too unwieldy to analyse effectively (Norbert Schmitt, 7th July 2016, personal communication). Thus, given the time and word count constraints, together with the limitations on data gathering imposed by the state of war occurring in the region, the researcher chose to focus on time, subject major and, to a lesser extent, gender, as well as three dependent variables: reported use, perceived usefulness, reported reasons for use (see Limitations in (7.3).

1.5 Education system in Saudi Arabia

The system in Saudi Arabia is similar to the system in the US and unlike that in the UK. It is arranged in phases, starting with primary school which lasts for six years. After this, students move on to intermediate school which lasts for three years and secondary school which lasts for a further three years. School is compulsory for children aged 6 years, and the primary years begin at age six. Until recently, children aged 5 were expected to enrol to attend pre-school before starting their primary school education. Parents have the right to choose what their children study, and to enrol them into a private or government schools. Across these three different stages, whether private or government schools, students in all schools, study subjects such as maths, art, and science. This is a regulation imposed by the Ministry of Education. Therefore, I can state that the study sample has shared the same basic education, in terms of teaching and testing methods.

With regard to foreign language teaching, English is one of the most commonly taught foreign languages in Saudi schools. Teaching in English starts in the first grade at intermediate school; however, recently the ministry of education has introduced

English courses from the fifth grade at primary school. It should be noted that my participants followed the old scheme, starting to learn English in the first grade at intermediate school. This indicates that my subjects undertook six years of study in English, three years in intermediate and three years in secondary schools.

1.6 English language training and Computer Science training

It is important to understand the English input that the participants would have received before arriving at the start of the current study, as well as what input they received between responding to the pre-questionnaires in year 2 and post questionnaires in year 3. This applies not just to input in the form of explicit strategy instruction but also anything implicitly suggested by teachers which might encourage some VLS or indeed changes in demands made on students' performance by their courses which might prompt changes in VLS. Only with that information can we have an informed idea of the factors which might explain any VLS differences that we find between EMLs and CompSMLs, and any changes that we uncover between the first and second data gathering occasion.

The study participants had all learned English from intermediate level onwards in state schools in the Kingdome of Saudi Arabia (KSA). The participants, therefore, had learned English for six years before commencing their education at university level. There are two books that are used to teach English in Saudi schools, one is a textbook used for learning English, which has different themes for each unit, and the other is a workbook targeting what is learned in a particular lesson/unit. Some teachers expect students to also retain a vocabulary notebook to record new words. All the schools use exactly the same books based on Saudi Ministry of Education regulations. In every unit, students study listening, speaking, writing and reading in relation to a theme. The words are sometimes presented with synonyms, antonyms or with English definitions as

examples. With regard to teaching vocabulary, teachers ask their students to pronounce words several times and write them on the blackboard. They also ask students to complete gap fills or matching exercises for homework; these tasks are included in the exercise book. Thus, although no VLSs are explicitly taught with textbooks, or as far as we know by teachers, activities occur that might encourage learners to spontaneously develop certain strategies, such as repeating a new word aloud, using Arabic dictionaries, etc. Al-Seghayer (2015) suggests that the students would not have been exposed to explicit training in VLS with the exception perhaps of context guessing unknown words when reading. A number of basic VLS would have been encouraged, however, simply by the common practises of the teacher when dealing with vocabulary in class, such as translating it and getting students to say it aloud and copy it into their notebooks. Teachers tend not to explicitly teach learner strategies in general as the focus imposed by the Ministry is on strictly following the prescribed textbook. Departure from the set material is not really encouraged and in any case the syllabus does not leave time for extra topics such as VLS.

My research was undertaken at Najran University in Saudi Arabia. Najran was established in 2006 upon the request of King Abdullah. The English and Computer Science departments, from which my participants are drawn, use English as a medium of instruction.

At university, we can see from the information in appendices (**P**) and (**Q**) that both EMLs and CompSMLs first take a year (level 1 and 2) with quite similar contents focused on developing their own English language ability. At level 1, the course codes and teachers are quite different for the two majors but the shared topics are the four skills plus grammar. Neither group has a course on vocabulary, which is where VLS would be most likely to be taught. In addition, courses on reading, which both groups

receive, can often involve encouragement of discovery VLS, since unknown words are often a major obstacle to be overcome. Thus, various types of word guessing, asking and looking up dictionary strategies may have been covered with some degree of explicit training. Furthermore, all these courses, unlike in school, are not so heavily controlled by the authorities and indeed often use non-Saudi staff, some of whom might have had training or done MAs which encouraged them to introduce VLS explicitly to students. Moreover, in year 1 the great majority of courses are devoted to improving the students' English, but they range far wider than vocabulary and VLS. For example, in year 1, EMLs take English Grammar 1 and 2, Foundation of Education, Writing 1 and 2, Reading 1 and 2, Language Skills (Speaking and Listening), Arabic Composition, and Computer in Education. It is evident here that EMLs do not receive in-depth information about the language but are rather introduced to the English language. While CompSMLs study similar modules, such as grammar, listening, speaking, writing, and reading alongside science subjects, such as computer skills. All their subjects are taught in English except for Arabic editing and Arabic language skills. Moreover, at level 2 in year 1 both groups again do similar named courses on the four skills and grammar. Once again, VLS are most likely to be needed and potentially taught in the reading and perhaps writing classes.

After the first two semesters, the two majors diverge radically in the second year. The CompSMLs go onto purely discipline related courses from level 3 onwards, including during the second year, with no further courses devoted directly to English improvement. Thus, an impact on VLS for them would only arise if lecturers giving the courses in English happened to encourage any or if the nature of the new specialist English they met prompted students to think of any. For instance, such courses must be full of new terminology which students have to understand and remember. This might

prompt lecturers to suggest ways of remembering them or students to develop them themselves, e.g. perhaps by breaking down new terms into parts.

The EMLs in year two however go on to take further language improvement classes which offer more chances for VL to be taught or encouraged. This particularly includes courses dedicated to vocabulary in both semesters of year 2. It is only in year three that the EML courses move away from language improvement onto standard discipline related topics of an English BA such as English linguistics and applied linguistics. Thus, whereas the CompSMLs encounter the full demands of discipline related subject matter taught in English in year 2, it is only in year three that this really hits the EMLs. Up to that time they are largely experiencing the easier sort of general, nontechnical, English associated with English improvement classes, which would not perhaps make great demands upon their VLS resources to cope with.

In year 2, the EMLs in both semesters learn Islamic Culture 3 and 4, English Grammar 3 and 4, Listening and Speaking 3 and 4, Writing 3 and 4, Reading 3 and 4. In this semester the EMLs are introduced to Vocabulary 1 in semester 1 in year 2 and Vocabulary 2 in semester 2 in year 2. The content of these courses varies from that covered in their first year. For example, in Grammar 3 and 4, the objective is to enable students to improve grammatical structures and develop their ability to use the language by providing all-embracing and varied practises that encourage growth in all areas of language use. The major topics of study include perfect and progressive tenses, the passive, present perfect tense, adverbs of degree, and the different uses of connectives and conditionals. The EMLs are presented with ways to guess at the meaning of words by analysing the structure of the word (e.g. understanding prefixes, suffixes; and compounds). They are encouraged to learn more about related words from the same family e.g. the words *manager* and *management*, which EMLs then used as a VLS.

Moreover, in Vocabulary 1 and 2, EMLs are presented with different lexical items for vocabulary development, and are encouraged to use them in an academic context through a wide variety of reading, writing and other relevant tasks. The course explores dictionary uses, pronunciation symbols, spelling rules, word formation (roots, prefixes, and suffixes), idioms and phrasal expressions. Moreover, EMLs are given the synonyms and antonyms of words in English. However, the study showed that both majors preferred the use of electronic and mobile dictionaries to static ones. However, it also emerged that EMLs prefer to keep a vocabulary notebook, as recommended on the course.

Thus, vocabulary courses claim to 'instil vocabulary development habits' and, incidentally, teach some VLS, such as dictionary use and how to keep a vocabulary notebook. They also teach some skills, which, though not VLSs as such, are necessary if certain VLSs are to be used. For instance, they cover word formation, and one cannot use the VLS of guessing the meaning of an unknown word from its affixes or other word parts (the morphological decomposition strategy), without having basic knowledge of English word formation. However, teaching word formation is not in itself the same as teaching a VLS that relies on it, such as guessing, or memorising words by association with the parts.

As mentioned earlier, in year 3, the EMLs are presented with new modules which move away from English improvement skills into areas that a BA in English language and literature might cover in the UK. There are content oriented courses, which include units such as introduction to linguistics, education and society, introduction to literature, applied linguistics, translation 1 and 2, phonetics and phonology and curriculum principles and foundations. These are, of course, all delivered in English, and place higher demand on the English aptitude of students listening to the lectures, reading the set texts, and writing assignments than the skills

courses in earlier years. Hence, they might be expected to force students to exploit much more fully their VLS competence to manage and learn new words. In terms of the introduction to linguistics module, the course seeks to introduce students to the basic tenets of linguistics and language analysis, with special reference to core areas in morphology, syntax and semantics. Having knowledge of morphology, syntax and semantics helps EMLs to use a greater range of VLSs, such as analysing the word's part of speech (e.g. verb, noun, adjective), writing down the words' synonym and antonym in English, asking for or looking up the words' synonyms and antonyms. EMLs will be able to relate the new words to its synonyms or antonyms in English (e.g. good and bad, specific and particular) or fragment the new word into syllables or structure (e.g. prefixes **un**educated, suffixes educat**or**).

The area of linguistic sciences, namely, phonetics, and phonology provides EMLs with in-depth insight into sounds and their variants. It also discusses concepts such as phonemes, allophones, phones, complementary distribution and free variation. Moreover, it introduces students to technical terms such as syllable, stress, and intonation in English with reference to illustrative examples from Arabic. Hence, this course might help EMLs to associate new words in English with a word in Arabic that is similar in sound (e.g. chock /shoak/- "thorn", fine/ fine "tissue") or relate the new word to other English words similar in sound or spelling (e.g. weak and week). These VLSs were evaluated in this study and EMLs showed significant use relative to CompSMLs, who do not receive this input.

With regards CompSMLs, as stated earlier, CompSMLs study writing skills, and the course is designed to introduce students to foundational English-language writing components using a gradual step–by–step approach. The CompSMLs are expected to form compound and complex sentences, and to compose short passages.

Moreover, CompSMLs study grammar in year 1. This module is designed to develop CompSMLs' ability to understand the basics of grammar. It is also meant to build a fundamental knowledge of grammatical structures and rules. Furthermore, CompSMLs in year 1 study listening and speaking skills. The Listening and Speaking course consists of a variety of listening modes including lectures, academic discussions, and conversations. Teachers use activities associated with the audio texts, such as pre-listening tasks, to practise listening strategies. The course uses lectures and dialogues are disassembled into manageable parts, giving students the opportunity to predict, identify main ideas, and effectively manage lengthy input. CompSMLs are introduced to exercises such as repeating new words and listening to words several times (these VLSs were included in the study).

In year 1, CompSMLs also learn technical writing. Technical Report Writing is designed for Level 2 CompSMLs. The course teaches students several basic skills, i.e. s writing effective paragraphs and taking notes efficiently. Students are also taught to write appropriately in several different genres, including summaries, curriculum vitae, formal letters, memos, and reports followed by a grounding in ESP Vocabulary to be used for those from different professional disciplines.

As mentioned earlier, in year 2, CompSMLs begin studying their specialised subjects, such as Fundamentals of Physics, Programming Language 1, Introduction to Integration, Discrete Mathematics, Linear Algebra, Object Oriented Programming, Probabilities and Engineering Statistics, and Computer Organisation and Assembly Language. They also study Introduction to Islamic Culture 1 and 2 and Arabic Language Skills and Arabic writing.

In year 3, the CompSMLs study Data Structures, Advanced Physics, Computer Organisation and Architecture, Programming Paradigms, Operating Systems, Software

Engineering, General Biology, Theory of Computation and Islamic Culture 3. In their final year, they study Computer Graphics, Artificial Intelligence, Internet Technologies, Fundamentals of Database Systems, Data Communication and Computer Networks, Graduation Project 1, Parallel and Distributed Systems, Human and Computer Interaction, Algorithm Design and Analysis, and Islamic Culture 4. At the end of year four, CompSMLs are awarded a BA in Computer Science.

This all suggests that, due to the differences in courses taken and demands upon English in year 2, we might expect to find the following time related VLS differences between majors. Since the first questionnaire data gathering was at the start of year 2, the two major groups might be expected to be similar in VLS on the first data gathering occasion but to have diverged by the second, due to their widely differing input during year 2 and early year3.

1.7   Research questions for the preliminary and the main study

The following are my research questions for both the preliminary study and the main study;

1.7.1 For the preliminary study

RQ1P: What are the ten most, and the ten least, frequently reported VLSs by Saudi university learners across all dimensions?

RQ2P: Which dimension is the most and the least used by Saudi university learners?

RQ3P: What are the most, and the least, frequently reported VLSs by Saudi university learners within the dimensions?

1.7.2 For the main study

RQ1M- Do learners from different academic fields of study differ in terms of how much they change their reported use of VLS over one year of university study?

RQ2M- - What effect does academic field of study have on the reported use of VLSs by Saudi 3rd year students? Why?

RQ3M- What effect does academic field of study have on the perceived usefulness of VLSs, as reported by Saudi 3rd year students? Why?

1.8   Organization of the thesis: An overview

The current paper is comprised of seven chapters, including this chapter, as follows:

Chapter two starts with the theoretical background to LLS followed by the differences between words and vocabulary terms. Then the researcher presents the importance of vocabulary in language learning based on his own experience as well as data from other researchers, such as Nandy (1994) and Wilkins (1972). It also covers vocabulary knowledge; noting that learners should be aware of aspects such as form, meaning, and different uses of lexis. Then I have proposed the implicit and explicit approaches of vocabulary learning. Moreover, LLS differ in terms of their definitions and their problems as addressed and followed by the most famous classifications of LLS such as Rubin (1981;1987) Oxford (1990) and O'Malley and Chamot (1990).

Chapter three presents the theoretical background to VLS as an aspect of LLS. It starts by presenting some definitions of VLSs and the different VLS taxonomies related to my study. This is followed by an overview of relevant works concerning VLSs in general and specific studies about strategies such as guessing strategies and dictionary studies. The chapter concludes with the factors that affect the use of VLSs

Chapter four reports on the preliminary study of VLSs that the researcher carried out to: a) explore the most and least frequently used VLSs used by the participant sample; and b) establish an initial measurement of the participants' use of the VLSs against which a second measurement during the main study can be compared. The chapter also provides a detailed account of the methods used, data analysis of the study findings, a discussion, and a conclusion.

Chapter five reports on the main study carried out into the use of VLSs. It covers several points raised in this chapter, and begins by presenting the objectives of the main study. Then it moves into presenting an overview of the research methods used to identify VLSs. I then justify the methods used in this research and present a layout of the study framework and design. A detailed account of the participants' backgrounds is also given. Furthermore, a description is given of the instruments used in the main study and the data collection and data analysis procedures.

Chapter six reports the results of the main study and discusses key findings. The first section reports and discusses results with regard to the English and Computer Science major learners' strategic behaviour, specifically, in terms of their use of various VLSs over a one-year time span. The second section reports and discusses the results of the relationship between learners' academic field of study and their use of various VLSs. Similarly, it deliberates on the results that define the relationship between the learners' academic fields of study (AFoS) and the rate of usefulness of their preferred VLSs. The final section reports and discusses the results of the relationship between gender and gender within the AFoS in terms of learners' use of various VLSs and their perceived usefulness.

Chapter seven begins by providing a summary of the overall results of the research questions posed in the study. It then presents the limitations of the study and provides some suggestions for further research on the topic. This is followed by an overview of the aspects of L2 vocabulary research to which the study contributed. The chapter concludes by proposing a number of recommendations and pedagogical implications drawn from the study findings.

Chapter Two: Literature Review I: Vocabulary and Language Learning Strategies (LLS)

2.1 Introduction

This chapter offers a literature review of Language Learning Strategies (LLS) related to the current research. Firstly, it discusses different approaches to learning vocabulary, such as defining vocabulary and related words (2.2); secondly it offers a discussion of language learning strategies (LLS) from different perspectives, such as different definitions of LLS (2.3); and finally, it offers a classification of LLS (2.4) systems. Chapter three, which follows, will examine Vocabulary Learning Strategies (VLSs) from a variety of perspectives (3.2), including different definitions and types.

There are a small number of learners who view vocabulary as lacking in relevance to their learning process, tending to focus instead on grammar. However, Horwitz (1988) has established that 42% to 79% of EFL participants recognise the importance of learning vocabulary. The following sections will therefore focus on the issue of the identity of vocabulary, and whether it differs from words, as learning a language clearly demands an understanding of a range of vocabulary. Thus, Folse (2004:23) notes that L2 learners function effectively once they understand all aspects of vocabulary (i.e. vocabulary knowledge, as discussed in (2.2.3). Schmitt (2000) supports the view that comprehension requires learners to have access to a variety of lexical items. Wilkins (1972:111) states that: "without grammar very little can be conveyed, without vocabulary nothing can be conveyed", i.e. a learner is unable to communicate effectively if they are only able to recognise the morphology and syntax of a word, rather than its meaning. Hence, the acquisition of vocabulary is a crucial sign of success when learning a language. However, this statement, although well-known, has not

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subsequently been given serious consideration, with greater emphasis being placed on grammar in the teaching of English as a Second Language (ESL) or English as a Foreign Language (EFL). Folse (2004:22) illustrates this further with the observation that learning a second language includes knowledge of vocabulary, grammar, pronunciation, composition, reading, and even body language, but that vocabulary has been neglected in L2 pedagogy despite being "the most important component in L2". Richards (1976:77) notes that: "(the) teaching and learning of vocabulary have never aroused the same degree of interest within language teaching as have such issues as grammatical competence, contrastive analysis, reading, or writing". Scholars such as Smith (2008) believe that learners with access to a considerable amount of vocabulary are in a better position to learn a foreign language than those with limited vocabulary. Following certain claims made by established experts, vocabulary studies became quite popular in the 1980s, during which time a number of significant studies on VLS were published. These will be discussed in Chapter three (3.4 and 3.5), i.e. Ahmed, (1988); Nakamura (2000); Schmitt, (1997); and Oxford (1990).

2.2 Approaches to learning vocabulary

As noted previously, vocabulary forms a key component of language learning and teaching, leading to a need to distinguish between the meaning of the terms *vocabulary* and *words* (2.2.1)*,* and to shed light on the importance of vocabulary (2.2.2). This section will also focus on defining the term 'strategy' from a number of different viewpoints, as this information will inform the subsequent discussion (2.3.1)

2.2.1 Words and vocabulary definitions

It is likely that many L2 learners consider vocabulary to consist of the words of a language. This is an accurate definition in so far as vocabulary deals with words.

However, as will be demonstrated, vocabulary consists of far more than single words. Recent studies have defined the term lexis, from the ancient Greek for word, which in English: "refers to all the words in a language, the entire vocabulary of a language" (Barcroft, Schmitt, & Sunderman, 2011:571). Carter (1998:4) has defined words from an orthographic perspective, stating that a word is any order of letters combined to create meaning within written language. Nevertheless, this definition has been criticised by Singleton (1999:12), due to some languages operating within a writing system similar to that of the Roman alphabet, while the Japanese have an alternative writing system, along with the existence of a number of different language varieties (e.g. Arabic). Thus, the word may not be defined as: "a sequence of letters bounded on either side by a blank space or punctuation mark".

Trask (1995:53) therefore indicates the reasons behind this problematic definition of the words as: "words do not have meanings in isolation, the meaning of a word is related to the meanings of other words in ways that may be simple or complex". As will be discussed later, I think that Richard et al. (1992) failed to give a proper definition of words which is similar to Carter's (1998:4) previous definition.

Carter (1998) has identified a number of differences between the terms *word* and *vocabulary*, thereby implying that these differences must be understood prior to any debate concerning the importance of vocabulary. The explanation offered here offers a distinction based on the history of the term *word*, leading to a focus on *vocabulary*. Hornby et al. (1984, cited in Parsa et al*., 2013:115) define *word* as "a sound, or combination of sounds, forming a unit of the grammar, or vocabulary, of a language". Further researchers, including Jackson and Amvela (2007) refer to 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" (Ibid:59).

On the other hand, Hornby et al. (1984, cited in Parsa et al., 2013:115) view vocabulary as "the total number of words which make up a language; and a range of words known to, or used by, a person", while others see vocabulary as "the words of a language, including single items and phrases or chunks of several words, which convey a particular meaning, the way individual words do" (Lessard-Clouston, 2000:2). While Neuman (2011:60) views vocabulary as "words we must know to communicate effectively; words in speaking (expressive vocabulary), and words in listening (receptive vocabulary)". Moreover, Jackson and Amvela (2000:48) view vocabulary as "a collection of words" or "a package of sub-sets of words that are used in particular contexts" (Ibid:118).

Similar distinctions are made by Sheeler and Markley (2000:2), who regard a *word* as "a unit formed of sounds or letters that have a meaning" and *vocabulary* as the "stock of words in a given language" (Jackson and Amvela, 2000:1). Richards et al. (1992, cited in Parsa et al., 2013:115) point out that *vocabulary* describes the group of which *words* are one aspect, i.e. "a set of lexemes which includes single words, compound words and idioms". The *word* is thus "the smallest of the linguistic units which can occur on its own in speech or writing" (Ibid:115). Their views can therefore be summarised as: *words* represent the smallest meaningful unit of a language, while its *vocabulary* is comprised of phrases of two or more words (i.e. good to see you), or includes single words, compound words, or idioms (Hornby et al., 1984; Jackson and Amvela, 2000; Richards et al., 1992; Sheeler and Markley, 2000; and Trask, 1995).

However, the definition of Richards et al. (1992) lacks accuracy. As previously discussed, it is a complex process to identify the correct definitions of words. I am of

the opinion that the smallest meaningful unit of language is a morpheme, i.e. in a word like 'replay', 're' represents a morpheme that has a meaning, but is viewed as a word element attached to the beginning of a word that partially indicates its meaning. A word can be seen as a single unit of language. However, it is not the smallest unit; Jackson and Amvela (2000:50) point out that words relate to the field of morphology. Vocabulary consists of all the words acquired by a learner, or all the words in a particular language, i.e. vocabulary is the collective meaning for all words and their elements.

2.2.2 How important is vocabulary?

It is clear that a lack of vocabulary leads to a lack of communication. Numerous scholars have stated the importance of vocabulary above all other aspects of language knowledge (Bowen et al., 1985; Ellis, 1994; Fan, 2003; Folse, 2004; Harmer, 1991; Lewis, 1993; McCarthy, 1990; Nation, 1990; Schmitt, 2010; Wilkins, 1972). Krashen and Terrell (1983, cited in Benson, 1995) acknowledge the mastery of a language's vocabulary as being crucial to the delivery of ideas and the facilitation of effective communication:

> *"Vocabulary is basic to communication. If acquirers do not recognise the meanings of the key words used by those who address them, they will be unable to participate in the conversation. And if they wish to express some ideas or ask for information, they must be able to produce lexical items to convey their meaning".* (Ibid:185)

Cameron (2001:95) asserts "vocabulary is fundamental to use the foreign language as discourse, since vocabulary is both learned from participating in discourse, and is essential to participating in it". Nandy (1994) likewise comments that individuals are able to express themselves more easily as the number of words they are able to use correctly increases. Wallace (1982) agrees, stating:

Chapter 2: Literature review I: Vocabulary language learning strategies (LLS)

"It has often been remarked how strange it is that comparatively little has been written on the teaching and learning of foreign language vocabulary, because there is a sense in which learning a foreign language is basically a matter of learning the vocabulary of that language". (Ibid:9)

Moreover, vocabulary forms an important component of reading ability. A number of researchers, including Nation and Coady (1988), have established a strong relationship between L2 vocabulary knowledge and L2 reading ability (cited in Folse, 2004:24).

McCarthy (2001:2, cited in Fan, 2003), states that: "vocabulary forms the biggest part of the meaning of any language, and vocabulary is the biggest problem for most learners." Folse (2004:22) also emphasises the critical importance of this area of knowledge: "Vocabulary is perhaps the most important component in L2 ability," adding that: "adult L2 learners are painfully aware of their plight, they see acquisition of vocabulary as their greatest source of problems" (Ibid:23). As addressed previously, vocabulary is more important than grammar. It has, in fact, been noted that lexical errors may lead to greater problems and difficulties in comprehension than grammatical errors (Ellis, 1994). Lewis (1993) claims that the majority of learners instinctively understand the importance of vocabulary. Schmitt (2010:4) notes that L2 learners carry dictionaries instead of grammar references, indicating that lexis is of greater important than grammar. Lewis further states that lexical items form the core of a language (Ibid, 1993). Ur (2012:3) acknowledges that vocabulary is in a consistent state of flux, in contrast to grammar: "lexical items are an open set, constantly being added to (and lost, as archaic words gradually go out of use)". This leads to the assertion that vocabulary is of greater importance than grammar, due to its centrality to comprehension and the communication of ideas. Bowen et al. (1985) and McCarthy (1990) emphasise that, in language courses, vocabulary is the single largest component for the learner to study.

Hence, vocabulary is not only important for communication, but is also indispensable within the acquisition process. McCarthy (1990:VII) states: "no matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way".

Within language learning classrooms, teachers consider the correct use of both vocabulary and grammar to be essential to complete the acquisition of a language; however, the former is often given priority over the former. Lewis (1993:34) states that: "language consists of grammaticalised lexis not lexicalised grammar", i.e. a lack of grammar leads to only a small amount of communication being possible, but a lack of vocabulary results in no communication being possible. This issue is also addressed by Flower (2000:5) who notes that words are "the most important things students must learn. Grammar is important, but vocabulary is much more important". This accords with the earlier statement of Wilkins (1972:111), in which vocabulary is more important than grammar in terms of communication and the learning process. Moreover, Allen (1983) also notes that an effective language classroom focuses on both vocabulary and grammar, but that a greater amount of time should be devoted to vocabulary than to grammar. Richards (1976), however, notes that: "teaching and learning of vocabulary have never aroused the same degree of interest within language teaching as have such issues as grammatical competence, contrastive analysis, reading, or writing" (Ibid:77). This further supports the view that vocabulary is neglected, and should achieve at least the same level of interest as further L2 components.

It is therefore necessary to address not only the importance of vocabulary, but also that of lexico-grammar (i.e. lexicon plus grammar), in which vocabulary, or lexis and grammar, are combined into one to become mutually dependent. The majority of

the aforementioned researchers have underestimated the crucial role of grammar alongside vocabulary. It has been demonstrated that grammar needs to be separated from vocabulary, although, I consider that L2 learners should not deal with each aspect separately, but rather bring them together. The relationship between grammar and lexis is as one of 'cline' and therefore, one of 'delicacy'. Halliday (1961:267) states that: "the grammarian's dream is...to turn the whole of linguistic form into grammar, hoping to show that lexis can be defined as most delicate grammar".

In summary: the above noted views concerning vocabulary and grammar confirm that vocabulary knowledge precedes grammar knowledge. Learners can utter and recognise complete sentences without focusing on their syntactic structure, achieving both understanding, and the ability to be understood. Hence, it is acknowledged that vocabulary is the primary medium of communication. Vocabulary is also subject to change over time, as words enter and fall out of usage, while, by contrast, rules of grammar remain consistent. The following section will therefore present a number of significant views concerning vocabulary knowledge, in particular its nature (i.e. word knowledge), to reveal those aspects about a word that learners need to understand, beyond the syntactic structure. This will also preclude a later discussion on the correct use of VLS.

2.2.3 Vocabulary knowledge

Vocabulary knowledge has remained a focus of both research and debate. It is therefore vital to identify the meaning of the term 'vocabulary knowledge' (Qian, 2002:27). Nation (2001) and Schmitt (2000) share similar views concerning the important components of word knowledge. Rather than referring to "vocabulary knowledge or lexical knowledge", further researchers employ the following terms: (1)

lexical competence (Henriksen, 1999, cited in Qian, 2002:27); (2) "vocabulary knowledge framework" (Meara, 1996a, cited in Ibid:27); and "vocabulary knowledge scale" (Paribakht, 1996, cited in Ibid:27). Seal (1991) suggests that word knowledge is essential for both production and comprehension in a foreign language. Schmitt (2000:55) notes that: "lexical knowledge is central to communicative competence and to the acquisition of a second language."

Schmitt (2000:22) therefore advises that words should be examined from three different dimensions, i.e. "how words are used in context, how they are acquired and how they move from receptive to productive states". Likewise, Nation (2001:23) notes that "there are many things to know about any particular word and there are many degrees of knowing", while these degrees of knowing involve an awareness that "words are not isolated units of language, but fit into many interlocking systems and levels" (Ibid:23). Schmitt (2000:4) further elaborates on the different levels at which it is possible to know a word, as follows: "being able to understand a word is known as receptive knowledge and is normally connected with listening and reading; if we are able to produce a word of my own accord when speaking or writing, then that is considered productive knowledge". I think this situation arises in the case of when L2 learners employ guessing from the context; as it is often easier to understand a word when it is encountered embedded in discourse, or when reading a text. However, this ability does not necessarily transfer effectively to the productive skills, i.e. speaking and writing.

Nation (2001) is of the opinion that learners and teachers should focus on the form, meaning and use of words. Word forms include: spelling (i.e. written forms); pronunciation (i.e. spoken forms); and appendages, i.e. affixes and roots. For example, when encountering a word such as 'uncommunicative', it can be broken down into its

component parts, where: [un] (i.e. the prefix) means opposite; [communicate] is the root of the word; and [ive] is the suffix denoting an adjectival form. Learners frequently lack understanding of this complexity when characterising word knowledge, leading to focussing solely on the meaning of the word and its form, while neglecting important aspects of word knowledge. Hence, linguists advise that learners should be exposed to the fact that: "the potential knowledge that can be known about a word is rich and complex" (Schmitt, 2000:5). In order to clarify this aspect, I have outlined Nation's (2001:27) concepts concerning the different components of word knowledge (see Table 2.1).

Table 2.1: What is involved in knowing a word

Aspect	Component	Receptive knowledge	Productive knowledge
Form	Spoken; Written; Word parts.	What does the word sound like? What does the word look like? What parts are recognisable in this word?	How is the word pronounced? How is the word written and spelt? What word parts are needed to express the meaning?
Meaning	Form and meaning; Concepts and referents; Associations.	What meaning does this word form signal? What is included in this concept? What other words does this make people think of?	What word form can be used to express this meaning? What items can the concept refer to? What other words could people use instead of this one?
Use	Grammatical functions; Collocations. Constraints on use (register, frequency, etc.)	In what patterns does the word occur? What words or types of words occur with this one? Where, when, and how often would people expect to encounter this word?	In what patterns must people use this word? What words or types of words must people use with this one? Where, when, and how often can people use this word?

Source: Adapted from Nation (2001:27)

Table 2.1 illustrates the information L2 learners need to acquire when studying vocabulary. As noted previously, learners need to understand not only the form and meaning of a word, but also how, and when, it should be used. Uses can include collocations, inferring understanding which words appear together or co-occur more

frequently, e.g. '*a strong argument*' is a natural collocation in English, but an L2 learner may use '*a sturdy argument,*' which is unnatural in English. Schmitt (2007) argues that it is difficult to master all potential collocations and uses of words, further noting that learners gain knowledge of word collocations and register as they advance in proficiency, noting that some types are acquired before others. Schmitt (1998) has established that some advanced learners are able to deduce the correct form of words (i.e. in relation to spelling, in particular), regardless of their knowledge of further aspects of such words. The current researcher is of the opinion that, this indicates that is not necessary to know all aspects of a word's uses to use it successfully. Schmitt and Zimmerman (2002) found that advanced learners experienced difficulties even with words from the same family, e.g. 'philosophy' and its forms: 'philosophise', 'philosophically', and 'philosophical'.

This is rendered further complex in English by the need to understand the ways in which different types of words work when used together, as well as when they are used separately. Schmitt (2000:6) illustrates this interaction in reference to formality: "frequency is related to formality (part of the register) in that more frequent words tend to be less formal, and less frequent words tend to be more formal". However, Schmitt's claim can be viewed as a generalisation, i.e. the word 'employees' is formal, and tends to be used more often than 'workers' among L2 learners. Likewise, a word like 'chuck' is seen as informal, and is rarely used in comparison to a formal word as 'leave'.

Table 2.1 demonstrates that the requirements for productive knowledge are more difficult than those for receptive knowledge. Nation (2001) proposes a number of reasons behind this assumption: 1) The amount of knowledge required: receptive knowledge requires only a recognition of the meaning in relation to the forms of speaking and writing, while productive knowledge demands a greater acquisition of

spoken and written output. 2) Practise: receptive knowledge requires considerably more productive knowledge from L2 learners and native speakers.

A number of scholars have described intention as a component of word knowledge (Nation, 2001; Schmitt, 2000; Coady, 1993; Sinclair & Ellis, 1989; Nation, 2005; Qian, 2002; Richards, 1985; and Ur, 1999; 2008). A number of these perspectives concerning word knowledge are summarised below:

Ur (1996:23) points out that vocabulary knowledge involves knowing:

1. The different forms of the words, i.e. spelling or pronunciation.
2. Knowing the grammar structures of the words.

However, a number of issues arise in relation to the above views. For example, Ur (1996) states that learners should be aware of the probability of the occurrence of the words, although this can prove somewhat difficult for L2 learners, as there are no perfect sources to establish such probability. On the other hand, native speakers possess intuitive knowledge concerning the words in their language, and therefore understand the probability of a word's occurrence, i.e. the comparative frequency of the use of a word like 'book' as opposed to 'directory'. As noted previously, they also have a greater understanding of collocations than L2 learners, with 'a strong argument'.

Table 2.2 forms a summary of a number of important aspects of word knowledge.

Table 2.2 The view of the current researcher in relation to word knowledge.

A- Knowing the collocation of the words.
B- Knowing the different aspects of meanings associated with the words.
C- Knowing the formality (register) of the words.
D- Knowing all the grammatical rules of the words.
E- Knowing the pronunciation of the words.

It can thus be seen that a number of aspects have been excluded (including being aware of word frequency), as it is difficult for L2 learners to be aware of the frequency of a word and the number of contexts in which it may be appropriate, and thus knowing a word becomes considerably more complex and richer than might be imagined. Thus, as suggested by Schmitt (2007), learning words is by necessity 'an incremental process'.

2.2.4 Implicit and Explicit Vocabulary Learning Approaches

Having clarified the definition, meaning, uses and forms applied to 'vocabulary' (2.3), it is now necessary to consider the different approaches to vocabulary learning, due (as noted above) to vocabulary forming the main constituent in acquiring a foreign language. Schmitt (2000) notes that there is no ineffective or perfect method for vocabulary learning, although some methods are considered more successful than others. Thus, unless it is encountered in context, it is challenging for L2 learners to memorise each new word. However, the more a student wishes to learn, the greater the increase in the process of learning. As will be evidenced below, a number of details associated with types of word knowledge will be implicated in VLS, i.e. memory strategies. However, vocabulary-learning approaches also depend on internal and external factors, which can facilitate the acquisition of vocabulary, e.g. curriculum; the ability of the student; institutional system; and targeted lexical items.

Rubin and Thompson (1994) are of the view that vocabulary learning can be achieved following one of two approaches, i.e. the direct approach and the nondirective approach. Schmitt (2000) and Ellis (1994, cited in Qian, 2002:103) terms these 'intentional' or 'incidental' approaches, while Hulstijn and Laufer (2001) refer to them as 'explicit' and 'implicit'. Two points need to be addressed prior to defining these two

terms: firstly, it is more problematic to define 'implicit learning' than 'explicit learning' (Qian, 2002:103). It can be seen that a number of articles have discussed 'implicit learning' at length, leaving little room for 'explicit learning', (Ibid: 103). Secondly, in the field of psychology, the definition of 'explicit' and 'implicit' learning relies on the presence, or absence, of conscious operations, although this has proved to be a controversial issue. Ellis (1994b:1) defines 'explicit' learning as characterised by a "more conscious operation, where the individual makes and tests hypotheses in a search for structure".

On the other hand, Ellis (1995:5) defines 'incidental' or 'implicit' vocabulary learning as: "acquisition of knowledge about the underlying structure of a complex stimulus environment by a process which takes place naturally, simply and without conscious operation". Furthermore, Robert et al. (1991:888, cited in Qian, 2002:104) define 'implicit' learning as: "the process whereby a complex, rule-governed knowledge base is acquired largely independently of awareness of both the process, and the product, of the acquisition". According to Schmitt (2010: 29), we can define incidental learning as, "learning which accrues as a by-product of language usage, without the intended purpose of learning a particular linguistic feature". He further explained that "any vocabulary learned while reading a novel simply for pleasure, with no stated goal of learning new lexical items is considered as an example of incidental vocabulary learning" (Ibid:29). Incidental learning has been variously defined by researchers as learning without intent to learn, or the learning of an item, e.g. vocabulary, when the learner's primary objective is to focus on another task.

Once L2 learners become more advanced, they are able to employ guessing, or inferential strategies, when they encounter new words, as will be discussed in further

detail below. It is also important to examine the role of the teacher, as this informs the two approaches of direct and indirect learning. In the former, teachers are able to use related semantic sets and paired translation equivalents, whereas in the latter, they are exposed to lexical items when reading authentic texts. L2 learners thus acquire vocabulary incidentally, through two learning strategies: explicit learning and implicit learning.

Nation (1990) states that, in general, a considerable amount of time should be devoted to the learning of indirect vocabulary, rather than direct lexical-learning activities. This is followed by a number of essential criteria to enable indirect vocabulary methods to take place, i.e. L2 learners should be engaged in the message conveyed through the language. He further clarifies that the message should have lexical items outside the vocabulary knowledge of the learner, and his/her present language proficiency. However, in order for indirect methods to take place, these words should be ones that are simple to guess from the context. He is also in agreement with Hunt & Beglar (1998) that indirect vocabulary can be acquired through reading and listening.

It can thus be concluded that L2 learners are able to learn vocabulary incidentally, regardless of whether they prefer an approach that is explicit/implicit, or a combination of the two. Recent studies have emphasised that a combination of both approaches is most effective for learning vocabulary, and it appears that both approaches are important for L2 learners. While they intentionally learn targeted vocabulary as a requirement for their courses, as well as to increase their vocabulary, they incidentally learn additional vocabulary when working on other language skills, i.e. reading and listening.

2.3   Language learning strategies (LLSs)

The above sections have outlined the process of vocabulary learning, including a number of important aspects of vocabulary learning; i.e. meaning and the identity of vocabulary knowledge (2.2, 2.2.1, 2.2.3, and 2.2.4). This current section will present strategies and their various classifications in further detail (2.4). It is important to note that LLS will enable a more detailed investigation into VLS (3.3)

2.3.1   Defining strategies

It is beneficial to commence with a focus on a wider meaning of 'strategy'. This is believed to be a term derived from the "ancient Greek term strategia meaning generalship or the art of war" (Oxford 1990:7-8):

> *"To understand learning strategies, let us go back to the basic term, strategy. This word comes from the ancient Greek term strategia meaning generalship or the art of war. More specifically, strategy involves the optimal management of troops, ships, or aircraft in a planned campaign. A different, but related, word is tactics, which are tools to achieve the success of strategies. [...] The strategy concept, without its aggressive and competitive trappings, has become influential in education, where it has taken on a new meaning and has been transformed into learning strategies. One commonly used technical definition says that learning strategies are operations employed by the learner to aid the acquisition, storage, retrieval, and use of information. This definition, while helpful, does not fully convey the excitement or richness of learning strategies. It is useful to expand this definition by saying that learning strategies are specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferrable to new situations".* (Ibid:7-8)

In the context of language learning, this refers to the differing mental processes utilised by L2 learners (Nunan 1999). Studies addressing LLS reveal no complete agreement concerning the term 'strategy', for which there is also no universal agreement (O'Malley, Chamot, Stewner-Manzanares, Kupper, & Russo, 1985). This leads to a debate over the identity of the most suitable and precise definition of the word 'strategy' (Alderson, 2000). Ellis (1994) points out that any disagreement arises as a

result of a lack of a clear vision concerning the constitution of learning strategies (LS). He also claims there is a lack of complete agreement concerning the number of strategies, along with their consistency, i.e. Oxford (1990:17) states that "there is no complete agreement on exactly what strategies are."

As noted earlier (2.3.1), it is clear that LLS have been defined in a number of ways, and have specifically emphasised a number of different cognitive processes (2.3.2). The diversity of definitions between researchers leads to a number of issues, including: whether it should be learner or learning strategies; linking learning strategies to learning styles; differences in terminology; and whether strategies are conscious or unconscious. In order to discuss this diversity, it is first necessary to examine the different definitions of LLS. Table 2.3 reveals the different emphases placed by the first authors to establish a definition, along with those of more recent scholars.

Table 2.3: Definitions of language learning strategies

Authors	Definitions of LLS
Bialystok (1978:71)	"Optional means for exploiting available information to improve competence in a second language."
Nisbet& Shucksmith (1986:24)	"The processes that underlie performance on thinking tasks."
Weinstein& Mayer (1986:315)	"Behaviours and thoughts that a learner engages in during learning and that are intended to influence the learner's encoding process."
Chamot (1987:71)	"Learning strategies are techniques, approaches, or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information."
Rubin (1987:23)	LS: "contribute to the development of the language system which the learner constructs and affect learning directly."
Wenden (1987:6)	Learner strategies are: "language learning behaviours learners actually engage in to learn and regulate the learning of a second language."
Kirby (1988:230-231)	LS are: "a combination of tactics, or a choice among tactics, that forms a coherent plan to solve a problem."
Mayer (1988:11)	LS are: "behaviours of a learner that are intended to influence how the learner processes information."
O'Malley & Chamot (1990:1)	LS are: "the special thought or behaviours that individuals use to help them comprehend, learn, or retain new information."

Oxford (1990, p.1)	"[L]earning strategies are tools for active, self-directed involvement, which is essential for developing communicative competence. Appropriate language learning strategies result in improved proficiency and greater self-confidence."
Anderson (1991:460)	LS are: "deliberate, cognitive steps that learners can take to assist in acquiring, storing and retrieving new information and thus can be accessed for a conscious report."
Nunan (1991:168)	LS are: "the mental processes which learners employ to learn and use the target language."
Takal (1996, cited in Kristiansen, 1998:44)	LLS: "are taken to be the behaviours that the learners engage in during learning that are intended to influence cognitive and affective processing".
Cohen (1998:4)	LS are: "learning processes which are consciously selected by the learner."
Richards and Platt&Platt, (2000:20)	"Learning strategies are intentional behaviours and thoughts that learners make use of during learning, in order to better help them understand, learn or remember new information."
Cook (2001: 126)	LLS consist of: "a choice that the learner makes while learning or using the second language that affects learning"
Cohen (2007:31)	"strategies can be classified as conscious mental activity. They must contain not only an action but a goal (or an intention) and a learning situation. Whereas a mental action might be subconscious, an action with a goal/intention and related to a learning situation can only be conscious."

The above table clarifies the number of different views existing amongst scholars concerning the exact composition of LLS. However, as noted by McDonough (1995, cited in Macaro, 2001:18), there are "a number of terms as overlapping with the concept of strategies." Table 2.3 also illustrates that the primary goal of the application of LLS is to assist learners during the vocabulary learning process, i.e. they contribute to an easier, faster and self-directed learning process. Oxford (1990:9) has proposed a list of key features as identifiable as LLS, and which share a number of common features related to aspects discussed later in the current research into VLS (Table 2.4)

Table 2.4: Advantages of language learning strategies

Language Learning Strategies
1. Support learning both directly and indirectly.
2. Help to achieve the main goal, i.e. communicative competence.
3. Expand the role of language teachers.
4. Enable learners to be increasingly self-directed.
5. Are specific actions taken by the learner.
6. Are problem-oriented.
7. Are influenced by a variety of factors.
8. Are flexible.
9. Involve many aspects of learning, not just the cognitive.
10. Are not always observable.
11. Can be taught.

Source: Language Learning Strategies (Oxford 1990:9)

Similarly, Nation (2001:217) argues that LLS must:

1. Involve choice, i.e. there should be several strategies from which to choose;
2. Be complex, i.e. there should be several steps to learn;
3. Require knowledge and benefit from training; and
4. Increase the efficiency of vocabulary learning and vocabulary use.

Thus, Oxford (1990), in response to her previous clarifications of the features of LLS, has formed the view that LLS help learners to be more active and self-motivated during the learning process, as well as expanding the role of the teachers and being problem oriented. She continues that LLS involve many aspects, not only the cognitive, i.e. LLSs support learning both directly and indirectly.

I consider that LLS should be taught in classrooms and be simple to use. LLS also should resolve any issues facing L2 learners and assist them in comprehending difficult aspects of the targeted language. LLS should also consist of more than one strategy, through which learners are able to gain improved opportunities to choose which they find suitable, i.e. LLS should acknowledge the existence of differences between L2 learners.

2.3.2 Terminology and conceptual issues

Table 2.3 reveals a number of discrepancies in the terminology employed to define 'strategy'. Ellis (1994:529) claims that disagreement on the concept of strategy appears to be "a somewhat fuzzy one and it is difficult to tie down". Chamot (2004) suggests that the reason for this diversity is due to much of the research reporting LLS employed by learners has been descriptive and extensively focused on results. For example, in Table 2.3, Cohen (1998), Nunan (1991) and Nisbet & Shucksmith (1986) label the concept of a strategy a 'process', while the following view it in terms of "thoughts and behaviours": Richards et al. (2000); O'Malley and Chamot (1990); Mayer (1988); Wenden (1987); Weinstein & Mayer (1986); and Takal (1996). A further issue arises in terms of terminology due to the term 'strategy' having been labelled as "techniques, tactics, actions, steps and approaches" by Anderson (1991), Oxford (1990), Kirby (1988) and Chamot (1987). Furthermore, Wenden (1991:18) has drawn up the following terms for strategies: "techniques, tactics, potential conscious plans, consciously employed operations, learning skills, basic skills, functional skills, cognitive abilities, problem solving procedures, and language learning behaviour". A number of researchers further imply that a 'strategy' is a thought, and an unconscious process, thus rendering it unsuitable for study, due to research instruments not being designed to investigate learners' unconscious thoughts. Thus, this diversity generates both confusion and complexity, particularly when relating and synthesising various research findings. However, the term 'strategy' has been employed in the field of applied linguistics, and hence will be used in the current study.

The current researcher's definition of strategy can thus be established as a process of actions and steps, through which learners consciously choose to resolve their language issues and acquire any target aspect of a L2 language in a more effective

manner. This conclusion accords with Oxford (1990) in establishing the most useful strategies/actions to assist learners improve their vocabulary knowledge, i.e. self-involvement in the use of appropriate vocabulary strategies can improve learner self-confidence.

Furthermore, a further significant difference is revealed in Table 2.3, which illustrates the degree of diversity in perceptions concerning strategy. Thus, while one group of researchers perceives strategy as 'behavioural' (i.e. Mayer, Oxford and Wenden), a second group views it as a 'mental process' (i.e. Kirby, Nunan, and Anderson), and a third as a combination of mental and behavioural processes (i.e. Weinstein & Mayer, O'Malley & Chamot, and Richards and Platt & Platt). Thus, this diversity generates both confusion and complexity, in particular when relating and synthesising various research findings. However, the term 'strategy' has been accepted in the field of applied linguistics, and hence will be employed in the current study. To avoid confusion, the definition of processing put forward by Ellis (1994:295) will be adopted, i.e. "some form of activity, mental or behavioural, that may occur at a specific stage in the overall process of learning and communicating".

2.3.3 Learner Strategies or Learning Strategies

A further problematic area derived from the diversity evident in the definition of 'strategy' concerns 'learner strategies' as opposed to 'learning Strategies'. Thus, Wenden (1987:6) employs the term 'learner strategies', while other researchers use 'learning strategies'. This could be as a result of some scholars failing to separate 'learning strategies' from 'learner strategies', and so might view these as one 'word leading to same purpose'. However, there are others who have sought to illuminate the differences between 'learning strategies' and 'learner strategy'. Macaro (2001:19-20)

distinguishes these terms by stating that: "learning strategies (are) used by learners to help with the accomplishment of all language-related tasks" whereas learning strategies relate "more specifically to the process of language learning". He further states that learner strategies also contain learning strategies, and thus learner strategies may cover more strategies than learning strategies. Cohen (1998:5) argues that: "second language learner strategies encompass both second language learning and second language use strategies. Taken together, they constitute the steps or actions consciously selected by learners either to improve the learning of a second language, the use of it, or both".

2.3.4 Linking learning strategies to learning styles

The fourth problematic aspect identified during the consideration of the literature focussing on this area consists of: "what is perceived by some as an inadequate linking of learning strategies and learning styles in the language learning field" (Cohen, 1996:9). Learning strategies are employed according to a learner's learning style and their personality, including factors of anxiety or self-perception (Brown, 1991). They also relate to a number of further factors, including sex, age, and ethnicity (Oxford, 1989). Likewise, Schmeck (1988) exhorts researchers to understand the relationship between learning strategies and learning styles. He further comments that researchers should view learning strategies and learning styles in relation to personality, i.e. introversion/extroversion; reflectiveness/impulsiveness; field independence/dependence; self-confidence; self-concept; self-efficacy; creativity; anxiety; and motivation (intrinsic/extrinsic).

2.3.5 Learning strategies as conscious or unconscious

The final point to be addressed concerns the issue of whether strategies need to be considered as being conscious, in order to be considered strategies. Cohen (1998) notes that all strategies are conscious, as made clear by the previous discussion of his definition. Table 2.3 reveals that a number of researchers define strategies as conscious steps taken by learners. Thus, Anderson (1991:460) views strategies as "deliberate and cognitive steps", while, Cohen (1998:4) views them as a "conscious process", further claiming that consciousness plays a crucial role in strategies, as it distinguishes between what is, and what is not, a strategy (Ibid:4). Ellis (1994) points out that if a learner employs a specific strategy unintentionally, having previously employed it intentionally, the strategy loses its identity and thus cannot be considered a strategy.

On the other hand, an alternative view of strategies considers they are both conscious and unconscious. For example, Nisbet and Shucksmith (1986) believe that strategies can be pursued unconsciously, while Davies (1995) also asserts that learners use both unconscious and conscious strategies when engaged in a reading task, in order to comprehend challenging portions of the text.

I consider that strategies are required to be conscious actions, as during their learning process, L2 learners need to differentiate between those that are beneficial and those that are not, thus benefitting learners in terms of vocabulary learning and self-confidence. Thus, all L2 learners need to be introduced to strategies, and use them consciously to tackle any issue relating to vocabulary for themselves. This will enable learners to improve their level of comprehension, along with their skills and their conscious choices of strategies. Twaddell (1973:70) states that, in order to assist a learner: "what we can try to do is guide his development of skills to compensate for [the

learner's] lack of resources, and let his resources grow as a result of his success in using his skill."

2.4 Taxonomies of LLS

Segler, Pain, & Sorace, (2002) are of the opinion that many LLS can be applied to the learning of L2 vocabulary, and those strategies are also VLSs. Hence "combining the results from general learning strategies research with those from more vocabulary-specific studies, allows us to derive a number of tentative general conclusions about vocabulary learning strategies" (Schmitt, 1997:200). A number of researchers, including Chamot (1987) have found that, when applying LLS, vocabulary learning is a primary focus for L2 learners. One reason put forward is that L2 learners recognise the necessity of acquiring L2 lexical items, hence leading them to focus more on language learning strategies that help them to retain L2 vocabulary (Schmitt, Schmitt & Clapham, 2001)

The process of classification of LLS into categories (including VLS) is complex, and forms a further challenge for applied linguists. Oxford (1990) says:

> *Any current understanding of language learning strategies is necessarily in its infancy, and any existing system of strategies is only a proposal to be tested through practical classroom use and through research. At this stage in the short history of language learning strategy research, there is no complete agreement on exactly what strategies are; how many strategies exist; how they should be defined, demarcated, and categorised; and whether it is—or even will be possible to create a real, scientifically validated hierarchy of strategies.* (1990:16-17)

Oxford (1990) also observes that the L2 strategy classification systems identified by researchers to define fundamental aspects in the field can be divided into five categories. The first category of systems relates to good language learning (Rubin, 1975 and Ahmed, 1988). The second category is concerned with psychological function (O'Malley & Chamot, 1990). The third applies a linguistically-based system that deals

with communication strategies, such as paraphrasing or borrowing (Tarone, 1981), as well as language monitoring , guessing and functional practise (Bialystok, 1981). The fourth category covers aspects that are based on separate language skills (Cohen, 1990); and the final group includes systems based on learners' different learning styles.

2.4.1 Earlier taxonomies.

As noted previously (2.3), it is beneficial to first consider LLS classification in order to understand the ways in which researchers have presented a classification of VLS. The first attempt to classify LLS was undertaken by Rubin (1975) and Stern (1975), who examined the actions undertaken by a successful language learner to learn an L2, and created categories to reflect their conclusions. Naiman et al. (1978) also paid attention on the VLSs employed by good language learners. In doing so, they relied on classifications based on the issues noted above (i.e. 2.4), and applied the first group of systems (i.e. effective language learners).

According to Wenden (1991, cited by Kristiansen, 1998:13) L2 learners need to know when learning a language, which strategies are useful to them. This is a focus of this current study, including establishing the most useful strategies, based on the perceptions of learners. A student has to be aware of his/her abilities as well as their weaknesses (Kristiansen, 1998). Cook (2001) suggests that teachers should encourage independence, and raise awareness of the diversity of strategies students are able to adopt. In addition, he also suggests that it can prove beneficial to run specific training courses in a number of strategies, while acknowledging both the similarities and differences existing between learning a second language and other educational subjects. A further aim of this current study is to investigate the role of the academic field in learners' choices of VLS, i.e. there will be an observation of English majors and

Science majors, in order to identify the existence of any potential differences. To the best of my knowledge, this aspect has not been previously investigated in the Saudi context.

Naiman et al. (1978) investigated a number of strategies through a reference to several instruments, i.e. interviews, classroom observations and diaries. They divided LLS classifications into two main categories, both of which include all strategies exploited by successful learners, i.e. (1) primary strategies, and (2) secondary strategies. These classifications involve not only strategies, but also the tasks and stages associated with language learning, such as the four language skills of reading, writing, speaking, and listening.

There are additional well-known taxonomies of LLS, whose proposed classifications will be discussed below. i.e. Rubin (1981;1987); O'Malley & Chamot (1990); and Oxford (1990). The classifications offered by O'Malley and Chamot (1990) and Oxford (1990) have had a positive impact on the strategies noted by Ellis (1994:536), who notes that their classifications: "made important contribution to our knowledge of learning strategies".

2.4.2 Strategies associated with Rubin's (1981-1987) taxonomy

The classification system devised by Naiman et al. (1978) does not specifically focus on VLSs. This is in contrast with that of Rubin (1981), who classifies language learning strategies into two main dimensions: (1) direct, and (2) indirect strategies. The former is subdivided into six categories, accompanied by two indirect strategies.

The first direct strategy relates to verification and clarification (e.g. asking others the ways of using a word in a language), with Rubin focusing on vocabulary learning. The second direct strategy consists of monitoring, which focuses on self-

correction, i.e. when a learner corrects him/herself when mistakenly using an incorrect or inaccurate expression or spelling. The third direct strategy consists of memorisation, which includes strategies that assists learners to retain vocabulary, e.g. taking notes; speaking the word aloud several times; or writing the word repeatedly. Finally, there is the deductive strategy, which involves making comparisons between the L1 and L2.

This is followed by consolidating the words through the act of practising the newly acquired words in conversation with native speakers. All these strategies are covered by the main questionnaire for this thesis, in order to reflect VLS options.

Rubin (1981), on the other hand, illustrates indirect strategies as processes contributing indirectly to language learning. Similar to direct strategies, indirect strategies can also be subdivided into further categories: (1) The first category deals with creating opportunities to learn vocabulary, i.e. talking to native speakers or listening to English speaking programmes (this differs from direct strategies, in that the former involve directly manipulating the L2). (2) The second indirect strategy involves using production tricks for communication purposes.

Rubin (1987) subsequently divides strategies into three different types, i.e. (1) communication strategies; (2) learning strategies; and (3) social strategies. These can all be subdivided, in order to contribute (either directly or indirectly) to language learning, i.e. cognitive strategies and metacognitive strategies can be classified under learning strategies, which aim to directly facilitate language learning.

Firstly, cognitive strategies can be defined as: "the steps or operations used in learning or problem-solving that require direct analysis, transformation, or synthesis of learning materials" (Rubin, 1987:23). Oxford (1990) claims that cognitive strategies are important in language learning. O'Malley and Chamot (1993) also define cognitive

strategies as mental operations employed by listeners, e.g. guessing, elaborating, creating images, summarising and taking notes. Thus, cognitive strategies include: clarification, guessing, deductive reasoning, practising, memorisation, and monitoring.

Secondly, metacognitive strategies go beyond cognitive strategies. Brown and Yule (1983, as cited in Wenden, 1998:519), address the fact that metacognitive knowledge and metacognitive strategies form: "two separate and distinct components of the broader notion of metacognition." Moreover, O'Malley and Chamot (1990:44) define metacognitive strategies as "higher order executive skills," which include prioritising, self-management, setting goals, planning, and objectives.

When it comes to communication strategies, Rubin (1987) classifies these as indirect strategies related to language learning. Rost and Ross (1991) have also defined these when observing communication between two or more individuals. Rubin (1987) suggests that learners can use communicative knowledge (e.g. such as synonyms cognates). However, it is accepted that "there is no evidence to date that communication strategies contribute directly to language learning" (Ibid:27).

Figure 2.1 Rubin's classification of Language Learning Strategies
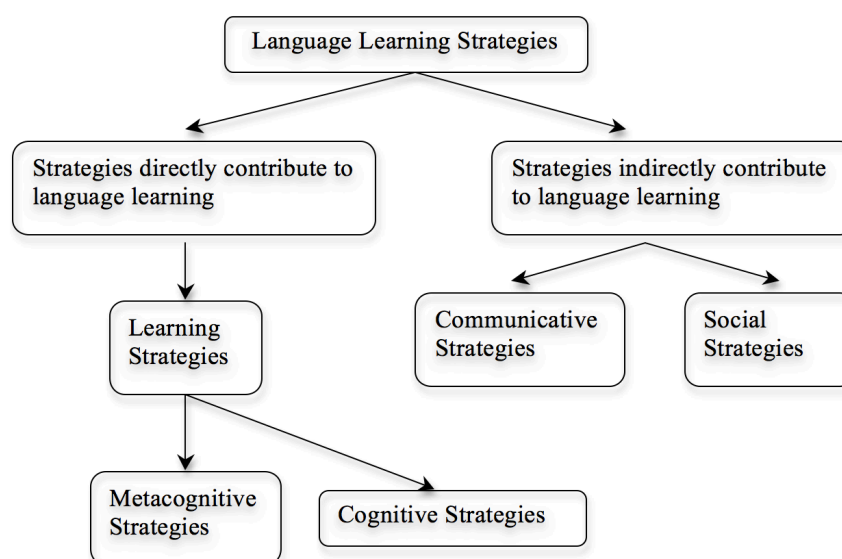
2.4.3 Strategies associated with Oxford's (1990) taxonomy

A further popular LLS classification has been introduced by Oxford (1990:14-15). She states that her classification system is more detailed, and more comprehensive, attracting agreement from a number of scholars, i.e. Ellis (1994:539) and Schmitt (1997:200) favour Oxford's classification as the most effective method of defining LLS. Oxford (1990) divides her system into two main components, somewhat similar to Rubin's, but she divides them in a different manner, i.e. into direct strategies and indirect strategies. The former strategies are linked to language learning, and can be seen such as "the performer in a stage play", and "requiring mental processing of the language" and therefore dealing directly with language itself (Oxford, 1990:37), while the latter are those unrelated to language learning and can be viewed as "the director of the play." Hence, it is essential to "provide indirect support for language learning through focusing, planning, evaluating, seeking opportunities, controlling anxiety, increasing cooperation and empathy, and other means" (Ibid:151). However, Oxford points out that, in the majority of cases, both strategies support each other.

A consideration of direct strategies has revealed that this aspect is further divided into sub-strategies, as follows: (1) cognitive strategies; (2) memory strategies; and (3) compensatory strategies. Furthermore, these sub-strategies contain representative strategies. These form cognitive strategies, which Oxford (1990:37) illustrates as: (1) those that: "enable learners to understand and produce new language by many different means" (i.e. practising); (2) Memory strategies, which assist "students to store and retrieve new information (i.e. employing actions); and (3) direct strategy, which is compensation, whereby learners "use the language despite their often large gaps in knowledge" (i.e. guessing through the use of linguistic clues, coning words, and selecting the topic " (Ibid:37). This strategy compensates students for their

limited knowledge.

Oxford (1990) subsequently categorises indirect strategies into three further categories: (1) metacognitive strategy; (2) affective strategy; and (3) social strategies. Oxford (1990) states that the first category, involves steps that assist learners to evaluate their comprehension, thus enabling them to plan/arrange their learning processes, i.e. centred learning. Oxford (1990) defines the second according to factors including motivation, attitudes and emotions, which can have a positive impact on both the learner and the learning process, i.e. affective strategies. Rost and Ross (1991) define the final strategy as a social strategy, i.e. communication between two or more individuals, which takes place when interacting with listening materials or with teachers/other students, and involves asking questions in order to facilitate the learning process.

The system investigated by me utilises the Strategy Inventory of Language Learning (SILL), which works by presenting a set of questions, and allows learners to answer these according to a five-point Likert scale. SILL contains a number of vocabulary strategies, i.e. asking peers for help and note taking. Hence, the tool employed for this current research will include some sentences adapted from SILL. However, a number of researchers have expressed concerns regarding Oxford's (1990) classification. Hermann-Brennecke in (Oxford, 1991) argues that direct strategies, (e.g. the use of gestures) are not essential to denote involvement in the direct use of the target language, while some indirect strategies (e.g. asking questions) involve language use. A further argument suggests that Oxford (1990) attempts to include too large a number of strategies within the inventory. Thus, O'Malley and Chamot (1990:103) claim: "what Oxford apparently tried to do was to subsume within her classification virtually every strategy that had been previously cited in the literature on learning strategies". They also claim: "the Oxford inventory has no [underlying] cognitive [theory] and includes

overlapped sub-categories" (Ibid:103). However, Oxford (1992:20) argues that her classification "is based on the theory that a learner is a 'whole person' who uses intellectual, social, emotional, and physical resources, and is therefore merely a cognitive/metacognitive information processing machine". However, Oxford's (1990) classification reveals an array of strategies relating to learning L2 vocabulary, e.g. seeking out opportunities for practising new words and requesting others for clarification. These can all be employed in the VLS Questionnaire (VLSQ).

Figure 2.2 Oxford's classification of Language Learning Strategies
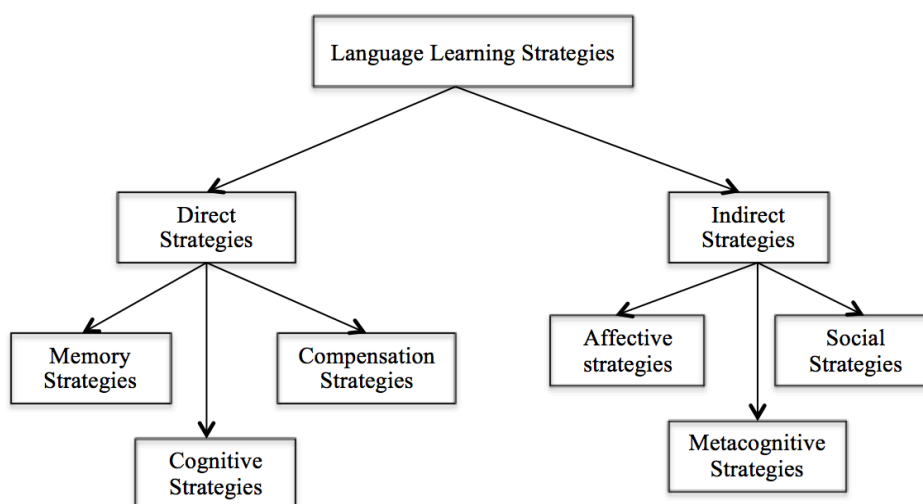
2.4.4 Strategies associated with the taxonomy of O'Malley and Chamot (1990)

The final set of LLS classifications incorporating elements of VLS is that presented by O'Malley and Chamot (1990). Their classification is comprised of three main categories: (1) metacognitive; (2) cognitive; and (3) social-affective strategies. These are then further divided into sub-categories, similar to the above-noted classifications. Thus, a cognitive strategy is comprised of: summarising; imagery; rehearsal; organisation; elaboration; deducing; transfer; and inferencing. Further strategies are considered metacognitive, and include: planning; evaluation; selective

attention; and monitoring. Finally, there is the social/affective strategy category: asking questions for clarification, cooperation and self-talk.

O'Malley et al. (1985) examined sixty-five Spanish ESL learners, five Vietnamese ESL learners, and twenty-two of their teachers. The researchers classified their participants' proficiency levels from beginner to intermediate, employing three different instruments to gather information concerning their participants' use of strategies: (1) interviews: these took the form of questioning participants' use of strategies, along with seven classroom tasks and two non-classroom tasks; (2) teacher interviews: these covered identical tasks and questions used with learners; and (3) classroom observations: these focused on strategies employed by learners in classroom settings.

The findings of O'Malley and Chamot (1990) revealed twenty-six different strategies, which they have grouped into three main dimensions: (1) metacognitive; (2) cognitive; and (3) social/affective strategies. Metacognitive strategies include: "higher order executive skills that may entail planning for, monitoring, or evaluating the success of a learning activity" (Brown et al., 1983, cited in Ibid:44). Three subcategories are proposed as associated with this strategy: (1) planning (i.e. advanced organisation and selective attention), in which learners plan to listen to key words, and preparation; (2) monitoring (i.e. self-monitoring) in which learners focus on the targeted task; and (3) evaluation (i.e. self-evaluation), in which learners evaluate themselves once a communication task has been set. The second category is a cognitive strategy, similar to that suggested by Rubin (1987), and directly related to the learning process. It includes fourteen unique strategies: (1) repetition (rehearsal strategies), in which learners repeat what they encounter in order to retrieve words when needed; (2) organisational strategies (grouping), in which learners associate words, concepts or terminology with

grammatical categories; (3) elaboration strategies; (4) deduction; (5) imagery; (6) auditory representation; (7) keyword methods, in which the learners seek for similar sound/spelling of L2 to L1; (8) transfer; (9) note-taking; (10) recombination; (11) inferencing; (12) transfer; (13) translation; and (14) social/affective strategies, which refer to interactions with others, i.e. teachers or classmates. These also include two further strategies: (1) asking for clarification, and (2) cooperation. Their research results demonstrate the following:

- The least reported strategy was social/affective strategies.
- Cognitive strategies were the strategies most frequently employed, i.e. more so than metacognitive strategies, such as in the former 'repetition' (19.6%), 'note-taking' (18.8%) and in the latter 'elaboration', 'keyword', 'deduction', 'grouping' and 'recombination (Ibid:38-39); and
- The teachers demonstrated considerable interest in strategy use and training.

O'Malley and Chamot (1990) have drawn up an LLS classification based on the previous study, in which the classification is concluded relative to three main dimensions: metacognitive strategies, cognitive strategies; and social/affective strategies. They note the following rationale for basing LLS studies on cognitive psychology: Firstly, "the level of specificity and the 'dynamic' or 'process' orientation of models of skills acquisition allowed us to provide a more detailed process view of SLA than is provided by most current models of second language learning" (Ibid:19). Secondly, the cognitive aspect provides a mechanism detailing precisely the ways in which a language learning skill can be developed. Thirdly, in pedagogical terms, this "pertains to the development and use of learning strategies in second language instruction" (Ibid: 19-20).

Chapter 2: Literature review I: Vocabulary language learning strategies (LLS)

O'Malley et al. (1985) have undertaken a large number of studies to establish additional LLS classifications. They pay considerable attention to the role of cognitive psychology, in particular to the theoretical framework of adaptive thought control (ACT), as presented by Anderson (1983,1985). This framework acts to strengthen the LLS classification of O'Malley and Chamot. ACT is a general theory of cognition, focusing on memory processes. It distinguishes between three different memory structures: (1) declarative (i.e. explicit memory); procedural (i.e. implicit memory); and working memory. Anderson (2005:234) states that declarative memory is employed to: "describe knowledge that we can consciously recall." Thus, this aspect of memory deals with facts (i.e. *London is the Capital City of United Kingdom*), whereas procedural memory is used to "describe knowledge that we cannot consciously recall, but that nonetheless manifests itself in our improved performance on some task" (i.e. knowledge concerning the position of the letter 'Q' on a keyboard).

Furthermore, Anderson (2005) presents three different stages when developing skill acquisition. Firstly, there is the 'cognitive stage', in which memory is committed to a set of facts, i.e. spelling a word. At this stage, the learner is able to explain the communication in the targeted language. O'Malley and Chamot (1990) state that when learners acquire the target language, they will inevitably memorise vocabulary and become familiar with the correct grammar. Moreover, as a form of declarative knowledge, learners can be given explicit information concerning any new words they encounter during their vocabulary learning (e.g. forms, meaning and usages). This forms an aspect of word knowledge to be discussed below. Secondly, there is the 'associative stage', during which two developments take place. Anderson (2005:282) notes that firstly, initial errors are defined and then gradually corrected, and secondly that "the connections among the various elements required for successful performance

are strengthened". Here, it is believed that declarative knowledge is replaced by procedural knowledge. However, these types of knowledge can, on occasion, coexist. Anderson (2005) provides an example of coexistence between two types of knowledge, noting that when a learner seeks to achieve fluency in L2, he/she still retrieves the many rules of grammar that belong to the targeted language. The final stage of skill acquisition is 'the autonomous stage', in which the "procedure becomes more and more automated and rapid" (Ibid:282). It is believed that, stage three consolidates stage two particularly when it comes to error elimination. But Kudo states:

> *These stages are not distinct, or mutually exclusive, because the two types of knowledge are not restricted to a certain stage, but used at different stages by learners: learners are always gaining new knowledge about the target language, making mistakes, and reducing these mistakes by learning more about the newly gained knowledge. Furthermore, while this process is taking place, new input is also being received, resulting in the same procedure. Therefore, it may be plausible to interpret the three stages not as distinct, but as recurring processes.* (1999:2)

O'Malley and Chamot (1990), however, criticise Anderson's theory (1983,1985), noting that it focuses solely on the process of storing and recalling information, rather than on a straightforward learning process. Consequently, it can be argued that there is a lack of differentiation between learning strategies and cognitive processes. However, they admit that Anderson's theory of stages can prove beneficial to the investigation of learning strategy, as it "helps to identify and test the existence and applicability of specific learning strategies that are appropriate at various stages in the skill acquisition process" (Ibid:20). This theory is also beneficial in assisting the vocabulary learning process. In the first stage (i.e. the cognitive stage), the learner focuses on the process of knowing a word, e.g. its forms, meaning and pronunciation (as discussed in 2.2.3). In the association stage, the learner learns to compare and contrast the knowledge he/she has acquired concerning a specific word, enabling them to create

associations in the form of synonyms or antonyms, which they are then able to use autonomously.

A number of VLS strategies could be derived from O'Malley and Chamot's (1990) classification. For example, in the cognitive category, strategies such as 'repetition', 'resourcing', 'note-taking', 'keyword', 'inferencing', and 'dictionary use' can aid vocabulary learning. Under the metacognitive category there are a number of strategies that can be associated with vocabulary learning, including 'directed attention' and 'selective attention'. In the final category (i.e. the social/affective) there are also a number of strategies that can be used to learn vocabulary, including 'interactions with native speakers', 'cooperation with others' and 'questioning for clarification'. Such strategies could prove helpful in the design of a VLSQ.

However, attempts to present LLS classification by O'Malley and Chamot (1990:45) reveal a number of problematic areas. For example, an overlap exists between the two sets of strategies in such categories as (1) selective attention, and (2) directed attention. Moreover, Cohen (1996) also states that identical strategies may have different uses at a number of different levels of thought (e.g. skipping a text, or an example) can interchangeably reflect both a metacognitive strategy and a cognitive strategy, thus facilitating the skipping of elements less crucial in a gist statement.

Figure 2.3 O'Malley & Chamot's (1990) Classification of Language Learning Strategies
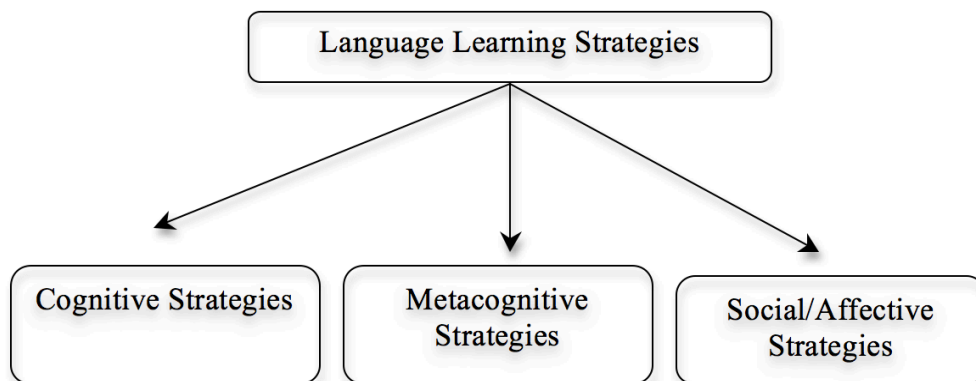
2.5   Summary of the chapter

This chapter has reviewed the difference between words and vocabulary (2.2.1), the importance of words (2.2.2), and the measures of vocabulary knowledge (2.2.3). It has also addressed several aspects of LLS, such as key definitions (2.3.1), and terminological considerations (2.3.2). It has also reviewed LLS taxonomies (2.4). The following chapter will discuss definitions for VLS and taxonomies, combining the results from general language strategy research with that derived from vocabulary specific studies, enabling me to: "derive a number of tentative general conclusions about vocabulary learning strategies" (Schmitt, 1997:200). It will also cover a number of key factors, influencing the learner's use of VLS, and offering insights into recent and related studies covering VLS.

Chapter Three: Literature Review II: Vocabulary Learning Strategies (VLSs)

3.1 Introduction

This section of the literature review is devoted principally to exploring the taxonomies and studies related to the current study. As outlined in Chapter Two, vocabulary is central to language learning (2.2.2); thus, reflecting its significance, this chapter will define a vocabulary learning strategy (VLS) (3.2) and associated taxonomies (3.3), and present studies on VLSs in conjunction with any research gaps (3.4 , 3.5 and 3.6). Finally, it will also illustrate those factors that affect learners' uses of VLSs (00).

3.2 Definitions of VLSs

Mastery of VLSs to advance the vocabulary learning process, whether directly or indirectly, is important to allow learners to acquire new lexical items effectively. Schmitt (2000:132) states, "One approach of facilitating vocabulary learning that has attracted increasing attention is vocabulary learning strategies (VLSs)". The previous chapter discussed the complexity and richness of word knowledge, suggesting learners benefit most when they are able to apply VLSs highly effectively.

According to Mizumoto and Takeuchi (2009:426), scholars worldwide have explored the role and benefits of VLSs (e.g. Ahmed, 1988; Ahmed, 1989; Sanaoui, 1995; Gu & Johnson, 1996; Lawson & Hogben, 1996; Schmitt, 1997; Kojic-Sabo & Lightbown, 1999; Nakamura, 2000; Catalán, 2003; Fan, 2003; Gu, 2003). Furthermore, the importance of VLSs has been emphasised alongside strategies applied to acquire the key language skills: listening, speaking, reading and writing (Mizumoto & Takeuchi, 2009: 426). In reference to strategy use, Schmitt (2000:132) asserts that many L2

learners utilize strategies for learning vocabulary even when they do not use them to develop other aspects of their L2. However, VLS use typically varies depending on the learner's goals and the development of their receptive and productive skills: "active learning management is important. Good language learners do many things such as use a variety of strategies, structure their vocabulary learning, review and practise target words and so on" (Schmitt, 2000:133). Schmitt (2000:132) explains why L2 learners focus on VLSs more than other L2 skills, stating:

> *"[T]his might be due to the relatively discrete nature of vocabulary learning compared to more integrated language activities, making it easier to apply strategies effectively. It may also be due to the fact that classrooms tend to emphasise discrete activities over integrative ones, or that students particularly value vocabulary learning."*

His statement supports the claim put forward in the previous chapter (2.2.2), that vocabulary is frequently perceived as more important than other skills or aspects, such as grammar. L2 learners clearly value vocabulary learning and carry "notebooks" to record every new word; also known as employing a vocabulary note-taking strategy (NTS), a strategy that will be investigated further in this thesis.

Researchers have yet to provide a definition of VLS upon which they completely agree. Ruutmets (2005) notes that, while a number of studies have investigated the topic of VLSs, few researchers have attempted to define VLS comprehensively. Nation (2001) considers a VLS as merely a subclass of language learning strategy (LLS). Therefore, from his perspective, the various VLSs can be classified as LLSs (2.3.1). Similar to the issue raised in Chapter Two regarding the difficulties associated with defining LLSs, the problems defining VLSs arise from the weak agreement about what constitutes a "strategy" (2.3.1). Furthermore, current deficiencies in VLS classifications could also impede the emergence of a proper definition. In fact, Nation (2001) defines

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

VLSs by first defining strategy, linking important aspects of LLSs to VLSs (2.3.1)

Elsewhere, Schmitt (1997) explains what a VLS is by building on Rubin's (1987) definition of a LLS, as "the process by which information is obtained, stored, retrieved, and used" (29). He argues that VLSs "could be any [strategies], which affect this rather broadly-defined process" (Schmitt, 1997:203). This highlights the lack of a definite and concrete meaning for VLSs, establishing them as both conscious and unconscious. Schmitt's definition of a VLS also resembles Brown and Payne's (1994 cited in Hatch & Brown, 1995:373) five-step vocabulary learning process framework, which involves:

> *"(1) Having sources for encountering new words, (2) getting a clear image, either visual or auditory or both, of the forms of the new words, (3) learning the meaning of the words, (4) making a strong memory connection between the forms and the meanings of the words, and (5) using the words".*

In subsequent research, Fan (2003:223) establishes that all VLSs relate in some way to the aforementioned five steps. Catalán (2003:56) offered another approach to defining VLSs, building on Schmitt's (1997) work, and based on Rubin's definition (1987) of VLSs as:

> *"[K]nowledge about the mechanism (processes, strategies) used in order to learn vocabulary as well as steps or actions taken by students (a) to find out the meaning of unknown words, (b) to retain them in long-term memory, (c) to recall them at will, and (d) to use them in oral or written mode."*

She elaborates on this, indicating two main aspects: first, the initial part of the definition (i.e. knowledge about the mechanism [processes, strategies] representing metacognitive strategies), and second, cognitive strategies (steps or actions) as steps (a, b, c and d), representing Anderson's (2005) three-stage process as previously mentioned (2.4.4). Furthermore, Cameron (2001:92) also suggests an additional definition of

VLSs, claiming they are the steps that L2 learners take to comprehend and retain words. Intaraprasert (2004:9) also defined VLSs as "any set of techniques [strategies] or learning behaviours, which language learners reported using in order to discover the meaning of a new word, to retain the knowledge of newly-learned words, and to expand their knowledge of vocabulary". However, an objection, albeit minor, can be made here. While Intaraprasert defines techniques as "strategies", it seems unreasonable to use the word 'strategies' to define something that also contains the word "strategy". Nevertheless, despite this, his definition is appropriate in that it both encompasses and addresses the phrase "vocabulary learning strategy" making it similar to what I previously proposed (2.3.1).

3.3 Relevance of VLS taxonomies to the present study

The preceding chapter provided diverse classifications for LLSs (2.4), reflecting on the divergent opinions of scholars (2.3.1). As explained above, VLSs parallel LLSs in terms of the lack of a comprehensive or concrete definition (3.2). However, several schemes have been associated with VLSs by researchers; the majority designed relative to LLS classifications. Nation (2001) observes attempts by scholars to present taxonomies for VLSs in various contexts, some of which are presented below, in the order that they were developed. It is noteworthy that there are neither perfect nor imperfect classifications of VLSs; as Fan (2003:223) notes, "no classification is perfect and any individual strategy may fall into one category or another, depending on the aspect in focus".

3.3.1 VLSs proposed by Gu and Johnson (1996)

Gu and Johnson (1996:643-679) investigated 850 advanced Chinese students' uses of VLSs when learning English. They identified the following VLSs:

- Metacognitive regulation (e.g. selective attention);
- Cognitive strategy (Note-taking strategies guessing strategies, dictionary strategies);
- Rehearsal strategies (e.g. oral repetition)
- Encoding strategies (e.g. visual encoding, Imagery)
- Activation strategies; and
- Beliefs about vocabulary learning.

The aforementioned categories, similar to other strategy classifications systems offered elsewhere, include sub-strategies; for example, metacognitive strategies entail selective attention and self-initiation strategies. According to the researchers, those second- or foreign-language learners who adopt a selective attention strategy know exactly which words are useful to them in order to comprehend a passage adequately. Language learners who employ a self-initiation strategy typically use several methods to clarify the meaning of target words. Whereas, cognitive strategies such as note taking, guessing and the skillful use of a dictionary, involve background knowledge and linguistic clues, such as identifying the grammatical structure of a sentence, in order to guess the meaning of target words correctly. In terms of memory strategies, the researchers classified these into two aspects: rehearsal and encoding strategies. The former encompasses strategies such as association, imagery, visual, auditory and semantics, whereas the latter include strategies such as word analysis. Moreover, they identify activation strategies, which refer to "those strategies through which learners actually use new words in different contexts, for instance learners may make sentences using the words they have just learned" (Gu & Johnson, 1996: 51).

3.3.2 VLSs proposed by Schmitt (1997)

Schmitt (1997:207-208) developed a classification of vocabulary learning strategies based on Oxford's (1990:17-21) system; it includes, social, memory, cognitive and metacognitive strategies. His VLSs taxonomy recognises 58 individual strategies, organised in a two systems framework, namely: 1) Oxford's (1990) classification offers four categories of LLS: social, memory, cognitive, and metacognitive strategies.; and 2) Cook and Mayer's (1983) and Nation's classification system that divides strategies into discovery and consolidation strategies (1990). He explains his choice of Oxford's LLS taxonomies as a foundation, claiming it is one of the better-established systems, and that Oxford (1990) was best able to "capture and organize the wide variety of vocabulary learning strategies identified" (205).

In order to develop his taxonomy, he investigated 600 EFL Japanese learners. He divided the subjects into four groups: junior high school, high school, university and employed learners. He used a questionnaire to collect his participants' responses. The students were also asked to indicate whether they used a certain strategy, and then to indicate whether they perceived it as helpful in terms of its usefulness. The aim of this research is similar to the study conducted by Schmitt (1997); it investigates participants' use of VLSs and gathers their self-perceptions about the usefulness of each strategy. However, this work will differ from Schmitt's (1997) in terms of the classification system used, as will be explained in Chapter Four (4.4.1). Figure 3.1 and Figure 3.2 illustrate Schmitt's (1997) classification of VLSs, as can be seen, his taxonomy is divided into two main dimensions: discovery of meaning (DEM), and strategies for consolidating a word.

Figure 3.1 Schmitt's Taxonomies of VLSs (1-2)
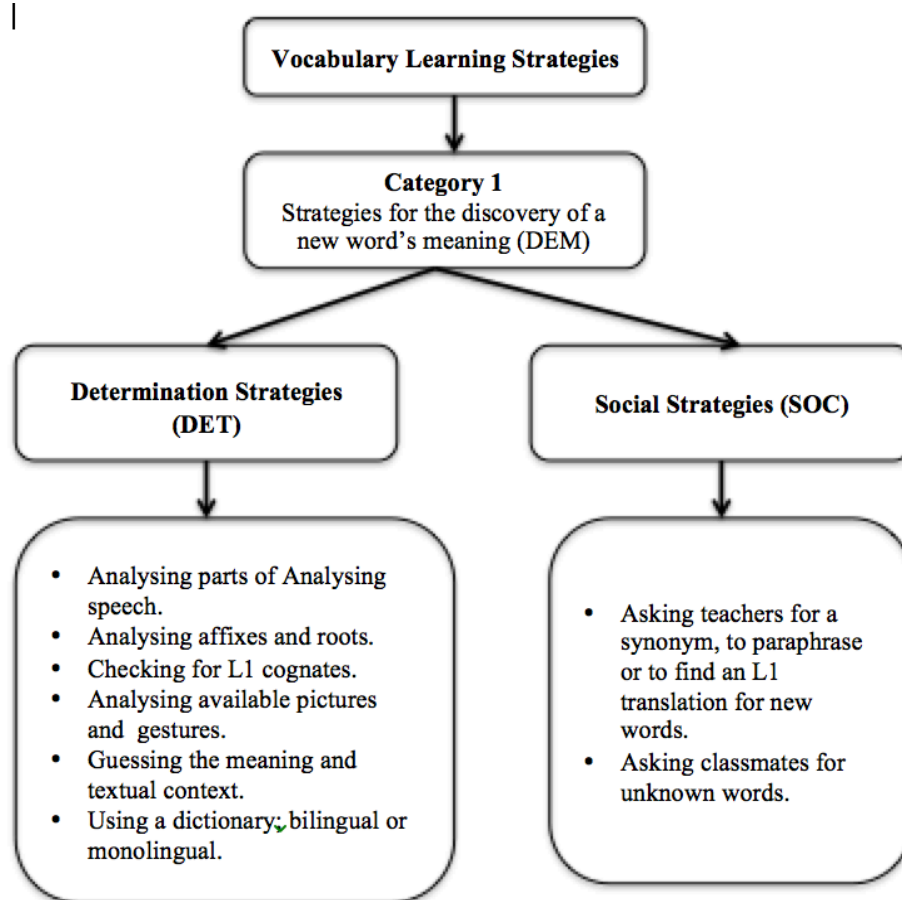
As can be seen, the first strand of Schmitt's (1997) classification involves DEM strategies, which are further broken down into determination and social strategies. This category was not included in Oxford's earlier classification upon which it was based, but was generated by Schmitt (1997:125) because "there is no category in Oxford's taxonomy which adequately describes the kind of strategies used by an individual when faced with discovering a new word's meaning without resource to another person's expertise".

Figure 3.2 Schmitt's Taxonomies of VLSs (2-2)
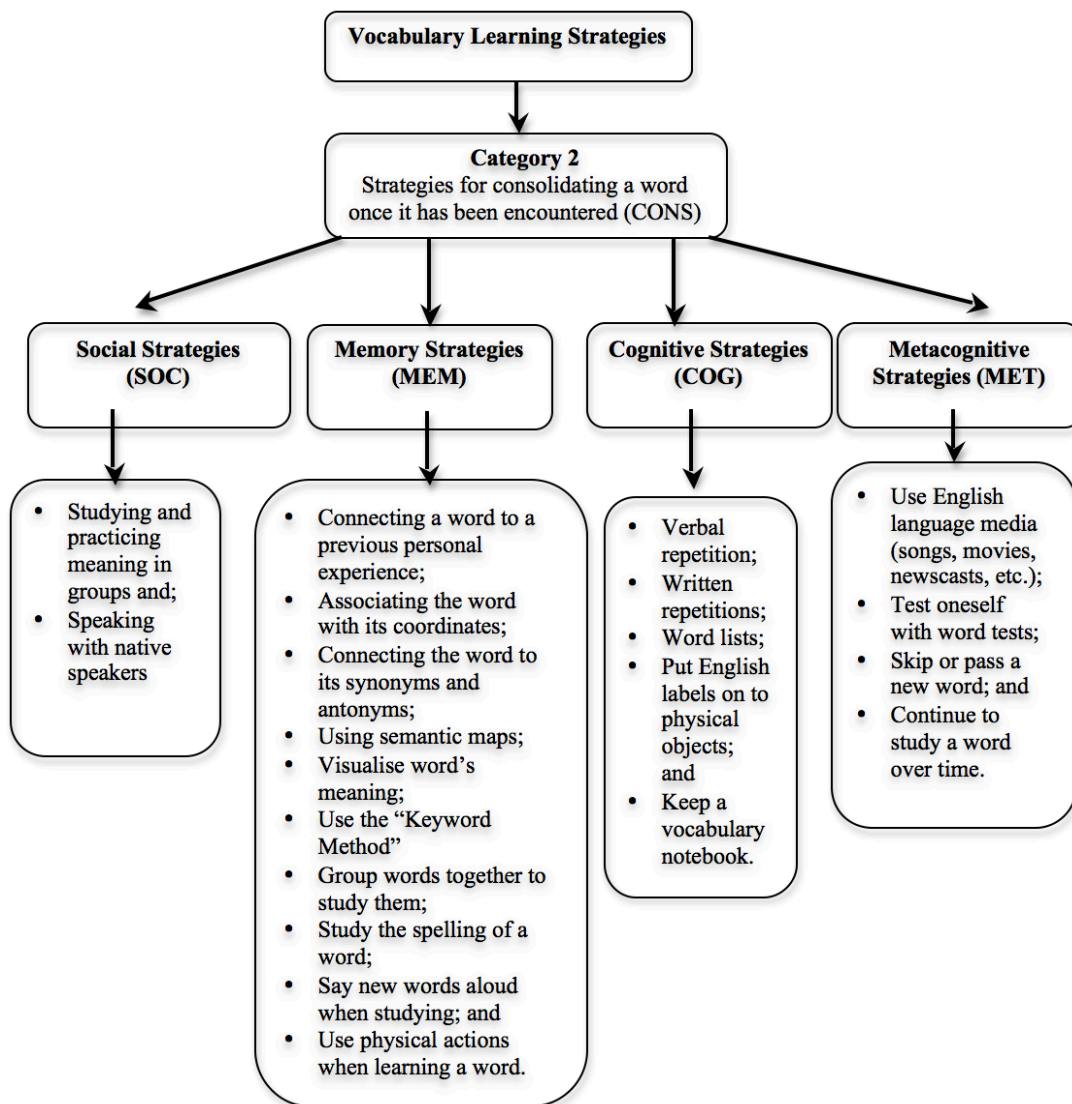
The second strand of Schmitt's (1997) classification concentrates on consolidation strategies, referring to the efforts made by learners to retain new words. Although he believes most VLSs are included here, he acknowledges that the decision about which variables to include depends on the perspective of each individual researcher. (Schmitt 1997:204). However, the system also allows scope for learners to exhibit strategies in addition to those outlined. Thus, this classification system is helpful and interesting as a tool for categorisation. However, Schmitt (1997) states, "in addition to the problem of strategy classification, several strategies have value as both DMV and

consolidation strategies; in reality, almost all of the DMV strategies could conceivably be used as consolidation strategies" (206).

3.3.3 VLSs proposed by Marin (2005)

Marin (2005) developed a classification system for VLSs by combining data responses from participants who completed an open questionnaire with an analysis of previous VLS taxonomies, such as those by Schmitt (1997). He undertook his investigation in Mexico, and studied 185 EFL learners at the University of Veracruz. His pilot study focused on the validity of the questionnaire content, and explored his initial assessment of VLSs, thereby using participants to obtain a valid tool. The analysis stage of his questionnaire survey involved three main steps. The first step was "data extraction", whereby the questionnaires were grouped according to students' Ys, and the VLSs reported were counted according to three main categories: "dealing with unknown vocabulary", "vocabulary-notetaking", and "memorising vocabulary". The second stage was "data classification", wherein he analysed the results from the first stage while considering a greater number of specific strategies, as presented by other researchers and reported in the literature (see 3.3). The final stage was the "data condensation" stage, during which he reduced the number of VLSs as far as possible by deleting all redundancies and combining those strategies that could be sensibly blended for use in his main study.

He then classified the VLSs into three main categories. The first category, "dealing with unknown vocabulary", was then subcategorised into three categories: guessing strategies, asking others, and using dictionaries. The second category, "taking vocabulary notes", was further subdivided into three categories: location of notes, such as vocabulary personal notebooks and cards, content of notes, such as L2–L1 equivalents and L2-only words, and organisation of notes, such as classifying new

words by grammatical categories or groups of meaning. The third category, "memorising/retaining vocabulary", was also subcategorised into three categories: repetition, association, and practise/consolidation of new words, such as testing oneself.

3.4 Research works focused on general VLSs use

When reviewing previous research studies on VLSS, the focus appears two-fold: first, centring on discussions about how researchers differ from one another when examining participants' uses of VLSs in terms of VLS schemes, the instruments used, such as think-aloud interviews, etc., and findings. The second aim of the study is to use the findings of research studies to afford a broader understanding of how L2 learners contend with new vocabulary when they encounter it, and what VLSs learners employ when learning unfamiliar words. What follows are research works available on VLSs, conducted in countries other than Saudi Arabia.

- **<u>Ahmed's research (1988-1989)</u>**

Ahmed's (1988) study appears to have been amongst the first to attempt to investigate VLSs (Gu, 2003). He is the author of one of the most important studies concerning VLSs reported by foreign learners. His participants included 300 students from Sudan, all of whom were learning English. He investigated the VLSs the learners used, and their vocabulary achievements and the relationship between VLS use and four learner factors: (1) level of proficiency and language achievement, (2) use of the English language for other subjects, (3) vocabulary learning achievements, and (4) number of years spent learning English.

His subjects were divided into four groups: 80 first-year students, 80 government intermediate school students, 80 high school students and 60 private high school students; they had studied English for seven, three, five and five years

respectively. The first three groups comprised 50 effective language learners and an equal number of less successful language learners. He employed three approaches to determine the learners' successes and abilities, and examined reports from their schoolteachers, which included their subjective assessments and scholastic records.

The instruments he employed to investigate VLS use were think-aloud tasks (self-report), interviews and observations. He identified six macro strategies, which he then utilised in the VLS questionnaire (VLSQ) for this study and the interviews. The macro strategies were: (1) dictionary use, (2) practise, (3) information sources, (4) memorisation, (5) preferred source of information and (6) note-taking. The main VLS categories were subdivided into a further 38 subcategories, including use of a monolingual dictionary, writing notes on a card.

He analysed his learners' reported VLSs using a statistical technique known as "cluster analysis". This enabled him to deliver interesting results, such that regardless of their LED or language proficiency, all groups reported similar uses of VLSs, particularly macro strategies (3), (4) and (6). However, when he investigated the subcategories, he discovered learners differed in their choices. Ahmed did not look at the learners' strategic behaviour, their most useful strategies or the role of AFoS, although these factors will be investigated in this thesis.

- **Schmitt's research (1997)**

As presented previously (3.3.2), Schmitt (1997:217-226) investigated 600 male and female Japanese EFL learners. The objectives of his study were: 1) to determine the most and least used strategies among learners, and 2) to ascertain whether the learners' strategy use reflected perceived usefulness. He also applied an early version of what became Schmitt's VLS taxonomy. These initial results showed two trends in terms of

DMV and consolidation strategies. For example, the strategies most often reported involved learners discovering meaning by guessing from context, using a bilingual dictionary and asking classmates for unknown words; meanwhile, the item least reported was checking L1 cognates. Concerning consolidation, the strategies most frequently employed were verbal and written repetition and speaking unknown words aloud, whereas the least common usages involved physical actions. Moreover, in terms of (most used vs. most useful) the findings revealed some overlap. For example, the first most frequently used strategy among all learners were using a bilingual dictionary (85%), and it was reported as the most helpful item by 95%. Furthermore, other strategies such as written repetition, verbal repetition, saying a new word aloud, taking notes in class, and studying the spelling of words were used frequently, and were found to be helpful.

Schmitt (1997:220) points out that his participants (i.e. Japanese learners) showed considerable interest in studying the form of the word. He also found a few strategies that were regarded as helpful but moderately used.

- **Marin's research (2005)**

Marin (2005) examined 150 EFL learners to explore the relationship between their strategy use and learners' genders, VP, Y and extraversion (E), and in terms of their use of VLSs. His data was collected using an open-ended questionnaire and interviews and a vocabulary test. He wanted to know which strategies were employed most commonly, regardless of the variables, and proposed 78 strategies, dividing them into three main sections according to his VLS-Q. The first section focused on DMV strategies (such as guessing, dictionary skills, skipping and social strategies). The second section was NTSs. The third section involved memorisation strategies (MEMs).

His findings revealed that using a dictionary was the strategy most commonly used by learners to check the meaning of unknown words, followed by writing down L1 translations and keeping notes about words referring to a textbook. Likewise, other strategies that seemed to be used very frequently by learners included guessing meaning from context, looking for opportunities to encounter new vocabulary items, repeating words silently, associating L2 words with L1 words and writing down English definitions. In terms of note-taking, the location most commonly used by students to record their notes was a textbook and an English notebook, and there were no significant differences found between these in terms of frequency of use. As mentioned earlier, one of the aims of this study is to determine the most and least frequently used strategies among learners, regardless of additional variables (see 3.1).

In contrast, the strategies least frequently used were identified by Marin (2005) as, recording words on audiotapes, and keeping notes on electronic devices, such as computers. This leads to the assumptions that my subjects rarely use computers for note-taking purposes.

- **Nakamura's research (2000)**

In a study similar to that conducted by Marin (2005), Nakamura (2000) examined 178 Japanese learners' uses of VLSs by achievement level (Y) and learning environment, i.e. whether they were ESL or EFL learners. He divided the learners into two groups; the first group comprising 86 EFL senior high school learners and the other group 92 ESL learners. The teachers of the former group, which had been learning English for three to five years, divided them based on their level of English. They were also classified according to three sequential levels, namely upper, moderate and lower, based on their mid-term and final tests. Meanwhile, the latter group, which had been

learning English for three to six years, was subdivided into three groups according to their average scores on tests taken during the previous year.

The researcher examined his subjects' use of VLSs based on three instruments: a questionnaire, semi-structured interviews and observations. He claimed his questionnaire was developed based on a cautious assessment of previous studies, such as those by Ahmed (1989) and Schmitt and Schmitt (1995). Highlighting his translated version of the Japanese questionnaire, he included 70 statements, dividing them into five categories: (1) word attack strategies, (2) NTSs, (3) dictionary strategies, (4) repetition strategies, and (5) MEMs. The aforementioned strategies were similar to the other VLSQ studies in the literature (Ahmed 1989; Schmitt 1997; Marin 2005; Al-Qahtani 2005). He also interviewed 33 students to verify the questionnaire data.

His results revealed that the most frequently reported strategy was the use of a bilingual dictionary to determine the meaning of new words. This was followed by guessing meaning from context, and guessing a word's affix.

- **Fan (2003:222-241)**

Fan (2003) examined 1,067 first-year university subjects in Hong Kong. The research was aimed to investigate the following: 1) to discover the most and least frequently used VLSs, and the most and least useful strategies; 2) to uncover any differences between learners' claims about the use and usefulness of the VLSs; 3) to identify the VLSs that were used by effective learners; and 4) to discover which VLSs are best for the learning of low and high frequency words.

In order to achieve aims 1 and 2, she employed a VLS questionnaire, using a classification system based on results reported by several previous researchers (e.g. Gu & Johnson, 1996; O'Malley & Chamot, 1990; Oxford, 1990). She also included 56

individual strategies, divided into nine categories; guessing, dictionary, management, sources, repetition, association, grouping, analysis and known words.

The results were largely similar to what had been found in the literature previously (e.g. Ahmed, 1989; Gu & Johnson, 1996; Schmitt, 1997), i.e. that using a dictionary is a preferred strategy. The results also showed some differentiation between amount of use of a strategy and its perceived usefulness. For instance, management strategies were rarely used, although they were regarded as relatively useful. However, for some strategies, a strong relationship emerged between their use and usefulness; for example, using a dictionary was a highly used and highly useful strategy.

- **<u>Al-Qahtani's research (2005)</u>**

Al-Qahtani (2005) undertook an investigation that was similar to Nakamura's (2000) but involved a large number of participants. He examined 490 male and female Saudi learners who had three different levels of education: intermediate, high school and university. He focused on four variables: gender, LED, VP and VLS use. To acquire the necessary data, he applied three different methodologies, namely, a questionnaire, student diaries and interviews. His questionnaire contained 72 VLSs divided into three main categories: word attack strategies, NTSs and MEM strategies. Different types of analyses were performed, including a T-test, a Chi square, an ANOVA and a correlation.

Two issues can be highlighted regarding his questionnaire. Firstly, some questionnaire items may have been unclear to some of the younger subjects because of their age, for example, items related to the key word method strategy (KWM). Only the group consisting of English majors and the university students who used English as the medium of instruction are likely to have known the meaning of the strategy (0). The

other issue that could be raised is his methodological triangulation. For one thing, Al-Qahtani (2005) did not have an equal number of participants in each group which, as he acknowledged, might have significantly influenced the results. In addition, the female students did not participate in the interviews or complete diaries, which resulted in less information being gathered on strategy uses. To counteract this limitation, an effort was made in this study to to employ roughly an equal number of participants per variable (i.e. academic field and gender). An additional issue, when interviewing or examining females, a female teacher was recruited to assist the researcher during this study. Another limitation was that Al-Qahtani (2005) did not test to for the most useful strategies among his learners, nor did he examine their strategic behaviours when using VLSs.

Al The strategies most commonly used by participants as identified by Al-Qahtani (2005) are: writing down new words accompanied by an Arabic translation, asking for Arabic meanings and using a picture-based deduction strategy. The strategies least commonly used are: organising new words based on their meaning, listening to items several times and organising new words based on difficulty. His results also revealed a common use of specific strategies among learners, such as 'asking for L1 meaning (asking others)', 'using the bilingual dictionary (dictionary)', 'looking up the unknown word's L1 meaning (dictionary)', 'writing new words with their L1 meaning (note-taking strategy)' and 'repeating the English word and its L1 equivalent'. These strategies also seem to be common among other learners, as reported by Schmitt (1997), Marin (2005), Fan (2003) and Nakamura (2000). Writing new words with their pronunciation was the strategy least frequently used by learners when taking notes.

In terms of which note-taking strategy was most frequently used (location in particular), the most preferred was using an English notebook; wall charts and

electronic devices such as computers were used less frequently. When organising their notes, the students reported that they usually wrote down new words as they encountered them rather than according to other strategies of organisation, such as organising them in alphabetical order or grammatical type, which were the two methods of organisation least frequently used.

3.5 Key studies of relevance

This section presents some key studies related to VLSs, such as guessing and MEM strategies. These studies relate to my questionnaire design (see 4.4.1and 5.5.1for more detail about designing my VLSQ). Therefore, it is beneficial to state first the three main categories of the VLSQ and their 12 dimensions, which are as follows:

1) Discovering the meaning of unknown words (DMV), which includes four dimensions: VLSD1 guessing (eight items), VLSD2 asking others (seven items), VLSD3 types of dictionaries (five items) and VLSD4 the type of information learners look for in dictionaries (seven items).

2) Strategies for dealing with vocabulary NTSs, which includes four dimensions: VLSD5 types of word and non-word information noted by learners (11 items), VLSD6 location of vocabulary note-taking (nine items), VLSD7 ways of organising noted words (seven items) and VLSD8 reasons for noting words (12 items).

3) Dealing with retention and MEM strategies, which include four dimensions: VLSD9 repetition strategies (four items), VLSD10 information used when repeating a word (five items), VLSD11 association strategies (nine items) and VLSD12 practise strategies (four items).

3.5.1 Discovering the meaning of unknown words (DMV)

3.5.1.1 Guessing strategies (VLSD1)

Learners have generally been found to employ guessing strategies when they have no access to alternative resources, such as dictionaries, teachers, or peers. Nattinger (1988) claimed that "guessing vocabulary from context" was the strategy most frequently used by learners seeking to uncover the meaning of unknown words in this situation. Indeed, Al-Qahtani (2005) and Marin (2005) reported that guessing from parts of words was a strategy frequently used by all learners. Schmitt (2005:153) claims that such a strategy can be termed a "key" vocabulary strategy. Moreover, Carton (1966) claimed that guessing, or what he sometimes referred to as "inferencing", is at the crux of the second language learning process.

When returning to consideration of taxonomies and guessing strategies (see 4.4.1), we can observe that guessing applies to a variety of categories. For example, O'Malley and Chamot (1990) suggested guessing is a cognitive strategy; demanding that learners manage their learning materials both mentally and physically when decoding target vocabulary. In contrast, Nattinger (1988) classified this strategy as ensuring information is understood. Highlighting the contextual clues that will help learners to understand the meaning of unknown words. However, the system of classification put forward in this study considers the guessing strategy under DMVs, as suggested by Schmitt (1997) (see 3.3.2).

Carton (1971) argued that guessing in L2 is connected to the acquisition of inflectional, derivational morphemes, and to vocabulary absorption in the natural reading context. According to Haastrup (1987:197), guessing is a technique which "involves making informed guesses as to the meaning of (part of) an utterance in the light of all available linguistic cues in combination with the learner's general knowledge

of the world, her awareness of the situation and her relevant linguistic knowledge". Later, Nassaji (2004:116) defined this strategy as "any cognitive or metacognitive activity that the learner turned to for help while trying to derive the meaning of an unknown word from context".

3.5.1.2 Social (asking) strategies (VLSD2)

Social strategies include requesting assistance from teachers, classmates, native speakers or anyone who is available that might be able to provide it. It is common for learners to ask their teachers to explain things to them. However, social strategies can also be used to consolidate the meaning of new words, as Schmitt (1997:211) points out, "besides the initial discovery of a word, group work can be used to learn or practise vocabulary".

Several research findings highlight social strategies, were observed to vary according to the aims of the investigation. For example, some research was designed to help learners use DMVs; whereas, other research focused on identifying sought-after information. The latter relates most to the concerns of this thesis. According to Ahmed (1989), Al-Qahtani (2005) and Nakamura (2000), an L1 translation of unknown vocabulary was the information most frequently requested by their participants. For example, in Al-Qahtani's (2005) results, the top five requests by frequency were: (1) asking for the Arabic meaning, (2) asking for an item's English pronunciation and spelling, (3) asking for the English definition of a phrase, (4) asking for a word's English synonyms/antonyms, and (5) asking for an example of a word in a sentence.

3.5.1.3 Dictionary use

L2 learners frequently use dictionaries to discover the meaning of lexical items. The use of a dictionary is viewed by researchers as "a complex process" (Luppescu & Day 1993:274). A dictionary is defined as "a reference book or list of words (usually in alphabetical order) together with a guide to their meanings, pronunciation, spelling, or equivalents in other languages" (Hartmann,1983:3-4); although today dictionaries also exist in electronic and web-based formats. Baxter (1980) argues that learners' vocabulary behaviours can be affected by dictionary use, and that this can improve their L2 vocabulary repertoire. This refutes suggestions from researchers' that guessing from context is more efficient and expands a learner's lexicon more comprehensively than using a dictionary (Luppescu & Day, 1993). Generally speaking, Nation (2001:263) points out that using a dictionary is an intentional approach, in contrast with incidental vocabulary learning, which takes place through guessing.

Using a dictionary was included under different VLSs classifications. For example, Schmitt (1997:207) classifies dictionary use under determination strategies, which belong to the discovery category. Meanwhile others, such as Nation (2001) classify them according to two categories, based on whether they are oral (asking strategies), i.e. related to social strategies, or 2) written (dictionary based).

The following section briefly sheds light on the different types of dictionaries available (VLSD3); whether monolingual or bilingual, and the types of information that can be gathered from dictionaries (VLSD4).

3.5.1.4 Types of dictionaries (VLSD3)

Learners and academic researchers specialising in language learning usually refer to two distinctive types of dictionaries; i.e. monolingual and bilingual. Both types of dictionaries will be included in my VLSQ investigation, as will the aforementioned VLSs. Both types can also be found in written, electronic, or web-based forms, even on smartphones. Monolingual dictionaries consider just one language relationship, such as English–English, and provide information for learners looking for responses in English. In contrast, a bilingual dictionary is typically written in two languages, as is the case in the current study, in which the participants use an English–Arabic dictionary. Furthermore, Nation (2001) pointed out that there is a new type of dictionary called a "bilingualised dictionary", which provides information about the words targeted in English, as well as offering translations of headwords. Laufer and Hadar (1997:190) define the "bilingualised" dictionary as "a combination of a learner's monolingual dictionary (same number of entries and meanings for each entry) with a translation of the entry".

Although multiple benefits proceed from using these types of dictionaries, researchers disagree concerning which type is most suitable for learners. One group of researchers preferred that learners use a bilingual dictionary (Thompson, 1987; Tomaszczyk, 1983), but the second group preferred a monolingual dictionary (Atkins, 1985; Baxter, 1980; Béjoint, 1981; Hsien-jen, 2001). Meanwhile, the third group preferred use of a "bilingualised dictionary", which combines features of both monolingual and bilingual dictionaries (Nation, 2001).

There are various reasons offered by researchers preferring one type over another. For example, Tomaszczyk (1983) asserted that L2 learners should use bilingual dictionaries for four reasons. First, as a "first/second language interface" at the

beginning of the learning process, when there is massive transference between L1 and L2; this need reduces as the learners' language proficiency rises. Hence, when language learners are initially reliant on their L1, they prefer to use a bilingual dictionary. Second, dictionaries provide a "cultural specificity of vocabulary", where some lexical items are more "culture-bound" than others; these might even be cognates, for instance the words "home" and "house". Third, "dictionary habits and preferences" indicate that L2 language learners use bilingual dictionaries more frequently than other dictionary types. Fourth, "interlingual contrast", where a word's aspect, such as its semantic and syntactic features, are unclear prior to comparison with its counterparts in the other language. In some situations, learners are expected to use bilingual, rather than monolingual dictionaries.

An additional study reporting that L2 learners use bilingual dictionaries more often than monolingual dictionaries, was that by Alyami (2011), which investigated EFL Saudi learners and found a general preference for bilingual dictionaries. Nevertheless, even in that study advanced learners chose to use monolingual dictionaries more often than bilingual dictionaries. Tomaszczyk (1979) discovered greater use of bilingual dictionaries among learners of all levels, finding no significant differences among all the levels.

Nevertheless, researchers also argued that bilingual dictionaries have drawbacks (Nation, 2001:290). For example, they often provide too little information about target words, including regarding how to use the words properly. This is because they encourage the use of translations. This has led some researchers to attribute greater weight to the use of monolingual dictionaries, suggesting these help students to gain a greater understanding of target words. Additionally, they motivate learners to think about and activate their memory when working in the target language. For example,

when learners search for a word in a monolingual dictionary, they often find precise definitions and detailed information about the target words; for instance, they find "idiomatic usages", "common collocations" and "registers". Baxter (1980) and Scholfield (1999) argued that the advantages of monolingual texts suggest such dictionaries carry additional merit, for introducing learners to the vocabulary system of the target language in a direct way. Nevertheless, researchers have also argued that monolingual dictionaries have drawbacks (Thompson, 1987). Students might struggle to find the right words and to comprehend the definitions given. In addition, they could be overly challenging for low-level English learners.

In a recent study, Dziemianko (2010) investigated 64 students divided into two groups: upper intermediate and advanced learners. He tested them according to their results on receptive and productive tasks. He pursued two aims: to investigate the usefulness of the monolingual dictionary in paper or electronic form and to examine the role of both forms in retaining meaning and supporting collocations. His results revealed learners used electronic dictionaries for reception and productive tasks more frequently than they did paper versions. Moreover, he also observed that learners depended on electronic dictionaries over paper ones as a source of data, and to determine collocations. Overall, the participants found electronic dictionaries more appealing because they are quicker to use, portable and store a huge amount of information. The most popular electronic dictionaries also have an audio component, enabling learners to listen to a spoken form of target word in a native speaker accent. These reasons were collected and cited by both Dziemianko (2010) and Béjoint (2010).

Based on previous research, it is apparent that the majority of learners use a bilingual dictionary more frequently than a monolingual one, regardless of their language proficiency or university major. The following subsection will consider the

types of information that learners prioritise when using each type of dictionary, whether monolingual or bilingual, or in paper or electronic formats.

3.5.1.5 Types of information taken from dictionaries (VLSD4)

It is understood among L2 learners that dictionaries are useful tools for learning a foreign language, whether monolingual or bilingual. Some researchers have argued that the first thing the majority of learners do when encountering an unknown word is to consult a dictionary (Alyami, 2011; Béjoint, 1981; Summers, 1988; Tomaszczyk, 1979). This behaviour is not only restricted to low proficiency learners, but is also often the case for high proficiency learners.

Nation (2001:281-288) claims that we should look into the diverse aims informing the use of dictionaries when considering the types of information sought. Therefore, Nation (2001) proposes identifying and classifying three basic purposes for using dictionaries. The first purpose is to attain comprehension, or to decode a message by looking at the meaning of known words using reading and listening (receptive) skills. Second, a dictionary could be used for production or encoding purposes; for example, L2 learners might use a dictionary to look for the words that they want to use when speaking and writing; specifically to find spellings, pronunciations and grammar. The final objective is to use a dictionary as a learning resource, i.e. to look for new or unfamiliar words before adding them to their lexicon.

Marin (2005), Al-Qahtani (2005) and Alyami (2011) investigated the types of information taken from dictionaries, concluding that their participants used dictionaries first to look for the meanings of unknown words, and then to determine pronunciations and spellings. The aforementioned results, regardless of any variables associated with the use of a dictionary, suggest that the most sought-after information among L2 learners requires them to establish meaning first; this is logical, because learners need to

understand the meaning of a word first, before establishing additional linguistic features.

3.5.2 Vocabulary NTSs

Thus far, note-taking has been investigated in general terms, rather than in specific terms (Dunkel 1988; Dunkel *et al.* 1989; O'Malley & Chamot 1990; Oxford 1990). Therefore, this section summarises the theoretical background to NTSs, presenting different subtypes, as included in my questionnaire.

L2 learners use NTSs frequently, to keep records of targeted words. They may choose different forms, locations, rationales and methods of organisation when note-taking. This strategy has been identified as useful among learners across all educational years. For Oxford (1990:19), "cognitive strategies such as note-taking, summarizing and highlighting are ultimately used for creating structure for the input and output of language learning". Generally, note-taking involves "writing down the main idea or specific points" (Oxford 1990:47). In addition, O'Malley and Chamot (1990:138) define note-taking more specifically as "writing down key words and concepts in abbreviated, verbal, graphic or numerical form". Furthermore, Boch and Piolat (2005:101) explain it literally "as the rapid transcription of information by using a few condensing techniques, such as shortened words and substitution symbols, for the creation of an external memory whose only importance will be its later use", defining the processes used in note-taking as well as its benefits.

There are two main functions of note-taking, in general. First, NTSs to help encode new words into the memory, and secondly, they function as external storage (Nakamura 2000). The former refers to the learner directing attention toward new material, known as attention theory. Meanwhile, learners work at a deeper level to process material, which is known as effort theory. Peper and Mayer (1978:515) argue

about this function (i.e. encoding memory), stating that "note-taking encourages learners to actively integrate the new information within their own past experiences because subjects are required to paraphrase, organize and make sense out of the presented material". The latter function (i.e. external storage), as cited in Nakamura (2000), was commented on as permitting reviews and later revisions, as needed.

These two functions also link to L2 vocabulary note-taking; Nakamura (2000) suggested that both functions, i.e. encoding memory and external storage, underpin L2 learners' behaviours when taking notes. For example, in relation to encoding the memory function, learners' use of abbreviations might involve underlining and colour coding to assist with improving the focus of learners on L2 lexical items. Furthermore, regarding the external storage function, it appears likely that learners can organise information most effectively in note form. Nakamura (2000:39) said that such functions are "supplementary rather than strictly separate from each other". In other words, external storage (review) as a consequence of note-taking benefits from the first function, i.e. the encoding process itself.

"Note-taking strategies have been included in several taxonomies of general language learning strategies" (Marin, 2005:122); whereas, in other studies they were reported on in contrast with, or in conjunction with other strategies, such as oral repetition, when forming a single category (Nation, 2001). Previous research reports NTSs to be the cognitive strategies most frequently utilised by L2 learners (e.g. O'Malley et al., 1985; Schmitt, 1997; Nakamura, 2000), suggesting they are "quite an important part of language learning" (McCarthy, 1990:127). For example, O'Malley et al. (1985) investigated 70 ESL learners, including both beginner and intermediate high school students. They were examined to assess their LLSs based on researchers' observations and interviews. The researchers reported that note-taking was one of the

two most frequently used strategies among learners, and the second most common strategy was repetition. In a further study of LLSs by L2 learners, O'Malley and Chamot (1990) concluded that note-taking was used by intermediate or advanced Russian students more frequently than other LLSs. However, none of those studies investigated the other dimensions that will be included in my questionnaire, such as "reasons for note-taking, locations for note-taking items" and types of note-taking.

White (1996) conducted a study of 29 second year university language students learning French and Japanese, based on verbal reporting (i.e. the yoked subject technique). The researcher investigated their uses and types of NTSs. He asked the participants to imagine a situation where they had to tell prospective learners about the best ways to learn outside the classroom. He also allowed his learners to not only report on their NTS but also to report other LLSs, to see how the former strategy type combined with other LLSs. The results confirmed O'Malley et al.'s (1985) findings, reported above, which revealed note-taking to be the most frequently used cognitive strategy, followed by repetition, elaboration, resourcing and translation. White also reported five subtypes of NTSs, as follows. The first was "note-taking", defined as "writing down concepts in an abbreviated form to assist performance in the target language". Second, "writing out", which involves "copying items several times as an aid to memorisation", is used regularly because it helps when learning a new writing system. Third, "listening" referring to "the compiling of lists of vocabulary with target language synonyms or the translations". Fourth, "noting down", which is "writing down or jotting down key language items as they occur, usually selected from an oral or written text". Finally, "highlighting", as a "way of emphasising or selecting key words or points, or isolating elements which were understood or not understood" (White, 1996:94-96).

In truth, White's five subtypes of note-taking are problematic from four perspectives, as some relate to use and others to labelling. First, there is no "real-life sequence"; in other words, White (1996) did not provide sequences for the differing forms of note-taking, so we do not know which came first and which last. Second, we could argue that such forms of note-taking are confusing, as there must be a clear distinction made between forms to differentiate them from one another. For instance, the first type, i.e. note-taking, seems identical to the fourth type, noting down. Third, White did not clearly mention whether the five forms were merely five forms of a single strategy, i.e. note-taking, or representing five different strategies. Fourth, in relation to labelling, White's label "writing out" could be confusing; it deals with copying items several times to memorise them, which may be a MEM or a repetition strategy, and not an NTS. However, we can arguably accept that "writing out" is tri-functional.

3.5.2.1 Types of information noted (VLSD5)

This is the final category included in my VLSQ and comes under the heading NTS. Al-Akloby (2001:48) says, "Keeping a list of L2 words alone may not be useful; there has to be additional meaningful information they can be linked with, e.g. synonyms, antonyms, translations and so on".

According to Ahmed's result (1988), 32% of learners noted words together with their L1 (Arabic) equivalents, and just 2% noted words together with their pronunciation. Moreover, 21% noted words in conjunction with their English meanings. Thus, in total, 53% preferred to note words together with their English meaning and its L1 equivalent. However, 12% noted words with their examples.

Nakamura (2000) also found his Japanese students noted words together with their L1 (Japanese) equivalents, and that this was the most common strategy. Meanwhile, noting words with phonetic symbols was the strategy least used by learners,

which is consistent with Ahmed (1988).

Al-Akloby (2001) reported similar results, explaining that among his participants the noted form of information most frequently used was L1 (Arabic) equivalent. This was also consistent with Ahmed (1988) and Nakamura's (2000) results. Meanwhile, the noted type of information least frequently used was a picture of a word.

Al-Qahtani (2005) attained similar results, finding that his subjects' most common practise was to note words with their L1 translations, while details about pronunciation were recorded least frequently. Moreover, Marin (2005) found learners noted L1 translations and L2 definitions as the most frequent types of information, observing no significant differences between the two types. The types of information least frequently noted were pictures and contextual references.

3.5.2.2 Location of vocabulary note-taking (VLSD6)

Researchers have also studied this subcategory reaching multiple conclusions. Nakamura (2000) and Ahmed (1988) found the location where learners most frequently made notes on vocabulary was in the margins of their textbooks, whereas the location least frequently used was on vocabulary cards. Ahmed also reported the second most often used location was a separate vocabulary notebook. In complementary research, Marin's (2005) subjects also reported that English notebooks and textbooks were the most frequently used locations, but noted no significant differences in terms of their frequency of use. Furthermore, the locations least frequently used were audio tapes and electronic devices, and no significant differences were noted among learners between these two locations.

Similarly, Al-Akloby (2001) investigated 52 Saudi students and five EFL teachers at three different Saudi secondary schools. He investigated VLSs and note-

taking in terms of location, type of information noted and modes of organisation. As far as location was concerned, the note-taking space most frequently used was reportedly the margins of textbooks, which is consistent with Marin's (2005) findings but inconsistent with Nakamura's (2000) and Ahmed's (1988). However, he also found that the location least used was vocabulary cards.

Moreover, similar results to the above were reported in Al-Qahtani's (2005) study. He found an English notebook was the location most commonly used by all subjects, for taking vocabulary notes, whereas the location least often used for vocabulary note-taking was wall charts, cards and computers. These results more or less supported the findings of the aforementioned VLS studies.

3.5.2.3 Ways of organising noted words (VLSD7)

The third subcategory of NTSs relates to the level of organisation involved in note-taking. There were several approaches reported as commonplace for organising new words; i.e. according to part of speech (i.e. noun, verb, etc.), in relation to meaning, alphabetical, or random order (i.e. chronological order), according to the unit or lesson presented in the textbook in which they appeared, or according to their difficulty.

Cohen (1990) studied 19 American college students learning Hebrew as a second language to uncover learners' behaviours; specifically, those related to their classifications of vocabulary, their writing out of grammar rules, and how they organised their notes, which relates to this study. He also found a popular pattern was "to enter all material in one notebook in a straightforward, chronological fashion, that is, in the same order that the material appeared in class" (Ibid:128). However, he also found that the organisation of notes varied among learners writing notes in a specific notebook. This group of learners organised their notes by topic group, in alphabetical order or in a random order, while others organised them according to part of speech.

Moreover, Ahmed (1988) found 28% of learners reported organising words randomly and no students (0%) reported organising words alphabetically or in terms of meaning. Nakamura's results affirm those of Ahmed (1988); Nakamura (2000) and Cohen's (1999) studies, which showed that chronological order was the arrangement most commonly used, while organising words according to grammatical category or alphabetically was the strategy least often used. In addition, Al-Akloby (2001) and Al-Qahtani (2005) found a similar result, in that his subjects most often reported organising words randomly, organising them according to grammatical category least often.

3.5.2.4 Reasons for selecting words (VLSD8)

This subcategory is included under the NTS in the VLSQ applied in this research. It denotes learners' reasons for selecting to record particular words. An L2 learner, in my view, should decide which words to note first, and then record and explain the reasons for their decision. This can be ascertained from feedback during interviews and from the VLSQ. There are several reasons why a learner might choose certain words. For example, a selected word could be seen many times, appearing with a high frequency. It might also be that a word is useful to the learner or important when reading, listening, writing or speaking. Alternatively, a word might simply sound pleasant to the learner. Moreover, it might be that a word is difficult and so the learner needs to note it down to remember it. In addition, a word might be chosen because it is uttered frequently by a teacher, or because it has been seen or heard many times by the learner.

Schmitt and Schmitt (1995), Nation (2001) and McCrostie (2007) suggested L2 learners should consider words that appear with a high frequency when considering their word selection. In fact, McCrostie (2007:252) asserts, "even if it is not the only criterion for word selection, frequency should be an important consideration".

However, learners have difficulty determining the frequency of words, and problems distinguishing them from differing frequency types (academic, technical, and low frequency words). Schmitt and Schmitt (1995:138) present two ways of helping note takers to resolve this problem and to select only frequently appearing words; these are:

A) Keeping a tally every time they hear or see a word within a specific timeframe, say a day or a week; and

B) Keeping track of words that seem to collocate with a new word at a frequent rate.

McCrostie (2007:250) studied 124 EFL university learners from five classes with first-year English majors at a Japanese university. His investigation involved examining learners' notebooks in three areas: considering the sources that learners use to choose their words, the types and frequencies of noted words and the subject's reasons for selecting the noted words. As far as reasons were concerned, the researcher found the most popular reason for learners selecting a word was that "the word was new" at 34%, "the word was useful or important" at 24% and "the word had been forgotten previously" at 10%.

3.5.3 Retention and Memorisation (MEM)

MEM, also known as mnemonics, are the last major category in my VLSQ. This category is understood via three different dimensions. If we ask learners how they commit words to memory, they typically mention the following strategies: 1) say the word aloud several times; 2) they say the word silently several times; 3) write down the word several times etc. These options are included in the VLSQ used for this research. Researches have commonly found that repetition is the technique most frequently used by learners (e.g. Schmitt, 1997).

MEM strategies have been recommended by a number of researchers, including Oxford (1990), who claimed that L2 learners retain L2 words best when using memorisation, as they need to learn the word carefully in order to recall it as necessary by using repetition, as will also be covered later (see 3.5.3.1). Memorising L2 items requires two phases, to help L2 learners to memorise and then retrieve words effectively when needed. The first phase, which involved selecting information to remember, can come either from the learners' own strategies, from the teachers' explanations or from textbooks. The second phase (described as consolidation, in the present study), memorisation, can be applied by L2 learners independently, or alternatively it can be teacher-driven (involving tasks and vocabulary exercises in the classroom).

Mnemonics is directly responsible for "aiding memory", because it includes physically transforming materials that are intended to be taught in a form that eases learning and facilitates memory (Levin, 1981). Hence, mnemonics is classified here as a MEM. MEM strategies have been included under different headings by VLS and LLS researchers (e.g. O'Malley and Chamot, 1990; Oxford, 1990, Schmitt; 1997; Nation, 2001). For example, Oxford (1990) classified MEMs as direct strategies (2.4.3), unlike O'Malley and Chamot's LLS taxonomies (1990), which categorised them as cognitive strategies (see 2.4.4).

3.5.3.1 Repetition strategies (VLSD9 and VLSD10)

Generally speaking, there are two interesting aspects here; 1) how repetition is done (i.e. verbal, written, visual, aural), and 2) the content of the information repeated by learners. Thus, this subsection was devoted to exploring the definition of repetition, and will look at two aspects: methods of repetition (VLSD9) (e.g. verbal, written) and the types of information repeated by L2 learners (VLSD10) (e.g. L2 word only, L2 with

L1 equivalent, L2 synonym and antonym).

O'Malley and Chamot (1990:138) defined repetition as: "repeating a chunk of language (a word or phrase) in the course of performing a language task". Oxford (1990:45) also defined this as "saying or doing something over and over: listening to something several times; rehearsing; imitating native speakers". It is noteworthy that repetition is employed with the purpose of assisting memory in relation to VLSs.

Some LLS and VLS research studies have argued that repetition is one of the strategies most frequently reported by L2 learners (e.g. O'Malley et al, 1985; Chamot, 1987; Al-Qahtani, 2005, Marin, 2005). L2 learners see repetition as important as a tool to facilitate vocabulary acquisition (Lawson & Hogben, 1996). It is especially useful for beginner learners, as it requires minimal effort, unlike other more in-depth strategies (see 3.5.3.2) (Cohen & Aphek, 1980).

3.5.3.1.1 *Methods of repetition and the information used when repeating*

Schmitt (1997) reported that modes of repetition can be either oral or written; for instance, Lawson and Hogben (1996) investigated the VLSs employed by 15 Italian university students in Australia during their first year. He drew on two methods, namely think-aloud protocols and interviews to collect his data. Overall, his results revealed repetition to be the strategy most frequently used by learners; this was similar to findings reported by O'Malley et al. (1985).

In terms of modes of repetition, Lawson and Hogben's (1996) results suggest five categories of repetition strategies: (1) "reading of related words", which involves making use of the information that is related to the new word by reading them out; (2) "simple word rehearsal", which is when the L2 word is repeated with or without its meaning; (3) "writing word and meaning", which involves writing the target word with

its meaning; (4) "cumulative rehearsal", which is a sequential step that covers the repetition of the target word and/or meaning, as well as previously learned ones; and (5) "testing", which means self-testing by including an L1 word or L2 meaning and consciously attempting to generate another part of the pair.

The above findings provide ideas to inform the design of questionnaire components that effectively test for repetition strategies. An additional number of modes are included here, such as repeating new words with their L1 (i.e. Arabic). However, it is worth mentioning that there are some important features informing Lawson and Hagben's study. First, my subjects are studying different majors (i.e. English versus science-oriented), with the result that another variable might create differences in strategy use. Second, their study title was "Vocabulary Learning Strategies"; however, they did not include vocabulary NTSs, which my study does. Thus, this study aims to be more comprehensive; testing large sets of VLSs.

Moreover, when focusing on methods of repetition, Marin's (2005) participants' responses according to order of popularity were as follows: '(1) repeat (reading) the word silently'; (2) 'say the word aloud and repeatedly'; (3) 'write down the word several times' and (4) 'listen to tape-recorded words repeatedly'. The strategy most frequently used was (1) while the strategy least frequently used was (4). In terms of type of information repeated, he discovered that saying the word in isolation was the most commonly employed strategy, while repeating the spelling of targeted words was the least commonly used strategy. Moreover, he also found that his participants reported: 1) repeating the word with its examples; (2) repeating the word with its translation and (3) repeating the word with its L2 definition, with similar frequency. Thus, he concluded, "learners not only say the word alone but also try to include other useful information about the word to facilitate retention" (Marin, 2005:209).

Al-Qahtani's (2005) findings concerning repetition strategies, showed the frequency of the order in which the participants: (1) wrote the word several times (written modes); (2) repeated the word aloud several times; (3) repeated the word silently; and (4) listened to the item repeatedly. He discovered that the most commonly used strategies in terms of modes of repetition were (1) and (2), and that (4) was the least commonly used; thereby supporting Marin's (2005) findings. In terms of type of information repeated, Al-Qahtani found that the strategy most frequently used was repeating the English word with its Arabic equivalent.

3.5.3.2 Association strategies (VLSD11)

In the field of second language learning, it is widely understood among researchers and L2 learners that retaining L2 words is difficult; therefore, it would be useful to apply some association strategies, along with other VLSs, to assist L2 learners to recall targeted words. Schmitt (1997) suggested several strategies L2 learners could use to retain words; i.e. repeating new lexical items (see 3.3.2), analysing the elements of words, such as affixes and inflections, classifying words according to part of speech, using mnemonics, such as KWM, using semantic strategies, such as thinking of similar words (i.e. synonyms), and using encoding strategies, such as imagery and visual association. These strategies generally demand a high level of mental processing to ensure appropriate retention (Craik & Lockhart, 1972). All of them are included in my questionnaire.

Association strategies assist individuals to remember words, as Cohen (1987) claimed, and mnemonic associations are useful for enabling L2 learners to recall words. For example, KWM (a mnemonic association technique developed by Atkinson (1975) has received considerable attention in psychological research. This strategy (i.e. KWM) requires deeper level processing.

According to Marin (2005), the most reported associations among his participants involved associating L2 words with similar words in L1, employing contextual use and visualising the form of the target words and their meanings. However, the least reported associations involved KWM. He exemplified this by stating that his participants focused most frequently on the written form of words and on the context in which they encountered them, as their primary strategy was to retain words. However, Schmitt (1997) found adult learners reported using KWM more often than younger learners, who reported finding such strategies unhelpful.

Al-Qahtani (2005) also found associative strategies were not frequently reported, such as "using a mental image of the word's meaning or drawing a picture, linking the new words to their synonyms or antonyms and associating the sound of new words with the sound of familiar L2 words". Al-Qahtani (2005) found the most common associative strategies applied by his participants involved 'the associations between new words and English words', 'using a mental image of the word's written form' and 'associating the new words with personal experience'. These studies, however, failed to examine, for instance, the role of academic subject as a variable, unlike this study.

3.5.3.3 Practise strategies (VLSD 12; consolidation strategies)

Practise strategies are undertaken by learners to assist them in remembering what they previously learned. L2 learners can also use several methods to gain full exposure to their L2; such as reading English books, poems (as they have difficult words) and newspapers, as well as speaking with native L2 speakers. Moreover, L2 learners can examine themselves by asking others to test their vocabulary comprehension, which can help them to judge the usefulness of certain strategies based on their outcomes.

Similar to memorisation, practise-based strategies in VLS are also classified. Ahmed (1989) discussed practise under the heading "macro strategies", whereas others, such as Schmitt (1997), located it under the heading "metacognitive strategies" and Nation (2001) classified it under the "planning" category.

Marin's questionnaire (2005) explored four practise strategies: (1) looking for opportunities to encounter new words, (2) using new words in conversation and writing, (3) making up imaginary conversations, and (4) testing oneself or having others test you. In this category, Ahmed (1988) found "looking for opportunities to encounter new words" occurred most frequently among the subjects, which is also in line with Al-Qahtani's (2005) results.

3.6 Studies about self-reported value of learners' perceptions of VLSs usefulness

Although a large number of studies have investigated use of VLSs, few have focused on learners' perceptions of those VLSs (for example Cheung, 2005; Cheung, 2004; Lau, 2004; Lau, 2002; Law, 2003; Lo, 2007). Lip (2009), claims that few studies have examined strategy use learners' perceptions of usefulness. (see 0)

Thus, one of the main aims of this research is to examine perceived usefulness of strategies based on learners' perceptions. To the best of my knowledge, no one has yet considered VLSs as used by different majors in the Saudi context. Several methods can be applied to examine actual usefulness, such as the think aloud procedures; however, this study uses a VLSQ to test opinions using a five-point Likert scale, where "1" refers to not useful and "5" to very useful. I could not examine actual usefulness via for example, the thinking aloud procedure, for many reasons (see limitations 7.3). However, my approach is widely used and accepted in applied linguistics research.

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

Broadly speaking, there seem to be two main trends when evaluating the usefulness of VLSs. Firstly, there are studies that investigate the usefulness of strategies involving real vocabulary learning tasks (e.g. Cohen and Aphek, 1981; Lawson and Aphek, 1996; Erten, 1998). Other studies employ students' reports about how useful they perceive strategies to be based on prior learning experiences (e.g. Fan, 2003; Wu, 2005).

One of the most recent studies to evaluate the usefulness of various VLSs based on learners' perceptions is that by Lip (2009), which examined the "Most Frequently Used" and "Most Useful" VLSs among Chinese postsecondary EFL students in Hong Kong. His participants were 36 Cantonese students, for whom English was a foreign language. The 20 females and 16 males had an average age of 17. The researcher used interviews and administered a questionnaire to enable the participants to rate VLSs and give reasons for specific responses. His questionnaire was adapted from Cheung (2004) and based on Schmitt's classification of VLSs. The questionnaire identified four main categories namely: cognitive strategies (COG, 9 items), memory strategies (MEM, 10 items), determination strategies (DET, 9 items), and social strategies (3 items). A five-point Likert scale was also used to measure the frequency of strategy use and usefulness, ranging from 1 (never) to 5 (always) and 1 (not useful) to 5 (extremely useful). The results depict a positive correlation between learners' use of VLSs and their perception of the usefulness of those VLSs. The most common preferences for VLSs were as follows: 1) repeating the spelling of the word in their minds; 2) analysing the word by breaking it into sound segments; 3) remembering words by completing a project; and 4) asking classmates for the meaning of the word.

Wu (2005) examined the usefulness of VLS, as reported by 303 Taiwanese secondary university EFL students. He used Schmitt's (1997) taxonomy to categorise VLSs as follows: metacognitive, social, memory, cognitive and determination

strategies. The questionnaire was administered to 90 8th-graders and 90 11th-graders at a secondary school, and to 112 university English major students in their sophomore year. The researcher could not obtain all learners' language proficiency scores. The findings showed the majority of students preferred the following VLSs: 1) using bilingual dictionaries; 2) guessing from textual context; 3) asking classmates/teachers for the meaning of words; and 4) using electronic dictionaries. These VLSs were also the most helpful strategies for learners according to their self-reported valuation of usefulness. In terms of consolidating strategies, the following strategies were found to be the most popular among the students: 1) studying the sound of a word; and 2) repeating the form of the word.

Furthermore, Lo (2007) carried out a qualitative study to examine 34 Chinese EFL learners' perceptions of low-level achievement at a secondary school in Hong Kong. The study reviewed the strategies they used most and those which they regarded as helpful. He applied Cheung's (2004) classifications of VLSs to review both perceived usefulness and frequency of use. The questionnaire included 19 individual VLSs for students to choose from using a five-point Likert scale, where 1 meant never, 2 rarely, 3 sometimes, 4 often and 5 always, and another for usefulness (ranging from not useful=1 to very useful=5). Lo (2007) found the most frequently used strategies were those perceived as most useful by the students: 1) repeatedly spelling the words; (2) taking notes in vocabulary textbooks; 3) repeating and reviewing strategies and 4) analysing strategies. Lo (2007) also found the least frequently used strategies were perceived as least useful by the learners: 1) Keyword method; 2) grouping words together; and 3) remembering the new word together word the context where the new word occurs. He also found the mean scores for perceived usefulness were higher than those for frequency in almost all the strategies listed. This means that learners generally

think of strategies as helpful, but do not necessarily use them often in their real-life learning.

An earlier study by Gu and Johnson (1996) investigated non-English major university students using a VLSQ to establish beliefs about various VLSs. They asserted that, in terms of rehearsal and repetition strategies, oral repetition was one of the most useful strategies.

3.7 Factors affecting the use of VLSs

It is impossible to focus on all the different variables in a single study. Hence, numerous studies have considered the use of VLSs of students with different majors, genders or level of education without examining any other variables. For example, in his thesis, Al-Akloby (2001) examined the overall use of various VLSs without assessing any variables. Other studies consider only one variable, such as gender, as in the study carried out by Catalan (2003), which is discussed later in this section. Gender was also considered by Boonkongsaen (2012:45), who confirmed that not all scholars assess many variables.

As was said earlier, it is beyond the scope of the current study to examine all the factors simultaneously for several reasons (see limitations 7.3). Thus, it is important to be selective, otherwise the data becomes too unwieldy to analyse effectively (Norbert Schmitt, 7th July, 2016 personal communication).

3.7.1 Academic field of Study

This section presents several recent studies that have used academic field of study (AFoS) as a variable, usually also comparing genders. It should be noted that some of these studies took AFoS as well as gender into account at one time and did not focus on any other variable.

Zhang (2009) investigated 481 undergraduate English and non-English major students from six different universities in five provinces in Western China. 223 of the students were male, 258 were female, 196 were English majors, and 285 non-English majors. The learners were also taken from different university levels: 180 sophomores, 164 juniors and 137 seniors. The aim of his research was to examine VLSs based on an adapted VLS questionnaire from Gu and Johns's (1996) study. Learners were required to report on their own perspective concerning strategy use. They were given several strategies, which they had to rate on a five-point Likert scale, where 1 meant 'completely disagree' and 5 'completely agree'. He also examined learners' vocabulary size. He compared female and male learners strategy use and English and non-English majors' perspectives and strategy use regardless of the results of vocabulary proficiency tests. He reported that all learners, regardless of major and gender used dictionaries more frequently than any other strategies. He also learned that reinforcement strategies and some meta cognitive strategies, such as 'repeating words', 'visual coding' and 'associations', were not satisfactorily used by learners. In terms of AFoS, 17 out of 19 strategies were used more frequently by English majors than non-English majors, including 'using dictionary for meaning comprehension and using local linguistic information' and a significant difference was found between majors in the use of two strategies, namely: 'using background and textual information', and 'using dictionary for word learning' which, he believed, occurred because English majors are more

capable of guessing the meaning of a word from the contextual information provided. Meanwhile, in terms of dictionary-use strategies, English majors were more likely to relate dictionary use to vocabulary learning. Therefore, dictionary use was understood as a method of vocabulary learning, rather than a tool for solving vocabulary problems during reading activities, which is a prominent difference between English and non-English majors' use of dictionaries. In terms of the overall differences between female and male subjects, Zhang found only slight differences between male and female subjects. However, he reported near significant difference of use between genders in two strategies, namely: 'using local linguistic information' and 'using word formation such as affixes and stems'. Generally, male learners used ten strategies to a greater extent than females, while female learners used 11 to a greater extent than males. This reflected Gu's (2002) findings, but was not completely in line with Oxford, Nyikos, and Ehrman (1988) who claimed that the use of learning strategies significantly correlates with gender. They contend that females are more skilful than males at using vocabulary/learning strategies, especially social-interactive strategies.

In a more recent PhD thesis, Alkahtani (2011) investigated 667 EFL college students studying at the Yanbu English Language Institute (YELI) in Saudi Arabia, Yanbu. The participants included 440 male and 227 female students enrolled in the preparatory programme. 365 students (nearly 55%) majored in technical and engineering fields, while 302 (nearly 45%) were studying business, management and other non-engineering academic disciplines. All students spoke Arabic as their first language and had studied English for at least nine years before entering college. The students took English classes four times a week for 45 minutes a day, starting from Grade 4 in elementary school and continuing for 9 years up to and including Grade 12 of high school. Similar to this study, the aims of his research were to examine the

impact of gender and the choice of academic major on the frequency of use of language learning strategies and perceptual learning style preferences among Saudi EFL college students. He collected data via two self-reported questionnaires, namely, Oxford's (1990) Strategy Inventory for Language Learning (SILL) and Reid's (1995) Perceptual Learning Style Preference Questionnaire (PLSPQ). Moreover, a further questionnaire was administered to collect background information about the participants. Data received from the returned questionnaires were analysed using descriptive statistics and inferential statistics, including mean scores, standard deviations, frequency calculations for each category and items, t-tests and Pearson product-moment correlations. He classified his strategies into six categories: metacognitive, social, compensation, cognitive, memory and affective strategies. His findings revealed metacognitive strategies were the most used VLS among all the learners. In terms of gender and choice of academic major, there were no statistically significant differences noted in the use of language strategies between participants. However, descriptively female learners showed slightly higher strategy use than males, while technical and engineering informants used strategies more often than those in non-technical fields. Notably, his study failed to examine learners' strategic behaviour, or the usefulness of VLSs. His study also used only quantitative methods, while this study uses both qualitative and quantitative methods.

Liao (2004) carried out a study based on 629 Taiwanese learners, of whom 314 were English majors and 54 non-English majors, 315 males and 314 females. His study had three main aims: 1) determining the VLSs most and least used by learners; 2) establishing whether there are differences between genders; and 3) whether they are differences between English and non-English majors in terms of strategy use. As in this study, he did not focus on VPL, however, he used the VLSQ proposed by Schmitt

(1997), reviewed in the previous chapter (3.3.2). His data demonstrated that the strategies most used by all learners were looking up the words' meanings in electronic dictionaries, followed by writing the word several times, while the least used strategies were memory strategies, such as underlining the initial letter of the word. In terms of majors, he reported significant differences between English majors and non-English majors. He found EMLs significantly used 17 items out of 50 items, such as 'analysing the past of speech', 'analysing the word affixes', 'guessing the word from context', 'interacting with native speakers', 'relating the word to its part of speech', 'using verbal repetition,' 'I keep a vocabulary note book', and 'using English media such as songs' more than the other majors. To assess the gender variable, he ran a t-test analysis, and found significant differences between males and females, regardless of major, in 47 out of 50 strategies.

More recently, Yilmaz (2017) examined the differences between gender and academic major in connection with learners' strategy use, regardless of the results of any vocabulary proficiency tests. He examined 79 graduate learners, 31 males and 48 females aged from 23 to 42 years, 64 of whom were taking a Masters' degree and 15 of whom were PhD degree students in the Arts and Humanities and Science departments in 27 Turkish universities. He collected his data through personal questionnaires, gathering information on the participants' age, gender, university level, and academic major, and included 93 strategy items. Students were asked to rate their uses based on a five-point Likert scale. The reliability of his VLSQ as measured by Cronbach Alpha coefficient was .97 which is considered an excellent reliability score and is at par with the score I obtained for my VLSQ questionnaire. In terms of AFoS, the most frequently used type of VLS by the Art and Humanities major learners was found to be Triggering Strategies such as 'learning English words mentioned in classes'. Determination Strategies such as

'asking teachers, classmates about L1 meaning' or 'using English -L1 dictionary', Retrieval Strategies, such as 'I retrieve the word from its pre-fix, or suffix' and Resolution Strategies were respectively the second, third and fourth most frequently used type of VLSs. The least frequently used category was Reinforcement Strategies, such as 'organising words based on grammar or meaning' by the Arts and Humanities major learners. The most frequently used category of VLS by the Science major learners was Triggering Strategies, followed by Determination Strategies, and Retrieval Strategies respectively. The least frequently used type of VLS by Science major learners was Reinforcement Strategies, similar to the Arts and Humanities major learners. Yilmaz (2017) did a t-test to ascertain whether any difference between Arts and Humanities and Science major participants in the frequency of use of VLSs was statistically significant. His results showed the difference between Arts and Humanities and Science major participants was significant only in Determination Strategies. The findings parallel Gu's (2002), while being inconsistent with Rao and Iiu's (2011) research findings, as they found significant differences between social science students and science students in terms of VLS use. They contradicted results obtained by Boonkongsaen and Intaraprasert's (2014), showing that overall arts majors used VLSs significantly more frequently than business and science majors. In terms of gender, Yilmaz (2017) found males and females ranked strategies similarly; for example, the most used category for both genders was Triggering Strategies and they also shared the least used category which was Reinforcement Strategies. His results also showed female participants significantly outperformed male participants in all five categories; namely, triggering, resolution, determination, reinforcement, and retrieval categories. For example, 'guessing the meaning of the word by its suffixes' was used more often by female than male learners.

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

In a recent study, Shikano (2015) examined 130 Japanese first and second university year students undertaking different majors; specifically, 69 students were undertaking a social studies major, and 61 were undertaking sciences and engineering majors. 58 of the students were female and 72 male. He classified his strategies into three main categories, namely: 1) 'problem solving strategies', which include several strategies such as using the keyword method; 2) 'global strategies' which involve several strategies such as 'using context clues' and, finally, 3) 'supporting strategies' such as 'taking notes' and 'asking questions'. He collected his data via questionnaires translated into Japanese. The variables he assessed were gender and major with no focus on vocabulary proficiency level. In terms of AFoS, there were no statistical difference between majors, although the assumption is that computer science and engineering ESP learners might have different patterns of strategy use from non-science majors. He found social studies majors use strategies such as re-reading to establish meaning more frequently than other groups; they also read the text aloud more often than engineering majors, while engineering majors used the translation strategy most. In terms of gender, his results showed females in general outperformed male learners in strategies such as 'guessing the meaning of the unknown words' but not in a significant way. He also reported that three strategies were significantly more often used by female than male participants; i.e. 'reading the texts again' to unlock the meaning of the new words'. In addition, he did not observe any differentiation of import between the genders in terms of supporting strategies. He found male students tended to translate the texts into Japanese more than females, but not significantly. This suggests male learners rely slightly more on L1 than L2 compared to female learners. However, he found female learners tended to use dictionaries and references and read aloud more than male learners, although again not significantly. Finally, his final category did not show any

statistical differences between genders.

Although many studies have observed differences between students studying different majors, several have not. In a recent study Fatima and Pathan (2016) examined VLS strategy use by 180 undergraduate students randomly selected from different undergraduate programmes at different departments from the University of Baluchistan (UOB) and the Sardar Bahdur Khan's Women's University (SBKWU). Their VLSQ was taken from Noor and Amir (2009) and based on VLSs proposed by Gu and Johnson (1996) (their classification is given = in the previous chapter). Their VLSQ contained 45 items ranked on a five-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Their results did not show any significant differences in terms of the use of VLSs between the undergraduate learners of the two universities.

Mochizuki (1999) examined 44 second-year English majors from the Faculty of Education and 113 first-year non-English majors from the Faculty of Science and Agriculture at a Japanese university. He used Oxford's (1990) classification (see Chapter Two). The study found that EMLs used compensation strategies, social strategies and metacognitive strategies significantly more often than non-English majors. It should be noted that his study did not take address the vocabulary proficiency level of his participants. Rong (1999) examined LLS use among tertiary level students in China. She invited 265 third-year university learners from three Chinese universities to participate. These learners were from three different majors: science (31%), arts (35.5%), and English (32.8%). A questionnaire (in Chinese) adapted from Oxford's (1990) SILL was used. The findings demonstrated that EMLs used significantly more strategies in four categories (cognitive, compensation, affective, and social) than science and arts students did. No significant differences were found in relation to gender, and

she did not report results for individual strategies or any English proficiency tests between majors.

A recent study by Peacock and Ho (2003) examined the use of 50 common LLS by 1006 EAP (English for academic purposes) students from eight different academic majors namely: building, business, computing, engineering, English, mathematics, primary education, and science in a university in Hong Kong. The study showed that strategy use was higher among humanities students than among science and engineering students, and that English major students used the most strategies, and computing students the fewest. The study did not report on the vocabulary proficiency levels of the different majors.

Finally, one of the largest investigations of VLS use was a study conducted by Siriwan (2007). She investigated 1,481 students in a university in Thailand, examining variables including major and gender. Hence, her participants included both males and females and were drawn from three different majors: English, science-oriented and non-science-oriented. She classified her VLSs into three main categories: discovery of the meaning of new words (DMV), retention of the knowledge of newly learned word (RKV) and expansion of vocabulary items (EKV). Each category included several VLSs. One of her aims was to report the overall use of VLSs in each category, regardless of any variable examined. In relation to DMV, the most used strategies were using the English-Thai dictionary, using the Thai-English dictionary, and guessing meaning from context. The least used VLSs by all learners were asking members of families about the meaning of new words, guessing the meaning from the grammatical structure, and asking English teachers to discover the meaning of a word. In terms of RKV, the most used VLSs was completing English exercises after class, while the least used were grouping the words according to the meaning and using semantic maps.

Lastly, in relation to EKV, the most used VLS was practising using dictionaries, while the least preferred was taking an extra job at a tour office. Moreover, she reported a strong relationship between AFoS and strategy use. English majors outperformed students from other majors significantly in two out of three main categories; namely DMV and EKV but not in RKV. English majors reported using the strategy of guessing to discover the meaning of new words significantly more frequently than science students; this included options such as guessing the meaning from the context, guessing the meaning from gestures, and guessing the meaning from part of speech as well as from grammatical structure. When exploring strategies for practising new words, she learned that English majors used practising strategies more often than science majors; these included listening to English songs, watching English programmes, playing English games such as crosswords, speaking with native speakers, and using as many English words as they could as frequently as possible. It was also found that English majors used English-English and English-Thai dictionaries more routinely than students in other majors. On the issue of gender, she learned that female learners, regardless of any examined variables, outperformed male learners significantly in terms of the use of DMV and EKV strategies but not RKV. These strategies were using English-Thai dictionaries, practising using dictionaries, asking classmates, associating pictures with words to retain the meaning, and repeating the vocabulary items with their lexical set to retain the knowledge of new words. It should be noted, however, that the number of participants in each group in Siriwan's (2007) study was not equal and might have resulted in biased findings (Field, 2009). For example, it can be seen from Table 3.1 that the female learners (993 females) outnumbered the male participants (488 males). Also, there were 296 fewer male English majors than female English majors. As the researcher compares the overall male scores with the overall female scores the results

could be biased. My study has approximately equal numbers in terms of both gender and majors.

Table 3.1 Siriwan's participants' distribution in relation to gender and AFoS

Gender	Major Field of Study		
	English	**Science**	**Non-Science**
Male	96	210	182
Female	390	268	335
Total	486	478	517

3.7.2 Changes in learners' strategic behaviour over time.

As I indicated in chapter 1, one of the novel themes of the current study is that it proposes to study VLS change in EFL students at university level over one year of taking their normal courses either as English majors or computer science majors, not receiving any special VLS training from the researcher or anyone else. We therefore now review some key literature concerning that issue, in order to ascertain what previous research suggests that we might expect to find concerning VLS change over time, and factors affecting that, although we may note that their value as limited as the data was largely obtained from cross sectional studies rather than longitudinal ones (Chamot, 2001).

In a very recent study, Alhaysony (2017) investigated the language learning strategies used by Saudi EFL students at Aljouf University. She examined 134 students of both sexes (66 males, 68 females). All the subjects had studied English for at least nine years and were aged between 23-27 years (she did not refer to measures of English language proficiency in her study). The participants completed a questionnaire adapted from Oxford's (1990) Strategy Inventory for Language Learning (SILL), which was reviewed in Chapter 2. Similar to this study, the students were asked to respond

according to a five-point Likert scale. Her aim was to understand the relationship between the use of language learning strategies and gender, and time spent on learning the English language. According to her results, cognitive, metacognitive and compensation strategies were used most frequently, while memory and affective strategies were the least frequently used. Arguably cognitive strategies are important in learning a new language because they work directly on incoming information (Oxford, 1990). The most frequently used of these were "writing and saying a new word many times in order to learn it", "watching movies in English" and "consciously learning new vocabulary". The least reported strategies were memory strategies and affective strategies, respectively. In terms of gender, the results showed female students use more LLS than male students, although not significantly so. With regard to time, she examined the same participants after 6 months of English exposure and found no significant related changes. Students who had studied English over a long duration however reported using LLS more frequently than those who had studied English for less time. Based on her results, Alhaysony (2017) suggested strategy training should be provided to learners as part of the curriculum. However, Alhaysony (2017) did not focus on different majors, and did not provide any insight into whether content affected learners' choice of VLSs.

Tassana-ngam (2004) taught an English course to two classes, each containing students following various different majors at university. She qualitatively recorded their VLSs, then intervened in one class over a number of weeks to teach VLSs that the students did not seem to use very much. After, she qualitatively measured the VLS she discovered those who had received the VLS instruction had indeed changed their VLS use in favour of the VLS that they had been trained to use. The control group, however, had not changed in this respect, implying that without VLS instruction VLS remained

the same. However, although she included students studying a variety of majors in her sample, she was not interested in comparing their VLS use.

Most cross-sectional studies do not show dramatic increases over years of study. Kalajahi and Pourshahian (2012) compared students (described only as ELT students) from all 4 years of study at a university in Cyprus. They only however report summary ratings for each year based on responses pooled from large numbers of VLS questionnaire items. These show quite a steep rise in VLS use between year 1 and 2, but with some dropping off after that, and indeed metacognitive strategies, as a category, end up in year 4 students lower than in year 1 students. Sarani and Shirzaei (2016) report VLS differences between BA and MA students of unreported majors at universities in Iran. They again report only overall ratings as means across all the specific questionnaire items. Still, the result shows remarkably that MA students report significantly lower overall mean use of VLS than BA students. The researchers offer no real explanation for this, but these studies together suggest that in our study we also might find a fall rather than a rise in VLS use between BA years 2 and 3.

A more recent study closer to our context was conducted by Al-Hatmi (2012), whose study focused entirely on vocabulary note taking strategies (VNSs). In his preliminary study he examined 55 university EFL learners enrolled in a four-year English programme in Jeddah teacher college at the King Abdul Aziz University in Saudi Arabia. He examined 28 participants in the second year, 18 participants from the third year and 9 participants from the fourth year. One of his aims was to examine the effects of time. He used a mixed data collection method, in which strategy data was collected via questionnaires, interviews, and from learners' notes. He allowed a one-year gap between the questionnaires, with no examinations or interventions being carried out over that time period; thus, he re-examined the same students in his main

study. Out of 55 students, 40 participated in the main study. His study is one of the few studies to use a standard longitudinal design. His results revealed the most commonly used strategies involved taking words from textbooks, noting new words, and writing down L1 translations. On the other hand, the least used strategies were audio recording notes, making note cards, organising words alphabetically, and recording pronunciations and collocations. In terms of time, he found that his participants remained consistent about using various vocabulary note-taking strategies over time, although several changes were observed. For example, he found a significant reduction in learners' use of 'textbooks', as well as an increase in their use of 'the internet' as a source. Moreover, the criteria for selecting a word that has 'a highly frequent equivalent in Arabic' as well as selecting a word that 'I met before but not noted and which I keep meeting again' both increased significantly. The learners also significantly increased their use of the locations 'personal notebook' and 'wall charts'. Further, the increase in learners' use of taking notes 'at every class I attend' was significant. On the other hand, there was a significant decrease in learners' recording of 'English definitions from dictionary'. However, he offered no explanation for these changes. His study differed from my study in the following ways. I take different majors into account (EMLs and CompSMLs) and examine the frequency of use of VLSs in general, not only vocabulary note taking strategies; for example, guessing strategies, practising strategies, asking strategies, memory association strategies. Furthermore, one of my aims it to establish the most useful strategies that were reported by the learners in both majors. I also report on the reasons behind learners' changes in strategy use over time, and between majors relative to the curricula, and from the learner's interviews.

Some other non-experimental and more longitudinal studies relied on observation and interview rather than questionnaires and are informative even though

their contexts are quite different. One of interest is not of VLS but communication strategies. This is Chesterfield amd Chesterfield (1985) studying Mexican-American children in US bilingual classrooms, who used an implicational scaling technique which enabled them to determine the sequence of strategy use even without following children longitudinally. Their participants first used receptive and self-contained strategies like repetition, memorization, and formulaic expression. Later they moved on to strategies which allowed interaction (requests for clarification or assistance) or which were metacognitive (elaboration and monitoring). The researchers suggest that patterns of strategy use can change over time spontaneously, just due to a learner maturing or becoming more proficient in the target language.

The view that strategies can develop in a sense spontaneously is again supported by Kirsch (2012) in a longitudinal study over a year of English children learning French, German or Japanese in school (i.e. a foreign rather than second language situation). She observed how students seemed to discover for themselves VLS such as asking people, spotting L1 cognates, repeating in order to memorise, etc.

Swatevacharkul (2013) examined whether there were any changes in English learning strategies used by Chinese undergraduate students after studying in Thailand, with no strategy training interventions in the interim. The design was similar to Gao's (2006) (discussed earlier), in that it relied on participants' reporting at a later time on what their strategies had been at an earlier time, and what changes had occurred. Swatevacharkul's (2013) participants were 218 Chinese students, whose majors were international business, marketing, and finance at four private universities. They courses were taken as part of international (n=98) and Thai (n=120) programmes, using English and Thai as a medium of instruction, respectively. Chinese language questionnaires were used to collect data, and interviews conducted with eight students (two from each

university). The findings reported that 152 of the Chinese students' English language learning strategies use had changed, significantly more than the 66 Thai students who reported no changes. English learning strategies relating to speaking and listening skills were reported as the most frequently changed strategies. The researcher also contrasted the strategies used in China and Thailand for both speaking and listening, giving reasons taken from interviews with the learners. In terms of speaking strategies in China, 59% mentioned having had little opportunity to speak English in China and so did not have much to report regarding speaking strategies. This is because in China students rarely speak and use English (Swatevacharkul, 2013:295). The following excerpts are from the interview data:

> *"The focus is on writing"* (Swatevacharkul 2013:295)

> *"Teachers give handouts to study by ourselves. It's a rare opportunity to speak English"* (Swatevacharkul 2013:295)

In Thailand, 87% of learners reported finding opportunities to speak English as the first speaking strategy, followed by watching movies and TV, and listening to songs (13%). Learners claimed they try to speak English with their teachers, classmates in class, and the Thai community outside of class. The following are extracts taken from the qualitative research findings:

> *"The most different part is speaking. In China, we just speak English in class, but here I have to speak English everywhere"* (Swatevacharkul, 2013:295)

> *"Here, I try my best to speak and learn from other people. Try to understand every word which they say, then use these words for my own speaking"* (Swatevacharkul, 2013:295)

In terms of listening strategy skills, in China most (39.4%) Chinese students used media, such as radio, TV, and films to practise their listening skills, followed by practising listening using course audio media (27.3%).

> *"I listened to songs. I practised listening by myself"* (Swatevacharkul, 2013:296)

> *"I listened to the radio, watched TV and movies"* (Swatevacharkul, 2013:296)

While in Thailand, practise through media channels was reported as being the first listening strategy (44.1%):

> *"I will use the Internet to improve my English, such as watching English movies and listening to the radio"* (Swatevacharkul, 2013:296)

Listening to the teacher in class was reported as being the second listening strategy (29.4%).

> *"I listen attentively and think what they are talking about. Regular practise will make you familiar (with listening to English)"* (Swatevacharkul, 2013:296)

It can be concluded that practising listening using course audio media in China changed when the language learners studied in Thailand. However, this study had an obvious weakness. The researcher examined learners' strategy change at time 2 by asking his participants whether or not they had changed certain strategies. My study will be much more reliable in terms of reports at each time point, as I will distribute two questionnaires with a one-year gap. This method will bypass the reliance on memory.

3.7.3 **Gender**

Research on VLS, which has examined the relationship between gender and strategy use has yielded mixed results. Gu (2002) commented that gender is one of the individual differentiating variables affecting language learning, and yet gender has received minimal attention in the field of VLS (Catalán 2003:55) especially in the Saudi context. Several linguists and other social scientists have focused on gender as a factor when learning languages and have observed differences between male and female students in terms of the use of lexical items, grammar, and communication. Numerous scholars have claimed these differences arise from physical factors, and social factors (Tannen, 2006). Generally speaking, male students are more confident when learning a language and more social than female learners, if rather careless; while female learners tend to be quiet, delicate, and irresolute. Because of these psychological aspects, there may be differences between female and male students in terms of learning a language.

An example of such as study was that performed by Soureshjani (2011), who randomly selected 50 male and 60 female language learners from different institutes in Shahrekord, Iran. He adopted Schmitt's (2000) VLSs (addressed in detail in the literature review). Soureshjani, (2011) used SPSS to analyse his data. A t-test was used to gauge the difference between males and females in relation to their uses of strategies. He recorded significant differences between male and female participants in terms of VLS use. His findings also detail the strategies all learners use to find the meaning of new vocabulary items: 'connecting a word to its synonyms and antonyms' and 'using physical actions' and 'imaging word form' and 'imaging word meaning' were the least frequently-used VLSs.

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

Catalán (2003) examined a total of 581 Spanish-speaking students, divided into 279 males and 302 females learning two different languages: Basque and English. His aim was to examine gender differences in VLS use only, with no focus on vocabulary proficiency or academic field of study, since he had two different groups learning English and Basque languages. He used Schmitt's (1997) VLS taxonomy. He found females and males differed significantly in terms of their use of VLS, and that the two groups used different strategies. Although, they shared 8 out of 10 most used common strategies such as using a bilingual dictionary, asking teachers for L1 meaning, taking notes, and saying words aloud when studying. He also noted that both groups had similar usage in relation to least used VLSs such as using flash cards, grouping words together, using physical action, and using semantic mapping. He also discovered that female learners had a greater use of formal rule strategies, input elicitation strategies rehearsal strategies and planning strategies. Finally, he concluded that females used more strategies than male learners.

However, other studies contradict the findings reported above, suggesting no differences between male and female learners in terms of learning a language, particularly when learning vocabulary. For example, Douglas and Burman (2006) claimed there are no significant gender differences in terms of vocabulary knowledge, although females tend to be better at spelling and grammar.

Manueli (2017) examined 60 university students from the faculty of Arts in Agostinho Neto University. Their major was English and they were randomly sampled. Like the participants in this study they were 18-24 years old. There were 30 male participants and 30 female participants. He used Schmitt's VLS classification (1997) including 42 items and a questionnaire divided into two parts; the first part to collect

learners' background information such as age, gender and years of study, and the second part included the classification of VLSs namely the discovery strategies and consolidation strategies. The results showed guessing meaning from pictures, using bilingual dictionaries, and asking classmates while using cards, and skipping were the least used VLSs. Moreover, there was no significant difference between the genders in terms of the use of VLSs, with the exception of two items, namely, 'connecting the new words to its synonyms' and 'skipping new words' in which male learners significantly used these two items more than females. This is in line with Stőffer's (1995) results, which report that gender does not significantly impact a student's choice and use of VLSs.

In addition, Ansari, Vahdany, and Banou Sabouri (2016) examined the frequency of use of VLSs by Iranian male and female EFL learners highlighting the relationship between gender and the use of these strategies. They collected data from 80 intermediate EFL learners (40 male and 40 female) studying English at the Shokouh Language Institute. They used Kudo's (1999) taxonomy of VLSs including metacognitive and psycholinguistic strategies. Kudo's (1999) Likert-scale questionnaire was also used in their study. The finding revealed the frequency mean for the use of psycholinguistic and metacognitive strategies and the overall frequency mean were slightly higher for the female learners. However, no significant difference was found between Iranian male and female intermediate EFL learners' use of VLSs.

Lee (2007) examined the effect of gender on VLS use, regardless of AFoS and vocabulary proficiency level (VPL). He included 466 students (206 males and 260 females) from two Korean Universities in Seoul. He also adopted Schimtt's (1997) VLS classification. Approximately 66% of the students were English majors and the

remainder were from different majors such as engineering and business. The students from different levels were namely freshmen (35.5%), sophomores (15.2%), juniors (26.8%) and seniors (22.1%). He concluded that all learners, regardless of gender, preferred cognitive strategies demanding low level mental processing. He also found the strategies most used by all learners were 'using bilingual dictionaries', 'saying a word aloud'; while 'using flash cards' and 'using keyword method' were among the least used VLSs. In terms of gender, he stated two items were used significantly more by male learners, 'using pictures and grouping strategies'. Nevertheless, he concluded that there was no evidence of a significant difference between male and female participants.

3.7.4 Technologies and vocabulary learning strategies.

The mobile phone is an information communication and technology (ICT) tool that has become an integral part of the learners' daily lives and learning activities. Using a smartphone, learners' can perform different tasks, such as browsing the internet to check the meaning of new words, or using installed dictionaries. According to West (2012), mobile learning technologies have the potential to transform educational fields because they can create learning opportunities for students in different ways. Furthermore, Jacobs (2013) argued that mobile learning technologies have no time restraints as they can be used to access digital content and online websites at any time, which make learning different from a classroom environment. Moreover, Chiu (2015) stated that mobile phones used in language learning can have positive impacts, especially on vocabulary acquisition, spelling, pronunciation, grammar, and listening and reading skills.

Researchers have observed mobile assisted language learning (MALL) can deliver rich real time and contextual learning opportunities (Kukulska-Hulme & Shield,

2008). According to Chu (2011) smartphone applications are not only commercially successful, but also can have pedagogical benefits. He believes students' main reason for selecting mobile learning via computer is functionality, emphasising their portability and ease of use. Kim Kwon (2012) explained the potential advantages of smartphones for students in terms of affording them greater flexibility, and access to materials to personalise their learning activities. In the literature, multiple studies have focused on utilising smartphones for vocabulary learning (e.g. Fisher et al., 2009; Song & Fox, 2008). Burston (2012:16) concluded, "the learning outcomes of MALL implementations are unquestionable positive in nearly 80% of the cases".

Jeong et al. (2010) categorised educational applications into eight types: self-instruction type, repetition, simulation, gaming, problem-solving, material-providing, testing, and medium. They indicated that most vocabulary applications belong to the repetitive type. This encourages learners to acquire and retain new target words by reiterating them in applications such as Up Down All Packages, and Perfect Word, which enable learners to memorise the new words. Elsewhere, Klopfer et al. (cited in Naismith, et al 2004) identified five properties of mobile devices offering unique educational affordance, namely portability, social interactivity, context sensitivity, connectivity, and individuality.

However, despite these advantages that smartphones have in language learning and teaching, there are also some limitations. Chinnery (2006) stated several reasons why smartphones are not very convenient for language learning, such as the time taken for charging or entering data. Another negative impact of using smartphones in education is related to learners' achievement; for instance, playing games and chatting applications, which might be seen as a waste of time rather than learning (Town, 2013).

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

According to Kane (2013), there are many negative psychological consequences for learners who spend a lot of time using smartphones and are not able to use smartphones wisely: they become nervous, upset, concerned or angry when they cannot use them for some time. Prolonged smartphone use also causes other health issues, such as symptoms of eye strain or eye fatigue (Britt, 2013). In addition, Wilson (2012) suggested that spending a lot of time using a smartphone and looking down at it can cause pain in the neck and spine.

Recently Nurhaeni and Purnawarman (2018) undertook a study of smartphone use to investigate it as a learning strategy buttressing autonomous learning. They used a questionnaire adopted from a thesis by White (1993), and interviews exploring how participants applied metacognitive, cognitive and social/affective strategies when using smartphones to learn English. They examined 65 participants from the Islamic Economy Department in the University of Bandung, and pointed out that their participants' English language was of a high standard, and that they could not have joined the department without mastering a foreign language. They concluded that use of smartphones when learning English helps improve learners' autonomous learning strategies. The learners reported that they perceived smartphone functions to be fast, easy to use, and excellent at helping them to learn the English language. Learners confirmed they used smartphones to translate difficult lexical items, browse materials, and post on social media. Leu et al. (2004:12) described internet learning as a "self-directed activity that provides students with considerable autonomy in choosing what information to search for and review, as well as where and how, and in what order, to search for and review it."

Chapter 3: Literature Review II: Vocabulary Learning Strategies (VLSs)

The strategies most commonly linked to smartphone use were cognitive and social/affective strategies; whereas, metacognitive strategies were considered the least influenced by the use of smartphones for learning English. The students implemented metacognitive strategies, using smartphones applications that meshed with their needs and interests; representing a strategy in metacognitive category called 'prioritising'. With regard to cognitive strategies, the students used smartphones to translate to and from English using online dictionaries. In relation to social/affective strategies, the students used smartphones to communicate with others in the target language. Learners downloaded applications such as Comply, Skype and google video chat to apply social strategies. Today it is easy for students to communicate with English native speakers globally via their smartphones.

Basoglu and Akdemir (2010) conducted a comparative study of vocabulary learning with mobile phones and with paper flashcards. They found the vocabulary learning programs installed on mobile phones improve students' learning of English vocabulary more than traditional vocabulary learning tools. Song and Fox (2008) argued that the use of mobile devices can motivate learners to learn. Chu (2011) also examined the use of mobile applications consulting 32 students (of both sexes (13 male (40.6%) and 19 female (59.4%)) taking a TOEIC class at Yeungnam. The students were following different majors; 16 students (50%) majored in the liberal arts and 16 (50%) majored in the natural sciences or engineering, and had varying levels of English proficiency. The major finding of his study was that 82.6% of the learners used installed vocabulary aids and dictionaries but that none used speaking or writing applications.

In terms of the use of internet use for vocabulary learning, scholars generally agree that online learning supports language learning: "Because learning on the internet

has become so accessible, it holds great potential as a tool to help students build their vocabularies" (Ebner and Ehri, 2013:480). Moreover, "the computer explosion and internet have transformed the environment in which language is used and learning takes place" (Morgan and Rinvolucri, 2004). Computer Assisted Language Learning (CALL) and the internet have proven highly beneficial (Mustafa et al., 2012). Both computers and the internet can provide rich information and valuable resources for those learning a language and its lexicon. Mill (2000) observed that learners can look for anything they want and access a range of language related information acquiring feedback instantly. According to Nagy and Scott (2000), learners can now access countless websites, such as Dictionary.com, to find the L1 meaning of a word and how it is pronounced. In this study, the internet was classified as one of the VLSs used by learners, and the results showed high use of it by all learners, as shown in the results and discussion chapter. In addition, learners provided multiple reasons for using the internet.

A number of studies have examined the relationship between language and technology. Indeed, multiple studies have suggested that use of internet by learners has helped them to improve their English skills. Ebner and Ehri's (2012) study showed promising results for the use of the internet and resources to facilitate students' understanding of word knowledge. They examined 48 college students who used the internet to learn the meanings of specific terms contained within an online article. Their results showed students significantly increased their knowledge of a word's general meaning, grammatical usage, and meaning within the context of an online article.

An example of this is Alshwairkh (2005), who studied ESL business students' approaches and attitudes to learning vocabulary online. He divided participants into two groups comprising readers and non-readers. He also monitored participants' vocabulary

knowledge throughout an 8-week period. The results showed those who used online reading scored higher in the post-test.

More recently, Koivumäki (2009) researched upper secondary students' motivation in relation to learning English using the internet. Koivumäki's (2009) aim was to examine how the internet affected young people's motivation, skills and attitudes towards learning English. The results showed that over 80% felt motivated to learn English outside the classroom. In addition, over 50% of the web pages they browsed were English-based. Finally, 48% of the participants stated that the internet has benefitted them when learning English. Overall, young people viewed learning with the internet positively, and reported enjoying visiting English sites to learn English.

The vocabulary that learners learn from school is often not sufficient to become proficient in the English language. Häcker (2008) investigated the vocabulary given in English foreign language textbooks of German and concluded that textbooks do not lead to acquisition of core vocabulary. Thus, it is advisable for learners to seek recreational contact with English. In other words, students can choose whether or not to watch English TV programmes, movies, read English books or browse English websites.

3.7.5 Psychological approach

Oxford (2003) stated that a psychological research approach examines the mental and emotional aspects of participants, who are considered either psychologically individual or members of a social or cultural group. Furthermore, she referred to the aim of the psychological approach as the "desire to seek meaning; positive attitudes, need for achievement, and a combination of intrinsic and extrinsic motivation" (Ibid:83). She

also argued that LLS in the psychological research approach are the psychological aspects of the learner that can change through practice and strategy instruction.

Although learners' motivation or career plans have not been explicitly examined in this thesis, nor were there specific strategies mentioned related to them, during the interviews, some of my participants spoke about their motivation for learning English as to acquire more L2 words, including to fulfil future career aspirations. Hence, I will mention here several points concerning psychological approach when learning a language.

Motivation relates to individual differences that can affect language learning. By the 1990s, Gardner's notion of motivation had been explained in second language motivation research (Dornyei, 2001). Wlodwoski (1985:2) explained motivation as "the processes that can (a) arouse and instigate behaviour, (b) give direction or purpose to behaviour, (c) continue to allow behaviour to persist, and (d) lead to choosing or preferring a particular behaviour". It is also defined as the individual's attitudes, desires, and effort (Gardner, Tremblay, & Masgoret, 1997). Moreover, motivation "refers to a complex of three characteristics which may or may not be related to any particular orientation. These characteristics are attitudes toward learning the language, desire to learn the language, and motivational intensity" (Gardner, 1985:54).

According to Gardner and Lambert (1972) there are two motivation types that are relevant to second language learning: integrative and instrumental. The former means that learning a language based on one's interests or desire to identify with the target culture, such as learning the language because you love to speak with other people who speak the language, as is the case of English major learners; while the latter means learning the language as an instrument to achieve practical goals such as getting

a good salary, as is the case for the Computer Science major learners who have to learn the language to access scientific and technical information and job opportunities (Saville & Troike, 2005). It is believed that students who are most successful in learning a target language are from the first category (Falk, 1978), as "integrative motivation typically underlies successful acquisition of a wide range of registers and a native like pronunciation" (Finegan, 1999:568). While both integrative and instrumental motivation can inform success, early researchers believed that integrative motivation was more important in a formal learning environment than instrumental motivation (Taylor, Meynard, & Rheault, 1977; Ellis, 1997; Crookes et al., 1991).

Brown (2000) pointed out that integrative and instrumental motivation are not necessarily mutually exclusive. Learners rarely choose between of these two types of motivation; but are usually motivated by both. He supported this by putting forward the example of international students residing in the United States, who are learning English for academic purposes, while at the same time engaging in USA culture and blending in with American people.

Zanghar (2012) examined instrumental and integrative motivations among 40 Libyan undergraduate EFL students (at the College of Arts Bani Walid, Libya). His aim was to ascertain whether they were instrumentally or integratively motivated to study English. The participants were studying at different levels in a four-year university programme and 10 students were selected from each year. They were found to be highly instrumentally and integratively motivated to study English, although their integrative motivation was a little higher than their instrumental motivation.

3.8 Summary of the chapter

This chapter has addressed the definitions and taxonomies of VLSs. It has presented the results of general language strategy research and vocabulary-specific studies. It has also described a number of key factors that influence learners' use of VLSs, and offered insights into recent relevant VLS studies.

In summary, the findings regarding AFoS show that some strategy differences have quite often been found between students with different majors. However, most of the existing studies have related to contexts distant from that of the current research (e.g. the far East), and the specific differences found have not shown any clear common pattern. The only study conducted in Saudi Arabia (Alkahtani, 2011) did not focus specifically on VLSs but on language strategies more generally. Furthermore, the whole area of the impact of AFoS on perceived strategy usefulness, rather than use, remains untouched, adding to the value of the current study.

Gender is a variable that has been widely studied, but the findings are very varied, which makes the current study necessary to determining whether there are significant differences between genders in the Saudi context, and if so, in what areas of VLS use. The findings of existing studies concerning strategy development over time, apart from being few and rarely derived from longitudinal studies, are also varied. There seems to be some evidence that among young beginner learners the spontaneous development of strategies does occur in the absence of any strategy instruction. However, this has been less apparent in studies of adult learners, which are the focus of the present study. Existing studies have failed to examine thoroughly the contexts in which spontaneous change does or does not occur in order to reveal relevant contextual factors that may influence strategy change, such as the types of language tasks performed and the demands made on learners' language ability. Thus, the present study will contribute to

filling this research gap and indeed to the debate on whether strategy instruction is necessary for strategy change to occur.

The following chapter focuses on the preliminary study. Firstly, the chapter restates the objectives of the present study. This is followed by a descriptive background of the study participants. It also presents the study tools and the procedures for data collection and analysis. The results are then presented and discussed. Finally, a summary of the preliminary study data is presented, and amendments to the main study are explained.

Chapter Four: Preliminary Study of Vocabulary Learning Strategies

4.1 Introduction

This chapter describes the preliminary study that I conducted between April and May 2014. It also delivers an overview of the objectives set to guide the study (see 4.2), a descriptive background of the study participants, (see 4.3) and descriptions of the study tools, procedures used for data collection (see 4.4) and analysis (see 4.5). After this, the results are presented and discussed (see 4.6). Finally, a summary of the preliminary study data is presented, and amendments settled upon for the main study explained (see 4.7).

4.2 Objectives

Prior to presenting all the relevant details about the preliminary study, it is first useful to explain why a preliminary study was required. Three research objectives led to the decision to conduct the preliminary study outlined in this chapter:

- Firstly, to the best of the researcher's knowledge, no studies have to date focused on students majoring in English and Computer Science subjects in Saudi Arabia in terms of their use of various VLSs, and none have sought to discover the usefulness of these strategies for both groups in a Saudi context. Therefore, it was considered to be important to conduct research to establish the different characteristics of the English and science students' approaches to learning vocabulary.. It was expected that by reviewing the findings of this research, teachers would be able to improve their knowledge of their students' VLSs.

- In the preliminary study, only the participants' most and least used strategies (RQ1P, RQ2P and RQ3P) will be presented, regardless of the possible additional variables that will be considered in the main study (i.e. AFoS, Time and Gender). Therefore, I am concerned here only with their uses of various VLSs, disassociating these from the learner variables.

- One of the aims of the main study is to assess learners' strategic behaviours and report their uses of various VLSs over time (one-year gap), regardless of any variables. Therefore, pre-measurement data regarding the participants' uses of VLSs was needed, for comparison with the post-measurements taken during the main study. That is, the participants' responses to the VLSQ at this stage (i.e. preliminary study) provide the necessary initial pre-measurement data. This is because it is necessary to establish whether the passage of time affects learners' uses of VLSs or not.

- Before conducting the main study, a further aim of the preliminary study was established; i.e. to check the reliability and validity of the VLSQ. This is important as it is the principal research instrument employed in both the preliminary and main study. Thus, a mini pilot study was carried out prior to the preliminary study.

4.3 Subjects

4.3.1 Target samples

A sample is "a selection of observations (often assumed to be random) from a reference set, or population of possible observations that might be made" (Kinnear & Gray, 2004:1).

The target sample for this study was a purposeful sample, comprised of students chosen from two different majors, the English major and a Science oriented major. The

sample included participants of both genders. All the participants were in their second year at Najran University. In total, there were 158 participants, and these were subdivided into two groups: 82 English majors and 76 non-English majors as shown in Table 4.1

Table 4.1 Summary of the preliminary study participants

Gender	Academic Field of Study				Total Number	Total percentage
	English		Non-English			
	N of Participants	N %	N of Participants	N %		
Male	44	27.8%	41	25.9%	85	53.7%
Female	38	24.1%	35	22.2%	73	46.3%
Total Number and Percentage	82	51.9%	76	48.1%	158	100%

It is also crucial to note that all the participants who participated in the preliminary study also took part in the main study (see 5.4 for a full account about participants). This was to achieve one of the research goals, which was to measure learners' strategic uses of VLSs over time. . Therefore, the aim was that these same participants would be examined again one year after the preliminary study.

4.3.2 Ethical approval

Prior to conducting the data collection procedures, I requested and attained ethical approval from the University of Central Lancashire to conduct the data collection. This process involved completing a form with relevant details about the research, including details about the research topic and the target participants, focusing on how their consent will be obtained and how the confidentiality of the research data would be managed. An informed consent form was prepared to meet the guidelines of the ethical committee at the University of Central Lancashire (Appendix A). After this, the researcher was granted permission to conduct the data collection process. It is important

to mention that all the participants who participated in the pilot study also agreed to participate again in the main study (see 4.4.1.3 and 5.4.2 for more information concerning the ethical steps taken in this study).

4.4 Instruments and data collection

Oxford (1990) explains that researchers have previously adopted many tools and techniques to investigate language-learning strategies. These include think-aloud procedures, observations, interviews, diaries, note taking, and self-report surveys. The aim of using a questionnaire is "to tap into the knowledge, opinions, ideas and experiences of my learners, fellow teachers, parents or whatever" (Wallace, 1998:124). More specifically, a questionnaire "enables the researcher to collect data in field settings and the data themselves are more amenable to quantification than discursive data such as free-form field notes, participants observers' journals, or transcripts of oral language" (Nunan, 1992:143).

There are various types of questionnaires, including open questionnaires, closed questionnaires and a combination of both (Nunan, 1992). When completing open questionnaires, respondents are permitted to write their thoughts and answers to the questionnaire questions; however, they wish to use their language. The second type of questionnaire is a closed questionnaire, whereby the researcher has full control over the questions and answers that he or she wants. Hence, the informants do not have the opportunity to elaborate on their own answers, such as with the well-known Oxford's SILL (1990). The final type is an open-closed questionnaire, whereby informants choose their answers, and elaborate on them. McDonough and McDonough (1997:174) stated, "It is useful for the majority of the questions to be answered by ticking a box or circling an alternative to enable easier counting".

Chapter 4: The Preliminary Study on Vocabulary Learning Strategies

Many researchers have used closed questionnaires to investigate VLSs, such as Schmitt (1997), Nakamura (2000), Marin (2005) and Al-Hatmi (2012). Ellis (1994) believes a questionnaire is one of the most suitable instruments for researchers to use to investigate LLS. This is consistent with Oxford (1990), who suggested using standard LLS as a measure, as well as a questionnaire with a 5-point Likert scale to guide researchers. Moreover, Nakamura (2000) states that questionnaires assist researchers, by enabling them to make comparisons between two groups, because such an instrument provides a straightforward means of quantifying data. In the main study, I compare two groups: English majors and Science majors.

Furthermore, besides the aforementioned instruments, Cohen (1998:44) states, "researchers have recently begun to use computer tracking to collect strategic information with or without the students' awareness, but presumably with his/her consent", although this concept is not widely applicable to VLSs.

Selection of a particular method is based on several factors. Seliger and Shohamy (1989:156) state, "the choice of appropriate methods often depends on whether the research is in that the type of data is usually related to the design of the investigation and the nature of the research problem". For this reason, the questionnaire used in the pilot study is to be reused for the main study. The questionnaire was designed to answer RQIP, RQ2P, RQ3P and RQ1M, RQ2M, and RQ3M. The main study will also incorporate an interview as a second instrument to determine the reasons for learners' uses of VLSs (part of RQ2M).

However, no instrument is without limitations when applied to a study. For example, for think-aloud methods to succeed, they require participants and researchers to be highly trained. Cohen (1998) claims that some learners might not produce sufficient data relative to their counterparts. More importantly, Ericsson and Simon

(1993) claim some learners might fail to produce necessary data, and also fail to deliver the exact message they want to convey.

Moreover, questionnaires also have some limitations. It is generally argued that learners could underestimate the frequency with which they use a particular strategy, as they might prefer to report what they feel is right, not what they actually do, to please the researcher. In addition, when completing Likert-type questionnaires, respondents might prefer to choose an option without focusing on the statements themselves. (Please see 5.5 full account of instruments used in main study)

4.4.1 Vocabulary learning strategy questionnaire (VLSQ)

As noted earlier in this chapter (see 4.2), the VLSQ was designed to be reused in the main study (see 5.5.1 for a full account of the content of the VLSQ), as my aim is to ensure the organisation of content, to test it in advance to address necessary improvements. The VLSQ comprises two parts: one describing the participants' background information and the other the VLSs questionnaire. The VLSQ consisted of seventy-five closed Likert-type questions and twelve open questions arranged into twelve dimensions (i.e. *VLSD1 guessing strategies, VLSD2 asking strategies, VLSD3 type of dictionary being used, VLSD4 information taken from dictionaries, VLSD5 types of word and non-word information noted, VLSD6 location of vocabulary NTS, VLSD7 ways of organizing words noted, VLSD8 reasons for word selection, VLSD9 methods of repetition, VLSD10 information used when repeating new words, VLSD11 association strategies, VLSD12 practising/consolidation strategies*). When designing the VLSQ, I referred to a number of existing VLSQs; in particular, those employed by Alyami (2011), Marin (2005), and recommended by Oxford (1990) and Schmitt (1997). I should also state that Marin (2005) and Alyami (2011) employed similar VLSQs, although mine differed slightly as follows. Neither of the earlier examples included an

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option for reasons to explain the learners' note taking strategies, (NTS), but this was added to part two of my questionnaire, which was adapted from McCrostie (2007). The following provides an example of part two of the VLSQ.

Category three: Strategies dealing with retention and memorization

- **(C) Practising or other means of consolidating new words:**

VLSD12. Practising or other means of consolidating new words:					
72. I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
73. I quiz myself or ask others to quiz me on new words (answering vocabulary tests).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
74. I practise saying things in English by myself.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
75. I use as many new words as possible in speaking or in writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

It should be observed that the VLSQ was originally written in English (Appendix C). However, as the native language of my research participants is Arabic, the VLSQ was carefully translated into Arabic (Appendix D). The Arabic version was used when piloting the instrument, and in the preliminary and subsequent main study. When conducting the research, I aimed to avoid possible misunderstandings caused by the English wording. For example, during the process of translation a researcher might encounter three translation problems, such as, issues with ambiguity, problems arising from structural and lexical differences between the languages (Arabic and English) and the presence of multiword units such as idioms and collocation. However, the VLSQ I created did not include complex sentences, and the translation process was successful. To support this, the participants did not encounter any difficulties understanding the sentences, for example, when I used 'keyword method' I considered how best to interpret the strategy by illustrating the meaning in Arabic and providing additional

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examples.

4.4.1.1 Piloting the VLSQ

The aim of this procedure is to ensure the learners understand each statement. Therefore, before distributing the VLSQ, and prior to using it for the preliminary study, it was first piloted on a group of 13 Saudi students from the English and Science department studying at Najran University. The volunteers were involved in the same program as the preliminary study participants.

While the participants were completing the questionnaire, they were asked whether any issues or problems needed clarification. In addition, they were encouraged to provide feedback when completing the questionnaire. At the end of the questionnaire, each participant was asked whether they had encountered any issues answering it, in particular whether the statements were sufficiently clear. Two issues were raised by some of the participants regarding the item "I write down the word's historical origin", which they argued was unclear; therefore, it was deleted. The second issue concerned their misunderstanding of the item "using electronic devices for looking up the meaning". They wondered whether it referred to computers or mobile phones. Therefore, a new item: "using mobile phones for looking up the meaning" was added, as the original question referred specifically to electronic devices, such as Atlas.

The time taken to answer all parts of the questionnaire was 23 minutes, including five minutes to determine the purpose of the study, considering the participants were not restricted to a fixed time. Therefore, the VLSQ was clear, suitable and almost ready to use in the preliminary study. However, as mentioned earlier (4.2), one of the aims of the pilot study was to check the reliability and validity of the questionnaire. Hence, this examination involved a reliability check of the questionnaire items based on feedback from the pilot sample. The results of this study are reported in

the following subsection.

4.4.1.2 Reliability of VLSQ

Oppenheim (1992:69) stated, "Reliability refers to consistency; obtaining the same results again". It can be measured by conducting a Cronbach's alpha test, using the Statistical Package for Social Sciences (SPSS), which is similar to the correlation coefficient. According to Mueller (1986), to ensure the best results are attained, the Cronbach's alpha should be .80 or higher; however, some researchers suggested that a lower score would indicate good reliability. As Table 4.2 shows, the Cronbach's alpha was .84 for the 75 items, which is a high score; thus, the results of the pilot study were reliable, the individual items within the scale were perfect and no additional changes were required. Thus, the VLSQ was ready to use in the preliminary study.

Table 4.2 The Reliability coefficient of the VLSQ (Pilot Study)

Cronbach's Alpha	N of items
.84	75

4.4.1.3 The VLSQ procedure

After refining the questionnaire and completing the pilot test, I collected the data for the preliminary study between April and May 2014. The data collection took place at Najran University in Saudi Arabia. I led a short meeting with the Deans from both the English and Computer Science departments, requesting their permission to distribute the questionnaire and explaining the nature of the study. Similarly, short meetings were held with each faculty member already known to the researcher, working at Najran University. The faculty agreed to allow visits to second-year classes meeting the study's criteria. The timetables of the English faculty members were examined to ascertain

which classes the researcher would visit. It was agreed that the visits would take place at the beginning of the class to avoid any interruptions.

During each classroom visit, the lecturer introduced the author as a PhD candidate at UClan in the UK, and as a faculty member of Najran University. The lecturer also explained the reasons for the data collection, after which the researcher was left with the students. Before the questionnaire was distributed, the students were briefly reminded of the reasons for the study, and reassured that their responses would not affect their academic marks or grades, and that their data would be retained anonymously. In addition, they were reminded that their participation would not be obligatory, and that they could withdraw if they wished; however, they were also assured that their participation would be highly appreciated. The participants were asked to report their names and academic data honestly, to allow for follow up, since I planned to examine the same students again later. They were also asked to report their actual usage of the items, not respond with answers that they thought would please the researcher.

Moreover, they were also informed that they would have 'open time' to answer the questionnaire, and that it would take them approximately 30 minutes to answer. Because the questionnaire was in Arabic, it was anticipated that the statements, which were revised after the pilot test, would be understandable; however, the students were encouraged to ask any questions while completing the questionnaire. The researcher was required to answer several questions, which were not serious; generally, they involved double-checking the participants' understanding of the items. The same procedures were followed when the researcher visited the classes in the Science department.

To collect data from the female participants, I arranged for two cooperative female teachers, one from the English department and another from the Science department. I explained the study aims, the number of participants needed, and most importantly, the instructions for completing the questionnaire. Both teachers chose classes to distribute the questionnaire to, and then communicated the ethical issues that I had detailed with the male students to the female participants.

As the questionnaire included many closed questions, there were few responses to the open questions, as the researcher expected. For example, one student wrote an interesting note concerning the addition of a new item under the subcategory, *locations of vocabulary NTS,* in which he said he always found the definitions of new words using his mobile phone, because he carried it all the time; thus, it was easier for him to check such words when necessary.

4.5   Data analysis

When the data collection phase was completed, I returned to the University of Central Lancashire in the UK to conduct the data analysis. SPSS statistical software was used to analyse the quantitative data. Seventy-five items, representing the dependent variables, were entered into 75 columns before analysis of the VLSQ responses for each participant.

Various methods were used to analyse the statistical data; these included descriptive and inferential statistical methods, the Freidman test and the Wilcoxon signed-rank test, were both used in the preliminary study. These methods were used because the data was not normally distributed (Field, 2009:144) suggested, the Kolmogorov–Smirnov test can be performed to check normality). As the result showed $p<.01$, I concluded that the data was not normally distributed. I also performed normal Q-Q plot tests for all study variables, and found the majority of the results could not be

plotted along a straight line (Figure 4.1).

Figure 4.1 Test of normality
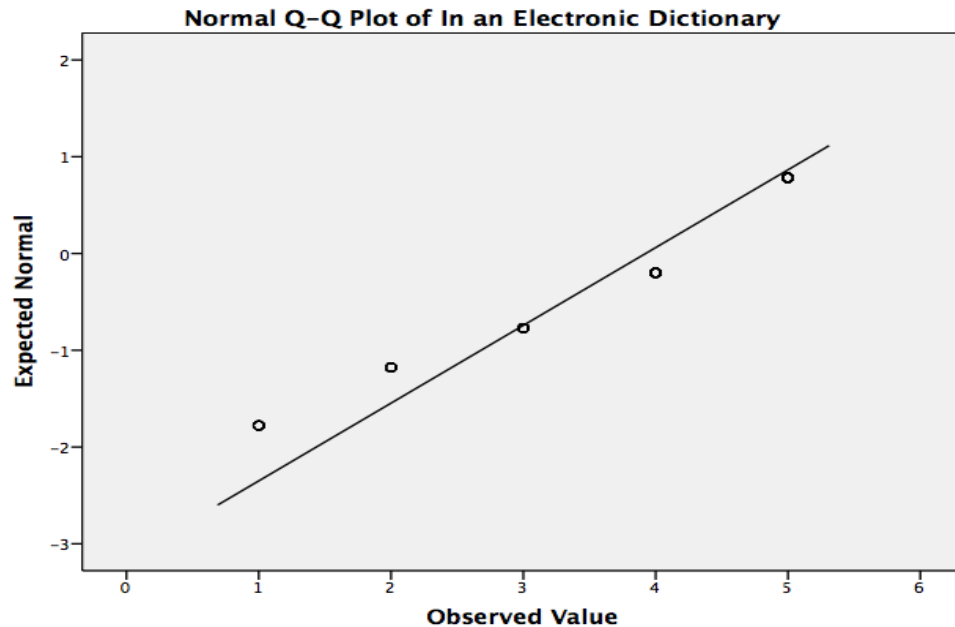
In order to answer RQ1P, RQ2P and RQ3P (see Chapter one), I performed three important analyses. First, mean frequency was applied for each VLS item (75 items); the aim being to identify the most and least frequently used strategies across 12 dimensions. Second, the mean ratings for the 75 strategies were averaged to produce scores for each of the 12 study dimensions. The aim here was then to report the most and least dealt with dimensions when the participants were using VLSs. Finally, to identify the most and least frequently used VLS strategies in each of the 12 dimensions, the Friedman test was conducted to determine whether there was an overall significant difference in participants' use of VLSs within each dimension. Whenever the test yielded a significant difference between the strategies of a certain dimension, a post-hoc Wilcoxon signed-rank test was conducted to identify specific strategies that differed significantly from the others in that dimension. Any significant differences the Wilcoxon test yielded were adjusted for multiple comparisons. The Bonferroni adjustment method was used to validate the obtained p values (Bryman and Cramer,

2001).[2] To reiterate, the reason for using these types of analysis, instead of t-tests or ANOVA was that my data was not normally distributed as explained above.

Using the SPSS software, the 12 dimensions of the VLSQ were grouped into three categories as follows:

Category (1): Discovering the meaning of new vocabulary (DMV)

- VLSD1: Guessing strategies (6 items)

- VLSD2: Asking strategies (6 items)

- VLSD3: Type of dictionary being used (5 items)

- VLSD4: Information taken from dictionaries (7 items)

Category (2): Vocabulary NTS

- VLSD5: Types of word and non-word information noted (9 items)

- VLSD6: Location of vocabulary NTS (7 items)

- VLSD7: Ways of organising words noted (7 items)

- VLSD8: Reasons for word selection (9 items)

Category (3): Strategies for Retention and Memorisations (MEM)

- VLSD9: Methods of repetition (4 items)

- VLSD10: Information used when repeating new words (4 items)

- VLSD11: Association strategies (7 items)

- VLSD12: Practising/consolidation strategies (4 items)

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[2] This means dividing the normal p value (i.e. 0.05) by the number of planned comparisons within a dimension. For example, if we planned to perform 20 comparisons using the Wilcoxon test, the Bonferroni-adjusted p value would be .05/20 = .002.

4.6 Results and discussion

This section presents the results from the preliminary study. It is divided into three main subsections, designed to discuss the participants' reported frequency of use of the 75 vocabulary learning strategies (VLSs). The first section comprises the participants' most and least frequently used strategies across all 12 dimensions (see 4.6.1). The second part discusses the frequencies according to 12 dimensions (see 4.6.2). The final subsection deals with participants' frequently reported uses within each dimension, regardless of the study variables (see 4.6.3).

4.6.1 Frequency of VLSs use across all 12 dimensions

When investigating vocabulary-learning strategies, researchers often list the 10 most and least frequently used reported VLSs in the data, as well as the strategies used by all participants within each dimension. Herein I listed the 10 most and least frequently used VLSs across all dimension, regardless of variables (see 4.6.3) (Ahmed, 1988; Schmitt, 1997; Catalan, 2003; Marin, 2005; Alyami, 2011; Al-Hatmi, 2012).

It should further be noted the results of the preliminary study are reported without consideration of explanatory variable (Academic Field of Study). However, after the second data collection (in a year's time), the explanatory variable (AFoS) will be included and analysed in more depth.

RQ1P: What are the ten most, and the ten least, frequently reported VLSs by Saudi university learners across all dimensions?

In summary, seven strategies out of the 75 had a mean frequency score above four, denoting 'often' according to the Likert scale (ranging from 1 to 5) used in the study, and the remaining ones were reported as below four. The seven strategies were those most often used by all participants. Twenty-three strategies showed a mean rating

above three but below four, which indicated that they were sometimes used by the participants. Thirty-five strategies showed a mean rating below three but above two (rarely used). Finally, 10 strategies had a mean rating below two, indicating very low use by the participants. (Appendix K for overall use of VLSs by all participants by mean frequency ranking).

Table 4.3 shows the 10 VLSs most frequently used by all participants, regardless of variable (i.e. academic field of study (AFoS)), because this variable will be investigated in detail in the main study. The results showed 10 strategies were representative of five of the 12 dimensions in my study: **VLSD4** = *Information taken from dictionaries;* **VLSD3** = *Types of dictionary used;* **VLSD2** = *Asking strategies;* **VLSD8** = *Reasons for vocabulary selection;* and **VLSD5** = *Types of word and non-word information noted.*

As shown in Table 4.3, checking the Arabic meaning of new words using a dictionary was ranked first, with a mean score of 4.58 (VLDS4), followed by type of dictionary used (mobile phones being preferred) with a mean score of 4.42 (VLDS3). These first two strategies are related, indicating all participants checked the L1 meanings of unknown words by looking them up in the dictionaries on their mobile phones. This is not surprising because L1 is helpful in assisting the vocabulary learning process.[3] Asking about a word's L1 meaning was ranked third with a mean score of 4.33 (VLDS2). The results further indicated that the participants wanted to know the L1 meaning of the new words first, whether using a mobile dictionary or by asking teachers or friends.

The fact that the highest mean involved using the dictionary to search for L1 meanings, suggests the majority of participants prefer to use this strategy more than any

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[3] I discussed the use of L1 in the appropriate dimensions (see 4.6.3)

other. This result was consistent with those in other studies that have found most participants tended to use the dictionary to discover L1 meanings (Marin, 2005; Schmitt, 1997; Al-Qahtani, 2005; Alyami, 2011).

A further noteworthy result was that five strategies represented the reasons for the word selection, and these were among the ten strategies most often used by all participants, suggesting that this dimension (i.e. *VLSD8 = Reasons for vocabulary selection)* was the most preferred dimension when compared to the other dimensions as was apparent subsequently (see 4.6.2). For example, *the word is useful to me* was ranked fourth, with a mean score of 4.32, followed by other reasons for word noting*,* with means ranging from 4.22 to 3.83, ranking fifth to ninth (i.e. strategies 5, 6, 7, 9), respectively. These results suggest the participants' decisions were most frequently based on what words they should note (e.g. *location of word note taking*). Thus, the appearance of five strategies among the 10 most often used strategies was understandable, because there were many criteria for word noting, and the participants dealt with each as equally important reasons for selecting words to note down. The remaining five strategies represented VLSD2, VLSD3 VLSD4, and VLSD5.

Use of an electronic dictionary was ranked eighth, with a mean score of 3.92. Writing down an English word with its L1 meaning ranked 10th, with a mean score of 3.82. Although Alyami (2001) and Al-Qahtani (2005) found at least one associative strategy among their most often frequently used strategies, the results from the present study clearly showed no association strategies present among the 10 most frequently used strategies. This could be attributed to the fact that my VLSQ referred to more strategies than previous studies had done. For example, I included the VLSD8, which accounted for half the ranking. Moreover, some association strategies, such as key word methods, require high mental processing; therefore, learners might prefer to avoid using

them frequently. Indeed, I later found that the association dimension (VLSD11) was

ranked ninth, with a low mean score of 2.70 (denoting rarely used) (Table 4.5).

Table 4.3 The ten most frequently used vocabulary-learning strategies (VLSs)

Rank	VLSs	N	Dimensions	Mean	SD
1	I look up the unknown word by using a dictionary and check its Arabic meaning.	158	**VLSD4**	4.5823	0.84624
2	I use a smartphone dictionary application to check the meaning of unknown words.	155	**VLSD3**	4.4258	0.99315
3	I ask teachers and friends about its Arabic equivalent.	158	**VLSD2**	4.3354	1.00071
4	I select a word for note-taking if I see that the word is useful to me.	158	**VLSD8**	4.3228	0.84664
5	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	158	**VLSD8**	4.2278	0.99616
6	I select a word for note-taking if I see that the word is unknown and thus new to me.	158	**VLSD8**	4.1709	1.16309
7	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	158	**VLSD8**	4.0380	0.96358
8	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	158	**VLSD3**	3.9241	1.24432
9	I select a word for note-taking if I see that the word is important in that the teacher said so.	158	**VLSD8**	3.8354	1.11081
10	I write down the English word with its Arabic translation.	158	**VLSD5**	3.8227	1.13721

*Note: **VLSD2** = Asking strategies; **VLSD3** = Types of dictionary used; **VLSD4** = Information taken from dictionaries; **VLSD5** = Types of word and non-word information noted; and **VLSD8** = Reasons for word selection*

Table 4.4 lists the participants' 10 least frequently used VLSs. These represented

five of the twelve dimensions in my study: VLSD3 = *type of dictionary used*; VLSD4 =

information taken from dictionaries; VLSD5 = *types of word and non-word information*

noted; VLSD6 = *Location of vocabulary NTS*; and VLSD7 = *Ways of organizing words*

noted. Interestingly, all the dimensions, except for VLSD3 and VLSD4, related to

vocabulary note taking strategies (Category 2), indicating that the least frequently used

strategies among the participants were vocabulary note taking strategies. Moreover, four

of these note taking strategies (i.e. 67, 70, 71 and 72) were deemed relevant to VLSD7

(i.e. *Ways of organizing words noted)*. These results make sense, as there are many

ways of organizing words, with the result that some, if not all are beyond the interests and needs of the participants, and consequently disregarded by them. Therefore, some methods emerged among participants' ten least frequently used strategies.

The remaining six VLSs represented four other dimensions (i.e. VLSD3, VLSD4, VLSD5 and VLSD6). Making notes on wall charts received the lowest mean score of 1.51, while making notes on cards provided a mean score of 1.56, ranking first and second, respectively. These results align with Al-Hatmi (2012) findings that making notes on wall charts were the least frequently used frequent strategy among participants, whereas making notes on cards were among the 10 least frequently used strategies.

In terms of types of word and non-word information, *write down a note of the source I got it from* received a mean score of 1.59 and ranked third, while *write English word down with the other related words of the same family* had a mean score of 1.93 and ranked 10th. Finally, only one strategy among the least frequently used strategies was related to VLSD3: using *a paper English-English Dictionary* to check the meaning of new words. The mean score for this strategy was 1.91, and it ranked sixth. Relating to VLSD4, one strategy was found to be among the least frequently used strategies: using the dictionary to look for examples of new words. This had a mean score of 1.86 and was ranked seventh.

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Table 4.4. The ten least frequently used vocabulary-learning strategies (VLSs)

Rank	VLSs	N	Dimensions	Mean	SD
75	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	158	**VLSD6**	1.5127	0.93575
74	Keep notes on cards.	158	**VLSD6**	1.5633	0.82503
73	Write down a note about the source I got it from.	157	**VLSD5**	1.5987	0.93274
72	Organize the words by their grammatical category	158	**VLSD7**	1.6899	0.97027
71	Organize the words in alphabetical order.	158	**VLSD7**	1.7025	1.00006
70	I organize words in families with the same stem.	158	**VLSD7**	1.7848	1.00535
69	In a paper English-English dictionary.	158	**VLSD3**	1.7975	1.11023
68	Looking for examples.	158	**VLSD4**	1.8671	1.08319
67	Organize the words by their meaning groups.	158	**VLSD7**	1.8924	1.03188
66	Write English word down with the other related words of the same family.	158	**VLSD5**	1.9367	1.17122

*Note: **VLSD3** = Types of dictionary used; **VLSD4** = Information taken from dictionaries; **VLSD5** = Types of word and non-word information noted **VLSD6** = Locations of vocabulary NTS and **VLSD7** = Ways of organizing words noted*

4.6.2 Frequency of VLSs use by dimensions

RQ2P: Which dimension is the most and the least used by Saudi university learners?

Table 4.5 shows the participants' most and least frequently used dimensions. These results reflect earlier findings depicting the most and least frequently used VLSs across a variety of dimensions (see 4.6.1); including word selection (i.e. VNSD8) when note taking (mean 3.73). In contrast, approaches to organizing the words noted (i.e. VLSD7) were rarely used by participants (mean 2.22). As found previously (see 4.6.1), four strategies associated with (VLSD7) were among the ten least frequently used VLSs.

This reported interest in word selection criteria can be attributed to the fact that my participants focussed mainly on note taking rather than on any other dimension. On the other hand, the lack of attention directed toward organizing words when note taking was probably due to the abundance of new words. However, this unwillingness to organize words could be due to note-takers failing to understand the benefits of doing so.

Table 4.5 The most and least frequently used dimensions

Rank		VLSs	N	Mean	SD
1	**VLSD8**	Reasons for vocabulary note-taking	158	**3.7346**	0.54823
2	**VLSD9**	Methods of repetition	158	3.4620	0.82503
3	**VLSD12**	Practicing/consolidation strategies	158	3.1440	0.79773
4	**VLSD3**	Type of dictionary used	158	3.1389	0.64538
5	**VLSD2**	Asking strategies	158	2.9852	0.52381
6	**VLSD10**	Information used when repeating new words	158	2.9541	0.75547
7	**VLSD1**	Guessing strategies	158	2.8080	0.53971
8	**VLSD4**	Information taken from dictionaries	158	2.7434	0.56560
9	**VLSD11**	Association strategies	158	2.7061	0.76248
10	**VLSD6**	Locations of vocabulary NTS	158	2.5298	0.55605
11	**VLSD5**	Types of word and non-word information noted	158	2.3510	0.49747
12	**VLSD7**	Ways of organizing words noted	158	**2.2233**	0.50151

4.6.3 Frequency of VLSs use within each dimension

RQ3P: What are the most, and the least, frequently reported VLSs by Saudi university learners within the dimensions?

Having presented the results of the participants' responses to VLSs across all the dimensions, I move on to present and discuss the results of the frequency analysis within each dimension. As explained earlier (see 4.5), the Friedman test was used to determine whether there was an overall significant difference in the participants' usage of the VLSs within a certain dimension or not. Where there was a significant overall difference, then I performed the post-hoc Wilcoxon Signed Ranks test, because I wanted to identify the particular pairs of VLSs within the dimension responsible for the significant difference. It should further be noted that the p values for each test (i.e. Wilcoxon test) were then adjusted for multiple comparisons, using the Bonferroni adjustment method.

1. **Category one: Strategies dealing with discovering the meaning of new words**

This section presents the findings concerning the following VLSs dimensions: Guessing strategies (VLSD1, see 4.6.3.1); Asking strategies (VLSD2, see 4.6.3.2); Types of dictionary used to check the meaning of unknown words (VLSD3, see 4.6.3.3); Information taken from Dictionary (VLSD4, see 4.6.3.4).

4.6.3.1 Guessing strategies (VLSD1)

Table 4.6 reports the results of the Friedman test for guessing strategies; revealing an overall significant difference in the participants' use of these strategies (p<.**001**).

Table 4.6 Results of Friedman test of guessing strategies (VLSD1)

N	158
Chi-Square	213.110
df	5
Sig.	**<.001**

I also performed the Wilcoxon text to identify the strategies responsible for producing significant differences within this dimension (VLSD1: Guessing strategies).

What are the most and the least frequently reported VLSs used as guessing strategies?

This dimension involves guessing the meaning of new words by paying attention to pictures where they accompany the word or text, which was the dominant strategy, with a mean score of 3.81, and followed by reading a sentence that contains an unknown word, with a mean score of 3.58 (Figure 4.2). However, the difference in frequency when using these two guessing strategies was not significant, according to the Bonferroni adjustment for multiple comparisons (z = -1.834, p = .067).

As Table 4.7 shows, guessing the meaning according to pictures was used significantly more frequently than other guessing strategies, except when reading a sentence or paragraph containing an unknown word (Bonferroni adjusted, p<.006). This result is consistent with that reported by Al-Qahtani (2005) and Alyami (2011), which found that guessing the meaning of the new words by focusing on the pictures was the strategy most frequently used by all participants. This suggests it is a common strategy, and that when pictures are available, individuals find it easier to guess the meaning of unknown words. However, when there are no pictures, participants employ a reading strategy to guess the meaning. A possible reason for these two strategies dominating is that students might find it easier to guess meaning from pictures, because they provide many more details about new words, thereby facilitating learning. In addition, students might find it helpful to use this strategy because it helps them to remember the words themselves. I also know that a useful way to remember words is by linking them with pictures.

Previous studies have shown that pictures could facilitate the learning process. Mayer and Sims (cited in Klinger, 2000:10) justified the widespread use of pictures by participants as follows: "annotations with pictures could arouse students' attention and set a good start for their later stages of L2 vocabulary acquisition and retention", and "construction of referential connections can be done immediately". Moreover, it has been shown that the mind is capable of 'dual coding', in which participants' brains benefit from combining lexical items with pictures, thereby increasing the retention and meaning of words (Clark and Paivio, 1997).

In terms of reading a sentence or paragraph containing an unknown word to guess the meaning, participants found this strategy helpful. They were able to look for clues in the text to assist them to find the right meaning for the new words.

Interestingly, the remaining strategies, with the exception of the two most frequently used strategies (i.e. *pictures and reading*) and *saying the world aloud several times*, were rarely used. This was because they required a high level of processing and probably a high level of linguistic proficiency, to facilitate guessing the meaning of new words by determining which part of speech they belonged to, as this was ranked third with a mean score of 2.79.

Table 4.7 also shows that guessing the meaning by analysing the structure of the word was significantly less frequently used than the remaining strategies, with the exception of *saying the word aloud several times* (Bonferroni adjusted p<.961) and *checking if it is similar in Arabic sound* (Bonferroni adjusted p<.774). In terms of ranking, analysing the structure of the word (e.g. prefixes, suffixes etc.) (sixth) in this dimension, with a mean score of 2.19.

Possible reasons for the low frequency of use are as follows: guessing by analysing the structure of the word was rarely used because probably the majority of participants appeared to prefer guess from pictures, or because of limited knowledge about parts of speech. Chin (1999: 9) concluded that "word form analysis would not be beneficial to participants to conduct on their own unless they have a certain level of knowledge of word parts". Similarly, guessing meaning by saying words aloud several times was found to be a less frequently used strategy, ranking fifth in the guessing dimension, with a frequency rating of just 2.37 (rarely used). However, a possible reason for this was that this strategy could provide a distraction.

Moreover, guessing meaning by *checking if it sounds similar in Arabic* was rarely used, because English and Arabic do not share many similarities. This is because Arabic is not an Indo-European language but a Semitic one, and it has not borrowed extensively from English. In fact, it is difficult to find similarities in sounds between the

two different systems (English and Arabic). Schmitt (1997), who investigated Japanese participants' use of strategies, found checking for L1 cognates to guess meaning was the least frequently used strategy, even though Japanese, unlike Arabic, borrows from English.

Table 4.7 Results for the Wilcoxon test for guessing strategies (VLSD1)

Guessing strategies pairs: Guessing the meaning of the new words by;	Z	Sig.
Saying the word aloud several times ‒ Paying attention to pictures if they accompany the word or text	-9.095	**<.001**
Checking if it is similar to Arabic in sound ‒ Paying attention to pictures if they accompany the word or text	-8.567	**<.001**
Analyzing the structure of the word ‒ Paying attention to pictures if they accompany the word or text	-8.992	**<.001**
Analyzing the word part of speech ‒ Paying attention to pictures if they accompany the word or text	-7.044	**<.001**
Reading the sentence or paragraph containing the unknown word ‒ Paying attention to pictures if they accompany the word or text	-1.834	.067
Saying the word aloud several times ‒ Analyzing the structure of the word sound	-.049	.961
Checking if it is similar to Arabic in sound — Analyzing the structure of the word	-.288	.774
Analyzing the word part of speech ‒ analyzing the structure of the word	-4.331	**<.001**
Reading the sentence or paragraph containing the unknown word ‒ Analyzing the structure of the word	-7.952	**<.001**
Bonferroni-adjusted P < 0.05/9 = .006		

Figure 4.2 Guessing strategies: Guessing unknown words (VLSD1; preliminary Study)
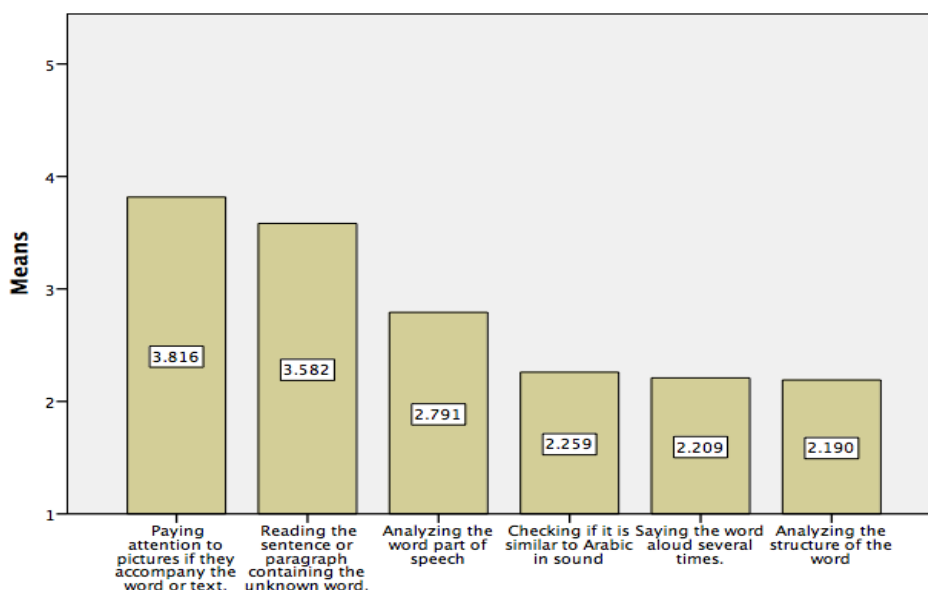
4.6.3.2 Asking strategies (VLSD2)

Table 4.8 shows the results show an overall significant difference in participants' use of asking strategies (p<.**001)**.

Table 4.8 Results of Friedman test for asking strategies (VLSD2)

N	158
Chi-Square	251.820
df	5
sig.	**<.001**

What are the most and the least frequently used VLSs in asking strategies?

Asking questions about the Arabic meaning of new words was the most frequently used strategy reported in this dimension, with a high mean score (4.33). This indicates that participants 'often' ask about the L1 meanings of new words (Figure 4.3).

As Table 4.9 shows, this strategy (i.e. asking about the Arabic meaning) was used significantly more frequently than the other asking strategies were (Bonferroni

adjusted p<.005). This result is consistent with that reported in other studies, which found asking about L1 meaning was the most frequently used strategy in this dimension (e.g. Ahmed, 1988; Nakamura, 2000; Al-Qahtani 2005; Alyami, 2011).

Students often prefer to ask about the L1 meaning of a new word, as this may help them to comprehend words more effectively. In fact, this is unsurprising, because reference to L1 facilitates language acquisition. The high use of this strategy might reflect the fact that it is easier and faster to process Arabic meaning. Indeed, it might be more helpful to discover the Arabic meaning first to ascertain the precise meaning of the target word.

Indeed, in a vocabulary learning process, the use of L1 is particularly important for Arabic students. EFL participants and students using L2 (i.e. English) as the medium of instruction have difficulty determining the exact meaning of some English words, as their meaning can differ according to context. For example, the word 'play' has different meanings when it occurs as a verb and a noun as in 'he plays football', or to 'play the music', or 'he saw a play in the theatre'. Similarly, the word 'can' has different grammatical uses and associated meanings, such as 'can you swim?' and 'give me a can of Pepsi'. Therefore, clarifying the meaning of the new word in Arabic is an ideal strategy guaranteeing effective comprehension of meaning. This is the case here, as the participants appear to prefer to ask about a word's L1 meaning rather than other asking strategies.

Asking about spelling or pronunciation was the second most frequently used strategy, returning a mean score of (3.62). As with the finding reported above, the differences in participants' frequency of use of these two strategies were significant. The Bonferroni adjustment for multiple comparisons showed z=-5.908 and p=**<.001.**

Figure 4.3 also shows four strategies scored below '3' on the Likert scale. These were considered to be rarely used and ranked in this dimension (i.e. VLSD2 *asking strategies*); ranging from third to sixth respectively. These strategies included asking for examples of a word (mean 2.81), the word's definition in English (mean 2.55), the word's grammatical category (mean 2.36), and the word's synonyms and antonyms, mean of 2.22.

The least frequently used strategy (among the asking strategies) was asking for the synonyms and antonyms of English words. However, the result appears to be inconsistent with Alyami (2011), who found that asking about grammatical category was the least frequently used strategy among participants. However, as Table 4.9 shows, the difference between participants' use of this strategy (i.e. *asking about synonyms and antonym of the English word*) and the remaining five strategies was significant in all three cases (Bonferroni adjusted, p<.005), although it was not significant in reference to the two other strategies: asking about the word's grammatical category (Bonferroni adjustment for multiple comparisons: z =-1.324, p =.186), and asking about the word's English definition (z = -2.588, p = .010). Hence, I might claim that my result is partially consistent with that of Alyami (2011).

There are a number of possible reasons for the low frequency of use. For example, the low use of the strategy of asking about synonyms or antonyms might have been because it is easier and less confusing for participants to learn one new English word at a time, rather than trying to learn synonyms and/or antonyms with new words. Moreover, the participants rarely asked for examples of how to use the new words; this might be because they found it easier to create and remember their own example sentences.

Table 4.9 Results for the Wilcoxon test for asking strategies (VLSD2)

Asking Strategies pairs: Asking about	Z	sig
Its definition in English — Its equivalent Arabic meaning.	-8.903	<.001
Its spelling or pronunciation — Its equivalent Arabic meaning.	-5.908	<.001
An example sentence — Its equivalent Arabic meaning.	-8.369	<.001
Its grammatical category — Its equivalent Arabic meaning.	-9.134	<.001
Its synonym & antonym in English — Its equivalent Arabic meaning.	-9.330	<.001
Its definition in English — Its synonym & antonym in English.	-2.588	.010
Its spelling or pronunciation — Its synonym & antonym in English.	-8.274	<.001
An example sentence — Its synonym & antonym in English.	-4.002	<.001
Its grammatical category — Its synonym & antonym in English.	-1.324	.186
Bonferroni-adjusted P < 0.05/9 = .005		

Figure 4.3 Asking strategies: asking about (VLSD2; preliminary Study)
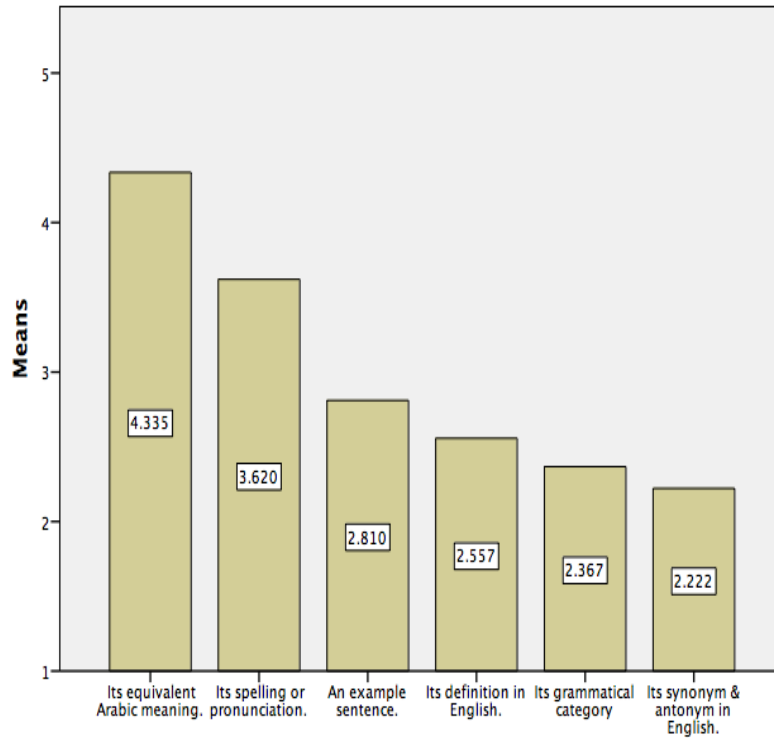
4.6.3.3 Types of dictionary used to check the meaning of unknown words (VLSD3)

Table 4.10 shows the overall significant differences in the participants' utilization of asking strategies (p<.**001**).

Table 4.10 Results of the Friedman test for types of dictionary being used (VLSD3)

N	155
Chi-Square	274.991
df	4
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

Figure 4.4 shows five different types of dictionaries. The most frequently used type was dictionary applications installed on mobile phones, which were ranked most popular, with a mean score of 4.42. Portable electronic dictionaries, such as Atlas, ranked second, with a mean score of 3.92.

As Table 4.11 shows, mobile phones were used significantly more frequently than other types of electronic dictionary (Bonferroni adjusted p<.007). Therefore, this result is inconsistent with findings reported by Tomaszczyj (1979), Alfuhaid (2000) and Alyami (2011), which found electronic dictionaries were used the most often. This difference in findings might arise because the present study included mobile applications a new and separate type of dictionary. In addition, when the earlier studies were undertaken, Smart phones with the diversity of features they have now to facilitate the learning process, did not exist. Today, participants can choose from many different dictionary applications with a variety of features. Some applications provide the synonyms or antonyms of the words and outline the pronunciation of the sounds in both the L1 and the L2.

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As Table 4.11 shows, although the electronic dictionary is used significantly less frequently than phone apps ($z = 4.382$ p =<.001), it is still ranked among the most often used type of dictionary. The mean score of almost '4', indicates that participants often use this type of dictionary, perhaps because both types (i.e. mobile and electronic dictionaries) are easy and quick to use and offer features such as audible pronunciation of the word.

Indeed, in terms of ranking, Table 4.4 demonstrates that using an online dictionary ranked third in this dimension, with a mean score of 3.31, followed by paper-based dictionaries, English–Arabic and English–English, which were ranked fourth and fifth, respectively, with mean scores of 2.44 and 1.79. Hence, these results indicate the least frequently used dictionary in this dimension is the paper English–English dictionary; a finding consistent with Nakamura (2000) and Al-Qahtani (2005).

Moreover, Table 4.11 shows the paper English–English dictionary was used less frequently than the other types (Bonferroni-adjusted p<.007), also supporting the view that the paper English–English dictionary is considered the least frequently used in this dimension. This could be because monolingual dictionaries are difficult for beginners to use, and the participants were in their second year. Furthermore, learners might expect to find it easier and more informative to use online dictionaries, because as Lee (2000) observes, the worldwide web offers participants' additional information about words.

Table 4.11 Results of the Wilcoxon test for type of dictionary being used (VLSD3)

Type of dictionary being used pairs	Z	Sig
In a paper English-Arabic dictionary ‒ in a mobile (i.e. smartphones)	-9.227	**<.001**
In a paper English-English Dictionary ‒ In a mobile (i.e. smartphones)	-10.32	**<.001**
In a portable electronic dictionary ‒ In a mobile (i.e. smartphones)	-4.382	**<.001**
On the internet ‒ In a mobile (i.e. smartphones)	-7.659	**<.001**
In a paper English-Arabic dictionary ‒ In a paper English-English dictionary	-4.502	**<.001**
In a portable electronic dictionary ‒ In a paper English-English dictionary	-9.873	**<.001**
On the internet ‒ In a paper English-English dictionary	-7.078	**<.001**
Bonferroni-adjusted P < 0.05/7 = .007		

Figure 4.4 Type of dictionary used (VLSD3, preliminary Study)

163
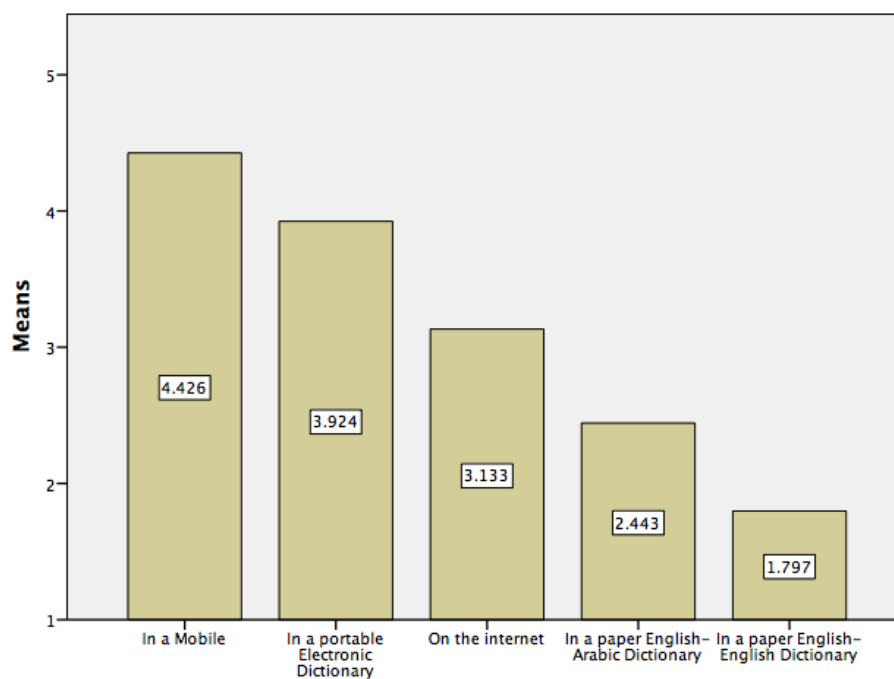
4.6.3.4 Using dictionaries (i.e. Information taken from dictionary, VLSD4)

As shown in Table 4.12, there was an overall significant difference in the participants' preferences for asking strategies (p<.**001**).

Table 4.12 Results of the Friedman test for dictionary use (VLSD4)

N	155
Chi-Square	380.183
df	6
sig.	**<.001**

What are the most and least frequently used VLSs reported in this dimension?

This subcategory is composed of seven strategy items, which relate to information taken from dictionaries, such as discussed above (see 4.6.3.3). Figure 4.5 shows the majority of the information taken from the dictionaries relates to the Arabic meaning of a new word, with a mean of 4.58, close to 5 'always' in Q and ranking toward the top of the hierarchy in terms of the 10 most frequently used VLSs (see Table 4.3).

Moreover, as Table 4.13 illustrates, the difference in participants' consideration of this item and remaining ones was significant (Bonferroni-adjusted p<.004). This indicates that looking for L1 meaning is still thought to be the most frequently used strategy in this dimension. This result is consistent with that reported by Marin (2005), Al-Qahtani (2005) and Alyami (2011). Based on my previous findings on VLSD3 (see 4.6.3.3), as well as in this dimension VLSD4, I have learned that learners typically use mobile dictionary applications (VLSD3) to find L1 meaning (VLSD4). These two strategies also share some common features, which lead participants to use both more frequently, based on their associated dimensions. For example, learners are able to find

information more easily and quickly from a dictionary application installed on a mobile phone.

Figure 4.5 also shows the second most frequently used strategy was looking for the spelling of a word (a mean of 3.38). Interestingly, this result parallels that for asking others about the spelling of a word (3.62), which was also the second most frequently used strategy in this dimension (Figure 4.3).

These two items received frequency ratings above the middle point on the response scale, indicating the students' need to know how words are spelled. The reason for the high use of these items could be attributed to the participants' need to avoid spelling mistakes in their writing, and awareness that spelling mistakes might result in producing an incorrect word that would then affect their writing scores.

Figure 4.5 depicts seven strategies in total; four items received a frequency of '2' on the Likert scale and were ranked third to sixth respectively: involving using a dictionary to find a word's part of speech, with a mean score of 2.57; using a dictionary to find a synonym or antonym (2.40); using a dictionary to a word's English meaning (2.26); and using a dictionary to find the word's stem (2.11).

Moreover, Figure 4.5 showed the least frequently used strategy in this dimension was using a dictionary to find examples of a word's usage. This had a very low mean (1.86). As shown in Table 4.13, there was a significant difference between participants' use of the examples and the remaining items (Bonferroni-adjusted, p<.004) except for 'the word's stem'. This result does not parallel that for asking others for examples of a word in a sentence, which scored 2.81 and was ranked third in its dimension (Table 4.3). This result suggests it might be easier to find examples of new words by asking teachers instead of using dictionaries. In fact, some dictionaries have limited features, which do not provide examples of the words used in sentences.

Table 4.13 Results of the Wilcoxon test for information taken from dictionary (VLSD4)

Using dictionary and check	Z	Sig
Its spelling — Its Arabic meaning	-7.974	**<.001**
Its part of speech — Its Arabic meaning	-9.988	**<.001**
Its English meaning — Its Arabic meaning	-10.13	**<.001**
Its synonym or antonym. — Its Arabic meaning	-9.743	**<.001**
Its examples — Its Arabic meaning	-10.51	**<.001**
Its stem — Its Arabic meaning	-10.15	**<.001**
Its spelling — Its examples	-8.793	**<.001**
Its part of speech — Its examples	-5.353	**<.001**
Its English meaning — Its examples	-3.280	**.001**
Its synonym or antonym — Its examples	-4.078	**<.001**
Its stem — Its examples	-2.044	.041
Bonferroni-adjusted P < 0.05/11 = .004		

Figure 4.5 Using dictionary and checking (VLSD4; preliminary study)

166
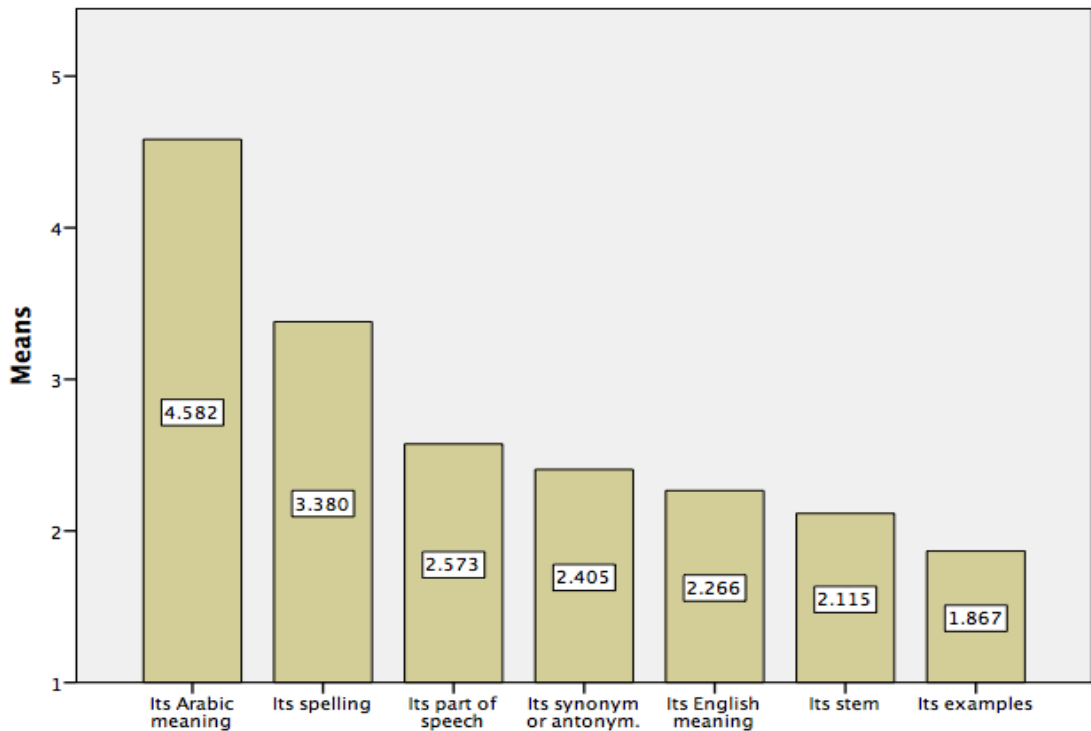
2. Category Two: Strategies dealing with vocabulary note taking

This section presents the findings pertaining to vocabulary note taking strategies: types of information noted (VLSD5, see 4.6.3.5); the locations of notes (VLSD6, see 4.6.3.6); approaches to organizing notes (VLSD7 see 4.6.3.7); and reasons for noting words (VLSD8, see 4.6.3.8).

4.6.3.5 Types of information noted (VLSD5)

Table 4.14 shows an overall significant difference in terms of the participants' recording of information (p<.**001**).

Table 4.14 Result of Friedman test for types of information noted (VLSD5)

N	156
Chi-Square	269.907
df	8
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

Writing down new words with their Arabic meanings, was most frequently reported as the type of information being recorded. Table 4.15 shows that the difference between using this type of information and the remaining types was significant (Bonferroni adjusted p<.003). It also indicated that this strategy is still considered the most frequently used in this dimension. This result is similar to that recounted by Ahmed (1988), Nakamura (2000), Al-Qahtani (2005) and Marin (2005) in their VLSs studies.

Whenever there is an option to use L1 to explain L2 words, there is a strong tendency toward adopting it. This resulted in high uptake of use of the strategy of asking for a word's Arabic meaning (mean 4.33) (Figure 4.3) and the use of dictionaries to discover the meaning of new English words (mean 4.58) (Figure 4.6). Hence,

recording L1 meaning was an approach widely used by the study participants. Indeed, meaning is the most important component of word knowledge, and having access to it supports effective communication in either L1 or L2. Therefore, as Figure 4.6 shows, the first three most frequently recorded types of information related to word meaning. L1 translation was deemed the easiest and quickest strategy for participants to adopt, because it relates to a skill they have already mastered (i.e. knowledge of the mother tongue).

Figure 4.6 also shows six items reported as 'rarely' used, based on a Likert scale and ranked from second to seventh, respectively. These included the following: writing down a new word with its synonyms and antonyms (mean 2.49), with its English definition (mean 2.45), with nothing else (mean 2.31), with its pronunciation in the form of transliteration (mean 2.27), with its grammatical category (mean 2.14) and with an example sentence (mean 2.11). Interestingly these results almost paralleled those reported previously under asking strategies (see 4.6.3.2) when using dictionaries (see 4.6.3.4).

Moreover, Figure 4.6 shows that of the nine strategies, two items had the lowest mean frequency in this dimension; they included writing down the stems of the new words (mean 1.93), ranking before the last (i.e. 8th); and writing down the sources of the noted words, which gave a mean score of 1.59, and ranking was last (i.e. 9th). However, as Table 4.15 shows, the difference between the least used type of word information (i.e. note a word source) and the remaining types was significant (Bonferroni adjusted, $p<.003$) in this VLSs dimension. This result could be attributed to the limited benefits for memory and communication associated with writing down the sources of words, compared to the other types of information (i.e. writing down the new word alongside its synonyms and antonyms).

Table 4.15 Results of the Wilcoxon test for information types (VLSD5)

Types of word and non word information noted pairs	Z	Sig
Only with nothing else ‒ I write down the English word with its Arabic translation	-8.545	**<.001**
I write down their English definition ‒ I write down the English word with its Arabic translation	-7.384	**<.001**
I write down synonyms and antonyms beside new words ‒ I write down the English word with its Arabic translation	-7.693	**<.001**
I write down example sentences using the new word ‒ I write down the English word with its Arabic translation	-9.001	**<.001**
With its pronunciation in the form of transliteration ‒ I write down the English word with its Arabic translation	-8.519	**<.001**
I write down the grammatical category of the word ‒ I write down the English word with its Arabic translation	-8.674	**<.001**
I write down a note about the source I got it from ‒ I write down the English word with its Arabic translation	-10.06	**<.001**
Write English word down with the other related words of the same family ‒ I write down the English word with its Arabic translation	-9.208	**<.001**
Only with nothing else ‒ I write down a note about the source I got it from	-5.371	**<.001**
I write down their English definition ‒ I write down a note about the source I got it from	-5.891	**<.001**
I write down synonyms and antonyms beside new words ‒ I write down a note about the source I got it from	-6.501	**<.001**
I write down example sentences using the new word ‒ I write down a note about the source I got it from	-4.491	**<.001**
With its pronunciation in the form of transliteration ‒ I write down a note about the source I got it from	-5.226	**<.001**
I write down the grammatical category of the word ‒ I write down a note about the source I got it from	-4.648	**<.001**
Write English word down with the other related words of the same family ‒ I write down a note about the source I got it from	-3.247	**.001**
Bonferroni-adjusted P < 0.05/15 = .003		

Figure 4.6 Types of word information noted (VLSD5, preliminary study)
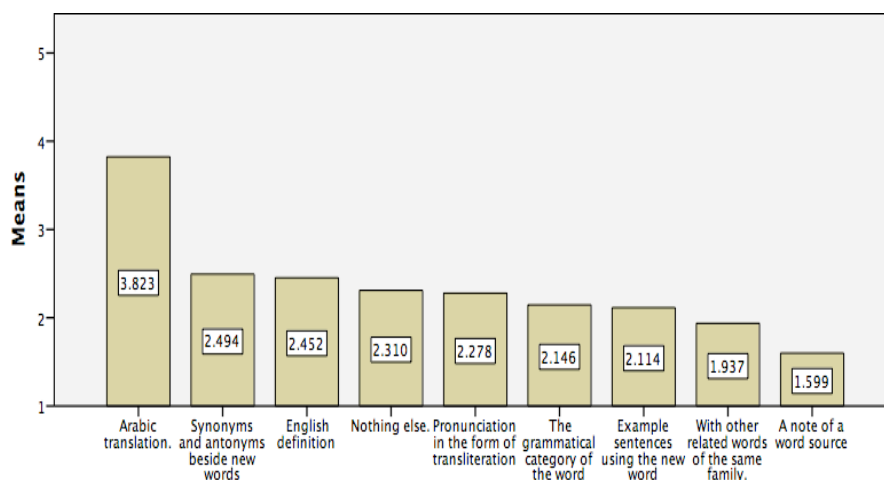
4.6.3.6 Location of vocabulary note taking (VLSD6)

As shown in Table 4.16, there was an overall significant difference found in the participants' use of this dimension (p<**.001**).

Table 4.16 Results of the Friedman test for location of vocabulary note taking strategies (VLSD6)

N	158
Chi-Square	302.045
df	6
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

This dimension integrated seven strategies relating to the location where vocabulary notes were made. The margins of textbooks were the most frequently used location reported by the participants, with a mean score of 3.60 (Figure 4.7). However, as Table 4.17 shows, the difference between participants' use of this location and the remaining six locations was significant in five instances (Bonferroni adjusted p<.004) but not significant in reference to writing notes in an English notebook (z = -2.732; p = .006), which ranked second, with a mean score of 3.20.

This result supports the view that using the margins of textbooks and English notebooks were the locations used most often by the participants. This finding accords with that attained by Ahmed (1988), Nakamura (2000) and Marin (2005), whose participants also stated textbook margins were among the most frequently used locations for notes. Textbook margins are a logical choice, as the noted word is already present in the textbook, and the learner merely has to mark the word and add a simple note(s) in the margin, e.g. the L1 meaning.

Similarly, English notebooks offer a suitable location for adding notes on words. In fact, I found no significant difference in the participants' use of these two note-taking locations. Learners might alternate between using these two strategies, because the margins of textbooks offer less space than the pages of their notebooks.

Moreover, Figure 4.7 shows personal notebooks were ranked third as preferred locations for notes, with a mean score of 3.17. This mean is relatively close to the two most frequently used locations discussed previously. This is because the participants might find it better to have access to another notebook (in addition to their English notebook), so that they can record words they encounter and might need, but which are not necessarily linked to their classroom learning.

Writing down words on separate pieces of paper and on a computer file were ranked fourth and fifth, respectively, with means of 2.41 and 2.24, respectively (Figure 4.7). It is unsurprising that these two locations were rarely used, as both locations require much effort and organization. In fact, words noted on pieces of paper can easily be mislaid.

Figure 4.7 also includes the least frequently used strategy in this dimension, with a very low mean and reported as 'never' on the Likert scale (i.e. 1 to 5 where 1 means

never and 5 means always). This strategy was to write words on wall charts. It was ranked last (i.e. seventh) with a mean of 1.15, making it marginally less common than writing words on note cards, which ranked sixth with a mean score of 1.56. This result appears to be inconsistent with findings of other studies; some of which found cards to be the least frequently used location (Al-Qahtani, 2005). However, as Table 4.17 shows, there was a significant difference between the participants' use of wall charts (Bonferroni adjusted p<.004) and all other locations, except note cards, which were as equally low on the Likert scale (z = -0.949 p = .343). Hence, this result can be considered partially consistent with Al-Qahtani (2005).

This result is unsurprising, like note cards, wall charts have a number of characteristics that cause their lack of popularity. First, they are small, and while their size can be convenient, it also makes them vulnerable to loss. Second, when both sides are used, the note taker has to flip the charts, which is awkward if it needs to be done repeatedly. Third, cards or wall charts are often loose and unbound, which makes them difficult to organize.

Table 4.17 Results of the Wilcoxon test for location of vocabulary note taking (VLSD6)

Location of vocabulary note taking pairs	Z	Sig
In my (general) English notebook — On the margins of my textbooks	-2.732	.006
In my pocket/personal notebook — On the margins of my textbooks	-2.905	**.004**
Keep notes on cards — On the margins of my textbooks	-9.935	**<.001**
On separate pieces of paper — On the margins of my textbooks	-6.892	**<.001**
In a computer file or other electronic device — On the margins of my textbooks	-7.868	**<.001**
Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home — On the margins of my textbooks	-9.432	**<.001**
Keep notes on cards — Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home	-0.949	.343
In my (general) English notebook — Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home	-8.793	**<.001**
In my pocket/personal notebook — Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home	-8.833	**<.001**
On separate pieces of paper — Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home	-6.736	**<.001**
In a computer file or other electronic device — Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home	-5.785	**<.001**
Bonferroni-adjusted P < 0.05/11 = .004		

Figure 4.7 Location of vocabulary note taking strategies (VLSD6; preliminary study)
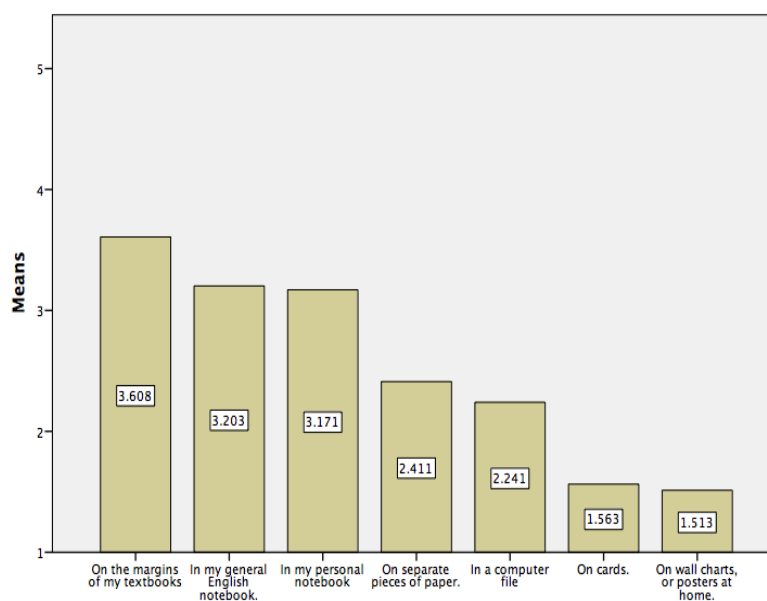
4.6.3.7 Ways of organizing words noted (VLSD7)

As shown in Table 4.18, there was an overall significant difference in participants' use of this dimension (p<**.001**).

Table 4.18 Result of Friedman's test for methods of organization (VLSD7)

N	158
Chi-Square	236.078
df	6
sig.	**<.001**

What were the most and least frequently used VLSs reported in this dimension?

This dimension (i.e. VLSD7) consisted of seven strategies. As shown in Figure 4.8, the most frequently used strategy for organizing noted words was random ordering, which received a mean score of 3.54. This result is in line with those of studies by Ahmed (1988), Nakamura (2000), Marin (2005) and Al-Qahtani (2005). There was a significant difference apparent between the participants' use of random ordering and remaining approaches to word organization (Bonferroni adjusted p<.005), as shown in Table 4.19**.**

Table 4.19 suggests random order is by far the most significant strategy for use in this dimension. This is understandable, since random ordering does not require any mental manipulation by note takers because they note down words without using an ordering principle. The least frequently used method of word organization was by grammatical category, which ranked seventh, with a very low mean frequency (1.69) (Figure 4.8).

Table 4.19 shows a significant difference between participants' use of methods of word organization and the alternatives given (Bonferroni adjusted p<.005), with the exception of three strategies. These were: organizing according to meaning groups,

which ranked fourth with mean 1.89 (z = -2.037, p = **.042**); organizing words in families with the same stem, which ranked fifth with mean 1.78 (z = -1.273, p = .203); and organizing words in alphabetical order, which ranked sixth with mean 1.70 (z = -0.058, p = .954). These results suggest that organizing words in families with the same stem, alphabetical ordering, grammatical ordering and ordering by meaning were the least frequently used approaches to word organization. In fact, learners reported similar means for the least used strategies, as all four items scored below '2' on the Likert scale. They were also present in the hierarchy of the 10 least frequently used VLSs (Table 4.4). These results were in line with the findings reported by Ahmed (1988), Nakamura (2000), Marin (2005), Al-Qahtani (2005), and Al-Hatmi (2012).

Unlike random ordering, which does not require mental manipulation, the least frequently used four approaches share a common feature: they all require some mental manipulation of the relevant ordering principles applied to the words noted. Thus, whereas alphabetical ordering requires arrangement of noted words into groups according to the corresponding letter of the alphabet, similar to a dictionary, grammatical ordering requires arrangement based on the word's part of speech (i.e. noun, verb, adjective, adverb). Similarly, organizing words according to families with the same stem requires the learner to group verbs into those that share the same family of stems. Moreover, ordering according to meaning requires the learner to group the noted words into different improvised categories, each representing a different meaning group (e.g. animals, house or human body). Clearly, meaning ordering specifically requires much more effort than alphabetical, stems and grammatical ordering, because its categories are infinite, whereas the categories of the latter three are finite. Certainly, in contrast to effortless random ordering, these methods of organizing words demand extra effort when note taking.

Table 4.19 Results of the Wilcoxon test for ways of organizing noted words (VLSD7)

Ways of organizing words noted pairs	Z	Sig
In alphabetical order in — By a random order	-9.017	**<.001**
By their grammatical category — By a random order	-9.114	**<.001**
By their meaning groups — By a random order	-8.738	**<.001**
According to their difficulty — By a random order	-6.628	**<.001**
I organize words in families with the same stem — By a random order	-8.690	**<.001**
By units or lessons of the textbook — By a random order	-5.573	**<.001**
By units or lessons of the textbook — By their grammatical category	-6.864	**<.001**
In alphabetical order — By their grammatical category	-0.058	.954
By their meaning groups — By their grammatical category	-2.037	.042
According to their difficulty — By their grammatical category	-5.106	**<.001**
I organize words in families with the same stem — By their grammatical category	-1.273	.203
Bonferroni-adjusted P < 0.05/11 = .005		

Figure 4.8 Ways of organizing noted words (VLSD7; preliminary study)
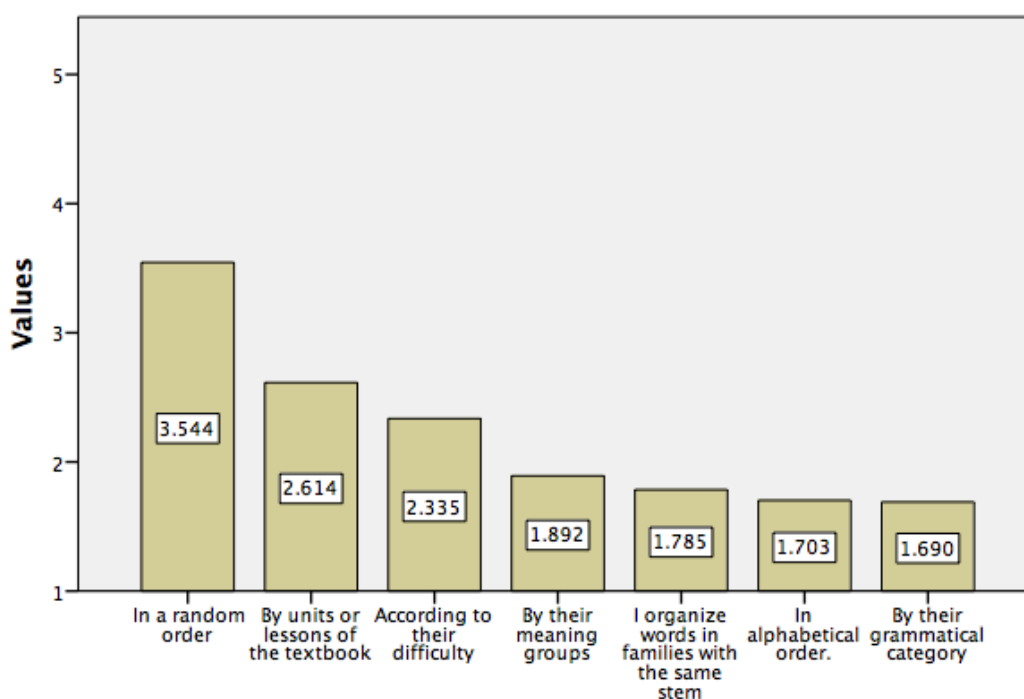
4.6.3.8 Reasons for word selection (VLSD8)

As Table 4.20 shows, an overall significant difference was detected in the participants' use of this dimension (p<**.001**).

Table 4.20 Results of the Friedman test for reasons for word selection (VLSD8)

N	156
Chi-Square	270.448
df	8
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

This dimension consists of nine strategies related to learners' criteria for noting words. Interestingly, five of these strategies were in the top hierarchy of the 10 most frequently used VLSs (Table 4.3). As Figure 4.9 shows, the criterion most frequently considered by my participants was 'the word is useful to me', which was ranked first with a mean of 4.32. This result is inconsistent with other studies, that found 'word is unknown and thus new to me' was the most frequently used criterion (McCrotise, 2007). In the present study, however, as shown in Table 4.21, the difference between the most frequently used criterion (i.e. the word is useful to me) and remaining ones were significant for five of the criteria (Bonferroni adjusted p<.003) but not for the other three criteria: *the word is needed when writing or speaking* (z = -0.821, p=.411); *the word is unknown* (z = -1.246; p = .212); and *the word is important in that it recurs frequently in the text where I encountered it* (z = -2.650, p = .008). Therefore, there was no significant difference found between those three criteria and the most frequently used criteria. This result is partially in line with that presented by McCrotise (2007). In fact the three criteria (i.e. the three strategies after 'the word is useful to me' in Figure 4.9) were reported to have close means scores, and all were ranked above '4' on the

Likert scale. This suggests that the participants selected them because they viewed the four strategies as equally valid.

Figure 4.9 also shows the least frequently used criteria reported by the participants, which was the word is used very frequently in English, which returned the lowest mean in this dimension (2.46). As shown in Table 4.21, the difference between the least frequently used criterion and the remaining criteria was significant (Bonferroni adjusted p<.003). These criteria were the ones least frequently used by participants and the only ones to score below '3' on the Likert scale.

The potential reasons explaining why this item received a low rating from participants are the following: First, the participants think about L1 (Arabic) more than L2 when note taking. That is, they take L1 information into consideration more than L2 information. This is supported by the criterion, *the word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic,* which had a higher mean (3.38 in Figure 4.9) than that for the least frequently reported criteria. In addition, it might be that the participants recognize that highly frequent words in L1 (Arabic) are not necessarily highly frequent in English. In fact, this latter reason might also be supported by the fact that the participants had reported considering word frequency within Arabic significantly more frequently than in English. Overall, when there is an opportunity to use L1, the participants use it more than they do the L2, as shown earlier with the results for the other strategies (see 4.6.3.2, 4.6.3.3, 4.6.3.4 and 4.6.3.5).

Table 4.21 Results of the Wilcoxon test for reasons for word selection (VLSD8)

Reasons for word selection pairs	Z	Sig
The word is unknown and thus new to me — The word is useful to me.	-1.246	.212
The word is important in that it recurs frequently in the text where I met it — The word is useful to me.	-2.650	.008
The word is important in that I realize it is a highly frequent word in English — The word is useful to me.	-9.247	<.001
The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic — The word is useful to me.	-6.951	<.001
The word is important in that it is a key word in the text where I met it — The word is useful to me.	-6.663	<.001
The word is important in that the teacher said so — The word is useful to me.	-4.299	<.001
The word is important in that it is needed when speaking or writing — The word is useful to me.	-0.821	.411
The word is difficult for me — The word is useful to me.	-5.495	<.001
The word is unknown and thus new to me— The word is important in that I realize it is a highly frequent word in English	-8.241	<.001
The word is important in that it recurs frequently in the text where I met it — The word is important in that I realize it is a highly frequent word in English	-8.768	<.001
The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic — The word is important in that I realize it is a highly frequent word in English	-6.181	<.001
The word is important in that it is a key word in the text where I met it — The word is important in that I realize it is a highly frequent word in English	-6.903	<.001
The word is important in that the teacher said so — The word is important in that I realize it is a highly frequent word in English	-7.975	<.001
The word is important in that it is needed when speaking or writing — The word is important in that I realize it is a highly frequent word in English	-8.921	<.001
The word is difficult for me — The word is important in that I realize it is a highly frequent word in English	-7.071	<.001
Bonferroni-adjusted P < 0.05/15 = .003		

Figure 4.9 Reasons for word selection (VLSD8; preliminary study)
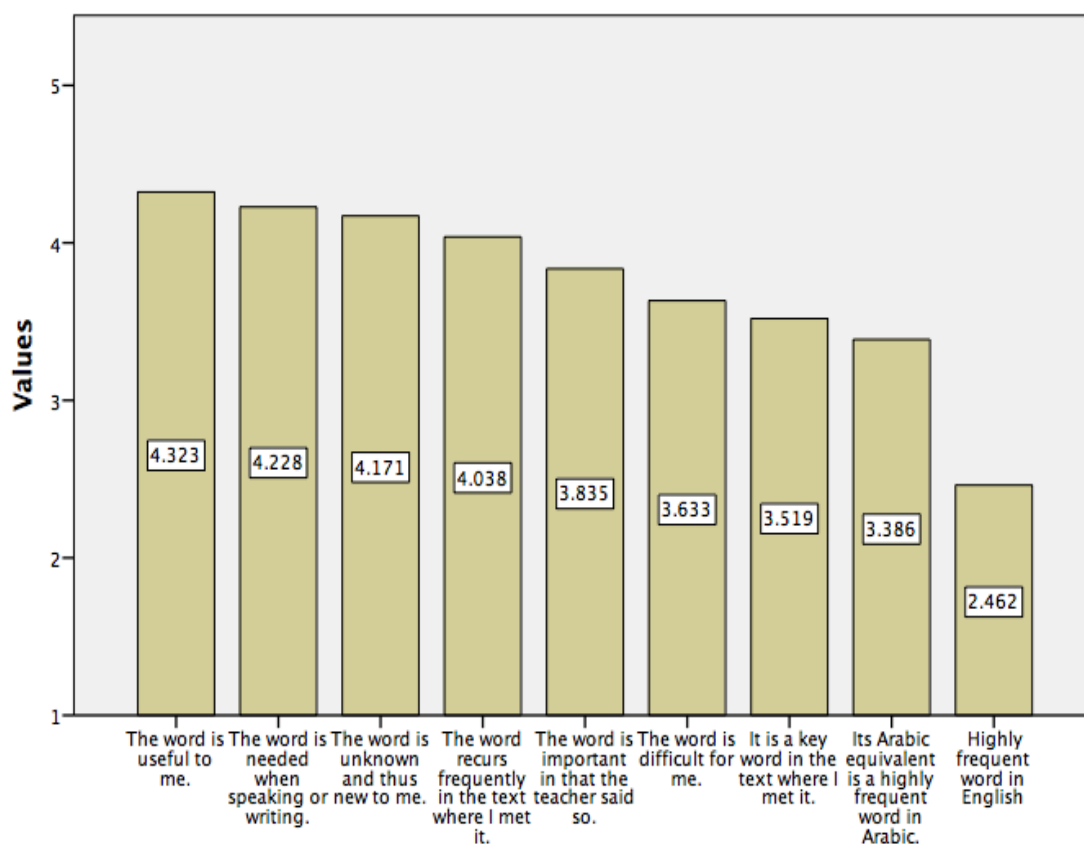
3. **Category three: Strategies dealing with retention and memorization**

This section collates the findings relating to approaches to vocabulary retention and memorization strategies; e.g. use of repetition to remember words noted (VLSD9, see 4.6.3.9); determining information used when repeating (VLSD10, see 4.6.3.10); association strategies (VLSD11, see 4.6.3.11); and practising strategies (VLSD12, see 4.6.3.12).

4.6.3.9 Methods of repetition (VLSD9)

As Table 4.22 shows, there was an overall significant difference in participants' adoption of this dimension (p<.**001**).

Table 4.22 Results of the Friedman test for methods of repetition (VLSD9)

N	158
Chi-Square	52.256
df	3
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

This dimension included four strategies that can be used to approach repetition. As Figure 4.10 shows, of the four, three ranked above '3' with similar means, and only one had a score of '2' on the Likert scale. Writing down the new word several times was the most frequently reported approach to integrating repetition into vocabulary learning, with a mean score of 3.73. This result seems to be inconsistent with Alyami's (2011) finding that repeating the word silently several times was the most frequently used form of repetition. However, as shown in Table 4.23, the difference in frequency between participants' *writing down the word several times* and the remaining options was significant in only one way (Bonferroni adjusted p<.001) and not significant in the other two ways: repeating the word silently several times (z = -0.652, p = .515) and listening to the word several times (z = -1.658, p = .097). Therefore, I can assert that there was no significant difference between the most frequently used method of repetition according to Alyami's (2011) findings and the present findings.

Interestingly, because the participants relied on writing down the word several times to facilitate retention, it was important that they wrote it correctly. Therefore, this might explain the finding that the participants frequently asked about spelling (mean 3.62), making this the second most frequently used item in that dimension (see 4.6.3.2). Similarly, when using a dictionary, the second most frequently used strategy was to determine the spelling of the word (mean 3.38) (see 4.6.3.4). This supports the supposition that the participants preferred to write the word down several times

because they wanted to ensure they had the spelling correct (see VLSD2 and VLSD4). In fact, Nakamura (2000) claimed that writing the new word down several times would allow the learners to focus on their spelling and identify it when reading.

In terms of ranking, the second most frequent approach to repetition reported by the participants was repeating the word several times silently; this response achieved a mean of 3.68. This was followed by listening to a word several times, which obtained a mean score of 3.55. Moreover, the least frequently used strategy was to say the word aloud several times. A significant difference was noted between this item and the remaining items (Bonferroni adjusted, p<.001) (Table 4.23). The potential reasons for this item being used with lower frequency than the other three items, might be that the participants were embarrassed to say the words aloud, or that they believed verbal repetition detracts from their ability to memorize.

Table 4.23 Results of the Wilcoxon test for methods of repetition (VLSD9)

Methods of repetition pairs	Z	Sig
I say the word aloud several times — I write the word several times.	-5.983	**<.001**
I repeat the word silently several times — I write the word several times.	-0.652	.515
I listen to the word several times — I write the word several times	-1.658	.097
I repeat the word silently several times — I say the word aloud several times.	-6.312	**<.001**
I listen to the word several times — I say the word aloud several times.	-4.559	**<.001**
Bonferroni-adjusted P < 0.05/5 = .001		

Figure 4.10 Methods of repetition (VLSD9; preliminary study)
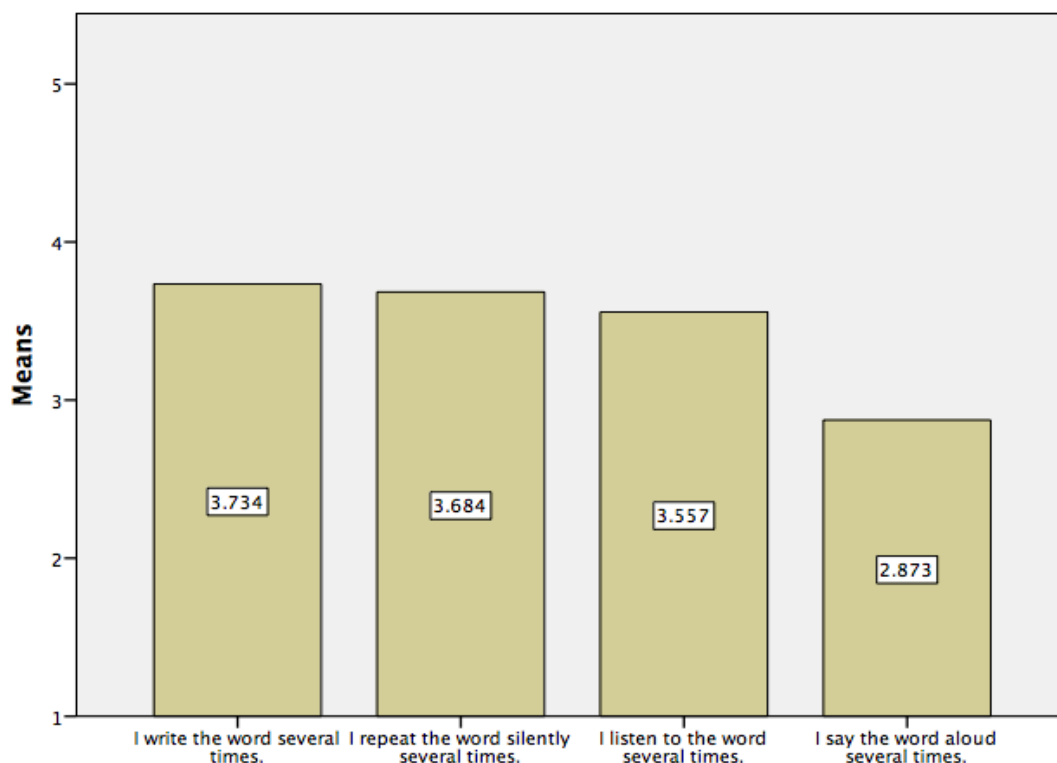
4.6.3.10   *Information used when repeating (VLSD10)*

As Table 4.24 shows, there was an overall significant difference in the participants' use of this dimension (p<**001**).

Table 4.24 Result of the Friedman test for information used when repeating (VLSD10)

N	158
Chi-Square	75.625
df	3
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

As Figure 4.11 shows, the most frequently used strategy is to repeat the English word with nothing else. This achieved a mean frequency rating of 3.75. There was also a significant difference between this strategy and the remaining ones (Bonferroni

adjusted, p<.001) (Table 4.25). This finding suggests that repeating English words in isolation was by far the most highly used by participants, when compared to the other strategies. This result is in line with previous studies that found this item to be the most frequently used strategy in this dimension (Marin, 2005). According to the present research, writing down the English word scored a low mean for use (2.31) in the context of note taking (see 4.6.3.5). However, I can also argue that repeating the English word unaccompanied differs from writing it down alone. Therefore, the present findings suggest this approach was used more frequently than in the note taking strategy. A possible reason for this is that the more participants repeat English words in isolation, the more they stick in their memory. Repeating English words alone is important for learners' lexical retention. More importantly, learners should repeat English words alone, especially if their pronunciation and spelling are complex, because this will facilitate word retention. A possible reason for the highly significant use of this item, when compared to the other strategies in this dimension, is that the participants in this study may have been aware of the word's meaning and therefore repeated the English word on its own or wanted to focus on the word itself with nothing else; this makes it easier for them to comprehend the new words more easily.

The second most frequently used strategy was to say the word together with its Arabic translation (a mean score of 3.01). A mean score close to '2' was not anticipated, as it was apparent from the other dimensions that any strategy involving L1, such as asking about the word's Arabic meaning (see 4.6.3.2), looking up the word's L1 meaning in dictionaries (see 4.6.3.4) and writing down the L1 meaning with the English word (see 4.6.3.5), is preferred. However, as explained previously, the present finding might have arisen because single English words repeated alone are easily retained. Moreover, this result is not consistent with that reported by Al-Qahtani (2005), which

found that repeating English words with their L1 meaning was the most frequently used strategy.

Figure 4.11 also shows the least frequently used strategy in this dimension to be repeating example sentences several times; this option received a mean score of 2.51. This finding is similar to those linked to noting examples (mean = 2.1) (Figure 4.6). There was also a significant difference between this strategy and the remaining ones (Bonferroni adjusted, p<.001) (Table 4.25), except for repeating English words with their English definitions (mean 2.52) (Figure 4.11), where p = .902 (Table 4.25). The means for these two strategies suggest they were not popular among the participants. This might be because they have deemed both strategies unimportant because the meaning is sufficiently clear, or because they were not useful for lexical retention when compared to the most frequently used ones in the dimension. This problem also occurs in the case of the repetition of an example or L1 equivalent. It is always possible that when a word has more than one meaning, that learnt through repetition differs from the meaning when the word is next encountered in a reading context.

Table 4.25. Results of the Wilcoxon test for information used when repeating (VLSD10)

Information used when repeating pairs	Z	Sig
Say the word and its Arabic translation — Only repeat the English word with nothing else.	-4.649	**<.001**
Repeat example sentences several times — Only repeat the English word with nothing else.	-7.061	**<.001**
Repeat the word and its English definition — Only repeat the English word with nothing else.	-6.727	**<.001**
Say the word and its Arabic translation — Repeat example sentences several times.	-4.401	**<.001**
Repeat the word and its English definition — Repeat example sentences several times.	-0.124	.902
Bonferroni-adjusted P < 0.05/5 = .001		

Figure 4.11 Information used when repeating (VLSD10; preliminary study)
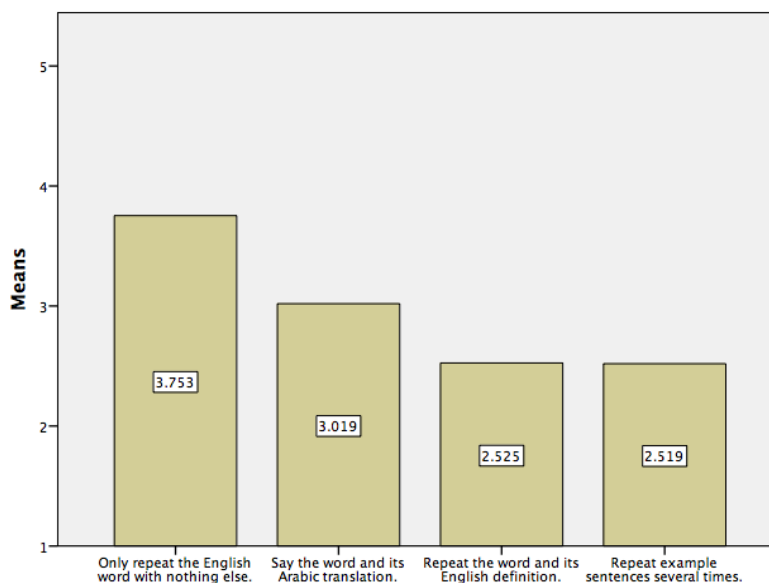
4.6.3.11 Association strategies (VLSD11).

As Table 4.26 shows, there was an overall significant difference found in the participants' use of this dimension (p<**.001**).

Table 4.26 Results of the Friedman test for association strategies (VLSD11)

N	158
Chi-Square	31.856
df	6
sig.	**<.001**

What are the most and the least frequently used VLSs reported in this dimension?

This dimension consists of seven strategies, all of which scored '2' on the Likert scale. The most frequently used association strategy involves associating the new word with a physical action; this variant achieved a mean score of 2.94. However, as shown in Table 4.27, the difference between the participants' use of this association strategy and the remaining strategies was significant only in one case (Bonferroni adjusted p<.004), being insignificant across the other five strategies. This result is inconsistent

with the findings reported by Marin (2005), who stated that associating words with similar ones in the L1 was the most frequently used by strategy. However, in terms of the other strategies, my results were partially consistent with Marin.

Figure 4.12 shows that, in terms of ranking, the second most frequently used strategy was 'I relate the new word to synonyms or antonyms in English'. This received a mean score of 2.83. I can attribute the low mean for this strategy to the participants' language proficiency.

In addition, as shown in Figure 4.12, breaking up new words according to their syllables or structure was ranked third (at a mean of 2.75). I found that guessing according to the word structure in VLSD1 generated a mean that was closer in VLSD11 (i.e. the association strategies) (Figure 4.2). This finding suggests the participants had similar tendencies when dealing with the structure of words and when engaging in guessing and memorization.

Moreover, three strategies were found to have very close means: relating new words to the words that follow each other in writing or speaking, such as the phrase 'make a mistake', which ranked fourth and scored 2.68; relating new words to other English words similar in sound or spelling, which ranked fifth and scored 2.67; and relating new words to a word in Arabic similar with a similar sound, which ranked sixth, scoring 2.66 (Figure 4.12).

As Figure 4.12 shows, the least frequently used strategy in this dimension was the keyword method. However, as Table 4.27 reports, the difference between the participants' use of an association strategy and remaining strategies was significant in only three instances (Bonferroni adjusted, p<.004), although it was insignificant in the case of the other three strategies. This result was also consistent with Marin (2005), who

found the keyword method to be the strategy least often used by the participants. This finding is not surprising, given that some words are difficult to imagine and some participants are unfamiliar with the keyword method.

Table 4.27 Results of the Wilcoxon test for association strategies (VLSD11)

Association strategies pairs	Z	Sig
I relate the new word to other English words similar in sound or spelling ─ I associate the new word with a physical action that I do or imagine.	-1.911	.056
I relate the new word to synonyms or antonyms in English ─ I associate the new word with a physical action that I do or imagine.	-0.799	.424
I associate the new word with a word in Arabic similar in sound ─ I associate the new word with a physical action that I do or imagine.	-2.348	.019
I use the keyword method ─ I associate the new word with a physical action that I do or imagine.	-4.459	**<.001**
I relate new words to words that usually follow each other in speech or writing ─ I associate the new word with a physical action that I do or imagine.	-1.910	.056
I break up the new word according to its syllables or structure ─ I associate the new word with a physical action that I do or imagine.	-1.582	.114
I relate the new word to other English words similar in sound or spelling ─ I use the keyword method	-2.335	.020
I relate the new word to synonyms or antonyms in English ─ I use the keyword method	-3.215	**.001**
I associate the new word with a word in Arabic similar in sound ─ I use the keyword method	-2.660	.008
I relate new words to words that usually follow each other in speech or writing ─ I use the keyword method	-2.008	.045
I break up the new word according to its syllables or structure ─ I use the keyword method	-2.920	**.004**
Bonferroni-adjusted P < 0.05/11 = .004		

Figure 4.12 Association strategies (VLSD11; preliminary study)
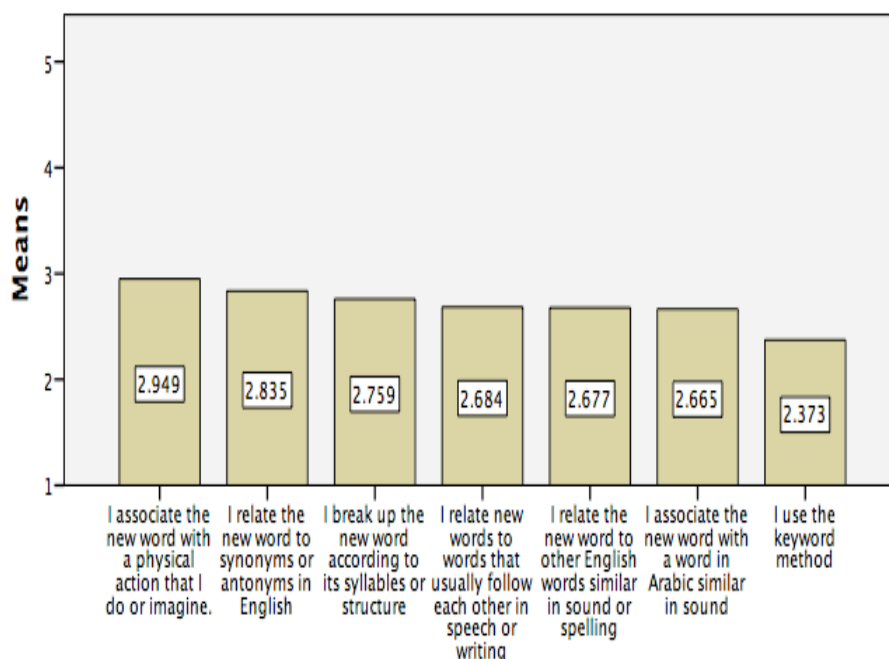
4.6.3.12   *Practising strategies (VLSD12)*

As shown in Table 4.28, there was no overall significant difference found in the participants' use of this dimension (p = **.028**). This suggests all strategies in this dimension were used equally by the participants.

Table 4.28 Results of the Friedman test for practising strategies (VLSD12)

N	158
Chi-Square	9.111
df	3
sig.	.028

Table 4.29 shows no significant differences occurred among the strategies in this dimension (Bonferroni adjusted p<.001). Nevertheless, I can report the most frequently used strategy was looking for opportunities to encounter new words in English, which obtained a mean score of 3.25 consistent with Ahmed's (1988) findings in relation to this dimension. Opportunities, such as watching TV and reading newspapers, were

expected to develop learners' vocabulary as they afford rich sources of new words. This finding was expected because my participants use English throughout their studies.

The second most frequently used strategy was to use as many English words as possible in speaking or writing. This delivered a mean score of 3.19. Nation (2001) suggested that this strategy is useful as a VLS because learners view this as a way to develop their linguistic competence and lexical consolidation. 'I practise saying things in English by myself' ranked third with a mean score of 3.12; and 'I quiz myself or ask others to quiz me on new words' ranked the lowest, with a mean score of 2.99. As Table 4.29 shows, there were no significant differences between the least frequently used item, and the remaining strategies (Bonferroni adjusted, p<.001), which indicates that the participants believe they use all strategies equally.

Table 4.29 Results of the Wilcoxon test for practising strategies (VLSD12)

Information used when repeating pairs	Z	Sig
I quiz myself or ask other to quiz me on new words ‒ I look for opportunities to encounter new words in English	-2.178	.029
I practice saying things in English by myself ‒ I look for opportunities to encounter new words in English	-1.161	.246
I use as many new words as possible in speaking or in writing ‒ I look for opportunities to encounter new words in English	-0.645	.519
I practice saying things in English by myself ‒ I quiz myself or ask other to quiz me on new words	-1.144	.253
I use as many new words as possible in speaking or in writing ‒ I quiz myself or ask other to quiz me on new words	-1.321	.186
Bonferroni-adjusted P < 0.05/5 = .001		

Figure 4.13 Practising strategies (VLSD12; preliminary study)
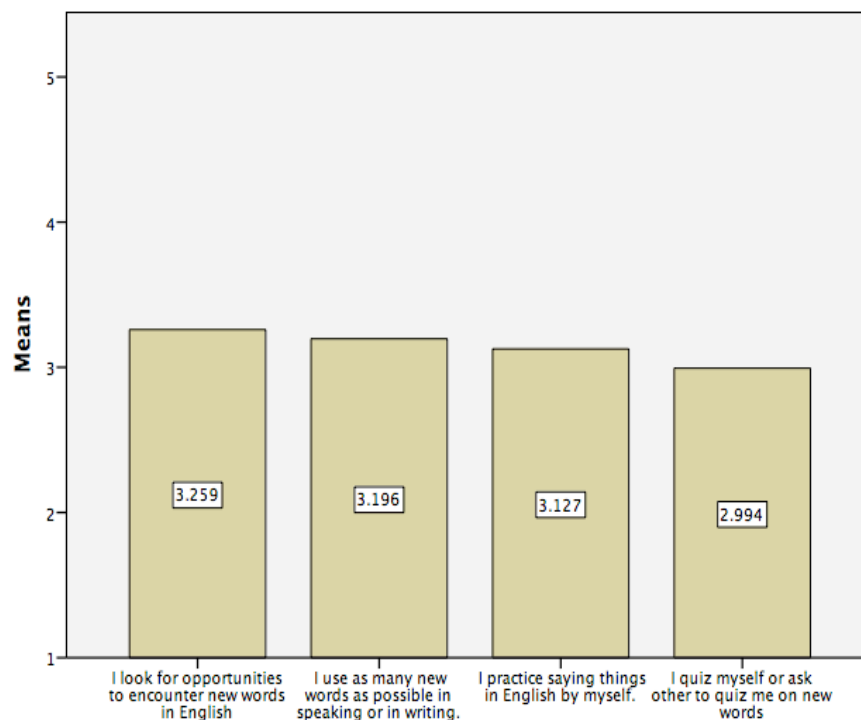
4.7   Summary of the chapter

The objectives of this chapter were to present and discuss the results of the preliminary study. The results presented illustrate that the participants acknowledge a heavy reliance on L1 based strategies, such as requesting strategies in vocabulary learning strategies dimension two (i.e.*VLSD2, 4.6.3.2), (using dictionaries *VLSD4* (4.6.3.4), and noting information about words *VLSD5* (4.6.3.5). For example, 'looking up the unknown word by using dictionary and check its Arabic meaning', 'asking teachers about the word's L1 meaning', and 'writing down the English word with its L1 meaning'. I also found that among the 10 most frequently used strategies, most were note taking strategies, especially VLSD8 (i.e. *Reasons for vocabulary selection)* which was also the most frequently used dimension (see 4.6.2). In contrast, 'keeping notes on cards, or wall charts', 'organizing the word by its grammatical category', 'organizing the words in alphabetical category', 'organizing words by their meaning groups' were

among the ten least frequently used VLSs. I also learned that among the 10 least frequently used strategies, the majority were in the note taking category, especially VLSD7 (i.e. *ways of organization)*, which was also the least frequently used dimension.

This preliminary study was considered a success in terms of its ability to analyse and answer the research question (RQ1P, RQ2P and RQ3P), and when designing the questionnaire. I presented the 10 most frequently used and 10 least frequently used strategies in all dimensions (see 4.6.1), the frequency of VLSs use by dimensions (see 4.6.2) and the most frequently used and least frequently used strategies in each dimension (see 4.6.3). These were analysed without the explanatory variable (AFoS).

In the preliminary study, I reported the results for all the participants. The main study, which will be conducted during the coming year, will include an explanatory variable (Academic Field of Study). After the data for the main study has been collected, the explanatory variable (AFoS) will be determined. A number of amendments to the preliminary questionnaire were made prior to the main study, and these will be addressed in the following chapter. They are summarized here as follows:

- The main study will consider the effect of time, and will examine the participants' strategic behaviour to identify any significant changes in the year between the preliminary study and the main study. The **same** participants will take part in the main study (158 participants).

- The main study will examine VLSs use in relation AFoS, Time, and to a lesser extent Gender.

- The main study will examine the learners' perceptions of usefulness of VLSs in relation to AFoS and gender.

- The participants' reasons for using VLSs will also be determined through the

addition of qualitative semi-structured interviews. The interviews will aim to collect data to answer research question (part of RQ2M), which concerns the reasons students give for their questionnaire responses. Moreover, Express Scribe will be used to analyze the interview data. Semi-structured interviews combine unstructured and structured questions to allow participants the possibility to elaborate on their answers (Seliger and Shohamy, 1989). It also gives the interviewer an opportunity to explore issues in depth and to expand on the interviewee's answers (Hitchcock and Hughes, 1989).

- In terms of the questionnaire, no significant changes will be made following the preliminary study. However, in order to understand participants' perceptions regarding the usefulness of each strategy (i.e. RQ3M), a new ratings scale will be added to each strategy. Therefore, the participants will both report their uses of VLSs and decide on the usefulness of each strategy. The following example shows the addition of this new scale of usefulness.

Table 4.30 An example of the VLSQ (main study)

VLSD12. Practising or other means of consolidating new words:					
72. I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
73. I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
74. I practise saying things in English by myself.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
75. I use as many new words as possible in speaking or in writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

Chapter Five: Methodology

5.1 Introduction

As mentioned previously (see chapter one, 1.6), this thesis aims to focus on the Vocabulary Learning Strategies (VLSs) employed by students from different majors (i.e. English and Computer Science), change of their use over time, and their usefulness according to the perceptions of Saudi learners. Hence, the present chapter will describe the means used to gather the necessary data to achieve the aforementioned goals. Firstly, it will present the study design (5.2); secondly, it will provide a theoretical background to explain the philosophy of research which I have adopted, and quantitative, qualitative, and mixed methods (5.3); thirdly, there will be an outline of the participants' backgrounds (5.4); and finally, there will be a discussion of the instruments, data collection procedures, and data analysis (5.5).

5.2 Design of the present investigation

Figure 5.1 summarizes the design, showing the key variables, and the instrument used to gather data for each variable. Hence, this study used a mixed method model for data collection and analysis. Creswell and Clark (2007) state that this facilitates understanding of the research problem. The following is a reminder of the study's research questions;

RQ1M- Do learners from different academic fields of study differ in terms of how much they change their reported use of VLS over one year of university study?

RQ2M- What effect does academic field of study have on the reported use of VLSs by Saudi 3rd year students? Why?

RQ3M- What effect does academic field of study have on the perceived usefulness of VLSs, as reported by Saudi 3rd year students? Why?

Figure 5.1 Design of the present investigation
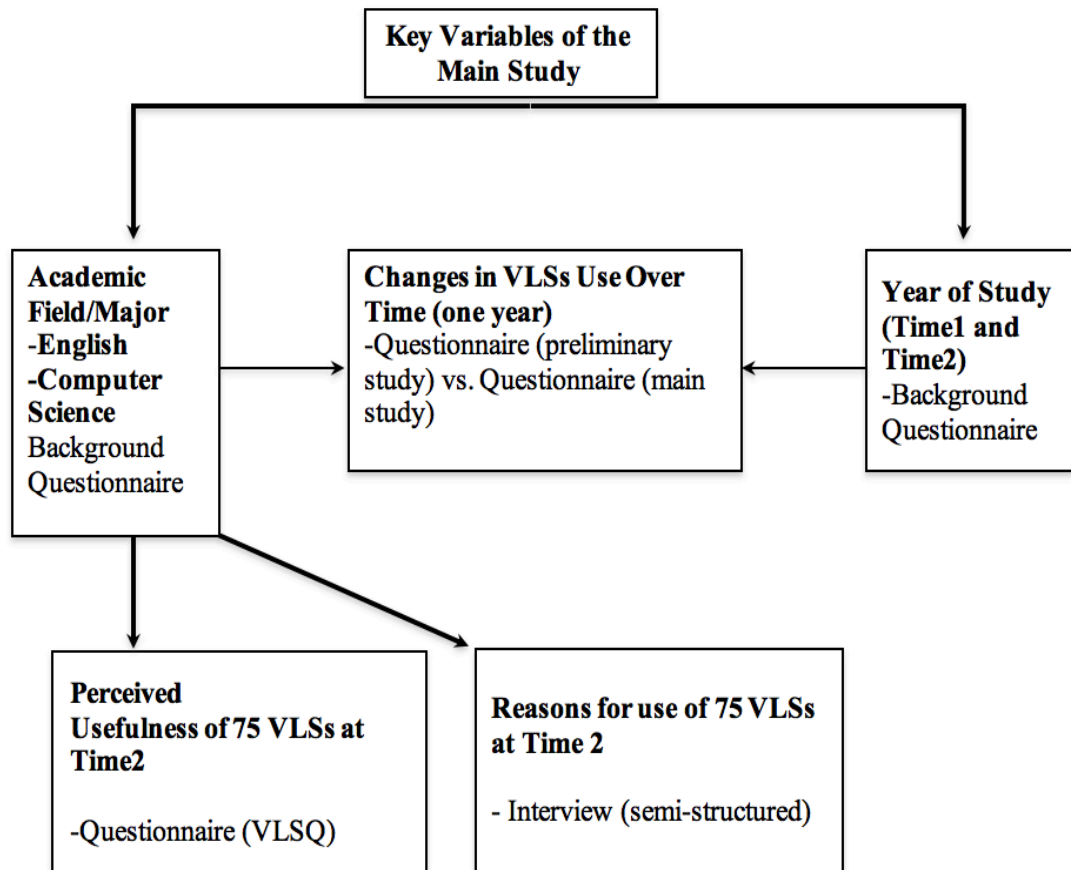
While my comparison between students of different majors necessarily had to be cross-sectional, for the comparison between time 1 and time 2, a year apart, there was in principle a choice between a cross-sectional design (comparing two groups of students, of different years) and a longitudinal design (comparing the same students before and after one year). For this, the current study employs the longitudinal research design. This can be defined as "the ongoing examination of people or phenomena over-time" (Dörnyei, 2007:78). According to Menard (2002), longitudinal investigation describes research where data is collected over two or more points in time: the subjects are then the same, and the analysis involves a comparison of data only between occasions. Such

design is helpful for examining patterns of change and for explaining causal relationships (Dörnyei, 2007).

Ortega and Iberri-Shea (2005) further point out that longitudinal research is more useful for demonstrating how change in anything occurs than is cross sectional research, where the researcher collects the data both before and after a possible change at just one point in time, but from different participants. That type of design has the disadvantage that it does not control so well for differences between individual participants, since the same participants are not accessed both before and after any possible change. Still some researchers prefer to use cross sectional research because of two disadvantages associated with longitudinal research; attrition, and panel conditioning (Dörnyei, 2007:82-83). The former arises where participants withdraw from a study between the two data gathering occasions: to prevent this, the researcher informed the participants that it had been agreed with their teachers that they would be awarded an additional five marks for class participation for participating in this study on both occasions. The latter "arises if responses are influenced by participation in the previous wave(s); the experience of the previous interview(s) may affect the answers to questions on the same topic, such that these answers differ systematically from those of respondents interviewed for the first time" (Das et al 2011:32). In the case of this study, it was the same VLS use questionnaire given twice not the same interviews, so there could be a problem if memory of the questionnaire questions from the first response time influenced responses to the same questions when they came again a year later, or even affected learner actual use of VLS in the intervening time. To avoid this, the participants were reminded several times to answer faithfully and accurately, as their answers would not affect their academic studies and were kept anonymous and secure. Furthermore, I felt that a space of one year was long enough that the participants would not recall their previous answers to the same VLS questions.

Overall, a longitudinal design was preferred because of the aforementioned fact that "the subjects are their own controls". It was felt that eliminating the effects on change in VLS use of individual differences between participants, by using the same participants twice, was more important than any danger of panel conditioning. Furthermore it should be noted that, no doubt due to attrition, the extra time and effort involved, longitudinal studies of strategy use over time are quite rare (Al-Hatmi, 2012), while cross-sectional studies using different cohorts of students from different years of study to represent different times are relatively common. The current study therefore represents a methodological contribution in this area.

Figure 5.1 demonstrates the dependent and independent variables employed in the main study, along with tools used to measure them. The reported frequency of participants' use of various VLSs and the participants' perceptions of VLSs usefulness represents the dependent variables in this study. The academic field of study/learners' major, and time, represent independent variables expected to affect learners' frequency of using the various VLSs.

Figure 5.1 demonstrates the relationship between the variables and the instruments employed. Learners' year of study and academic field were determined from responses to the informants' background questionnaire, employed twice; during the preliminary study (see 4.4) and in the main study. Research question RQ1M (see 1.7) was also answered by examining responses provided in both questionnaires (i.e. preliminary and main study). As noted before, the effect of time on learners' uses of VLSs was compared firstly, in terms of use rather than usefulness, due to leaners' self-reported usefulness being only addressed in the main study. It involved comparison of English majors at time1 with English majors at time2, and of Computer Science majors at time1 with Computer Science majors at time2. Identical participants were examined

on both occasions. Furthermore, in order to answer RQ2M, the relationship between academic field and the participants' use of seventy-five VLSs was measured through the questionnaires reported only in the main study. The reasons behind the significant different uses of strategies between majors were elicited through interviews (main study, part of RQ2M).

Finally, RQ3M, the relationship between academic field and the participants' self rating of VLS usefulness was measured through a questionnaire administrated only in the main study.

5.3 Theoretical background of quantitative, qualitative and mixed methods.

In this section I step back momentarily and point out the broader principles which underlie my choice of design and methods. As Denzin and Lincoln (2003:33) state, research is "guided by a set of beliefs and feelings about the world and how it should be understood and studied." These ontological and epistemological beliefs of the researcher constitute the paradigm which he adopts, which underpin the research methodology that he uses.

Among the many specific research paradigms or philosophies which may be identified, three broad types have emerged as relevant to the current study. They may be characterised as positivist, constructivist, and post-positivist. I will present my stance as being essentially post-positivist, which means that we reject some of the tenets of positivism and adopt some of those of constructivism. This is a stance widely adopted today in education and the social sciences (Philips & Burbules, 2000).

Ontology means "the theory of the nature of reality" (Delanty & Strydom, 2003:6) where assumptions are made about the nature of reality, in my case a form of social reality. Positivists take the view that reality exists in an objective form external to

researchers, and it is the researcher's task to discover it. Constructivists, at the other extreme, take the view that reality is in the mind of the researcher rather than something external, so it is not to be expected that different researchers will discover the same things. Postpositivists agree with positivists that a reality exists, but, echoing constructivists, they accept that it is impossible to discover it perfectly (Delanty & Strydom, 2003).

Epistemology follows on from ontology, in that it is "the science of knowing" (Babbie, 2017:4) about whatever kind of reality one believes exists. It concerns the researcher's stance on what knowledge is, and how knowledge is created or discovered, and constitutes a fundamental branch of philosophy (Delanty & Strydom, 2003:4-5). Positivists believe that the researcher is finding out the independent truth about what he is researching, in my case the researched people, while constructivists see the research community as constructing collective mental models of the world to explain what is observed. Postpositivists agree with constructivists that theories, and researcher background and beliefs, can have an effect on the knowledge he gains from studying the world, but resemble positivists in still aiming for objectivity as far as possible.

Methodology is a subfield of epistemology and can be defined as "the science of finding out" (Babbie, 2017:4). Positivists naturally favour objective experiments or surveys, and typically work 'top down' to gather data to test hypotheses decided upon in advance with instruments targeting just what is needed to do that. Constructivists accept any of a wide range of methods and typically work "bottom up" as their name implies, in their most extreme form working with only the broadest research question, and open instruments such as unstructured interviews, diaries or open questionnaires where little is decided in advance (e.g. ethnographic research, grounded theory). Post-positivists tend to employ a wide range of methods across the whole of that spectrum, but do

typically propose hypotheses or at least, as we have, specific research questions, with instruments chosen precisely to enable them to be answered. They would, however, accept that any answer is conjectural, meaning that they would not claim any absolute truth to have been found but rather imperfect and fallible knowledge. Research is seen as simply aiming to develop more reliable statements that can help explain a phenomenon or describe causal relationships or relationships among relevant variables (see Cohen, et al., 2011:27; Creswell., 2009:7).

A well-known fundamental distinction of different kinds of research methods is often made between quantitative and qualitative methodologies (Mackey & Gass, 2005:2). Quantitative research "involves data collection procedures that result primarily in numerical data which is then analyzed primarily by statistical methods" (Dörnyei, 2007:24). This includes the data from closed questionnaires, such as I'm using, analyzed using computer software such as SPSS, with judgments based on tests of significance. Such quantitative research was the mainstay of the positivist paradigm, but now forms part of the post-positivist approach, especially when used in exploratory fashion, as in my study, rather than with any strict hypotheses. As Stoneman & Brunton-Smith (2016:83) say, "…today's quantitative researchers are more often than not post-positivistic in their intellectual leanings."

Quantitative research can be divided into: 1) associational; and 2) experimental. These both focus on determining a relationship between, or within, variables. (1) Associational research determines whether a relationship is present between variables, and whether this relationship is strong. This can be tested statistically through correlations, though in this study it is represented by comparisons which I make between majors and between times. (2) Experimental research is also occasionally employed for second language research studies, focusing on a comparison between one

or more groups where a researcher deliberately manipulates one or more independent variables, in order to establish the effect on the dependent variables (Ibid:137-138). That is not the case in the present study since the researcher is not able to determine which majors students choose to take (as they decide this for themselves) or to alter the passage of time (which is outside his control). Hence it is not a true experiment. For example, the current study focuses on three independent variables (time, major and gender) to examine learners' use of VLSs, along with their perceived self-reported usefulness.

The second types of research method were qualitative, which "involves data collection procedures that result primarily in open-ended, non-numerical data which is then analyzed primarily by non-statistical methods" (Dörnyei, 2007:24). This data comes from a wide range of qualitative data collection methods, including interviews, diaries/journals, observation and open response questionnaires. Such data gathering is typical of constructivist, and some post-positivist, social science research, as it allows the voices of the participants to be more directly heard and taken into account as the researcher constructs an understanding of a phenomenon. It is often regarded as "richer in meaning and detail than are quantified data" (Babbie, 2017:25), and so helping the researcher to gain deeper insights into the phenomena under investigation (Creswell, 2009:175; Bryman, 2012:408). Hence it is used by the present study on the specific issue of participants' reasons for using VLS.

Overall, the study thus follows a common post-positivist methodology using both quantitative questionnaires and qualitative interviews, and so is a type of what is now termed 'mixed methods' research.

Mason (1996 cited in Silverman, 2005:123) notes the need to find "a list of possible research methods and data source options and to think through why you are

accepting or rejecting each one". Cohen (1998:13) further states that: "no single

assessment method prevails". Therefore, a researcher needs to identify which research

methods he/she believes suitable regardless of whether they are quantitative or

qualitative. Robson (1993) states that:

> *"[T]here is no rule that says that only one method must be used in an investigation. Using more than one method in an investigation can gain substantial advantages, even though it almost inevitably adds to the time investment required. One important benefit of multiple methods is in the reduction of inappropriate uncertainty. Using a single method and finding a pretty clear-cut result may delude investigators into believing that they have found the right answer."*
> (1993:290)

This points to the benefits of using more than one method, as employed in the

current study. Nevertheless, "individual researchers have a freedom of choice. They are

'free' to choose the methods, techniques, and procedures of research that best meet their

needs and purposes" (Creswell, 2003:12).

It is therefore no longer regarded as somehow unsuitable or impure to do research

which combines quantitative and qualitative data gathering. Researchers are free, and

indeed often encouraged, to combine the best approaches of each in their research

design in a mixed methods research study such as the present one (Dörnyei, 2007:40).

McDonough (1995:10) specifically notes that: "both kinds of methods [i.e.

qualitative and quantitative] are useful for research in skills, strategies, and process",

which is precisely my field of interest. Cohen and Scott (1996) also state the benefits of

the following in identifying learners' strategies: verbal reports; diaries; journals;

observations; *interviews* and *questionnaires*. In my case it was impracticable in the

time available, and given the number of participants, to involve more than two of those

methods of data gathering. I am aware for instance that think aloud reporting, another

qualitative instrument, has quite often been used successfully in strategy research (e.g.

Al-Fuhaid, 2004), including studies of VLS. However, think aloud for instance, could not be applied because it requires learners to be fully trained on how to report the data (Pressley & Afflerback, 1995). Also, it was difficult to apply in the current study because gender restrictions as the researcher does not have an access to female participants. Finally, in think aloud procedure, learners have to do two tasks simultaneously verbalising their thoughts and doing the task in hand, this means one learner might be better in this more than the other one.

According to Tashakkori and Teddlie (2003: 682), the terminology used to explain mixed methods designs is 'chaotic'. Dörnyei (2007:169) however presented some useful terminological principles, concerning the ***sequence*** and ***dominance*** of the method constituents. Elsewhere, other scholars have presented straightforward symbol systems to illustrate their research designs. For example, the current study can be depicted as (QUAN $\longrightarrow$ qual), where QUAN refers to the quantitative researcher, the arrow refers to the sequential collection of data, and the qual refers to qualitative data, the use of lowercase letters denotes that the qualitative component is of lower priority or weighting (Johnson & Christensen, 2004:418).

This current study then, as previously noted (see 4.7), employs mixed methods (i.e. QUAN questionnaire $\longrightarrow$ qual interview). Questionnaires were used in the preliminary phase to investigate the reported use of VLSs by participants. Questionnaires were also used in the main study, in which it was used to identify participants' reported use of VLSs again, and their rate of usefulness (relevant to all three main RQs). Interviews were subsequently employed to elicit the reasons participants had for using or not using VLS (part of RQ2M).

Thus, both qualitative and quantitative methods were used in the main study, in a complementary way. It is a suggested research strategy to do this (Cohen and Scott,

1996), since while reported VLS use and usefulness are quite easy to find out systematically and validly by responses on a scale for each VLS, it would be unlikely that the researcher could predict all the possible reasons for use or non-use of every VLS in order to be able to list them in a closed response questionnaire for each VLS, so that learners could respond just by ticking those that applied.

Moreover, the questionnaires were designed to provide statistical data only regarding the amount of self-reported use and perceived usefulness of VLSs. This however would not have revealed the meaning behind the reported use unless interviews were also conducted, in order to explore participants' explanations regarding their reported uses of VLSs. Such mixed methods are therefore seen as improving the overall validity of the research, because each set of data helps explain the findings of the other.

Richards (2003:8) stated that QUAN is "not designed to explore the complexities and conundrums of the immensely complicated social world that we inhabit". For example, as noted previously, a closed questionnaire can give us valuable results, but it is virtually impossible to construct one that will gather data to explain how or why such results have occurred. Therefore, QUAL can be helpful for asking 'why'? It thereby "allows the researcher to conduct 'further research' straight away, thereby reaching a fuller understanding" (Dörnyei, 2007:40). If QUAN had been used as the only method, it would not have been possible to establish fully what the participants wished to express about their reasons for using VLS, and it would not have allowed them an opportunity to follow up and elaborate on the data. Therefore, the interview method was employed to provide additional information from the participants in parallel with the questionnaire.

The following subsections provide further theoretical considerations of relevant research methods. Firstly, general overviews of the questionnaire data are provided (5.3.1) and secondly interviews are discussed (5.3.2).

5.3.1 Overviews of the questionnaires

The questionnaire forms the main data collection process for both the preliminary and main studies. Questionnaires are defined as: "any written instruments that present respondents with a series of questions or statements to which they are to react, either by writing out their answers, or selecting them among existing answers" (Brown, 2001:6). Similarly, Richards et al. (1992:303) define questionnaires as: "sets of questions on a topic, or a group of topics, designed to be answered by a respondent". The questionnaire is considered one of the most common methods of gathering data from informants in relation to attitudes and opinions about learning second language (Mackey & Gass, 2005). Wallace (1998:124) notes that its purpose is: "to tap into the knowledge, opinions, ideas and experiences of my learners, fellow teachers, parents or whatever". Moreover, Nunan (1992:143) points out that a questionnaire: "enables the researcher to collect data in field settings and the data itself is more amenable to quantification than discursive data, such as free-form field notes, participants observers' journals, or transcripts of oral language".

There are two main types of questionnaire, i.e. closed ended questions and open-ended questions (Mackey & Gass, 2005). Nunan (1992) also notes a third form, which is a mixture of both. First, an open questionnaire gives the informants the opportunity to express their thoughts and ideas in their own manner and clarify their answers, resulting in more unexpected and insightful data (Mackey & Gass, 2005). However, this type of research also has limitations, in that it is difficult to analyse. For example, the level of answers may differ in detail or scope, which makes it hard to code and analyse.

Additionally, the researcher does not have full control of the lengths of the responses, or the questions might be too general for the participants to understand, so there is a chance of low reliability. If open responses are required, it is better to use a semi structured interview, as I did for the elicitation of reasons for VLS use, since there the researcher is present and can explain anything unclear and guide the respondent if he/she wanders off the point that the researcher is interested in.

Second, a closed questionnaire gives the researcher control over the questioning and determines possible answers, while giving the informants limited opportunity to elaborate (Mackey & Gass, 2005). This type of research is easier to quantify, analyse and it gives more reliability to the data (see 5.5.1.2 for VLSQ reliability). It is eminently suitable where what is being asked about is straightforward and responses can credibly be captured on a uniform scale, as was the case for self-reported use and usefulness of VLS in the current study. Furthermore, the uniformity of response mode makes it much simpler for the researcher to compare VLSs between each other and between participants and groups. The participants choose from predetermined choices and a single number denotes their response (Foddy, 1993:127), such as in the VLSQ, "I guess the meaning of the new words by analysing the word's part of speech". The choices were 1 never, 2 rarely, 3 sometimes, 4 often, and 5 always. This makes it easier for the researcher to identify the most useful strategy employed by participants. Also, with closed items, the meaning would be clearer to the participants and the answers will tend to be more complete, since they have only to choose from one of the alternatives.

The final type is a mixture of closed and opened questions and it was used in the present study. This has 150 closed questions designed using a five point Likert scale, and 12 open statements (covering 12 dimensions) to elicit strategies not covered in the questionnaire; elicited strategies should then be rated in terms of usefulness from one to

five and informants also were asked to rate their stated strategy in terms of their use from 1 to 5. McDonough and McDonough (1997:174) state that the use of closed items is: "useful for the majority of the questions to be answered by ticking a box or circling an alternative to enable easier counting" (see 5.5.1 for the full account of VLSQ).

Questionnaires (in particularly mixed type), have been generally employed to investigate L2 VLSs (i.e. vocabulary leaning strategies), including Schmitt (1997) and Nakamura (2000). The current study employed a questionnaire for the following reasons. Firstly, a number of previous comprehensive studies have used questionnaires to investigate the use of L2 Language Learning Strategies (LLS) and L2 VLSs (Ahmed, 1988; Schmitt, 1997; (Al-Hatmi, 2012; Salah Alyami, 2011), when undertaking investigations similar to the current study, which examines VLSs used by Saudi learners. Secondly, a questionnaire can cover a range of strategies and informants (Oxford, 1996; Cohen, 1998), enabling the current study to employ a large sample of participants and strategies. Thirdly, it is possible to distribute questionnaires over a short period of time (Oxford, 1996). Fourthly, questionnaires are simple to analyse and offer a straightforward means of quantifying data, and therefore facilitate comparisons between groups (Nakamura, 2000). This enabled the results of the current study comparing English and Science majors to be analysed. Brown (1988) notes that questionnaires and experimental studies are: (1) systematically structured with defined procedural rules; (2) based on a systematic logical pattern; (3) based on tangible, quantifiable information, known as data; (4) replicable (i.e. it should be possible to perform them again); and (5) reductive, i.e. they can help identify patterns from the apparent confusion of facts that surround a study (1988:5).

However, as with other research methods, questionnaires have a number of limitations. Firstly, they are unsuitable for learners with difficulties comprehending L2,

or whose writing in L2 is weak. Mackey and Gass (2005:96) suggest that, in order to overcome such considerations, questionnaires should be translated into the informants' native language (see 5.5.1 for VLSQ). Therefore, VLSQ was (as in the preliminary study) initially written in English and subsequently carefully translated into Arabic (the native language of the participants). The Arabic version was used both during the piloting of the instrument and for the main study, enabling the researcher to avoid any potential for misunderstanding the English wording, i.e. the process of translation can lead to the following issues: (1) ambiguity; (2) difficulties arising from the structural and lexical differences between languages such as Arabic and English; and (3) multiword units, including idioms and collocation. However, the questionnaire employed by the current researcher avoided complexity, enabling a successful translation process. This was supported by the fact that the participants had few difficulties understanding sentences; e.g. when the 'keyword method' was employed, this led to the most effective manner of interpreting the strategy, through an illustration of the meaning in Arabic, accompanied by examples.

Secondly, informants may answer the questionnaire or respond to the interview questions in the research study in such a way as to please a researcher by predicting the information he/she hopes to collect from them. Moreover, while completing Likert-type questionnaires, participants might choose an option without focusing on the content of the statement, or may even potentially choose strategies they do not actually use. Therefore, learners were reminded to answer questions on strategies according to their actual use, rather than according to their feelings about what might be correct, and also were asked to justify their reported use of VLS in the questionnaires. As a further incentive, the researcher informed them that their lecturers had agreed that, as result of their participation, they would all be awarded five marks for 'class participation'.

Thirdly, respondents' fatigue can adversely affect questionnaires (Dörnyei, 2003:14) if they are too long. Informants might become tired of answering the questionnaires, and this would then influence the accuracy of the participants' responses. Therefore, it has been taken into consideration to overcome this issue. According to Dörnyei (2003:18) the best way to administer a questionnaire to the learners is during teaching hours. The questionnaire was distributed during the learners' normal teaching hours; typically, each lecture is two hours. It took from thirty to forty five minutes for the students to complete the questionnaire. The students were told that if they feel tired they can rest and continue later during the session. None of them took longer than forty five minutes to answer, and they all returned the questionnaires without any issues arising.

No method, and particularly one employed in the field of strategy, is without its limitations, and success therefore depends on the way in which researchers manipulate and employ each. The current study employed the questionnaire as the primary data collection method for both the preliminary and pilot studies, in accordance with Mackey and Gass' (2005) views of the benefits of creating the following: simple, uncluttered formats; unambiguous, answerable questions; and undertaking a pilot study with a representative sample of the research population. (Ibid:96).

5.3.2 Overviews of the interviews

The second method employed in the main study is the interview. 'Interview' is defined as a direct conversation between a researcher and an informant, or groups of informants, resulting in valuable information (Nunan, 1989:60; Richards et al., 1992:189). Channel and Kahn, 1968, cited in Cohen and Manion, 1994:271) define it as "[A] two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction, or explanation". It is thus

considered a highly effective means of accessing informants' perceptions, ideas, meanings and constructions of reality. The most popular forms are: individual; face-to-face verbal interchange; face to face group interviewing; mailed; self-administered; and telephone surveys (Fontana & Frey, 1994:361).

The literature identifies several forms used of interviews by language researchers, i.e. structured, unstructured and semi-structured (Cohen, 1998; Nunan, 1992; Wallace, 1998). Unstructured interviews enable the researcher or interviewer to present unplanned or unprepared materials or questions to the interviewee, and allow the interviewer to expand whenever needed. Matsumoto (1994) notes an equal relationship between the researcher and the informants, as both have control of organising the content of the interview. This type of interview assists researchers to "explore fully all factors that underpin participants' answers: reasons, feelings, opinions and beliefs" (Ritchie & Lewis, 2003:141). It also has its limitations. Matsumoto (1994) notes that it is subjective, and biased, and sensitive to the context of verbal reports between the interviewer and the interviewee. For example, the researcher to some extent might affect the participants' responses. As investigated by Williams (1971, cited in Trueman, 2015), the greater the distance between the researcher and the participants, the less likely the participants are to express their feelings truthfully.

Secondly, there is the structured interview, with highly structured questions, giving the researcher full control of the presented topics, as well as over the questions given to informants (who only need to answer each question accordingly) (Wallace, 1998). Structured interviews of this type are believed to be the most objective form of interview, and avoid bias (Matsumoto, 1994). For example, participants have equal opportunities to answers questions and to be assessed fairly. These also have their limitations. Despite being more objective, they give no opportunity for expansion and

elaboration of either questions or answers, leading to highly focused interviews with no space for additional clarification.

The final form is the semi-structured interview, which is a combination of both structured and unstructured forms. Nunan (1992:149) affirms that semi structured interviews are widely used in qualitative designs, as they are more flexible for both the researcher and respondents:

> *"In the first instance, it gives the interviewee a degree of power and control over the course of the interview. Secondly, it gives the interviewer a great deal of flexibility. Finally, and most profoundly, this form of interview gives one privileged access to other people's lives."* (Ibid:150)

This is consistent with Merriam (1998:74) who concludes that: "a semi-structured interview is more flexible, which allows the researcher to act to the situation at hand, to the emerging world-view of the participants, and to new, or unforeseen ideas on the topic". Seliger and Shohamy (1989) also state that semi-structured interviews afford additional opportunities for elaboration concerning questions and answers. McDonough (1995) notes that it is necessary to enable learners to discuss their experience in order to fully understand the language learning process. Moreover, a positive rapport between the researcher and the participants can be ensured, since the current researcher is a lecturer in the university that the interviewees attend. This should reduce the formality of the conversation and help the participants to answer or clarify questions more freely, improving validity. Also, it will help the researcher to probe for more reasons from participants (see 5.5.2.2). Semi-structured interviews in particular have been employed for some time to investigate VLSs (Al-Qahtani, 2005; Nakamura, 2000; Siriwan, 2007). Interviews have been employed in the main study to identify learners' reasons for using VLSs.

However, researchers should also consider the drawbacks of interviews (Mackey

& Gass, 2005). In particular, they are time consuming, particularly with large samples, i.e. one interview may last over thirty minutes. Analysing and transcribing data is also time consuming, being generally tape-recorded first and then translated from L1 to L2 (Matsumoto, 1994). Interviews may involve "selective recall, self-delusion, perceptual distortions, memory loss from the respondent, and subjectivity in the researcher's recording and interpreting of the data" (Hall & Rist, 1999:297-298), i.e. through interviewing the same informants more than once, or on different subjects (Mackey & Gass, 2005).

In order to overcome such issues, I followed several steps recommended by Mackey and Gass (2005). Participants were interviewed one at a time, this was to give participants a proper time to speak and extract more thoughts and ideas from them. I conducted the interviews in learners' native language (i.e. Arabic) in order to avoid any difficulties or misunderstanding of the contents. Moreover, effective interviewing requires skill, including practising prior to collecting data (Mackey & Gass, 2005). Kvale (1996:125) states: "the interviewer must establish an atmosphere in which the subject feels safe enough to talk freely about his or her experiences and feelings". Thus, the interviewees for the main study were made as comfortable as possible by: (1) the interview being conducted in a familiar location (i.e. university library); (2) creating a relaxed atmosphere (i.e. by asking "How are you?" , "How is your family?") and ("do you know what VLSs are?"); (3) placing the key questions in the middle of interviews, when learners feel more confident; (4) using open-ended discussions, asking if they wished to add anything, and encouraging them to continue to talk rather than accepting their first answers. Mackey and Gass (2005) also suggest that researchers should consider interviewees' gender, age, and cultural backgrounds. These techniques were also successfully transferred to the researcher's female assistants. (see 5.5.1.3 and 5.5.2.1) for data collection procedures).

5.4   Participants

5.4.1   Targeted samples

As discussed in Chapter Four (4.3), the target population of this current study consists of Saudi students in the English and the Science department at Najran University in Saudi Arabia. All participants are aged between twenty-one to twenty-two years old with a mean age of 21.16 and are of both sexes. As previously noted (see 4.3.1), the same participants were engaged in the preliminary study and main study. The current study will test participants' strategic behaviour in terms of their uses of various VLSs, i.e. the effect of time variables on the use of VLSs. There is therefore an examination of the VLSs used by the same learners during a given time (i.e. one year).

This sample can be identified as both effective and representative, as departments such as Computer Science and Information Systems in Najran university use English as a medium of instruction and English courses are run alongside other modules, unlike the Humanities, in which courses are taught in L1 (Arabic), and make no use of English.

All the students had studied English for six years in secondary and intermediate school, followed by a further three years for the English majors. The science majors had studied English for just one year after they completed their schooling but had then been exposed to it as a medium of instruction for two years (see 1.5 for additional details). Thus, the number of years of exposure to English was similar for all participants.

With regard to the participants' English ability levels, it is important to note that all students who attend Najran University are accepted into the English department or Computer Science department according to their performance in the English Placement Test (EPT), which the university administers to all applicants. All the participants in this study had to pass this test at a similar level of 90% in order to be accepted onto their

chosen course. At this point, according to the Common European Framework of Reference for languages (CEFR), learners are considered to be at pre-intermediate level (B1). Once accepted onto their courses, the students then all take a year of intensive English study designed to raise their level from the somewhat low level achieved in school to something closer to the level needed to pursue a degree taught in English. The nature of the English language courses at the university is further described in section 1.6. Overall, it is clear that the participants in the current study were initially at approximately the same level of English ability. They diverged later, however, because English major students take more English language courses during the first and second years of university than Computer Science students.

The English and Science departments from which the participants were selected currently employ English as the language of instruction (please see 1.6 for full curriculum differences). The English Department has two semesters in each year. In the first year, learners acquire major skills (e.g. writing, listening, reading, grammar and speaking), while in the second, they take one additional module (i.e. vocabulary). During the third and fourth years, students take more courses, including phonetics and translation, and students are awarded a BA degree in English at the end of the fourth year.

Computer Science learners in their first year take grammar, listening, speaking, writing and reading, as well as science courses (including computer skills), all of which taught in English. On progression to the second year, they do not follow specialised subjects in English (i.e. phonetics); however, all their subjects are taught in English, apart from editing in Arabic. By the end of year four, science learners are awarded a BA degree in Computer Science and Information Systems. It should be noted that the academic staff that works with the students following science subjects are native

English speakers from the UK, Canada and the USA, along with a number of non-native Arabic speakers who have English as their second language.

As noted in (4.3), there were 158 participants, divided in the preliminary study into eighty-two English and seventy-six Science majors. Of these, 118 also participated in the main study. The other forty learners did not participate: some changed to another university due to a family move; several chose not to participate in the study; and the ten participants involved in the pilot testing of the main questionnaire had to be excluded. Nevertheless, 118 is considered a sufficient number of informants for this study.

Table 5.1 demonstrates that there were thirty-five Male English learners and thirty-one male Science learners, along with twenty-seven female English learners and twenty-five female Science learners, i.e. a total of sixty-two English learners and fifty-six Science learners. Firstly, all participants were in their third year (having been in their second year during the preliminary study). Secondly, female participants were included, to represent the student profiles for each major fully (i.e. English and Science), and thus gender was used to stratify the sampling, and give this study "external validity". To obtain balance, an equal number of both of majors have been included, as far as possible, resulting in the sample being considered balanced and representative of each major.

Table 5.1 Participants' background information summary

Gender	Academic Field of Study				Total Number	Total percentage	Total mean ages	Total year of study
	English		Computer Science					
	N of Participants	N %	N of Participants	N %				
Male	35	29.7%	31	26.3%	66	56%		
Female	27	22.8%	25	21.2%	52	44%	21.16	8.050
Total Number and Percentage	62	52.5%	56	47.5%	118	100%		

5.4.2 Ethical Approval

Prior to data collection, the researcher requested ethical approval to conduct the data collection from the University of Central Lancashire. This process involved completing a form, stating all the relevant details of the research, including the research subject and the details of the targeted participants, as well as the means by which their consent was obtained and the management of the confidentiality of the research data. An informed consent form was thus prepared in accordance with the guidelines of the ethical committee of the University of Central Lancashire.

As an aspect of the ethical approval, the University of Central Lancashire requested that the researcher provide evidence of external ethical approval from the institutions at which the study participants were studying for their degrees. This external permission (which allowed the researcher access to the participants, teachers and the English and Computer Science departments) was provided by the head of English, and further permission was provided by the Computer Science Department. In addition, the researcher requested permission from the staff to visit their classes, and to talk to the participants in person in order to explain the study and the questionnaire. Moreover, according to the ethical consideration of the research, permission was also obtained from the participants to take part in the study. This permission was achieved by providing a consent form for each subject to sign (see Appendix B)

5.5 Instruments and data collection method of the main study

As mentioned the researcher has justified the application of mixed methods and explained the advantages and disadvantages of questionnaires and interviews and how these were overcome (5.3.1 and 5.3.2). These instruments were used in the main study; (1) VLSs questionnaires (5.5.1); and (2) interviews (5.5.2).

These instruments are presented in the order in which they were administrated to the participants. I first presented questionnaire (5.5.1); and its piloting (5.5.1.1), data collection (5.5.1.3) and data analysis (5.5.1.4). Then, I addressed my second data instrument that is interviews (5.5.2) and its piloting and data collection (5.5.2.1) and analysis (5.5.2.2).

Questionnaires were employed to: (1) identify different uses of various VLSs in relation to each major; (2) compare informants' uses of various VLSs both while they were in Year 2 and again in Year 3 (see 1.6 for main study aims; 1.7 for research questions; and 5.5.1 for additional clarification of VLSQ). Interviews were employed to establish the reasons behind their significant uses of different VLSs.

5.5.1 Vocabulary learning strategy questionnaire (VLSQ)

As noted in chapter four (4.4.1), VLSQ was used initially in the preliminary study with the same participants, in order to reveal the most, and the least, frequently used strategies, regardless of variables, both across categories (i.e. twelve categories) and within each category (i.e. seventy-five strategies in total).

This questionnaire was also employed to achieve the three main objectives of the main study: firstly, to establish learners' strategic behaviour over time in their use of several VLSs; secondly, to observe the effect of a major (i.e. English or Science oriented) on the use of various VLSs; finally, to observe the effect of a major on informants' rating of the usefulness of strategies.

As noted before, the effect of time on learners' use of VLSs was compared first, in terms of use rather than usefulness, due to learners' self-reported usefulness being only addressed in the main study, and secondly, between English in time1 with English in time2, and Science in time1 with Science in time2. Identical participants were examined on both occasions.

A number of further strategies have been considered, including those of Schmitt (1997), Oxford (1990) and McCrostie (2007). The VLSQ by Marin (2005) has also been adopted, along with his questionnaire, which was later also used by Alyami (2011). However, any ambiguous and unnecessary strategies added by researchers have been altered and deleted to reflect a number of participants' comments, i.e. "I write down the word's historical origin"; and "I write the word using the UK versus the US spelling (e.g. centre UK; center US)". This is due to English language courses in Saudi Arabia (both in schools and universities) being based on American spelling, leading to the assumption that learners will choose the US spelling, which has therefore been deleted. Moreover, learners did not know the history of the words, and a number of questions were asked during the piloting of the researcher's VLSQ, leading to the conclusion that it was therefore better to omit this point. In the organisational dimension (VLSD7), the following strategy was deleted: "I organise new words according to their genre or language type (e.g. politics, literary, educational, etc.)". This is because students at Najran University have no specific language type or course to follow, and their use of the language being more educational than political. Meanwhile, strategies such as "using phone/mobile dictionaries" and "using online dictionaries" were added by the researcher under the dictionary dimension (VLSD3).

The VLSQ begins with a brief explanation of the purpose of this research and the instruments employed. The VLSQ comprises two parts: the first covers the background information of the participants, while the other is the questionnaire. Learners were requested to complete the first part (which includes fields for name, gender, academic field, academic number, year of study and age), and were reassured that their personal data would be completely anonymous. When it came to the second part (i.e. VLSQ), learners were requested to answer the strategies according to their actual use, and not based on what they think is right or how they should behave.

The VLSQ consisted of seventy-five closed Likert-type questions and twelve open questions arranged into twelve sections. The subcategories have been reviewed in Chapter three (see 3.4). The first main category is: **discovering the meaning of unknown words (DMV)**, and includes four dimensions: (1) **guessing** (six items); (2) **asking others** (six items); (3) **types of dictionaries** (five items); and (4) **the information types learners look for in dictionaries** (seven items). The second main category consists of strategies dealing with **vocabulary note-taking (VNTS)**, and includes four dimensions: (1) **types of word and non-word information that learners record** (nine items); (2) **location of vocabulary NTS** (seven items); (3) **ways of organising words noted** (seven items); (4) and **reasons for word noting** (nine items). The final main category focuses on **retention and memorisation strategies (MEM)**, and includes four dimensions: (1) **repetition strategies** (four items); (2) **information used when repeating a word** (four items); (3) **association strategies** (seven items); and (4) **practise strategies** (four items). Each main and subcategory began with a general stem sentence explaining the title of the category, followed by a subcategory and the number of relevant closed items. This was followed by an open question at the end of each subcategory, requesting participants to note other options or choices (if any) that had not been listed among the closed items.

The instructions for completing the second part of the questionnaire informed learners that they should read each strategy carefully, and choose a number from the given scale that most accurately described their strategic behaviour. The Likert scale ranged from one to five, wherein one indicated 'never', two 'rarely', three 'sometimes', four 'often' and five 'always'. There are three justifications why five points liker scale was used. Firstly, it is more reliable because participants can easily distinguish between the moderate and strong options compared to 6 or 9 Likert scales (Nyikos & Fan, 2007). Secondly, they are also less time consuming than other Likert scale which have more

than 6 options and this is obvious when there are many variables to be measured. Finally, five point Likert scale provides enough discrimination among levels of agreement (Goodwin & Goodwin, 1996).

In considering the above categories, the one containing the most items/strategies is the types of words noted (i.e. nine items). This was also found in the reasons for word noting (i.e. nine items). This category was not investigated by Marin (2005) or Alyami (2011). Both subcategories originate from the main category vocabulary NTS. Altogether, all categories contain a similar number of items/strategies, which will assist in analysing the data.

The questionnaire is identical to that employed in the preliminary study. However, a new scale was added for each VLS for which students needed to rate usefulness, as well as their uses. Learners were asked to choose between 1 and 5, where: 1 indicates, "It is not useful"; 2 "It is slightly useful": 3 "it is useful"; 4 "it is quite useful"; and 5 "it is extremely useful" (Appendix E). The VLSQs were translated into Arabic to avoid any misunderstanding (Appendix F). The following are examples of the main study questionnaire and the preliminary study questionnaire.

Table 5.2 Sample of preliminary VLSs questionnaire

	(1) Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
72. I look for opportunities to encounter new words in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
73. I quiz myself, or ask other to quiz me on new words.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

Table 5.3 Sample of main VLS questionnaire

72. I look for opportunities to encounter new words in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not Useful	**(2)** Slightly Useful	**(3)** Useful	**(4)** Quite useful	**(5)** Extremely useful
73. I quiz myself or ask other to quiz me on new words.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not Useful	**(2)** Slightly Useful	**(3)** Useful	**(4)** Quite useful	**(5)** Extremely useful

5.5.1.1 Piloting the main VLSQ

Although the VLSQ questionnaire had been piloted during the preliminary study (see 4.4.1.1 for piloting the main VLSQ and 4.7 for the changes made to the questionnaire), further VLSQ piloting was undertaken to ensure that adding a new scale (i.e. usefulness) did not cause any problems for the participants.

The translated version was distributed to sixteen Saudi university students, some of whom had participated in the preliminary study. The aim of this piloting was to: (1) test the questionnaire's components and layout; (2) establish what it would take to complete; and (3) make any necessary changes prior to the main study. Participants were given the questionnaire and asked to read the instructions carefully and make notes if needed. All participants were enthusiastic and worked well, taking between thirty and forty-five minutes to complete the task. The participants stated that they found the questionnaire well worded and clear.

5.5.1.2 Reliability and validity of VLSQ

Similar to the procedure undertaken in the preliminary study (4.4.1.2.), an examination of the reliability of the VLSQ was undertaken in the main study.

Oppenheim (1992:69) stated that, "Reliability refers to consistency; obtaining the same results again". Dörnyei (2003:112) stated that this can be measured by conducting a Cronbach's alpha test, using the Statistical Package for the Social Sciences (SPSS). According to him (2003:112), the ideal results for a Cronbach's alpha would be .70 or higher, and if the Cronbach's alpha does not reach .60, then this means the data is not reliable. As Table 5.4 shows, the Cronbach's alpha was .90 for the 225 items, which is a high score; thus, the results of the main study were judged reliable, the individual items within the scale were perfect and no changes were required. Thus, the VLSQ was suitable for use in the main study.

Table 5.4 The Reliability Coefficient of the VLSQ (Main Study)

Cronbach's Alpha	N of Items
.906	225

5.5.1.3 Data collection and procedures for the questionnaires

Table 5.5 Sequence of administering the main study instruments

Instrument	Time used
Participants background information and VLSQ	4 weeks
Interviews	3 weeks

The data collection took place during the second term of the 2015 academic year between March and May and it took four weeks to collect the questionnaires (see Table 5.5). As with the preliminary study, the required permissions were obtained from the head of both departments (i.e. English and Science), followed by a discussion with each of them in person. The researcher requested a copy of the timetable for both departments. Due to being a lecturer in Najran University, the researcher had full access to the secured access links, and so was able to obtain a full list of students enrolled in each of the departments, and so determine the numbers in each class containing

participants. This was followed by discussions with staff members teaching the participants, leading to an agreement for the researcher to visit their classrooms and call for participants in both departments.

The researcher then booked two different classrooms, one assigned for English majors and one for Science majors. All available participants in both departments, and who had participated in the preliminary study, were then contacted. They were briefly reminded of the purpose of the research study, and informed that the main instruments would be VLSQ and interviews. This was followed by the distribution of the consent forms and the questionnaires relating to both departments. They were informed that the questionnaire was almost identical to the one they had filled in during the preliminary study, and that they should note that: (1) the questionnaire asked about current, rather than previous, uses of VLSs; (2) a new scale had been added, to rate the usefulness of each strategy from 1 to 5, where: 1 stands for "It is not useful"; 2 "It is slightly useful"; 3 " it is useful"; 4 "it is quite useful"; and 5 "it is extremely useful". The task took between forty and fifty minutes to complete. It should be noted that all participants gave written consent to take part in the main study.

Identical procedures were employed with the male participants and female participants, and the researcher gained permission from the heads of both departments to collect data. The researcher was joined by the two female assistants, who had previously assisted with the preliminary study, one from the English department and one from the Science department. The researcher arranged a meeting with both female teachers, via the university phone and their personal phones, to outline the nature of the research study, and explained that they should read the instructions carefully and ensure they were understood by the female participants. They were given the names of the participants, and their academic number, to enable them to contact the female

participants from the preliminary study. They both showed great interest and full cooperation, and a well-planned schedule was agreed to run the study tools.

A hundred copies of vocabulary learning strategy questionnaires were given to both assistants, along with the consent forms. Both female assistants reported that they explained the purpose of the research and read out the instructions carefully to the participants. The researcher did the same with the male participants. It should be noted that the researcher was in constant contact with both female assistants. The assistants encouraged the informants to answer the entire questionnaire as fully as possible, and reported no problems with understanding and responding. It took thirty and forty-five minutes to complete the questionnaire.

5.5.1.4 Data analysis of the questionnaire

The quantitative data gathered through the VLS questionnaire (e.g. background information; learners' use of VLSs; and learners' perception of the usefulness of these strategies) were numerically entered into a Statistics Package for Social Sciences (SPSS). The VLSQ items were scored on a five point Likert scale, i.e. for the VLSs the numbers were: (1) Never, to (5) Always; while the usefulness items were: (1) It is not useful; to (5) It is extremely useful.

The VLSQs obtained in the main study were put side by side with the data obtained through the preliminary study, in order to analyse both simultaneously. This was to achieve one of aims of the main study, i.e. investigating learners' strategic behaviour in their use of VLSs over time.

The data obtained from the participants in the main study was entered in 150 columns representing all the items from the VLSQ, alongside four columns indicating gender, student ID, age and major. The 150 columns (variables), as in the VLSQ, represented twelve dimensions involved in the VLS. For example, for VLSD1 (i.e.

guessing strategies) there were six strategies and another six items for strategy usefulness, i.e. a total of twelve items for this dimension. Thus, for VLSD2 (i.e. asking others strategy), there were six columns for VLS uses, plus six columns for VLS usefulness; in VLSD3 (types of dictionary) there were five columns for VLS uses, plus five columns for VLS usefulness; in VLSD4 (using dictionary), there were seven columns for VLS uses, plus seven columns for VLS usefulness; in VLSD5 (type of information noted), there were nine columns for VLS uses, plus nine columns for VLS usefulness; in VLSD6 (locations of vocabulary notes), there were seven columns for VLS uses, plus seven columns for VLS usefulness; in VLSD7 (ways of organisations), there were seven columns for VLS uses, plus seven columns for VLS effectiveness; in VLSD 8 (reasons for selecting words), there were nine columns for reasons of selecting words, plus nine columns for the usefulness of these reasons; in VLSD9 (ways of repletion) there were four columns for VLSs uses, plus four columns for VLS usefulness; in VLSD10 (information used when repeating the words) there were four columns for VLS frequency of uses, plus four columns for VLS usefulness; in VLSD11 (associations) there were seven columns for VLS frequency of uses, plus seven columns for VLS usefulness; and finally, in VLSD12 (practising strategies), there were four columns for VLS frequency of uses, plus four columns for VLS usefulness.

To undertake the strategic behaviour analysis, the researcher used columns for each participant, giving them a unique ID, to identify which had participated in the preliminary study, and placing the data from the main study next to his/her unique ID. All 150 items were entered alongside the seventy-five strategies examined during the preliminary study. Averaging was employed for both sets of data (i.e. from the preliminary and main study) of VLSQ, resulting in twenty-four mean scores, of which half represented the VLSs frequency of uses for the twelve dimensions on the first data (preliminary), and half represented the VLS frequency of uses for the twelve

dimensions on the second data (main study). It is important to note that only learners' strategic behaviour was examined, rather than its usefulness, due to usefulness only being added in the second data (i.e. the main study).

As Field (2009:144) suggested, the Kolmogorov–Smirnov test was performed to check normality, therefore, the researcher found the majority of the items in the main study were normally distributed. For example, the item 'using dictionary to look for the word part of speech' was not significant in all groups as can be seen from Table 5.6.

Table 5.6 Kolmogorov-Smirnov Normality Test

Academic Field of Study	Gender		Its part of speech
English Major	Male	Number of cases	35
		Kolmogorov-Smirnov Z	1.154
		Sig.	**.139**
	Female	Number of cases	27
		Kolmogorov-Smirnov Z	1.147
		Sig.	**.144**
Computer Science Major	Male	Number of cases	31
		Kolmogorov-Smirnov Z	1.232
		Sig	**.096**
	Female	Number of cases	25
		Kolmogorov-Smirnov Z	1.136
		Sig	**.152**

Three main statistical procedures (methods) were thus employed for the analysis of the quantitative data obtained through the VLSQ: (1) ANOVA repeated measurements; and (2) the Independent Samples t test. The ANOVA repeated measurements (GLM) test is a statistical procedure used to assess the differences between a pair of linked variables for two conditions for one (or more) group. It was used in the current study to measure how far both majors changed in their use of VLS over time, namely between the first and second administrations of the VLSQ.

The independent t test was used to establish a comparison between English and CompSMLs ("*now" in* time2), and to observe the differences between their uses of VLSs. This type of test was also used to examine both majors in terms of the rate of the

usefulness of these VLSs. Where there are significant differences in the results, effect size in the form of 'eta squared' is reported in order to characterize the size of the difference between majors in a widely accepted way that is independent of the rating scale used. Although gender was not an explicit variable in the study and the literature presented mixed results, most of which indicated no differences between genders, it was appropriate to present results in relation to gender, since data regarding female participants was available in this study, in order to confirm what has been found in previous research. Thus, (3) a two-way ANOVA test was performed to establish the effects of gender and gender by AFoS on the frequency of use of VLSs and their perceived usefulness. Where certain dimensions produced significant results, a further step was implemented to analyse the VLSs in that dimension to discover which VLSs were responsible for the significant result.

The effect size was used because, as addressed by Plonsky (2015) large sample with any size mean difference or correlation will reach significant level, whereas effect size is not affected by sample size. He also asserted that the p value does not determine the extent of the relationship in question, unlike effect size, which provides an estimate of the actual strength of the effect. Moreover, effect sizes are more standardised and scale free. According to Cohen, (1988) $\eta^2=0.01$ corresponds to a very small effect, $\eta^2 =.06$ corresponds to a moderate effect and $\eta^2 =.14$ or higher corresponds to a large/higher effect.

5.5.2 Interview method of the main study.

Interviews have also been employed in the present investigation to reveal learners' reasons behind their use of VLSs. The interview questions were designed in accordance with the sections in the questionnaire, i.e. the interview sections were mainly parallel to the questionnaire. The first part included general questions to relax

the interviewees. The second part focussed on twelve dimensions matching those in the questionnaire (Appendix G). Each of the twelve dimensions contained questions directed towards the reasons behind their choice of a strategy in the questionnaire. The following is example sections from the interview.

Part One: Involvement Guide

1. What is your name?

2. What is your major?

3. What is your year of study?

4. I will ask you questions based on your answers from your questionnaire, OK?

Part Two: Main Questions

VLSD1: Guessing strategies

1. Based on your answers in the questionnaire, why do you mostly use (e.g. chosen items in the questionnaire a, b, c)?

2. Based on your answers in the questionnaire, why do you not use so much of (e.g. chosen items in the questionnaire d, e, f)?

3. Have you ever been encouraged or taught how to use guessing strategies?

Before conducting the main interviews with participants, the researcher piloted the interview. This way helps the researcher to identify any problems in the design of the questions or in the process of conducting the interviews and they help to evaluate the validity and reliability of the interview method. They also help the researcher to improve what is needed and practise interviewing prior doing the main data collection. Thus the researcher followed Mackey and Gass (2005) advice on making interviews as mentioned earlier (see 5.3.2). Once the interview guide was prepared, it was piloted with six students from the participant sample (three English participants and three Computer Science learners), who gave the feedback that they found the questions clear and well worded. The decision was then made to interview another twelve students, six

English learners (two female informants and four male informants) and six Computer

Science learners (two female informants and four male informants).

5.5.2.1 Data collection and procedures for the interviews

The data collection for the interviews took place after the questionnaires were

completed, during the second term of the 2015 academic year between March and May

and it took three weeks to complete (see Table 5.5). Almost all the participants

demonstrated enthusiasm for participating in the interviews. These took place in

pleasant and relaxed surroundings (i.e. the university library, departmental meeting

rooms, or a cafe), and began with a relaxed conversation (i.e. focussing on participants'

future plans).

To avoid any issues of misunderstanding between the researcher and interviewees,

interviews were conducted in L1 (i.e. Arabic, Appendix H). Following the

recommendations in the literature relating to the conducting of interviews (see 5.3.2

above for further details concerning the conducting of the interviews, including

minimising their limitations), interviewees were encouraged to expand their responses

to express valuable answers. In addition, the researcher talked as little as possible,

focusing instead on listening and not interrupting the interviewees, following up by

going into further detail. Furthermore, the researcher did not insist on obtaining a

response from the interviewees, as this might have had an adverse impact on the data.

Each interviewee was given a copy of his/her VLSQ to explain the reasons for

choosing each of the questionnaire strategy items selected. However, it should be noted

that not all interviewees gave reasons for their selection of each strategy item. For

example, some participants gave reasons for some strategy items (i.e. "using the

keyword method for memorisation", and "I associate the new word with a word in

Arabic similar in sound") while others did not. The researcher made some use of

probing, although there was no wish to put pressure on participants, in order to avoid any unnatural responses. Moreover, it was noted that some interviewees digressed from the subject of the interview, leading to a need to guide them back to the parameters of the interview guidelines and goals. In addition, some students requested clarification of some of the questions, leading to a need to repeat them in a number of different ways, for example:

> **Researcher**: Based on your questionnaire answers in the association section, I can see that you often break up the new word according to its syllables or structure, in order to help you to retain the new words. Why is that?
>
> **E.M.P1**: *"Do you mean using prefixes and suffixes?"*
>
> **Researcher**: Yes correct, we are talking here about affixes, words such as 'uneducated' and 'educator'. So what makes you do that?

Moreover, as I noted earlier in (5.3.2) a number of techniques were employed with participants to encourage them give additional details. For example,

> **Researcher**: "Based on your questionnaire answers, why do you always use the electronic dictionary?"
>
> **CompS.M.P2**: *"Well, because electronic dictionary does not require much effort to use".*
>
> **Researcher**: What else, please?
>
> **CompS.M.P2**: *"Because it helps me with pronunciation."*
>
> **Researcher**: Good. Can you think of other reasons, please?
>
> **CompS.M.P2**: *"Yes, it is easy to carry with me."*
>
> **Researcher**: That is great, but any other reasons please.
>
> **CompS.M.P2**: *"Well, dictionaries assist with understanding the meaning of the new words and they can be monolingual or bilingual dictionaries"*

The interviews were recorded using a digital recorder, to assist with the analysis, and the length of each interview varied between thirty to fifty minutes, with some

interviewees being quick to respond, while others expressed difficulties in expressing the points they wished to make.

As with the male subjects, the researcher gave the female assistants the interviewee's names, academic numbers and a copy of each of the interviewee's questionnaire, requesting the assistants to obtain consent forms from the interviewees, and to explain the necessary steps. The assistants were also given an interview guide and questions to ask the targeted participants. The mechanism was fully explained to the female assistants, accompanied by the illustration of a number of examples. The mechanism was not difficult, and thus both female assistants fully understood what was required. The interviews were undertaken inside university classrooms, the library or the assistants' offices. The reported length of the interviews was between forty to fifty minutes.

5.5.2.2 Coding and analysis of the interview

The interview analysis followed Ortega's three stages (2005), the first of which was the transcription of the data. To achieve this, a digital recorder was used for the interviews, as its MP3 format output facilitated computer analysis. This simplified the analysis into practical steps, i.e. listening to, playing, fast-forwarding, and rewinding, and taking notes from the interviews. The interviews were recorded in Arabic and the researcher first transcribed the interview data into Arabic to maintain the originality of the respondents' ideas. Each of the twelve interviews was played using a free programme called Express Scribe™ (ES), which allows users to listen and type simultaneously, and (as the interviews were undertaken in Arabic) also accepts Arabic script. It has a user-friendly interface that is simple to use, and allows users to use F-keys to stop, rewind or fast-forward the recording. When required, it can also playback at different speeds. The results were subsequently translated into English (see Appendix

I for the interview sample). During the translation phase, the participants' names were coded to conform with the data protection requirements, i.e. E.M.P refers to 'English Male Participant' (E represents English, M represents male, and P represents participant), and CompS.F.P stands for Computer Science Female Participant. However, the interviews were not fully coded, because their highly-structured nature meant that the participants' answers were short and straightforward. In addition, just the notable points were transcribed rather than every word. Sometimes, researchers only listen to the collected data, marking on a coding sheet whether responses contain certain features (Mackey & Gass, 2005:222).

The second stage of the analysis involved reading the data in depth, after it was transcribed and into text format, in order to obtain its overall meaning. This helped the researcher to identify and clarify the relevant codes and themes of the reasons provided by the EMLs and CompSMLs by organising the data into text segments in order to bring meaning to the information (Creswell, 2013). According to Coffey and Atkinson (1996), coding the data meant converting it from an incomprehensible set to meaningful data by linking the findings of the data and the ideas that they hold. It also helps the researchers to analyse the data in greater depth. Thus, after breaking down the data into segments, the current researcher arranged the interview data based on themes and codes. For example, since the interview items were tailored entirely to VLSQ, the interviewee's reasons for strategy use were first listed by discrete items in an Excel spread sheet:

Category Two: Strategies dealing with vocabulary note taking

   *I write down synonyms and antonyms beside new words

> **E.M.P3:** "I write down synonyms and antonyms besides the new word in order to expand my vocabulary repository."

> **CompS.M.P3:** "I do not write down synonyms and

> antonyms besides the new word, because it is not important for me."

> **E.F.P6:** "Well, because I wanted to know the different meanings of the word."

It should be noted that the researcher carefully read over both transcriptions a number of times, in order to confirm the accuracy of the translations, and the data were also coded the data twice for reliability and validity (see 5.5.2.3). Moreover, three random samples from the interviews were taken to a professional EFL teacher and translator, and his comments were taken into consideration (see 5.5.2.3). The participants' interviews were carefully translated to minimise any loss of information from the interview responses. For example:

1. **E.M.P3**: "I write down synonyms and antonyms besides the new word in order to expand my vocabulary repository"

2. **E.F.P5** "I write down synonyms and antonyms besides the new words because I want to improve my vocabulary"

The two extracts above demonstrate that all the students' responses were translated and then grouped together, based on the similarities of points being made (i.e. lexical improvements), and this was the third stage of the analysis. It should be addressed that this coding was accomplished by reading and rereading the interview texts and highlighting all the similarities in the data and then grouping them together under one theme or more. The researcher created a matrix in order organize the points to be remembered. He put all the data into an Excel spread sheet in order to handle the qualitative analysis professionally.

In order to interpret the results more accurately, the researcher followed certain recommendations suggested by scholars (e.g. Connaway & Powell, 2010; Macnee & McCabe, 2007). Firstly, the researcher did not prompt the participants to give the desired answers, or alter their responses. Secondly, transcribing and translating the data

are part of accurate interpretation; however, Macnee and McCabe (2007) argued that in order to ensure accurate interpretation, transcription and translation should also be accurate. They also observed that researchers' experience and knowledge facilitate interpretation. The current researcher has been a lecturer at Najran University, majoring in Applied Linguistics, for nine years, and is from the same place as the participants of the study, which will promote the accurate interpretation of the data.

The use of computer-assisted qualitative data analysis (CAQDAS) such as NVivo, has revealed some conflicting outcomes. Dörnyei (2007) listed the advantages of CAQDAS. Firstly, it saves times for the researcher, especially in transcribing and coding the data. It also enables efficient information retrieval. Furthermore, "content analysis programs can search for and count key domain-specific words and phrases" (Ibid:264), so determining the word frequency is easy. Moreover, Basit (2003) believed that CAQDAS provides a higher level of data organisation than manual analysis and coding, because it facilitates much quicker processes.

However, CAQDAS also presents some disadvantages. Dörnyei (2007) stated that using CAQDAS is dangerous, as the files may be attacked by viruses and could be lost. While Willig (2009) suggested that CAQDAS may focus too much on specific words or phrases rather than assisting in the interpretation of the data as a whole. He also argued that CAQDAS helps with producing numbers and counting rather than interpreting the data itself, which means that researchers turn their qualitative analysis into semi-quantitative analysis by enumerating the facts instead of presenting interpretations (Welsh, 2002). Moreover, Coffey and Atkinson (1996) argued that no amount of electronic coding can present new theoretical insights without the researchers' knowledge and creativity. Finally, Willig (2009) claimed that using CAQDAS may distance researchers from their data.

Overall, it seems that scholars are divided in relation to the efficacy of CAQDAS. However, combining manual and CAQDAS analysis is considered useful, as Welsh (2002:9) argued: "In order to achieve the best results it is important that researchers do not reify either electronic or manual methods and instead combine the best features of each". Therefore, the current researcher analyzed and coded the themes and data manually after using CAQDAS (i.e. Express™ Scribe) for the transcription, and a website called Luxtutor to find the most frequent keyword used by participants. This approach is supported by Patton (2002), who observed that researchers tend to be more aware of the organisation and context of the data than any CAQDAS software, because using texts itself does not provide enough intervention without intervention from the researcher.

5.5.2.3 Trustworthiness in interviews

Similar to the method employed with regard to VLSQ, both reliability and validity were taken into consideration for this study. Credibility, neutrality or confirmability, consistency or dependability, and applicability or transferability are important aspects of accurate research (Lincoln & Guba, 1985). Indeed, Seale (1999:266) stated that the "Trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability".

Reliability is "the extent to which a test or procedure produces similar results under constant conditions in all occasions" (Bell, 2006:117). In contrast, the term validity has no fixed concept but "rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects" (Winter, 2000:1).

In the present study, both validity and reliability were achieved by following several important steps to obtain credible interview results. Firstly, the triangulation method was implemented to evaluate the validity and reliability of research findings. Patton recommended using triangulation, because it "strengthens a study by combining methods. This can mean using several kinds of methods or data, including using both quantitative and qualitative approaches" (2002:247). The present study applied mixed methods. Secondly, the researcher referred to qualitative research studies in the literature, and several qualitative books (Creswell, 2013; Creswell & Clark, 2007; Creswell et al., 2007; Mackey & Gass, 2005). This assisted the researcher in designing the interview and its questions, and in analysing the data (see 5.3.2). Third, one of the researcher's PhD colleagues, also majoring in Applied Linguistics, checked the reliability of the researcher's coding by generating a coding scheme for three samples of the transcribed interviews to see if his and the researcher's codes were similar. This achieved an agreement of 90%, which reflects the reliability of the data. Fourth, the researcher used the approach proposed by Gorden (1992), whereby the material was coded and then recoded without checking the results for agreement.

Fifth, the researcher used semi-structured interviews rather than structured interviews, which allowed participants to convey additional information when the researcher asked them to share their beliefs and opinions about the relevant issues. Sixth, as mentioned earlier (see 5.5.2.2), internal validity was established by giving a professional EFL teacher and translator a sample of three random interviews to check for the accuracy of the translation and transcription. The researcher compared these drafts with their own and matched them. Seventh, according to Klenke (2008), it is advisable to send a copy of the results to one of the respondents, and ask him/her if the transcription and transcription reflect what he/she was saying during the interview.

Thus, the researcher did so, and received feedback from the interviewee reflecting what he said he had remembered. Finally, external validity was determined by including a large number of participants in the main study in order to obtain the richest data possible and make the current study representative to a wider context. For example, although gender was not a variable in the investigation, the study included female learners from both majors, in order to avoid bias and achieve validity through having both male and female participants.

5.6 Chapter Summary

To sum up, I have addressed many aspects in this chapter, such as the theoretical framework and study design. I have mentioned the current study is a 'panel study', following post-positivist research paradigms and have also given an overview of the research methods that were suitable for use with justifications and research methods. I also addressed the targeted participants, data collection method, procedures, and the process of analysing of the questionnaire and interviews. The next chapter presents the research findings and discussion. It provides the results and discusses strategic behaviour in relation to leaners' academic fields of study, and the uses and usefulness of various VLSs in relation to academic field of study.

Chapter Six: Results and Discussion

6.1 Introduction

In accordance with the practise of other researchers in the field, the results and discussion are here combined into one chapter (e.g. Marin, 2005; Al-Qahtani, 2005; Al-Hatmi, 2012). This chapter reports the research findings of the main study and analyses and discusses the findings. It is divided into three sections; the first section covers the results for the analysis of English major learners' (EMLs) strategic behaviour and Computer Science major learners' (CompSMLs) strategic behaviour, focusing on vocabulary learning strategies (VLSs) over time (RQ1M) (see 6.2), while the second and the third sections present the results alongside a discussion of the different uses of various VLSs between majors (RQ2M), representing the most and least used strategies between majors, offering an explanation of variables by major (part of RQ2M) and representing the differences in terms of usefulness between majors and the most and the least usefulness strategies as perceived by learners (RQ3M) (see 6.3).

6.2 Participants' use of VLSs over time

RQ1M: Do learners from different academic fields of study differ in terms of how much they change their reported use of VLS over one year of university study?

This section reports that results obtained to answer RQ1M which pertains to learners' strategic behaviour over time; in particular to establish whether VLS use increased, decreased or remained the same. As addressed in chapter 5 (see 5.2) previously, the gap between the administration of VLSQ in the preliminary study and the main study was approximately one year (e.g. Al-Hatmi, 2012), because this was judged to be a sufficient gap to ensure participants would not recall their responses to the VLS questions on the preliminary study. Also, one year was the minimum time

within which I felt that the effects of English courses and English demands of subject courses might show themselves in VLS change of reported use.

Here I address the results regarding engagement in strategic behaviour in terms of the 12 dimensions (see 6.2.1), and then report the results for each strategy included within each dimension. As noted previously (see 5.2), to answer RQ1M I need to compare between EMLs at time1 and EMLs at time2, and between CompSMLs at time1 and CompSMLs at time2. Identical participants were examined on both occasions. This data will be examined to answer the following research question (RQ1M)

6.2.1 Strategic behaviour related to VLSs use by dimension

To examine the learners' strategic behaviour in terms of VLSs use by dimension (12 dimensions) rather than examining the individual strategies (75 strategies), I calculated the mean score for each strategy within each dimension separately. This procedure was performed twice, for each of the occasions on which the participants completed the same VLSQ. Therefore, 24 mean scores were obtained for twelve dimensions; of which, 12 mean scores related to the 'pre-measurements of learners' use of VLSs and another 12 mean scores related to 'post-measurement' (see 5.2). Table 6.1 illustrates the descriptive statistics for the strategic behaviour of both major groups, presenting VLSs by dimensions.

As shown in Table 6.1 (i.e. descriptive statistics), which gives the results for EMLs, six dimensions were increased in terms of VLSs use within the one-year period: VLSD1 *guessing strategies,* VLSD2 *asking strategies,* VLSD3 *types of dictionary being used,* VLSD4 *information taken from dictionaries,* VLSD5 *types of word noted*, and VLSD9 *methods of repetition.* This indicates that EMLs had reportedly used the VLSs within these six dimensions during the main study more frequently at time2 than at time1. Moreover, Table 6.1 shows that the EMLs had lessened their use of three

dimensions between time1 and time2: VLSD6 *locations of vocabulary note taking strategies*, VLSD7 *ways of organising word noted*, and VLSD10 *information used when repeating new words*. The remaining three dimensions had remained much the same in terms of the EMLs' use of the VLSs specified within them: VLSD8 *reasons for noting the new words*, VLSD11 *association strategies*, and VLSD12 *practising/consolidating strategies*.

Similar to the EMLs, the CompSMLs showed increase use of strategies between the two time intervals within two dimensions: VLSD3 *types of dictionary being used*, and VLSD4 *information taken from dictionaries* (Table 6.1). This means the CompSMLs reported using the VLSs within these dimensions in the main study more than they had done a year previously. Moreover, Table 6.1 showed that the CompSMLs had decreased their use of VLSs within six dimensions: VLSD1 *guessing strategies,* VLSD2 *asking strategies,* VLSD7 *ways of organising word noted,* VLSD9 *methods of repetition*, VLSD10 *information used when repeating new words*, and VLSD11 *association strategies.* The remaining four dimensions remained much the same in terms VLSs use: VLSD4 *information taken from dictionaries,* VLSD5 *types of word and non-word information noted,* VLSD6 *location of vocabulary note-taking strategies,* VLSD8 *reasons for vocabulary note-taking strategies*, and VLSD12 *practising/consolidating strategies.*

Table 6.1 Majors' behaviour in VLSs use by dimension

Dimensions		Major		Mean	Mean DF	N	SD
VLSD1	Guessing strategies.	English	Pre	2.8306	-.10215	62	.48708
			Post	2.9328			.46797
		Computer Science	Pre	2.7351	.08929	56	.50229
			Post	2.6458			.48311
VLSD2	Asking strategies.	English	Pre	2.9785	-.02419	62	.45317
			Post	3.0027			.55111
		Computer Science	Pre	2.7054	.07738	56	.58257
			Post	2.6310			.57447
VLSD3	Type of dictionary being used.	English	Pre	3.0935	-.06452	62	.73927
			Post	3.1581			.63467
		Computer Science	Pre	3.1054	-.13750	56	.65433
			Post	3.2429			.55624
VLSD4	Information taken from dictionaries.	English	Pre	2.8568	-.17320	62	.56189
			Post	3.0300			.58881
		Computer Science	Pre	2.5497	-.04847	56	.51722
			Post	2.5982			.55739
VLSD5	Types of word and non-word information noted.	English	Pre	2.4839	-.06272	62	.49244
			Post	2.5466			.54556
		Computer Science	Pre	2.3016	-.02381	56	.46455
			Post	2.3254			.49999
VLSD6	Location of vocabulary NTS.	English	Pre	2.5346	.07604	62	.57080
			Post	2.4585			.45920
		Computer Science	Pre	2.5816	.05867	56	.49924
			Post	2.5230			.48447
VLSD7	Ways of organizing words noted.	English	Pre	2.1751	.10369	62	.48698
			Post	2.0714			.40551
		Computer Science	Pre	2.1403	.13010	56	.45948
			Post	2.0102			.46139
VLSD8	Reasons for word selection.	English	Pre	3.8291	-.03607	62	.55369
			Post	3.8651			.50942
		Computer Science	Pre	3.7500	-.01984	56	.53571
			Post	3.7302			.46703
VLSD9	Methods of repetition.	English	Pre	3.3831	-.11290	62	.87628
			Post	3.4960			.76621
		Computer Science	Pre	3.3348	.08482	56	.79097
			Post	3.2500			.73082
VLSD10	Information used when repeating new words.	English	Pre	3.0161	.03629	62	.71985
			Post	2.9798			.72471
		Computer Science	Pre	2.9732	.10268	56	.79441
			Post	2.8705			.79913
VLSD11	Association strategies.	English	Pre	2.7535	-.01382	62	.72344
			Post	2.7673			.78512
		Computer Science	Pre	2.3724	.07653	56	.73086
			Post	2.2959			.62648
VLSD12	Practising/ Consolidation strategies.	English	Pre	3.3065	-.02419	62	.71348
			Post	3.3306			.62524
		Computer Science	Pre	2.9866	.03571	56	.79633
			Post	2.9509			.70617

To check the statistical significance of the increases and decreases detected in the EMLs' and CompSMLs' use of the VLSs across each dimension, the ANOVA general linear model (GLM) repeated measurements for each group was used. Thus, a comparison was obtained to describe the difference between the mean scores of the VLSs within each dimension for both the pre- and post- administration of the VLSQ. Table 6.2 presents the ANOVA GLM (repeated measurements) results for the twelve dimensions pairs.

Table 6.2 ANOVA GLM repeated measurement test results in relation to the groups VLSs use by dimension

	Dimensions	Major	F	Sig.	η^2
VLSD1	Guessing strategies.	English	5.210	**.026**	**.079**
		Computer Science	3.654	**.061**	
VLSD2	Asking strategies.	English	.115	.735	
		Computer Science	1.312	.257	
VLSD3	Type of dictionary being used.	English	.588	.446	
		Computer Science	4.361	**.041**	**.073**
VLSD4	Information taken from dictionaries.	English	7.520	**.008**	**.110**
		Computer Science	.787	.379	
VLSD5	Types of word and non-word information noted.	English	2.110	.151	
		Computer Science	.381	.540	
VLSD6	Location of vocabulary NTS.	English	2.765	.101	
		Computer Science	1.244	.269	
VLSD7	Ways of organizing words noted.	English	3.581	**.063**	
		Computer Science	7.823	**.007**	**.125**
VLSD8	Reasons for word selection.	English	1.301	.259	
		Computer Science	.438	.511	
VLSD9	Methods of repetition.	English	2.012	.161	
		Computer Science	.694	.408	
VLSD10	Information used when repeating new words.	English	.350	.556	
		Computer Science	1.262	.266	
VLSD11	Association strategies.	English	.084	.773	
		Computer Science	3.401	**.071**	
VLSD12	Practising/ Consolidation strategies.	English	.200	.657	
		Computer Science	.134	.716	

As shown in the table (Table 6.1), the increase in EMLs' use of the various VLSs across the six dimensions was significant only for two, with a moderate effect size, namely, VLSD1 *guessing strategies* (p=.026; η^2=.079) and VLSD4 *information taken from dictionaries* (p=.008; η^2=.110) (Table 6.2). This indicates the EMLs' use of guessing related strategies, such as guessing the meaning of a new word by *reading the sentence or paragraph containing the new words* and information related strategies (i.e. VLSD4) such as *looking up for the new words' L1 meaning* increased over the one year period between time1 and time2. In other words, the EMLs showed a greater interest in these two dimensions after a year's study than they had in the preliminary study.

Whereas, the CompSMLs showed only increased significant use with a moderate effect size of VLSs within a single dimension of the two increased dimensions, which was VLSD3, *types of dictionary being used* (p=.041; η^2=.073) (Table 6.2). Again this suggests the CompSMLs' use of different dictionaries such as *using Arabic-English dictionary* had probably increased over the one year period in which the two administrations of the VLSQ were carried out. In other words, CompSMLs showed greater interest in the dimension VLSD3 at time 2 than at time 1.

With regard to the decrease in EMLs' use of VLSs across the two dimensions as shown above (Table 6.1), this was only nearly significant in one case, VLSD7 *ways of organising word noted* (p=.063) (Table 6.2). This also indicates that the EMLs' use of strategies included in VLSD7, such as *organising the new word according to its alphabetical order* underwent a decrease over the one-year period during which the two administrations of the VLSQ were carried out. The remaining dimensions showed no significant differences in terms of the EMLs' uses of VLSs within these dimensions (Table 6.2).

Meanwhile, CompSMLs showed a significant decrease with a moderate effect size when using VLSs within one dimension; namely, VLSD7 *ways of organising word noted* (p=.007; η^2=.125), and nearly significant for VLSD1 *guessing strategies* (p=.061), and VLSD11 *association strategies* (p=.071) (Table 6.2). This once more means the CompSMLs' use of strategies in VLSD7, such as *organising the new word according to its alphabetical order*, had decreased over the one-year period between time1 and time2.

It is unclear to the researcher why the significant dimensions (i.e. VLSD1, VLSD4, for EMLs and VLSD3, and VLSD7, for CompSMLs) transformed significantly over a single year. However, generally speaking, it appears that the EMLs were more likely than the CompSMLs to employ strategies to guess a new word's meaning, as well as to use dictionaries more than any other dimensions. In fact, the CompSMLs showed less interest in using VLSD1 than the EMLs.

The CompSMLs on the other hand, showed a greater interest in using VLSD3 (i.e. types of dictionary being used), than any other VLS dimensions. In other words, the CompSMLs showed greater interests in the aforementioned dimension than they had done a year ago, i.e. preliminary study. This also means CompSMLs showed more interest in this significant dimension than the EMLs did. Moreover, the CompSMLs showed less interest in the dimensions, VLSD7 and VLSD11 compared to a year previously. However, the EMLs showed some changes in use of VLSD7 like the CompSMLs, although the level was not significant (Table 6.2). The following figures display the significant increases for both majors use of each dimension (Figure 6.1 and Figure 6.2).

Figure 6.1 The increase in use of VLSs in the guessing strategies (VLSD1) and information taken from dictionaries (VLSD4) dimensions by EMLs
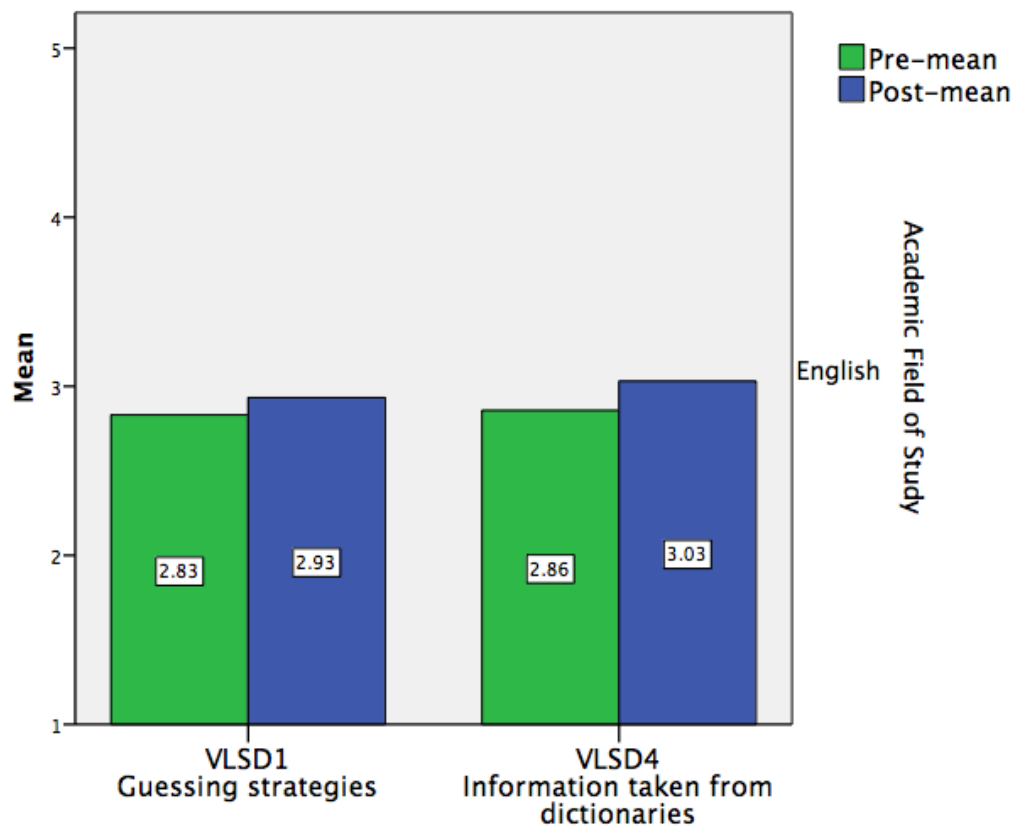
Figure 6.2 The increase in use of VLSs in the types of dictionary being used (VLSD3) dimension by CompSMLs
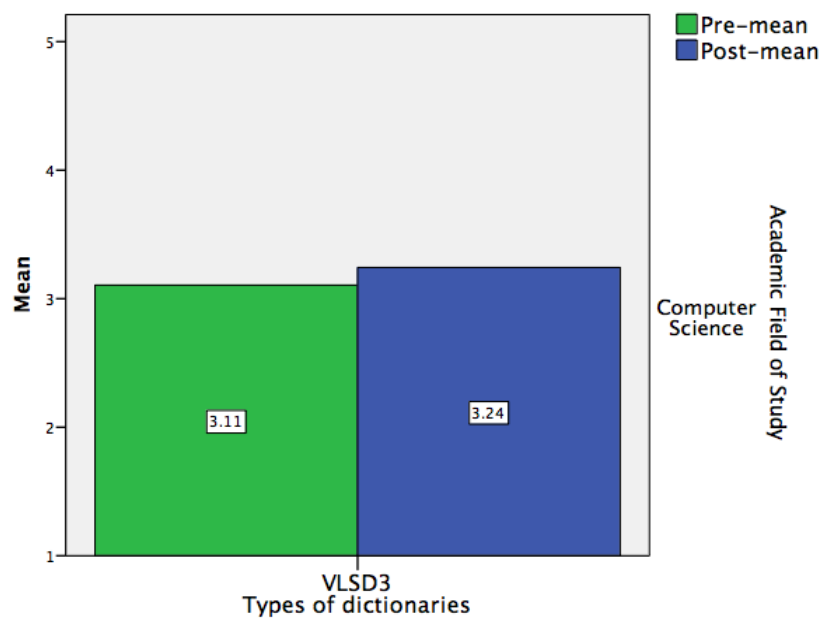
The following figures display the significant decrease for CompSMLs majors in use of

VLSD7 (Figure 6.3).

Figure 6.3 The decrease in use of VLSs in the ways of organising words noted (VLSD7) dimension by CompSMLs
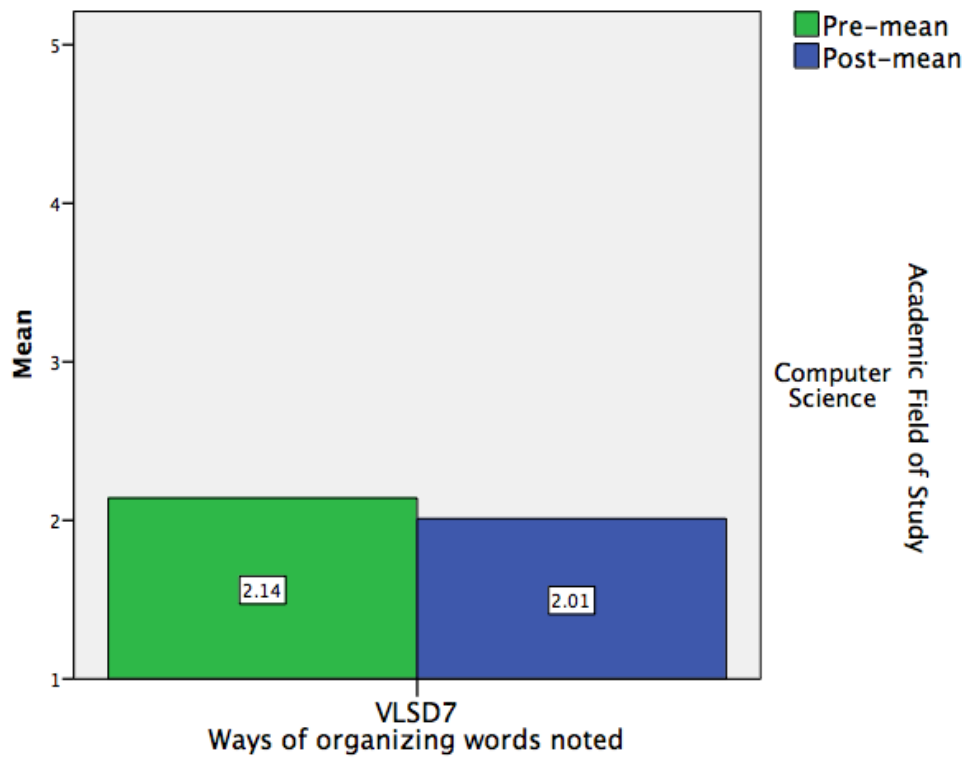
The following figures displays the nearly significant decrease in learners from both

majors in their related dimensions (Figure 6.4, Figure 6.5 and Figure 6.6).

Figure 6.4 The decrease in use of VLSs in the ways of organising words noted (VLSD7) dimension by EMLs
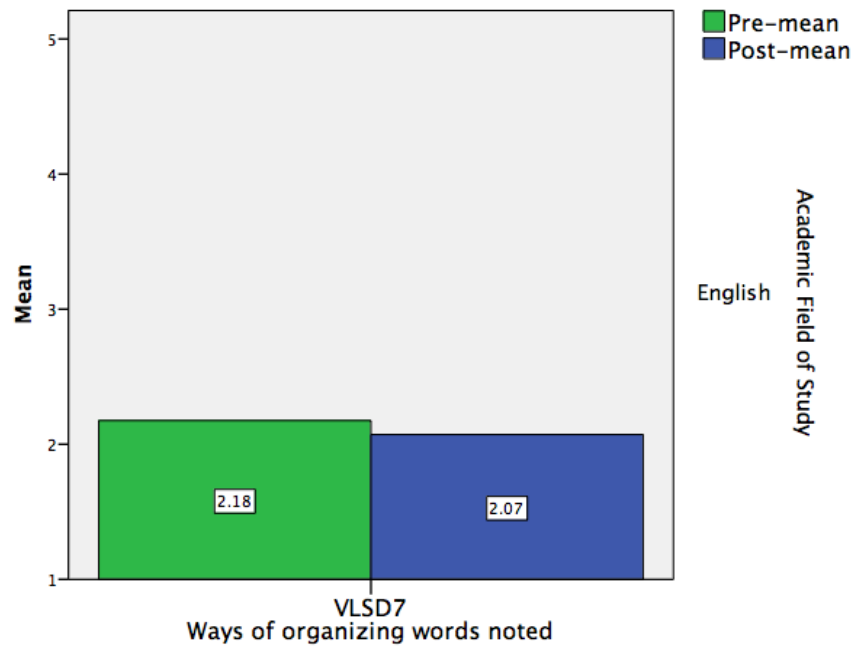
Figure 6.5 The decrease in use of VLSs in the guessing strategies (VLSD1) dimension by CompSMLs
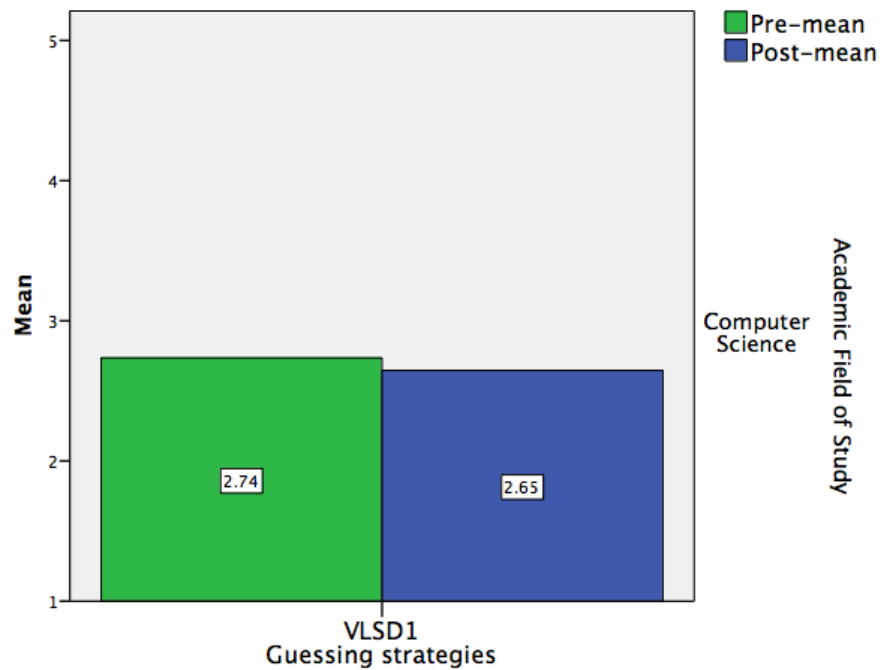
Figure 6.6 The decrease in use of VLSs within the association strategies (VLSD11) dimension by CompSMLs
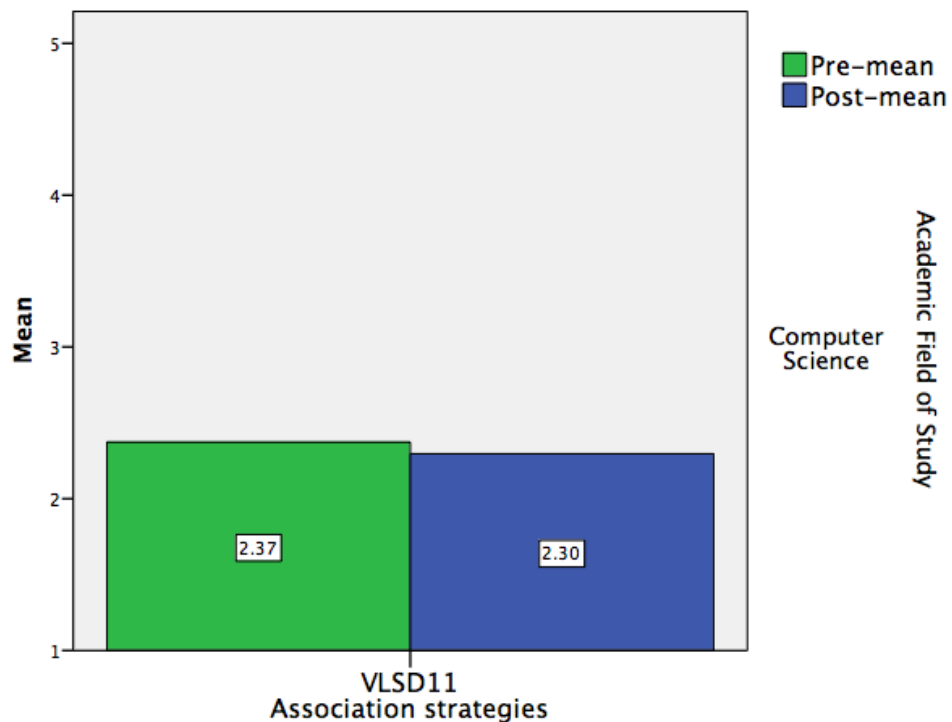
The above figures (i.e. Figure 6.4, Figure 6.5 and Figure 6.6) show a slight reduction in CompSMLs use of the individual VLSs in VLSD1 (i.e. guessing strategies) and VLSD11 (i.e. association strategies), and the EMLs use of VLSD7 (i.e. ways of organising words noted). However, these findings are generic in the sense that they merely show an overall decrease across other dimensions regardless of which particular VLSs have decreased. Therefore, it is vital to examine the individual VLSs within each of the increasing or decreasing dimensions to offer more precise and usable findings; the following subsection does so.

6.2.2 Strategic behaviour in VLSs use with dimensions

In this subsection, I will present the findings obtained in relation to the increases and decreases in learners' use of VLSs within each of the twelve dimensions involved. The researcher was in particular concerned with the dimensions that showed significant increases or decreases for each major's use between the preliminary study and the main

study (see 6.2.1). Examining these will make it possible to identify the individual VLSs that caused any significant increase or decrease within the dimensions (see 6.2.1). In order to examine each majors' strategic behaviour with regard to their use of the individual VLSs, the researcher used the ANOVA GLM repeated measurements. Hence, the researcher will compare the mean score for each VLSs within a dimension for both the pre- and post- administrations of the VLSQ.

6.2.2.1 Behaviour when using guessing strategies (VLSD1)

Table 6.3 shows the individual strategies within VLSD1 used by each of the participants. As the table shows, the strategies employed underwent an increase or decrease in use by EMLs and CompSMLs between the preliminary and main study periods. For example, use of 'saying the word aloud' and 'checking if it is similar to L1' reduced in both groups; 'analysing the word structure' increased in both groups; 'analysing the word's part of speech' increased among EMLs and decreased among CompSMLs; 'paying attention to pictures' remained about the same in both groups; and finally, 'reading the sentence' increased among EMLs and decreased among CompSMLs.

Table 6.3 Majors' behaviour when using guessing strategies (VLSD1)

VLS Number	Guessing strategies	Major	Mean		Mean DF	N	SD
VLS1	Saying the word aloud several times.	English	Pre	1.8387	.20968	62	1.0113
			Post	1.6290			.89138
		Computer Science	Pre	2.1786	.28571	56	1.1298
			Post	1.8929			1.0032
VLS2	Checking if it is similar to Arabic in sound.	English	Pre	2.4839	.17742	62	1.4112
			Post	2.3065			1.3977
		Computer Science	Pre	2.3393	.16071	56	1.4048
			Post	2.1786			1.3363
VLS3	Analyzing the structure of the word (e.g. prefixes, suffixes).	English	Pre	2.4355	-.62903	62	1.3625
			Post	3.0645			1.4695
		Computer Science	Pre	1.8393	-.14286	56	1.1245
			Post	1.9821			1.0869
VLS4	Analyzing the word part of speech (e.g. noun, verb, etc.).	English	Pre	2.9839	-.25806	62	1.1522
			Post	3.2419			1.2891
		Computer Science	Pre	2.4286	.08929	56	1.3053
			Post	2.3393			1.3521
VLS5	Paying attention to pictures if they accompany the word or text.	English	Pre	3.8387	.04839	62	.96145
			Post	3.7903			1.1182
		Computer Science	Pre	3.9464	-.14286	56	.92283
			Post	4.0893			.93957
VLS6	Reading the sentence or paragraph containing the unknown word.	English	Pre	3.4032	-.16129	62	1.1229
			Post	3.5645			1.2363
		Computer Science	Pre	3.6786	.28571	56	1.3498
			Post	3.3929			1.5217

As shown in Table 6.4, EMLs and CompSMLs had significantly decreased their use of the strategy 'saying the word aloud', while the option, 'analysing the structure of the word' increased significantly among EMLs, while CompSMLs increased their use of this strategy but not significantly. I will now discuss all changes to learners' use of VLS1 and VLS3.

Table 6.4 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour when using guessing strategies (VLSD1)

VLS Number	Guessing strategies	Major	F	Sig.	η^2
VLS1	Saying the word aloud several times.	English	4.344	**.041**	**.066**
		Computer Science	5.301	**.025**	**.088**
VLS2	Checking if it is similar to Arabic in sound.	English	2.530	.117	
		Computer Science	1.112	.296	
VLS3	Analyzing the structure of the word (e.g. prefixes, suffixes).	English	13.073	**.001**	**.176**
		Computer Science	1.538	.220	
VLS4	Analyzing the word part of speech (e.g. noun, verb, etc.).	English	2.174	.146	
		Computer Science	.358	.552	
VLS5	Paying attention to pictures if they accompany the word or text.	English	.189	.665	
		Computer Science	2.037	.159	
VLS6	Reading the sentence or paragraph containing the unknown word.	English	1.323	.255	
		Computer Science	2.217	.142	

It can be seen from Table 6.4 that 'saying the word aloud several times' significantly decreased for both majors, with a moderate effect size in both cases (English pre-mean, 1.83 post-mean,1.62; p=.041; η^2=.066 and Computer Science pre-mean 2.17, post-mean 1.89 p=.025; η^2=.088), and there were possible reasons identified for this decrease. This means that neither major used this strategy in the same way as they had a year previously (i.e. during the preliminary study). It is possible that learners find it difficult to focus on new words and that prefer to use VLSs such as 'using pictures' (VLS5) to 'saying the word aloud'. From the interview data (see appendix J for full reasons) several factors emerged that explain the decrease in use; for example, learners complained of physiological and meaning related problems, for example;

> *"I cannot guess the meaning of a word by saying it out loud because it causes me to cough."* (**E.M.P3**)

Others were unable to focus on new words when saying them aloud as claimed here:

> *"Because I want to focus on the words and why I say the word aloud, I sometimes get confused and I do not focus about the word."* **(E.M.P2)**

And another learner mentioned a psychological issue;

> *"I feel shy when I try to guess the meaning of a word by saying it out loud."* **(CompS.F.P6)**

With regard to 'analysing the structure of the word', the EMLs showed they used this approach significantly more than they had done a year previously with a higher effect size (pre-mean 2.43, post-mean 3.06; p=.001; η^2=.176), which means that they used more contextual strategies and gained benefits from doing so. A possible reason for this, as extracted from the interviews was:

> *"Because when I guess the word by analysing its structure it facilitates its retention."* **(E.M.P1)**

Also, the data showed EMLs have knowledge of prefixes and suffixes, hence they tend to use their knowledge when encountering new words to unlock the meaning of the new words, as claimed here:

> *"Because knowing the word's prefix or the suffix that is attached to it facilitates the guessing process for me, thus I use it."* **(E.M.P4)**

This suggests that EMLs find it easy and effective to guess the meaning of new words by analysing their structure, as this female English major explains:

> *"It is really an effective strategy for me and it helps me to guess the meaning of new words."* **(E.F.P6)**

The results showed that the EMLs were taught more about the relevance of the structure of words (see Curriculums 1.6) as their major was English; unlike the CompSMLs, who did not study word analysis.

Similarly, the CompSMLs increased their use of this strategy, although not significantly (pre-mean 1.83, post-mean 1.98; p=.220). Nevertheless, their uses were relatively non-existent, since the mean score was '1.98' on the Likert ranking scale. One

possible explanation for this identified during the interviews was that they do not know

what the affixes are, which means the CompSMLs would benefit from strategy training.

> *"I have very little knowledge about prefixes and suffixes, thus I do not use this strategy."* **(CompS.M.P4)**

> *"If I knew about affixes, I would probably use this strategy, but I do not know them."* **(CompS.M.P2)**

Another explanation identified in the interviews was that they do not find them

useful, preferring to use other VLSs, as claimed by this learner:

> *"I do not try to guess the meaning by using this strategy because it is not a useful strategy for me. I guess the meaning of words by reading the sentence several times."* **(CompS.M.P1)**

This learner showed no interest in using this strategy, because he was

accustomed to using another strategy, which involved reading the sentence several

times. This also means that the CompSMLs showed a lesser preference for employing

contextual strategies. Indeed reading strategies were deemed useful, since learners were

able to find several clues about the new words' meaning. This is supported by the

extract below, uttered by one of the CompSMLs:

> *"I always use this strategy [reading sentence] because the context helps clarify the meaning of the new word."* **(CompS.M.P2)**

The Figure 6.7 shows the changes of use for VLS1 and VLS3 by major.

Figure 6.7 The changes in use when 'saying the word aloud several times' and 'analysing the structure of the word' by major
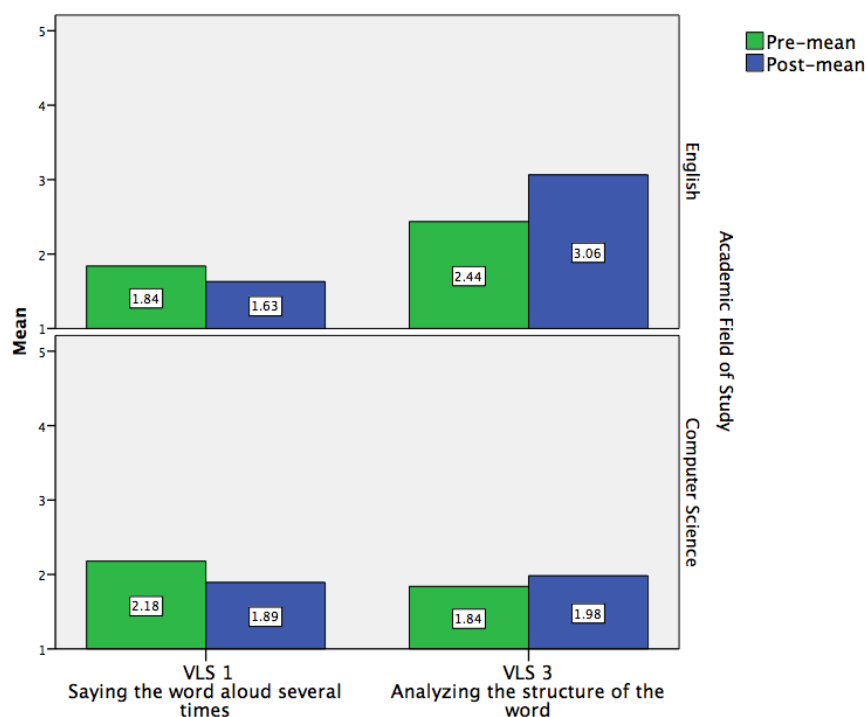
6.2.2.2 Behaviour when using asking strategies (VLSD2)

In relation to use of VLSD2 Table 6.5 displays the individual VLSs use in this dimension by learners from both majors. As the table shows, the strategies used underwent an increase or decrease in use by EMLs and CompSMLs between the preliminary and main study periods. For example, 'asking teachers about its L1 equivalent' was used less by both groups; asking for 'its definition in English' increased in use among EMLs but decreased among CompSMLs; checking 'its spelling' decreased in both groups; asking for 'an example' also decreased in both groups; checking 'its grammatical category' increased in frequency for both groups; and finally, asking for 'its synonym' increased for both majors.

Table 6.5 Majors' behaviour when using asking strategies (VLSD2)

VLS Number	Asking strategies	Major	Mean		Mean DF	N	SD
VLS7	I ask teachers and friends about its Arabic equivalent.	English	Pre	4.0000	.29032	62	1.3182
			Post	3.7097			1.4641
		Computer Science	Pre	4.2500	.14286	56	1.1946
			Post	4.1071			1.2310
VLS8	Its definition in English.	English	Pre	2.7903	-.27419	62	1.2948
			Post	3.0645			1.3774
		Computer Science	Pre	2.3750	.14286	56	1.0368
			Post	2.2321			1.1117
VLS9	Its spelling or pronunciation.	English	Pre	3.5000	.19355	62	1.1125
			Post	3.3065			1.3500
		Computer Science	Pre	3.1786	.14286	56	1.4410
			Post	3.0357			1.4392
VLS10	An example sentence.	English	Pre	2.6935	.11290	62	1.1248
			Post	2.5806			1.1387
		Computer Science	Pre	2.5000	.26786	56	1.6514
			Post	2.2321			1.2932
VLS11	Its grammatical category.	English	Pre	2.4516	-.20968	62	1.1261
			Post	2.6613			1.2923
		Computer Science	Pre	2.1429	-.14286	56	1.1025
			Post	2.2857			1.2608
VLS12	Its synonym & antonym in English.	English	Pre	2.4355	-.25806	62	1.2882
			Post	2.6935			1.3255
		Computer Science	Pre	1.7857	-.10714	56	1.0568
			Post	1.8929			1.1859

As Table 6.6 illustrates, out of six strategies, only one strategy, use of 'its synonym' increased significantly, with a moderate effect size for EMLs only, while the increase in the use of this strategy was not significant for the CompSMLs. Below I discuss the changes to learners' use of VLS12.

Table 6.6 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour when using asking strategies (VLSD2)

VLS Number	Asking strategies	Major	F	Sig.	η^2
VLS7	I ask teachers and friends about its Arabic equivalent.	English	1.251	.268	
		Computer Science	.887	.350	
VLS8	Its definition in English.	English	2.363	.129	
		Computer Science	1.913	.172	
VLS9	Its spelling or pronunciation.	English	.876	.353	
		Computer Science	1.467	.231	
VLS10	An example sentence.	English	.923	.340	
		Computer Science	2.600	.113	
VLS11	Its grammatical category.	English	1.338	.252	
		Computer Science	.326	.570	
VLS12	Its synonym & antonym in English.	English	4.508	**.038**	**.069**
		Computer Science	.639	.428	

This significant change in reference to use of English based strategies, with a moderate effect size, (pre-mean 2.43, post-mean 2.69; p=.038; η^2=.069), means EMLs used VLS12 more at time 2 than at time 1. This would be expected, since the EMLs are now in third year and so their language skills will have improved and they will have more awareness of the value of asking for the new word's synonym and antonym. In fact, as noted earlier, vocabulary had been introduced to the EMLs in their second year, and the learners benefited a lot from the course, which lead them to consider synonyms and antonyms more than the CompSMLs as they progressed to the next year of study. A number of reasons were provided by the EMLs themselves for their use of this particular strategy; firstly they explained that their aim is to build up a greater lexical repository, as noted by this learner:

> *"I ask about the word's synonyms and antonyms because in this way I can build up my vocabulary."*
> **(E.M.P3)**

This suggests that synonyms and antonyms may introduce additional new words, besides those already being explained, and thereby enlarge the learners' vocabulary. Another EML said;

> *"By knowing the word's synonyms and antonyms I can easily remember the new words."* **(E.M.P2)**

This means that EMLs consider such strategies facilitate the retention of new words.

On the other hand, the CompSMLs use of this strategy did not change significantly, as noted earlier. A number of reasons for this emerge from the interview data. First, the overload of new words as shown below;

> *"I do not use this strategy because I prefer not to overload myself with more words."* **(CompS.F.P6)**

> *"I prefer to learn one word rather than several words during one learning process."* **(CompS.F.P5)**

Other CompSMLs do not consider the strategy vital to further their learning process, as explained by CompSMLs:

> *"It is not necessary to know the synonyms or the antonyms of new words."* **(CompS.M.P3)**

This implies that CompSMLs prefer to ask about L1 meaning, instead of this strategy, as can be seen from this extract:

> *"I do not use this strategy because I prefer to ask about L1 meaning"* **(CompS.M.P4)**

Figure 6.8 displays the changes of use for VLS12 by all majors.

Figure 6.8 The changes in use when 'asking about a word's synonyms and antonyms' (VLS12) by major
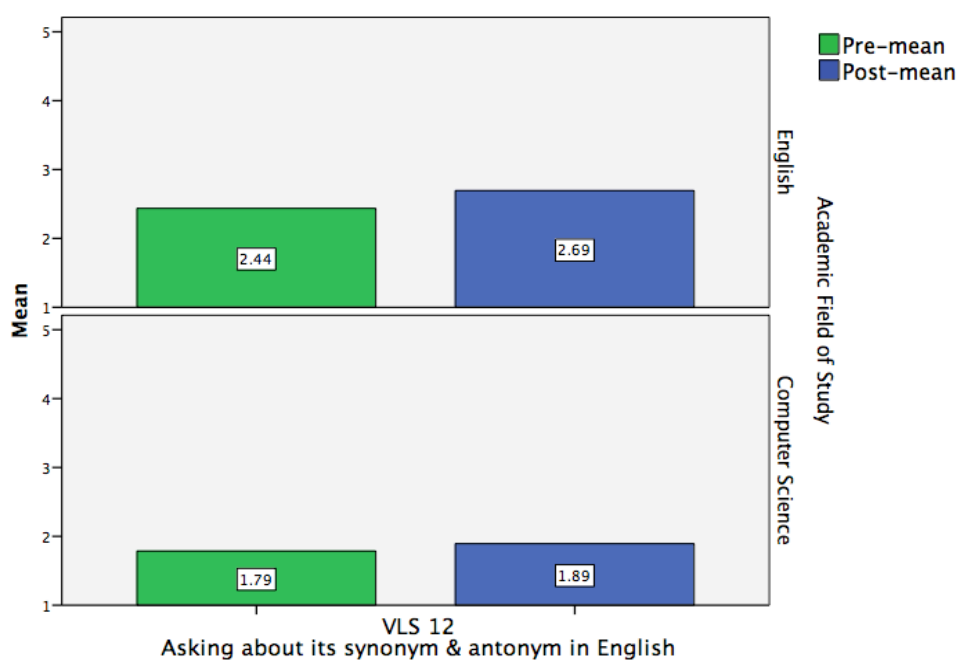
6.2.2.3 Behaviour when using different types of dictionaries (VLSD3)

To depict responses more completely for VLSD3, Table 6.7 displays the individual VLSs used in that dimension by learners from both majors. As the table shows, the different strategies have variously increased or decreased in use across the EMLs and CompSMLs, between the preliminary and main study periods. For example, 'in a paper English-Arabic' dictionary decreased was used less by EMLs after a year of study, but the level of use remained the same for the CompSMLs; 'in a paper English-English' dictionary remained almost identical for both majors at time1 and time2; 'electronic dictionary' usage increased for both groups; similarly, 'internet' use rose in both groups; and finally, a 'smartphone dictionary' was used less by EMLs but more by CompSMLs.

Table 6.7 Majors' behaviour when using dictionary based strategies (VLSD3)

VLS Number	Types of dictionaries	Major	Mean		Mean DF	N	SD
VLS13	In a paper English-Arabic Dictionary.	English	Pre	2.5645	.29032	62	1.5553
			Post	2.2742			1.4045
		Computer Science	Pre	2.6071	.16071	56	1.4482
			Post	2.4464			1.4637
VLS14	In a paper English-English dictionary.	English	Pre	1.9032	-.16129	62	1.0667
			Post	2.0645			1.1993
		Computer Science	Pre	1.6964	-.01786	56	1.0603
			Post	1.7143			1.1235
VLS15	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	English	Pre	3.9355	-.29032	62	1.3412
			Post	4.2258			1.1368
		Computer Science	Pre	4.0000	-.32143	56	1.2358
			Post	4.3214			.91666
VLS16	On the internet.	English	Pre	2.7903	-.30645	62	1.5695
			Post	3.0968			1.5440
		Computer Science	Pre	3.0000	-.37514	56	1.4647
			Post	3.3571			1.4576
VLS17	I use a smartphone dictionary application to check the meaning of unknown words.	English	Pre	4.2742	.14516	62	1.2169
			Post	4.1290			1.2477
		Computer Science	Pre	4.2545	-.18182	56	1.1257
			Post	4.4364			.97684

As shown in Table 6.8, both the EMLs and CompSMLs significantly increased their use of the 'electronic dictionary' with a moderate effect size. This significant change in learners' use of different types of dictionary related strategies is covered below.

Table 6.8 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour when using types of dictionary strategy (VLSD3)

VLS Number	Types of dictionaries	Major	F	Sig.	η^2
VLS13	In a paper English-Arabic Dictionary.	English	2.264	.138	
		Computer Science	.833	.366	
VLS14	In a paper English-English dictionary.	English	2.436	.124	
		Computer Science	.076	.784	
VLS15	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	English	5.820	**.019**	**.087**
		Computer Science	4.532	**.038**	**.076**
VLS16	On the internet.	English	2.005	.162	
		Computer Science	2.750	.103	
VLS17	I use a smartphone dictionary application to check the meaning of unknown words.	English	.851	.360	
		Computer Science	1.812	.184	

The significant increase in dictionary use for each major, clearly illustrates the extent to which this group of strategies increased in popularity between time1 and time2, with a moderate effect size for both majors, (English pre-mean 3.93, post-mean, 4.22; p=.019; η^2=.087 and Computer Science pre-mean 4.00, post-mean 4.32 p=.038; η^2=.076). This strategy was one of the most used strategies by all learners during the preliminary study (see 4.6.1). This accords with the findings of Al-Qahtani (2005), Marin (2005), and Alyami (2011), both of whom found electronic dictionaries were used heavily by learners.

There are some reasons that might explain the reported increased use. Electronic dictionaries have many uses; they provide a great deal of information, sometimes including pictures, which facilitate understanding of the meaning of a words:

> *"Modern dictionaries now have lots of information and a big screen that can even show pictures relating to the words."* **(CompS.F.P6)**

To support this further, Moeser and Bregman (1973:91) state that learners can more successfully acquire L1 words accompanied by pictures than they can words

alone.

Also, learners have probably found that electronic dictionaries are easy to carry about and use. This assumption is supported by the following extract from the interviews;

> *"I always use it because it is not difficult to use."*
> **(CompS.M.P3)**

Another reason;

> *"Well, because an electronic dictionary does not require much effort to use."* **(CompS.M.P2)**

> *"It does not require much space to carry."* **(E.M.P1)**

Moreover;

> *"It is easy to use, thus I can find the meaning of the new word quickly."* **(E.M.P3)**

The last quotation mentions two factors; firstly, ease of use, especially when looking for the meaning of the new words; and secondly, speed. However, the extract above does not clarify whether the learner is searching for L1 meaning or L2 meaning, although research suggests that learners use electronic dictionaries to attain predominately bilingual data (Table 4.3 and Table 6.9), which indicates that bilingual dictionaries were the most used by both majors. Moreover, the increased use of dictionaries arises from the recognition that they offer bilingual or monolingual outputs and inputs as stated by this learner:

> *"Well, dictionaries assist with understanding the meaning of the new words and they can be monolingual or bilingual dictionaries."*
> **(CompS.M.P2)**

Moreover, electronic dictionaries can be used not only for receptive but also for productive purposes, such as checking a word's pronunciation, as also shown in interview data. This finding was also reported by Nation (2001), who confirmed that bilingual dictionaries are easy to use because they provide meanings in a very accessible

way, and can by readily either uni or bi directional, and receptive or productive. Figure 6.9 displays the changes in use of VLS15 by learners from both groups.

Figure 6.9 The changes in use when 'I use an electronic dictionary such as Atlas to check the meaning of unknown words' (VLS15) by EMLs and CompSMLs
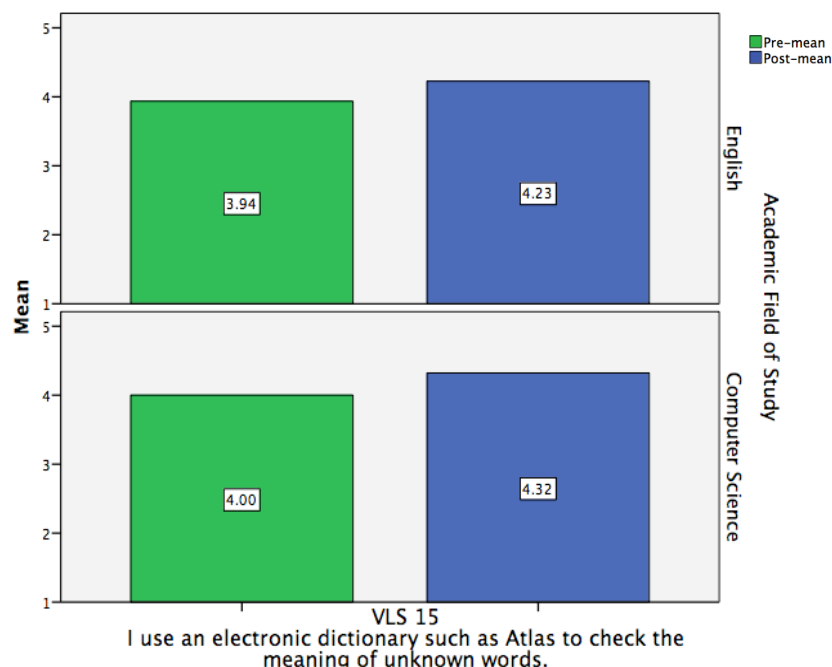
6.2.2.4 Behaviour when using information taken from dictionaries (VLSD4)

For VLSD4, Table 6.9 displays individual VLSs usage in this dimension. It reveals some variation in strategy use by EMLS and CompSMLs, between the preliminary and main study periods. These related to searching for a word's 'Arabic meaning', which decreased among both EMLs and CompSMLs; 'its spelling', which increased among both groups; 'its part of speech', which increased among EMLs but remained almost identical for CompSMLs; 'its English meaning', which increased for both groups; 'its synonym', which increased among EMLs but fell among CompSMLs; 'examples', which increased for both groups; and finally, 'its stem' which also increased for both groups.

Table 6.9 Majors' behaviour when using information taken from dictionaries (VLSD4)

VLS Number	Information taken from dictionaries	Major	Mean		Mean DF	N	SD
VLS18	Its Arabic meaning.	English	Pre	4.2419	.22581	62	1.1690
			Post	4.0161			1.2346
		Computer Science	Pre	4.4107	.10714	56	1.0229
			Post	4.3036			1.0773
VLS19	Its spelling.	English	Pre	3.3387	-.17741	62	1.2796
			Post	3.6129			1.4860
		Computer Science	Pre	3.2143	-.14286	56	1.0906
			Post	3.3571			1.2124
VLS20	Its part of speech.	English	Pre	2.6066	-.14754	61	1.1442
			Post	2.7903			1.2029
		Computer Science	Pre	2.2857	.03571	56	1.0394
			Post	2.2500			.99544
VLS21	Its English meaning.	English	Pre	2.5484	-.29032	62	1.2371
			Post	2.8387			1.3573
		Computer Science	Pre	1.9464	-.08929	56	1.1508
			Post	2.0357			1.0781
VLS22	Its synonym & antonym.	English	Pre	2.5806	-.12903	62	1.3736
			Post	2.7097			1.4070
		Computer Science	Pre	2.1071	.10714	56	1.1390
			Post	2.0000			1.0444
VLS23	Looking for examples.	English	Pre	2.2742	-.37097	62	1.3203
			Post	2.6452			1.3682
		Computer Science	Pre	1.9821	-.30357	56	1.2430
			Post	2.2857			1.3172
VLS24	Its stem.	English	Pre	2.3871	-.20968	62	1.2849
			Post	2.5968			1.2989
		Computer Science	Pre	1.8909	-.05455	55	1.0830
			Post	1.9455			1.1125

Table 6.10 shows which strategies increased or decreased significantly. For example, 'looking for examples' significantly increased among EMLs, but only slightly increased at a non-significant level among CompSMLs. Additionally, 'its synonym' attained a near significant decrease among CompSMLs, while increased use of this strategy was not significant for EMLs. Next I examine the two obvious changes, pertaining to use of VLSD22 and VLS23.

Table 6.10 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour when using information taken from dictionaries (VLSD4)

VLS Number	Information taken from dictionaries	Major	F	Sig.	η^2
VLS18	Its Arabic meaning.	English	2.722	.104	
		Computer Science	1.394	.243	
VLS19	Its spelling.	English	1.970	.166	
		Computer Science	1.236	.271	
VLS20	Its part of speech.	English	2.516	.118	
		Computer Science	.152	.699	
VLS21	Its English meaning.	English	2.777	.101	
		Computer Science	.369	.546	
VLS22	Its synonym & antonym.	English	1.910	.172	
		Computer Science	3.113	**.083**	
VLS23	Looking for examples.	English	4.182	**.045**	**.064**
		Computer Science	1.671	.201	
VLS24	Its stem.	English	2.759	.102	
		Computer Science	.596	.444	

Pursuit of the objective, 'looking for its synonym' declined over the study period among CompSMLs (pre-mean 2.10, post-mean 2.00; p=.083), but for EMLs it increased with low significance (pre-mean 2.58, post-mean 2.70; p=.172). This suggests the CompSMLs have begun to reject this strategy. This is probably because CompSMLs do not pay attention to vocabulary since their training course does not encourage them to improve their lexicon. Also, this is probably because that CompSMLs do not want to accrue additional language, such as synonyms, as this learner states:

> *"I do not want to confuse myself with too many words; I would rather retain one word at a time."*
> **(CompS.M.P2)**

Another CompSML claimed it is not important to focus on synonyms for words, stating that he only focuses on the meaning of new words, i.e.

> *"I care about the word's meaning in Arabic only."*
> **(CompS.M.P4)**

Similarly, several other CompSMLs agreed that this strategy is not of interest as synonyms are considered optional extras.

By contrast, the EMLs justified their increased use of this strategy, although, as noted earlier, this increase was not significant. A possible explanation for the increased use of strategies is given in the following interview extract:

> *"I sometimes use it because I want to develop my language in general and also build up my lexicon."*
> **(E.M.P4)**

The above explains that EMLs want to improve their lexical knowledge by learning more about the words' synonyms and antonyms. Another reason for their increased use is that EMLs believe synonyms clarify the meaning of other new words, as shown below;

> *"Because the meaning can be unlocked."* **(E.M.P2)**

Figure 6.10 shows the changes in use of VLS22 by all majors.

Figure 6.10 The changes in use of 'its synonym and antonym' (VLS22) by major
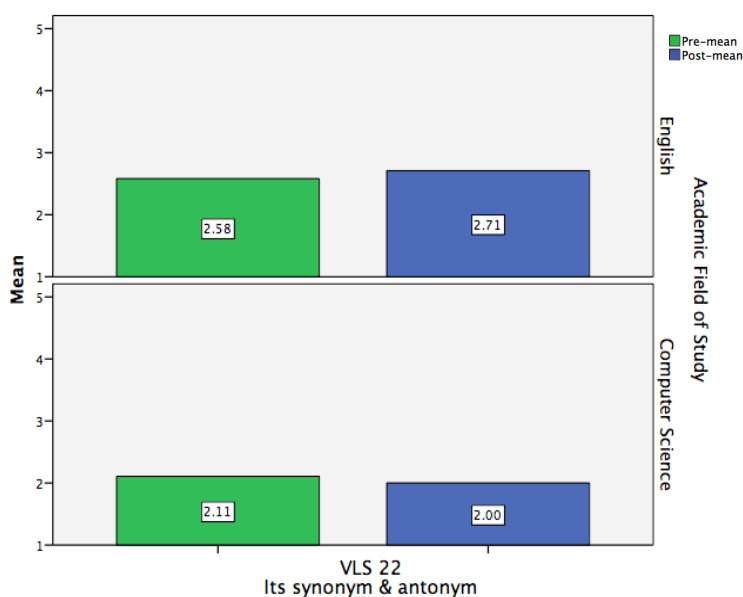
Finally, the strategy, 'looking for examples' significantly increased in use among EMLs with a moderate effect size (pre-mean 2.27, post-mean 2.64; p=.045;

η^2=.064). This supports the idea that there are now more advanced learners who can build up more lexical items using this strategy. This was also supported by this claim from the interviewees;

"To build up my vocabulary knowledge." (**E.F.P5**)

*"I want to increase my vocabulary." (***E.M.P4***)*

They also increased their use of this strategy, to attain greater benefits from examples, such as concerning grammatical use or how new words can be used as the English subjects claimed;

"I look for examples because I want to find out how the word can be used grammatically." (**E.F.P6**)

"Because I want to know how and when a certain word can be used in the text." (**E.M.P1**)

Meanwhile, CompSMLs showed increased use of this strategy, but not to a significant level (pre-mean 1.98, post-mean 2.28; p=.201). However, it is apparent that at both time1 and time2, CompSMLs had little interest in using this strategy, probably because they need to focus on one word at a time, as this learner claimed;

"I do not use this strategy because examples might include words that I might not know the meaning of." (**CompS.M.P2**)

Figure 6.11 shows the changes in use of this strategy by both groups.

Figure 6.11 The changes in use of 'looking for examples' (VLS23) by major
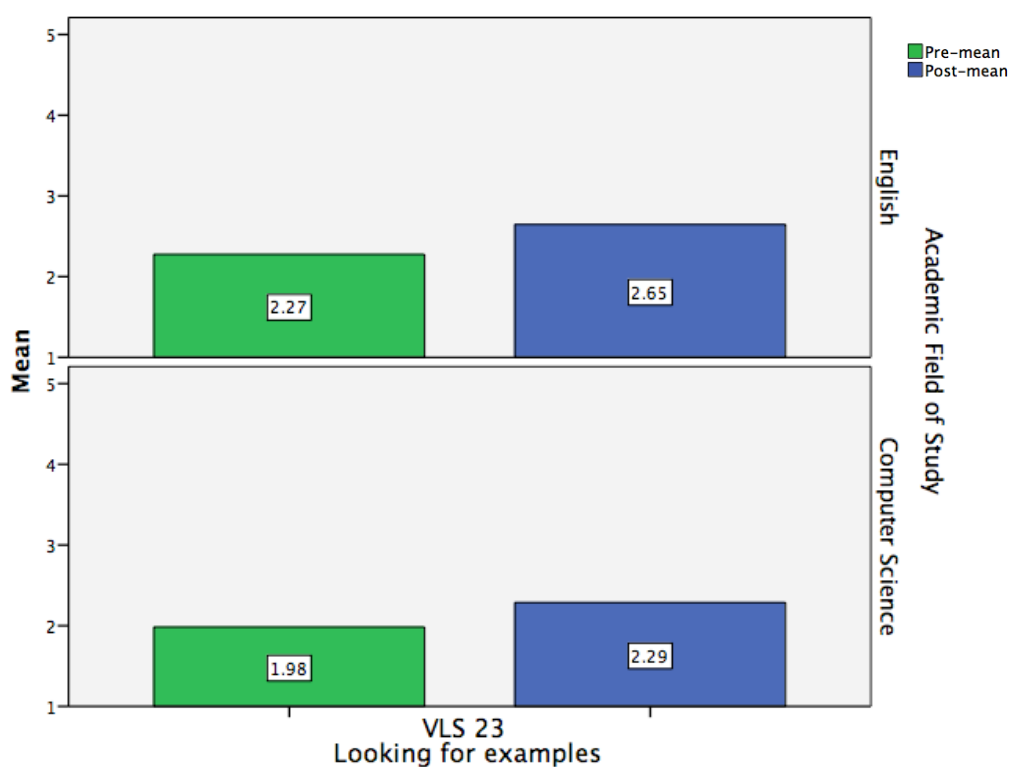
6.2.2.5 *Behaviour when using content of vocabulary note taking strategies (VLSD5)*

The individual strategy use in the dimension VLSD5, *types of word and non-word noted*, are displayed in Table 6.11 by major. As the table shows, certain strategies have undergone an increase or decrease in use by both EMLs and CompSMLs between time1 and time2. These include writing 'the new word only with nothing else', which fell in use by EMLs and increased for CompSMLs; the word with 'its Arabic translation', which increased in use among both groups; with 'its English definition' which increased among both groups; with 'its synonyms and antonyms', which increased for EMLs and decreased for CompSMLs; with 'written examples' increased by EMLs but decreased for CompSMLs; 'writing transliteration', which fell for EMLs but rose for CompSMLs; with 'its grammatical category', which increased among EMLs but remained stable for the CompSMLs; with 'the source I got the word from',

which decreased for both groups; and finally, with 'other related words from the same

family', which increased among EMLs but remained the same for CompSMLs.

Table 6.11 Major's behaviour in terms of types of words and non-words noted (VLSD5)

VLS Number	Types of word and non word noted	Major	Mean		Mean DF	N	SD
VLS25	Only with nothing else.	English	Pre	2.4355	.14516	62	1.3259
			Post	2.2903			1.2725
		Computer Science	Pre	2.0714	-.12500	56	.96967
			Post	2.1964			.99854
VLS26	I write down the English word with its Arabic translation.	English	Pre	3.9677	-.17742	62	1.1303
			Post	4.1452			1.1430
		Computer Science	Pre	4.2321	-.14286	56	.91435
			Post	4.3750			.79915
VLS27	I write down their English definition.	English	Pre	2.5968	-.22581	62	1.2073
			Post	2.8226			1.3122
		Computer Science	Pre	2.0714	-.21429	56	1.3053
			Post	2.2857			1.4486
VLS28	I write down synonyms and antonyms beside new words.	English	Pre	2.5323	-.12903	62	1.1554
			Post	2.6613			1.3299
		Computer Science	Pre	2.2321	.21429	56	1.1753
			Post	2.0179			1.1519
VLS29	I write down example sentences using the new word.	English	Pre	2.1935	-.09677	62	1.2654
			Post	2.2903			1.3105
		Computer Science	Pre	2.1071	.10714	56	1.0212
			Post	2.0000			1.0090
VLS30	I write down the English word with its pronunciation in the form of transliteration, i.e. transcribing the English word into sounds using the Arabic alphabet.	English	Pre	2.3065	.08065	62	1.4775
			Post	2.2258			1.4305
		Computer Science	Pre	2.4286	-.21429	56	1.3329
			Post	2.6429			1.3938
VLS31	I write down the grammatical category of the word (e.g. noun, verb, adjective, etc.).	English	Pre	2.2258	-.14516	62	1.1223
			Post	2.3710			1.2833
		Computer Science	Pre	2.0357	.01786	56	.91382
			Post	2.0179			1.1035
VLS32	I write down a note about the source I got it from (e.g. unit, film, where I encountered it).	English	Pre	1.7097	.11290	62	.96474
			Post	1.5968			.79876
		Computer Science	Pre	1.7091	.16364	55	1.0830
			Post	1.5357			.89370
VLS33	I write the English word down with the other related words of the same family.	English	Pre	2.3871	-.14516	62	1.4525
			Post	2.5161			1.5336
		Computer Science	Pre	1.8036	-.05357	56	1.1023
			Post	1.8571			1.0167

Table 6.12 shows which of the increases or decreases mentioned above were

significant for each major. As the table shows, the decrease in 'the source I got the word

from' was nearly significant for CompSMLs, while the reduction in the use of this

strategy was not significant for EMLs. I discuss the changes in learners' use of VLS32

below.

Table 6.12 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour in terms of types of word and non-words noted (VLSD5)

VLS Number	Types of word and non word noted	Major	F	Sig.	η^2
VLS25	Only with nothing else.	English	2.515	.118	
		Computer Science	2.391	.128	
VLS26	I write down the English word with its Arabic translation.	English	1.776	.188	
		Computer Science	2.178	.146	
VLS27	I write down their English definition.	English	2.273	.137	
		Computer Science	1.128	.293	
VLS28	I write down synonyms and antonyms beside new words.	English	1.105	.297	
		Computer Science	2.750	.103	
VLS29	I write down example sentences using the new word.	English	1.060	.307	
		Computer Science	2.302	.135	
VLS30	I write down the English with its pronunciation in the form of transliteration, i.e. transcribing the English word into sounds using the Arabic alphabet.	English	.435	.512	
		Computer Science	2.647	.109	
VLS31	I write down the grammatical category of the word (e.g. noun, verb, adjective, etc.).	English	1.318	.244	
		Computer Science	.032	.859	
VLS32	I write down a note about the source I got it from (e.g. unit, film, where I encountered it).	English	2.647	.109	
		Computer Science	3.380	**.071**	
VLS33	I write the English word down with the other related words of the same family.	English	1.703	.197	
		Computer Science	.307	.582	

For VLS32 'the source I got the word from' fell at a nearly significant level

among CompSMLs (pre-mean 1.71, post-mean 1.54; p=.071). A possible explanation

for this is that CompSMLs do not perceive any benefits from using this strategy as this

learner claimed:

> *"It does not help me with anything."*
> **(CompS.M.P1)**

Other CompSML explained his disuse of this strategy is because he uses other important strategies within this dimension such as writing down the word's L1 meaning instead. The following reason was extracted from the interview

"I never use it because I note down its meaning in Arabic." **(CompS.M.P3)**

In fact, this strategy was ranked among the least used by all the learners in the preliminary study (4.6.1) and in the main study. Similarly, EMLs had reduced their use of this strategy compared to a year ago (i.e. preliminary study), albeit not significantly, (pre-mean 1.70, post-mean 1.59; p=.109). The responses from the learners in both majors show similar means in both times, suggesting neither group found it beneficial. A possible reason for EMLs discussing this strategy emerges from the interviews below:

"There is no value to me to write down an English word with the source I got it from." **(E.F.P6)**

Figure 6.12 shows the change in use of VLS32 by participants from both majors.

Figure 6.12 The decrease use of 'the source I got it from' (VLS32) by CompSMLs
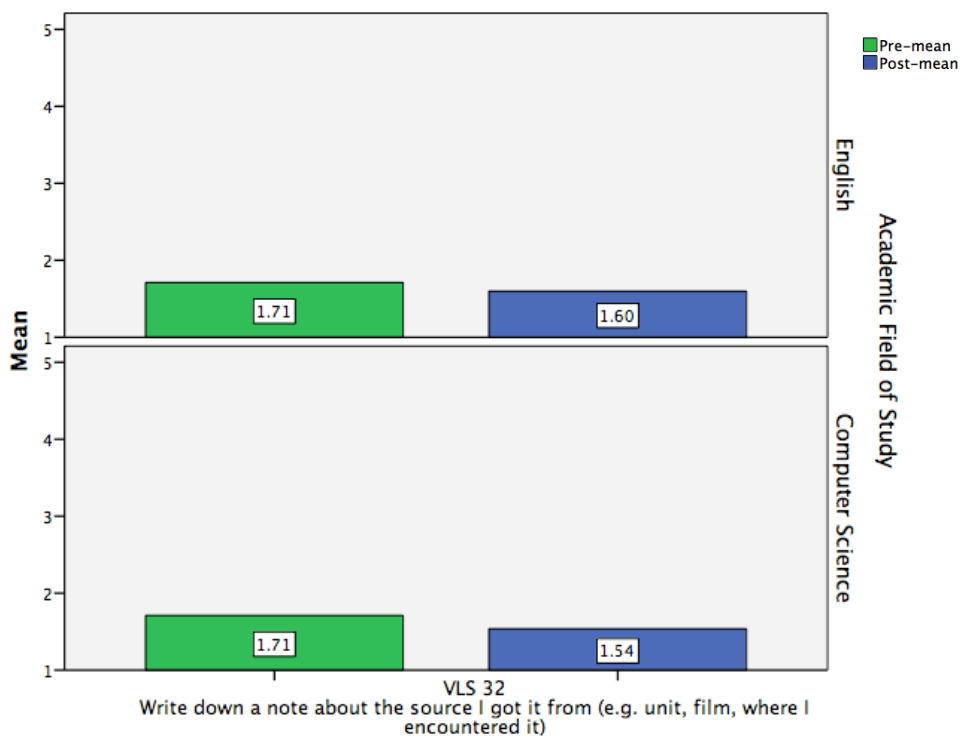
6.2.2.6 Behaviour when using the location of vocabulary notes (VLSD6)

Table 6.13 displays the individual VLSs used in dimension VLSD6, as described by participants from both majors. As the table shows, the strategies underwent either an increase or decrease in use by both EMLs and CompSMLs between time1 and time2. These were as follows: 'textbook margin' where usage increased for both groups; 'on cards' which decreased among EMLs but remained the same among CompSMLs; 'in English note book', which decreased for both groups; in a 'personal notebook', which increased for both groups; on a 'separate piece of paper', which decreased for both groups; 'in a computer file', which increased for EMLs but fell for CompSMLs; and 'on wall charts or posters', which decreased for EMLs and increased for CompSMLs.

Table 6.13 Major's behaviour regarding the location of vocabulary notes (VLSD6)

VLS Number	Location of VNTS	Major	Mean		Mean DF	N	SD
VLS34	On the margins of my textbooks.	English	Pre	3.6129	-.12903	62	1.4183
			Post	3.7419			1.3900
		Computer Science	Pre	3.8036	-.10714	56	1.1972
			Post	3.9107			1.1642
VLS35	Keep notes on cards.	English	Pre	1.5806	.16129	62	.89714
			Post	1.4194			.66649
		Computer Science	Pre	1.5893	.07143	56	.75743
			Post	1.5179			.68732
VLS36	In my (general) English notebook.	English	Pre	3.3226	.08065	62	1.5340
			Post	3.2419			1.5752
		Computer Science	Pre	2.9821	.12500	56	1.3415
			Post	2.8571			1.3938
VLS37	In my pocket/personal notebook.	English	Pre	3.2419	-.20968	62	1.4221
			Post	3.4516			1.4449
		Computer Science	Pre	3.4643	-.21429	56	1.3068
			Post	3.6786			1.2520
VLS38	On separate pieces of paper.	English	Pre	2.1935	.54839	62	1.2392
			Post	1.6452			0.7487
		Computer Science	Pre	2.3036	.51786	56	1.2780
			Post	1.7857			1.0906
VLS39	In a computer file or other electronic device.	English	Pre	2.1935	-.0645	62	1.1082
			Post	2.2581			0.8430
		Computer Science	Pre	2.4821	.08929	56	1.3881
			Post	2.3929			1.3440
VLS40	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	English	Pre	1.5968	.14516	62	1.1082
			Post	1.4516			.84305
		Computer Science	Pre	1.4464	-.07143	56	.76085
			Post	1.5179			.80884

Table 6.14 shows which of the increases or decreases mentioned above were significant for each major. As the table shows, the decrease in use of VLS38 was significant for both majors, thus it will be discussed further below.

Table 6.14 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour in use of the location of vocabulary note-taking strategies (VLSD6)

VLS Number	Location of VNTS	Major	F	Sig.	η^2
VLS34	On the margins of my textbooks.	English	2.522	.117	
		Computer Science	1.656	.204	
VLS35	Keep notes on cards.	English	2.436	.124	
		Computer Science	1.618	.209	
VLS36	In my (general) English notebook.	English	.393	.533	
		Computer Science	.800	.375	
VLS37	In my pocket/personal notebook.	English	2.853	**.096**	
		Computer Science	1.128	.293	
VLS38	On separate pieces of paper.	English	14.33	**<.001**	**.190**
		Computer Science	14.24	**<.001**	**.206**
VLS39	In a computer file or other electronic device.	English	.304	.583	
		Computer Science	.180	.673	
VLS40	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	English	2.365	.129	
		Computer Science	1.000	.322	

The option of taking notes 'on separate pieces of paper' reduced in significance with a higher effect size for both groups of participants (English pre-mean 2.19, post-mean 1.64; p=<.001; η^2=.190 Computer Science pre-mean 2.30, post-mean 1.78; p=<.001; η^2=.206). A possible explanation for this is that learners might have learned that it is difficult not to lose notes on separate pieces of paper. Moreover, using such

strategy might require additional effort in the longer term, as the information needs to be re-recorded elsewhere. Some reasons for no longer using the strategy were reported by learners in the interviews, for example;

> *"Keeping my notes on separate pieces of paper is not useful because I am likely to lose them."* **(CompS.M.P4)**

> *"It wastes my time."* **(CompS.M.P1)**

> *"It is not effective to write down new words on a piece of paper."* **(E.M.P1)**

In fact, this strategy was among the least used in this dimension in the main study. It is often criticised for being a decontextualizing strategy which is unlikely to help learners to remember information (Rebecca Oxford & Crookall, 1989).

Interestingly, Table 6.14 shows the EMLs almost significantly increased their use of 'personal note books', and use of this resource was also increased among CompSMLs, although not significantly (English pre-mean 3.24, post-mean 3.45; p=.096; CompSMLs pre-mean 3.46, post-mean 3.67; p=.293). This could explain the redundancy of VLS38, since VLS37 is organised, efficient and easy to use. Figure 6.13 shows the uses of 'personal note book' and 'on separate pieces of paper' by both groups.

Figure 6.13 The changes in uses of 'personal note book' and 'on separate pieces of paper' (VLS37-VLS38) by major
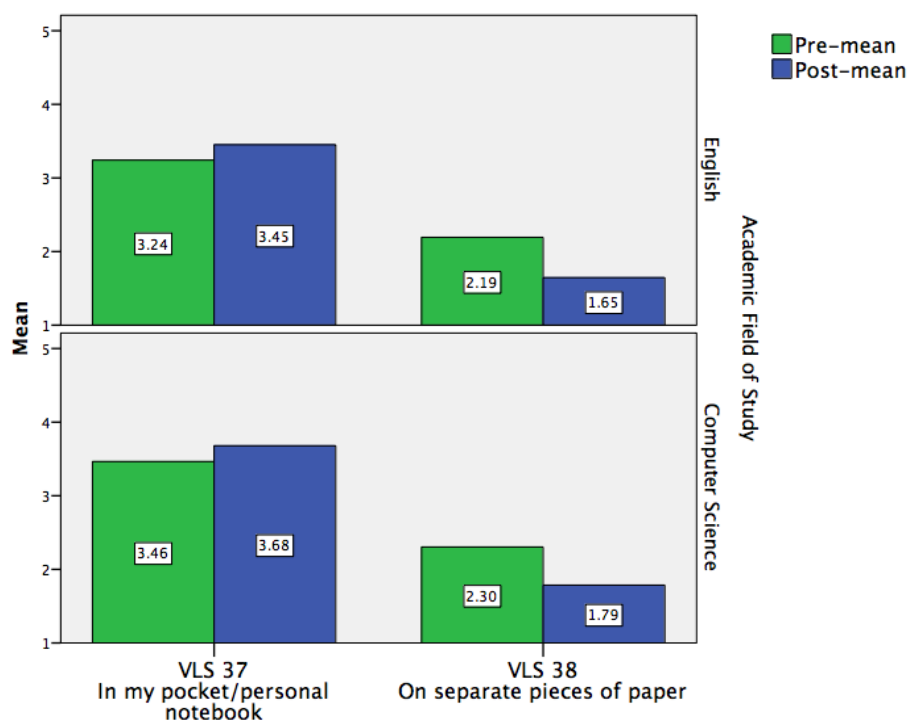
6.2.2.7 *Behaviour when using the ways of organising words noted (VLSD7)*

Table 6.15 displays the individual VLSs used in VLSD7 by EMLs and SMLs. As the table shows, use of some strategies altered between time1 and time2. These included 'noting words by units', which decreased for both groups; making notes 'in alphabetical order', which decreased in both groups; in a 'random order', which increased for both majors; 'by grammatical category', which decreased among both majors; 'by their meaning groups', which decreased for both majors; 'according to difficulty', which decreased for both majors, and finally, 'by stems', which remained the same for the EMLs and decreased for the CompSMLs.

Table 6.15 Major's behaviour in use of ways of organising words noted (VLSD7)

VLS Number	Ways of organizing words noted	Major	Mean		Mean DF	N	SD
VLS41	By units or lessons of the textbook.	English	Pre	2.6935	.19355	62	1.2621
			Post	2.5000			1.2771
		Computer Science	Pre	2.4286	.23214	56	1.2628
			Post	2.1964			1.1972
VLS42	I organize the words in alphabetical order.	English	Pre	1.8065	.19355	62	1.1428
			Post	1.6129			.94704
		Computer Science	Pre	1.8036	.30357	56	.75743
			Post	1.5000			.68732
VLS43	In a random order.	English	Pre	3.5806	-.17742	62	1.2485
			Post	3.7581			1.1967
		Computer Science	Pre	3.8393	-.12500	56	1.3415
			Post	3.9643			1.3938
VLS44	I organize the words by their grammatical category (e.g. noun, verb, adjective etc.).	English	Pre	1.7258	.08065	62	.96103
			Post	1.6452			1.1028
		Computer Science	Pre	1.4107	.03571	56	1.3068
			Post	1.3750			1.2503
VLS45	I organize the words by their meaning groups. (e.g. animals, fruits, food, colours, etc.).	English	Pre	1.8065	.12903	62	.97238
			Post	1.6774			.80519
		Computer Science	Pre	2.0000	.17857	56	1.2913
			Post	1.8214			1.0906
VLS46	According to their difficulty (e.g. from easiest to most difficult).	English	Pre	1.8387	.25806	62	1.2306
			Post	1.5806			.98428
		Computer Science	Pre	1.9821	.23214	56	1.3881
			Post	1.7500			1.3440
VLS47	I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive, etc.).	English	Pre	1.7742	.04839	62	.98212
			Post	1.7258			1.0109
		Computer Science	Pre	1.5179	.05357	56	.76085
			Post	1.4643			.73767

Table 6.16 shows which of the increases or decreases mentioned above were significant by major. As the table shows, the decrease in use of VLS42 was nearly significant for EMLs and significant for CompSMLs. The learners' significant and nearly significant decreases in use are discussed below in 'alphabetical order'.

Table 6.16 ANOVA GLM repeated measurements test showing the results of learners from different majors' behaviour in use of vocabulary note-taking strategies (VLSD7)

VLS Number	Ways of organizing words noted	Major	F	Sig.	η²
VLS41	By units or lessons of the textbook.	English	1.481	.228	
		Computer Science	1.805	.185	
VLS42	I organize the words in alphabetical order.	English	3.571	**.064**	
		Computer Science	4.311	**.043**	**.073**
VLS43	In a random order.	English	1.776	.188	
		Computer Science	1.498	.226	
VLS44	I organize the words by their grammatical category (e.g. noun, verb, adjective, etc.).	English	.260	.612	
		Computer Science	.247	.621	
VLS45	I organize the words by their meaning groups. (e.g. animals, fruits, food, colours, etc.).	English	1.910	.172	
		Computer Science	2.442	.124	
VLS46	According to their difficulty (e.g. from easiest to most difficult).	English	.2.687	.107	
		Computer Science	2.594	.113	
VLS47	I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive, etc.).	English	.525	.471	
		Computer Science	.387	.536	

Organising the words in 'alphabetical order' was a nearly significant decrease by EMLs (pre-mean 1.80, post-mean 1.61; p=.064) and a significant decrease with a moderate effect size among CompSMLs (pre-mean 1.80, post-mean 1.50; p=<.043; η²=073). A possible explanation for this is that learners might find it time consuming to use this strategy. For example; the majority of the learners offered the following reasons;

> *"It takes time and effort to use such a strategy."*
> **(E.F.P6)**

> *"It takes a lot of time for me to do this."* **(CompS.M.P2**)

It is true that this strategy requires a higher level of cognitive processing, which takes time to apply in vocabulary learning, as this learner claimed:

> *"It requires high mental processes so I do not use it."* **(E.F.P5)**

Figure 6.14 shows the significant decrease in use of arranging noted 'in alphabetical order' by CompSMLs and the almost significant change among EMLs.

Figure 6.14 The decrease in use of 'alphabetical order' (VLS42) by major
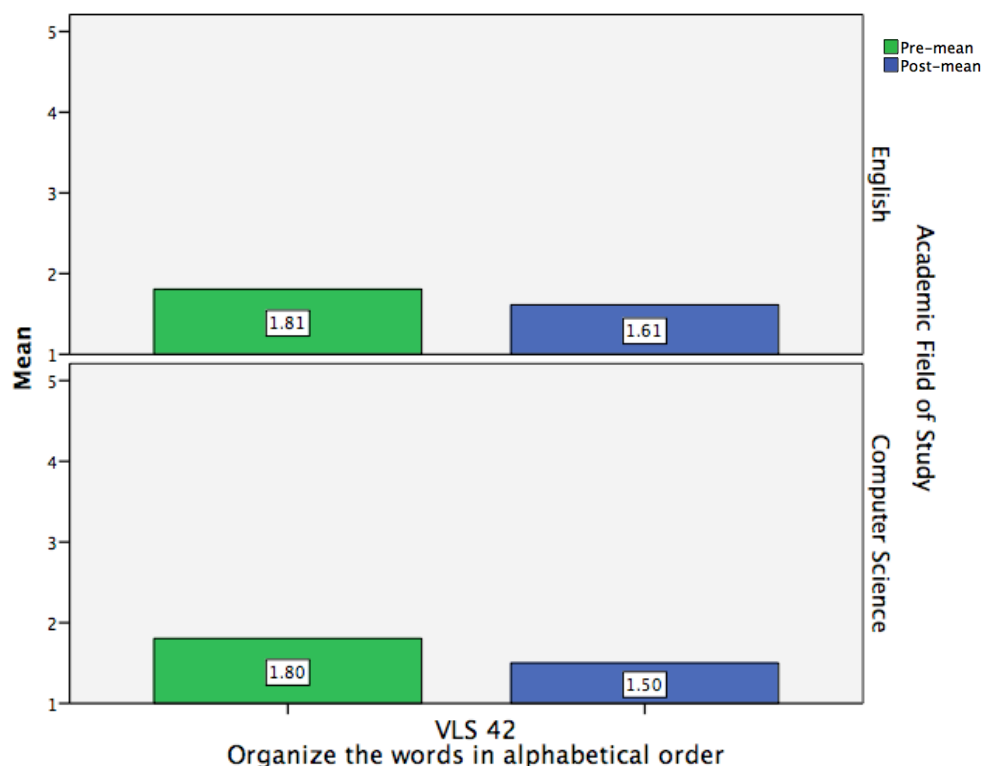
6.2.2.8 Behaviour when giving reasons for word selection (VLSD8)

Table 6.17 displays the individual VLSs used by both groups of learners in this dimension at time1 and time2, revealing differences over time and by majors. The dimension related to reasons for selecting particular words to note, and changes include: 'the word is unknown and thus new to me', which increased among EMLs and remained similar for CompSMLs; 'it recurs frequently in the text where I met it', which remained almost the same for both groups, it is a 'highly frequent word in English', which increased for both groups, it is a 'highly frequent word in Arabic', which decreased for both groups, 'the word is a key word in the text where I encountered it', which increased among EMLs but decreased among CompSMLs; 'the teacher said was

important', which remained the same for the EMLs but decreased for the CompSMLs; 'the word is needed when speaking or writing', which decreased for the EMLs, but remained the same for the CompSMLs; 'the word is useful to me', which remained relatively unchanged for both groups; and finally, 'the word is difficult', which increased for both majors.

Table 6.17 Major's behaviour when selecting specific words during note-taking (VLSD8)

VLS Number	Reasons for word selection	Major	Mean		Mean DF	N	SD
VLS48	I select a word for note-taking if I see that the word is unknown and thus new to me.	English	Pre	4.2097	-.17742	62	1.0885
			Post	4.3871			.99761
		Computer Science	Pre	4.4286	-.03571	56	1.0419
			Post	4.4643			1.0611
VLS49	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	English	Pre	4.1452	-.01613	62	.90258
			Post	4.1613			.90886
		Computer Science	Pre	3.9643	-.07143	56	1.0438
			Post	4.0357			1.0084
VLS50	The word is important in that I realize it is a highly frequent word in English.	English	Pre	2.8500	-.13333	62	1.3254
			Post	3.0000			1.3662
		Computer Science	Pre	2.4643	-.12500	56	1.3877
			Post	2.5893			1.3853
VLS51	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	English	Pre	3.6290	.20968	62	1.2705
			Post	3.4194			1.3000
		Computer Science	Pre	3.3393	.14286	56	1.2398
			Post	3.1964			1.3674
VLS52	The word is important in that it is a key word in the text where I met it.	English	Pre	3.5806	-.03226	62	1.1811
			Post	3.6129			1.1359
		Computer Science	Pre	3.4643	.08929	56	1.0438
			Post	3.3750			1.0542
VLS53	I select a word for note-taking if I see that the word is important in that the teacher said so.	English	Pre	3.9032	-.06452	62	1.2507
			Post	3.9677			1.1730
		Computer Science	Pre	3.7143	.05357	56	.96699
			Post	3.6607			.90004
VLS54	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	English	Pre	4.2581	.11290	62	1.0702
			Post	4.1452			1.0377
		Computer Science	Pre	4.1071	.19643	56	.90812
			Post	3.9107			.92002
VLS55	I select a word for note-taking if I see that the word is useful to me.	English	Pre	4.2903	-.06452	62	.83739
			Post	4.3548			.79128
		Computer Science	Pre	4.3571	.03571	56	.69879
			Post	4.3214			.76532
VLS56	The word is difficult for me.	English	Pre	3.5645	-.14516	62	1.1397
			Post	3.7097			1.2332
		Computer Science	Pre	3.9107	-.10714	56	1.1485
			Post	4.0179			1.1035

As Table 6.18 shows, none of the increases or decreases in learners' chosen note-taking strategies were significant. This indicates that learners' habits in terms of

selecting criteria when note-taking remained unchanged between time1 and time2.

**Table 6.18 ANOVA GLM repeated measurements test results for learners'
behaviour when selecting specific words during note-taking (VLSD8)**

VLS Number	Reasons for word selection	Major	F	Sig.
VLS48	I select a word for note-taking if I see that the word is unknown and thus new to me.	English	1.676	.200
		Computer Science	.045	.833
VLS49	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	English	1.000	.321
		Computer Science	.529	.470
VLS50	The word is important in that I realize it is a highly frequent word in English	English	.741	.393
		Computer Science	2.655	.109
VLS51	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	English	2.124	.150
		Computer Science	.840	.363
VLS52	The word is important in that it is a key word in the text where I met it.	English	1.000	.321
		Computer Science	1.956	.168
VLS53	I select a word for note-taking if I see that the word is important in that the teacher said so.	English	1.616	.208
		Computer Science	1.000	.322
VLS54	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	English	2.647	.109
		Computer Science	2.774	.101
VLS55	I select a word for note-taking if I see that the word is useful to me.	English	1.616	.208
		Computer Science	1.000	.322
VLS56	The word is difficult for me.	English	1.744	.192
		Computer Science	2.647	.109

6.2.2.9 Behaviour when using repetition strategies (VLSD9)

Table 6.19 displays the individual VLSs in this dimension used by both majors. As the table shows, the strategies employed altered in both groups between the two test periods. These were modes of repetition including: 'I say the word aloud several times' decreased for both majors, 'I repeat the word silently several times', which increased for both majors, 'I write the word several times', which increased among both majors, and

finally: 'I listen to the word several times', which increased among EMLs but decreased for CompSMLs.

Table 6.19 Major's behaviour in use of ways of repetition (VLSD9)

VLS Number	Methods of repetition	Major	Mean		Mean DF	N	SD
VLS57	I say the word aloud several times.	English	Pre	2.5806	-.17742	62	1.4547
			Post	2.4839			1.4569
		Computer Science	Pre	2.6786	-.12500	56	1.5148
			Post	2.3393			1.3521
VLS58	I repeat the word silently several times.	English	Pre	3.7258	-.01613	62	1.1039
			Post	3.8387			1.1042
		Computer Science	Pre	3.4643	-.07143	56	1.2499
			Post	3.6071			1.2746
VLS59	I write the word several times.	English	Pre	3.8387	.22184	62	1.2037
			Post	4.0161			1.2107
		Computer Science	Pre	3.6964	-.12500	56	1.1586
			Post	3.7321			1.1271
VLS60	I listen to the word several times.	English	Pre	3.3871	-.25806	62	1.2976
			Post	3.6452			1.4383
		Computer Science	Pre	3.5000	.17857	56	1.3882
			Post	3.3214			1.4660

As Table 6.20 shows, none of the increases or decreases in learners' approaches to repetition were significant. This indicates learners' habits, in terms of methods for memorising new words remained the same across the one-year study period.

Table 6.20 ANOVA GLM repeated measurements test showing the results for learners from different majors' behaviour in terms of repetition (VLSD9)

VLS Number	Methods of repetition	Major	F	Sig.
VLS57	I say the word aloud several times.	English	.282	.597
		Computer Science	2.758	.102
VLS85	I repeat the word silently several times.	English	1.991	.163
		Computer Science	1.236	.271
VLS59	I write the word several times.	English	2.244	.139
		Computer Science	.037	.848
VLS60	I listen to the word several times.	English	1.681	.200
		Computer Science	.570	.453

6.2.2.10 *Behaviour when using information when repeating new words (VLSD10)*

Table 6.21 displays the individual VLSs in dimension VLSD10 as used by both majors. As the table shows, changes between time1 and time2 occurred variously for each group. Information used when repeating new words included: 'say the word and its Arabic meaning' which decreased among EMLs but increased among CompSMLs, 'with nothing else', which remained the same for EMLs but decreased among CompSMLs, 'repeat example sentence', which fell for learners from both majors; and finally, 'repeat the word and its English definition', which increased among EMLs but fell for the CompSMLs.

Table 6.21 Major's behaviour in use of information when repeating new words (VLSD10)

VLS Number	Information used when repeating new words	Major	Mean		Mean DF	N	SD
VLS61	Say the word and its Arabic translation.	English	Pre	3.0161	.09677	62	1.2212
			Post	2.9194			1.3342
		Computer Science	Pre	3.1071	-.19643	56	1.3440
			Post	3.3036			1.3740
VLS62	Only repeat the English word with nothing else.	English	Pre	3.7742	.04838	62	1.1931
			Post	3.7258			1.4161
		Computer Science	Pre	3.7500	.25000	56	1.4553
			Post	3.5000			1.5374
VLS63	Repeat example sentences several times.	English	Pre	2.5968	.11290	62	1.1798
			Post	2.4839			1.2511
		Computer Science	Pre	2.6429	.25000	56	1.3675
			Post	2.3929			1.3028
VLS64	Repeat the word and its English definition.	English	Pre	2.6774	-.11290	62	1.3028
			Post	2.7903			1.2299
		Computer Science	Pre	2.3929	.10714	56	1.2602
			Post	2.2857			1.2893

As Table 6.22 shows, none of the increases or decreases in learners' information used when repeating new words was significant. This indicates learners' habits in terms of dimension remained almost the same over the one-year study period.

Table 6.22 ANOVA GLM repeated measurements and test results for majors' behaviour in relation to information used when repeating new words (VLSD10)

VLS Number	Information used when repeating new words	Major	F	Sig.
VLS61	Say the word and its Arabic translation.	English	.258	.614
		Computer Science	2.650	.109
VLS62	Only repeat the English word with nothing else.	English	.141	.709
		Computer Science	.941	.336
VLS63	Repeat example sentences several times.	English	2.385	.128
		Computer Science	1.915	.172
VLS64	Repeat the word and its English definition.	English	2.385	.128
		Computer Science	1.827	.182

6.2.2.11   *Behaviour when using association (VLSD 11)*

Table 6.23 displays individual VLSs in this dimension as used by both participants in majors. As the table shows, some strategies underwent an increase or decrease in usage by EMLs and CompSMLs between the two study periods. These were association strategies, and included: 'I relate the new word to other English words similar in sound', which decreased for both majors; linking words 'to synonyms', which remained almost the same with EMLs but decreased for CompSMLs; those 'similar to Arabic in sound' fell for EMLs and increased for CompSMLs; use of the 'keyword method', which fell for both groups; 'words follow each other', which increased for EMLs and decreased for CompSMLs; 'physical action', which decreased for both majors, 'breaking the word into its syllables', which remained similar for EMLs, but decreased among CompSMLs.

Table 6.23 Major's behaviour with regard to using association strategies (VLSD11)

VLS Number	Association strategies	Major	Mean		Mean DF	N	SD
VLS65	I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	English	Pre	3.1290	.11290	62	1.3608
			Post	3.0161			1.3488
		Computer Science	Pre	2.3750	.08928	56	1.3151
			Post	2.2857			1.2893
VLS66	I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	English	Pre	2.9516	.11290	62	1.2470
			Post	3.1129			1.2944
		Computer Science	Pre	2.3393	.17857	56	1.3521
			Post	2.1607			1.2472
VLS67	I associate the new word with a word in Arabic similar in sound.	English	Pre	2.5806	.16129	62	1.3736
			Post	2.4194			1.3495
		Computer Science	Pre	2.7321	-.08928	56	1.3946
			Post	2.8214			1.3765
VLS68	I use the keyword method.	English	Pre	2.3387	.11290	62	1.3175
			Post	2.2258			1.3109
		Computer Science	Pre	2.1071	.03571	56	1.3028
			Post	2.0714			1.3994
VLS69	I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	English	Pre	3.0806	-.16129	62	1.4854
			Post	3.2419			1.4221
		Computer Science	Pre	2.3214	.14286	56	1.1925
			Post	2.1786			1.0635
VLS70	I associate the new word with a physical action that I do or imagine.	English	Pre	2.5000	.08065	62	1.3275
			Post	2.4194			1.3972
		Computer Science	Pre	2.4643	.10714	56	1.3972
			Post	2.3571			1.4197
VLS71	I break up the new word according to its syllables or structure (e.g. prefixes Uneducated, suffixes educator, etc.).	English	Pre	2.6935	-.24194	62	1.4641
			Post	2.9355			1.4807
		Computer Science	Pre	2.2679	.07143	56	1.2134
			Post	2.1964			1.1819

Table 6.24 shows which of the increases or decreases mentioned above were significant for each major. As the table shows, the decrease in use of VLS70 was significant for CompSMLs, while the decrease in use of this strategy was not significant for EMLs.

Table 6.24 ANOVA GLM repeated measurements test showing the results for learners from different majors' behaviour in terms of association strategies (VLSD11)

VLS Number	Association strategies	Major	F	Sig.	η^2
VLS65	I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	English	1.409	.240	
		Computer Science	1.956	.168	
VLS66	I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	English	1.809	.184	
		Computer Science	2.221	.142	
VLS67	I associate the new word with a word in Arabic similar in sound.	English	1.398	.242	
		Computer Science	1.956	.168	
VLS68	I use the keyword method.	English	1.199	.278	
		Computer Science	.079	.780	
VLS69	I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	English	1.255	.267	
		Computer Science	2.529	.118	
VLS70	I associate the new word with a physical action that I do or imagine.	English	.266	.608	
		Computer Science	.312	.579	
VLS71	I break up the new word according to its syllables or structure (e.g. prefixes Uneducated, suffixes educator, etc.).	English	2.937	**.092**	
		Computer Science	.304	.584	

VLS71, 'I break up the new word according to its structure' almost significantly increased in use by EMLs (pre-mean 2.69, post-mean 2.93; p=.092). This means the EMLs appreciate the benefits of using this VLS, such that it makes retaining new words more useful, as claimed by several EMLs.

Similarly, CompSMLs reduced their use of this strategy; although it was not significant (pre-mean 2.26, post-mean 2.19; p=.584). Several learners claimed the strategy would not be helpful for them or important, probably because they did not know how to break up the word according to its syllables, as this is only taught on the EMLs' curriculum.

Figure 6.15 shows a decrease in use of "I break up new words according to their structure" by all majors.

Figure 6.15 The change in use of 'I break up the new words according to its structure' (VLS71) by major
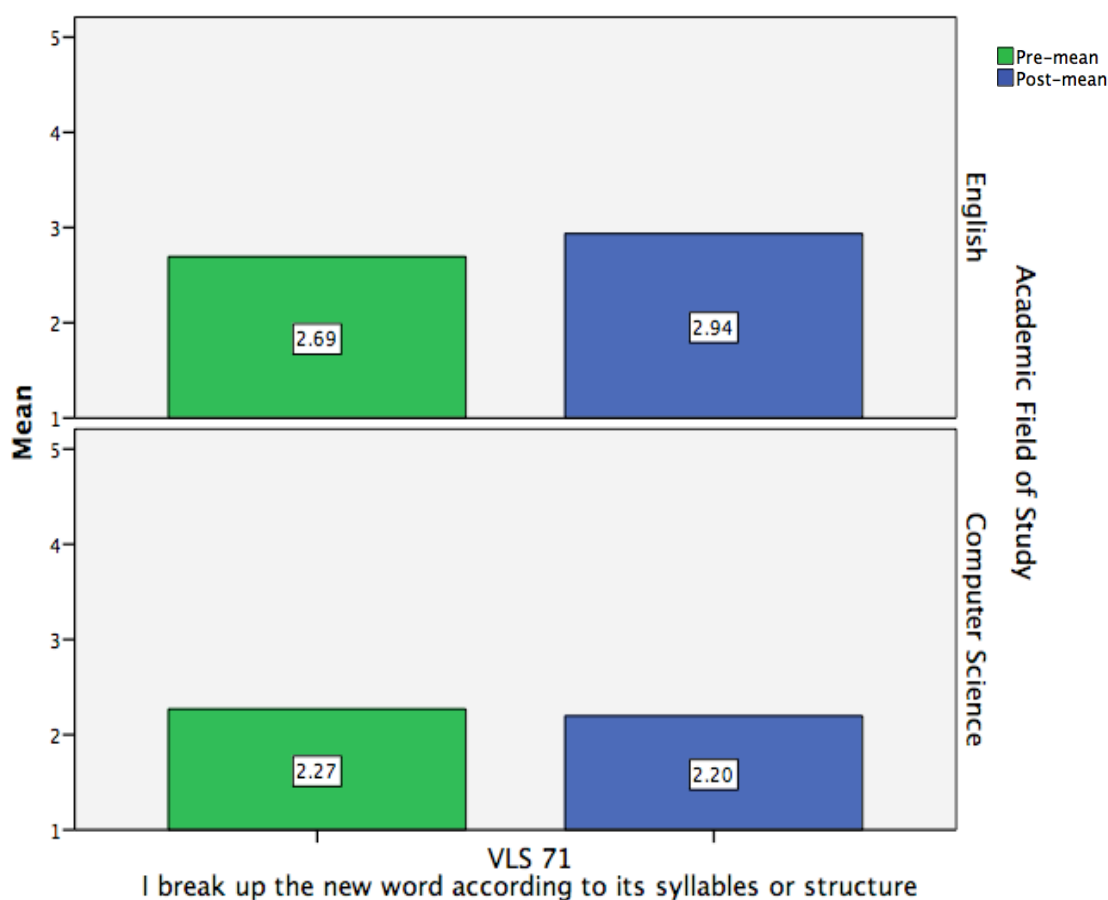
6.2.2.12   *Behaviour when using practise strategies (VLSD12)*

Table 6.25 displays the individual VLSs in this dimension as used by learners from both majors. The table shows changes in strategy use as follows: 'looking for opportunities' was used more by EMLs at time2 than time1, but remained the same for CompSMLs; use of 'I quiz myself' reduced for both groups; 'saying things by myself' increased among all participants; and finally, 'using new words in speaking or writing' increased for both groups.

Table 6.25 Major's behaviour when practise strategies (VLSD12)

VLS Number	Practising/Consolidation strategies	Major	Mean		Mean DF	N	SD
VLS72	I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	English	Pre	3.4677	-.14516	62	1.1554
			Post	3.6129			1.2328
		Computer Science	Pre	3.2500	.01786	56	1.3245
			Post	3.2321			1.2932
VLS73	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	English	Pre	3.4032	.22581	62	1.1798
			Post	3.1774			1.2082
		Computer Science	Pre	3.0893	.30357	56	1.4681
			Post	2.7857			1.4105
VLS74	I practise saying things in English by myself.	English	Pre	3.2258	-.09677	62	1.2692
			Post	3.3226			1.3154
		Computer Science	Pre	2.8393	-.08929	56	1.3042
			Post	2.9286			1.3191
VLS75	I use as many new words as possible in speaking or in writing.	English	Pre	3.1290	-.08065	62	1.3242
			Post	3.2096			1.2299
		Computer Science	Pre	2.7678	-.08929	56	1.3347
			Post	2.8571			1.2421

Table 6.26 shows none of the increases or decreases in learners' strategy practise were significant. This indicates that learners' habits, in terms of this dimension remained almost identical during the one-year study period.

Table 6.26 ANOVA GLM repeated measurements test showing the results of learners from majors' behaviour in terms of strategies practised (VLSD12)

VLS Number	Practising/Consolidation strategies	Major	F	Sig.
VLS72	I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	English	.740	.393
		Computer Science	.009	.919
VLS73	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	English	2.385	.128
		Computer Science	2.733	.104
VLS74	I practise saying things in English by myself.	English	2.033	.159
		Computer Science	.380	.540
VLS75	I use as many new words as possible in speaking or in writing.	English	1.685	.199
		Computer Science	.290	.592

6.3 Perceived uses and usefulness of VLSs for EMLs and CompSMLs

This section presents the results obtained in terms of the relationship between major and the frequency of use of various VLSs and their usefulness, as reported in the main study (i.e. third year). To examine this relationship, I used an independent sample t-test. I examined the means for use of VLSs and the perceived usefulness of the VLSs in each dimension between the EMLs and CompSMLs. As mentioned in the methodology chapter (see 5.4), the participants are 62 learners from the English department and 56 from the Computer Science department. This section will answer RQ2M and RQ3M;

RQ2M- What effect does academic field of study have on the reported use of VLSs by Saudi 3rd year students? Why?

RQ3M- What effect does academic field of study have on the perceived usefulness of VLSs, as reported by Saudi 3rd year students? Why?

Frequently with research into VLSs, some researchers present the top 5 or 10 most used VLSs by subject (Ahmed, 1988; Schmitt, 1997; Catalan, 2003; Marin, 2005; Alyami, 2011). Herein the most and least five used VLSs for each major are given, as well as those perceived as most and least useful across all 12 dimensions.

Overall, Table 6.27 and Table 6.28 show the most used VLSs, and the most useful VLSs, which are reported for each major respectively. Interestingly, and more importantly, most of the top five strategies used most by both majors were also considered among the top five most useful strategies used by both groups, except for one strategy from the EMLs (i.e. rank 4), which was not among the top five useful strategies, although it was among the top 10 useful strategies. These results indicate some correlation between learners' use of VLSs and their reported perception of their usefulness; however, investigating this is beyond the scope of this thesis. Instead, the

focus here is on the differences between majors in terms of the uses and usefulness of VLSs.

These results were partially inline with those presented in other studies, such as Lo (2007), as mentioned in chapter three (3.4). Moreover, Table 6.27 shows the mean value for the most used strategies, where all score over '4' on the scale corresponding to 'often'. While Table 6.28 shows the mean value for VLSs usefulness with a mean score over '4', suggesting 'quite useful' for both groups of participants.

Table 6.27 and Table 6.28 show five strategies representing three of the twelve dimensions in my study: **VLSD3**=*Types of dictionary used;* **VLSD5**=*Types of word and non-word information noted*; **VLSD8**=*Reasons for word selection.*

Table 6.27 and Table 6.28 show a further noteworthy result, which is that most of the strategies represent the reasons for word selection (VLSD8). For example, four strategies were among the five strategies used and rated most often by EMLs, as compared to the two strategies used by the CompSMLs, suggesting this dimension (i.e. *VLSD8=Reasons for vocabulary selection)* was the most preferred dimension when compared with other dimensions for learners studying both majors. These results are similar to those reported in chapter four (see 4.6.2).

In addition, Table 6.27 shows that in reference to the decision to note a word, the most used VLSs by both majors, was 'If the word is unknown and thus new to me', with a mean score of '4.38' for EMLs and '4.46' for CompSMLs. While in terms of usefulness EMLs highest mean was afforded to the dictionary strategy 'using an electronic dictionary', with a mean score of '4.53, while for CompSMLs, the highest useful mean was for the strategy above, 'If the word is unknown and thus new to me' with a mean score of '4.64' (Table 6.28).

There are explanations given for why these five strategies were the most used strategies and most highly rated by participants from both majors. For example, using an 'electronic dictionary such as Atlas to check the meaning of the unknown words' was the most popular selection for all learners, because the central purpose when using a dictionary is to establish meaning. This supports the findings of Marin (2005), Schmitt (1997), Alyami (2011), and Al-Qahtani (2005), who found that learners have a tendency to use electronic dictionaries to check for meaning, and that this was one of the most used strategies.

In summary, as shown in Table 6.27 and Table 6.28, learners from both majors used and rated the strategies similarly; i.e. 'the word is unknown and thus new to me', 'the word is useful to me', 'I use an electronic dictionary'. However they differed in four strategies, two for EMLs and two for CompSMLs; e.g. EMLs preferred 'I select the word if the word recurs frequently' with a mean score of '4.16' and 'I select the word if the word is important for speaking or writing' with a mean score of 4.14', while CompSMLs reported 'I use a smartphone dictionary' with a mean score of '4.37' and 'I write down the English word with its Arabic meaning' with a mean score of '4.37' (Table 6.27). However all these strategies were judged not significant between majors in terms of use and usefulness, as I discussed them later in reference to their appropriate subsections (see 6.3.3, 6.3.5 and 6.3.8).

Table 6.27 The top five most frequently used vocabulary-learning strategies (VLSs) by major

Rank	English Major				Computer Science Major			
	VLSs	**VLSD**	**Mean**	**SD**	**VLSs**	**VLSD**	**Mean**	**SD**
1	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.38	.997	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.46	1.06
2	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.35	.791	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.37	1.07
3	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.22	1.13	I write down the English word with its Arabic translation.	VLSD5	4.37	.799
4	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	VLSD8	4.16	.908	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.32	.916
5	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	VLSD8	4.14	1.03	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.32	.765

*Note: **VLSD3**=Types of dictionary used; **VLSD5**=Types of word and non-word information noted*; ***VLSD8**=Reasons for word selection.*

Table 6.28 The top five most useful vocabulary-learning strategies (VLSs) by major

Rank	English Major				Computer Science Major			
	VLSs	**VLSD**	**Mean**	**SD**	**VLSs**	**VLSD**	**Mean**	**SD**
1	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.53	1.06	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.64	.818
2	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.46	.740	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.55	1.02
3	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.45	1.00	I write down the English word with its Arabic translation.	VLSD5	4.51	.738
4	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.41	1.09	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.42	.759
5	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	VLSD8	4.35	.870	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.41	.910

*Note: **VLSD3**=Types of dictionary used; **VLSD5**=Types of word and non-word information noted*; ***VLSD8**=Reasons for word selection.*

In terms of least used VLSs, and the least useful VLSs, Table 6.29 shows the five least used VLSs by participants from both majors, and the mean values for these

least used strategies that were above '1' and below '2' on a scale corresponding to never reported by both majors. Similarly, Table 6.30 shows the five least useful strategies, as reported by both groups, and the mean scores for VLSs usefulness as above '1' and below '2' on the scale, corresponding to 'not useful'. Interestingly and more importantly, all the least five used strategies by both majors were also classified as the five least useful strategies, except for the CompSMLs who identified one VLS that is not among the least five useful strategies, which is 'I organise the words by their grammar category', although it is still among the least useful strategies as addressed in (6.3.7). Again these results probably indicate some connection between learners' uses of VLSs and their perception of their usefulness.

Table 6.29 and Table 6.30 identify five strategies as representative of three of the twelve dimensions in the study; **VLSD5**=*types of word and non-word information noted*; **VLSD6**=*Location of vocabulary NTS*; and **VLSD7**=*Ways of organising the words noted*. Interestingly, all these dimensions are associated with vocabulary note-taking strategies (Category 2), highlighting that the least frequently used strategies and the least useful strategies were vocabulary note-taking strategies.

There is also evidence of strategies from VLSD5, VLSD6, and VLSD7 (Table 6.29 and Table 6.30) being less popular. However, only two of the strategies representing VLSD5 and VLSD7, included 'organising the new word according to its difficulty' and 'writing down the source' were found among the least five used VLSs by EMLs with a mean score of '1.58' and '1.59' respectively. However, there were two strategies from VLSD7 'organise the words according to their grammatical category' and 'organise the words in families with the same stem' that were only found among the five least used VLSs by CompSMLs, with mean scores of '1.37' and '1.46' respectively.

Table 6.29 shows the least used VLSs by both majors, illustrating that 'keep notes on cards' from VLSD6 was a lesser used VLSs by EMLs, with a mean score of '1.41', while the least used VLSs by CompSMLs was 'organising words according to their grammatical category' with a mean score of '1.37'.

On the other hand, Table 6.30 shows the least useful strategies reported by both majors. For example, in EMLs, the least useful strategy was 'keep notes on cards' from VLSD6, with a mean score of '1.37', while the least useful VLSs, as reported from CompSMLs, was 'organising the words in the alphabetical order', with a mean score of '1.46'. These results support those reported elsewhere, such as by Al-Hatmi (2012) and Alyami (2011), who found 'keeping notes on cards' or 'organising the words in alphabetical order' were among the least used strategies reported by their participants.

Various explanations exist to explain why these five strategies were among the least used and rated by both majors. For example, strategies such as 'organising the words in alphabetical order' require much time and effort, while strategies such as 'keep notes on cards' were easy to lose, as claimed by learners from both majors, as the following extract shows:

> *"I tried it before and it is easy to lose the cards."*
> **(CompS.F.P5)**
>
> *"Easy to lose."* **(E.F.P6)**

Notably, none of the strategies listed in Table 6.29 and Table 6.30 were heavily reported by either group in terms of self-reported use and usefulness, as discussed below (see 6.3.5, 6.3.6 and 6.3.7).

Table 6.29 The five least frequently used vocabulary-learning strategies (VLSs) by major

Rank	English Major				Computer Science Major			
	VLSs	VLSD	Mean	SD	VLSs	VLSD	Mean	SD
75	Keep notes on cards.	VLSD6	1.41	.666	I organize the words by their grammatical category.	VLSD7	1.37	.702
74	Keep notes on wall charts, or posters.	VLSD6	1.45	.843	I organize words in families with the same stem.	VLSD7	1.46	.761
73	According to their difficulty.	VLSD7	1.58	.984	I organize the words in alphabetical order.	VLSD7	1.50	.894
72	I write down a note about the source I got it from.	VLSD5	1.59	.798	Keep notes on wall charts or posters.	VLSD6	1.51	.808
71	I organize the words in alphabetical order.	VLSD7	1.61	.947	Keep notes on cards.	VLSD6	1.51	.687

Note: VLSD5=*types of word and non-word information noted*; **VLSD6**=*Location of vocabulary NTS*; and **VLSD7**=*Ways of organising words noted*.

Table 6.30 The five least useful vocabulary-learning strategies (VLSs) by major

Rank	English Major				Computer Science Major			
	VLSs	VLSD	Mean	SD	VLSs	VLSD	Mean	SD
75	Keep notes on cards.	VLSD6	1.37	.794	I organize the words in alphabetical order.	VLSD7	1.46	.852
74	I write down a note about the source I got it from (e.g. unit, film, where I encountered it).	VLSD5	1.50	.784	Keep notes on cards.	VLSD6	1.46	.659
73	I organize the words in alphabetical order.	VLSD7	1.59	.858	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	VLSD6	1.48	.713
72	According to their difficulty (e.g. from easiest to most difficult).	VLSD7	1.64	.976	I write down a note about the source I got it from (e.g. unit, film, where I encountered it).	VLSD7	1.60	.926
71	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	VLSD6	1.66	.808	I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive, etc.).	VLSD5	1.71	1.13

Note: VLSD5=*types of word and non-word information noted*; **VLSD6**=*Location of vocabulary NTS*; and **VLSD7**=*Ways of organising words noted*.

The following subsections address the self-reported uses and usefulness of various VLSs in each dimension, distinguishing between the views of EMLs and CompSMLs.

6.3.1 Perceived uses and usefulness for guessing strategies (VLSD1)

Table 6.31 details the descriptive statistics describing the relationship between the participants' academic field of study (**AFoS**) and both the frequency with which they employ guessing strategies and their perceived usefulness. As the table shows, there was a noticeable difference between EMLs CompSMLs in their use of the two guessing strategies, as well as in the participants' reported belief in their usefulness (means for these are in bold); i.e. in the dimension 'guessing the meaning of the new words', VLS3 'analysing the structure of the word' and VLS4 'analysing the word's part of speech'. For ease of reference, I will refer to the strategies employed by their VLS number (e.g. VLS3, VLS4, etc.).

Table 6.31 Descriptive statistics for use of guessing strategies by major (VLSD1)

VLS Number	Guessing strategies	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS1	Saying the word aloud several times.	English	1.629		.8913	1.790		1.132	62
		Computer Science	1.892	-.2638	1.003	1.928	-.1382	1.203	56
VLS2	Checking if it is similar to Arabic in sound.	English	2.306		1.397	2.177		1.361	62
		Computer Science	2.178	.1278	1.336	2.000	.1774	1.279	56
VLS3	Analyzing the structure of the word (e.g. prefixes, suffixes).	English	**3.064**		1.469	**3.338**		1.492	62
		Computer Science	**1.982**	1.082	1.086	**2.142**	1.195	1.150	56
VLS4	Analyzing the word part of speech.	English	**3.241**		1.289	**3.419**		1.300	62
		Computer Science	**2.339**	.9026	1.352	**2.142**	1.276	1.285	56
VLS5	Paying attention to pictures if they accompany the word or text.	English	3.790		1.118	4.145		.9382	62
		Computer Science	4.089	-.2989	.9395	4.267	-.1227	.8632	56
VLS6	Reading the sentence or paragraph containing the unknown word.	English	3.564		1.236	3.806		1.198	62
		Computer Science	3.392	.1716	1.521	3.714	.0921	1.423	56

As shown in Table 6.32, the differences in the EMLs and CompSMLs in terms of the use and usefulness of these six strategies was significant in both cases (i.e. VLS3 and VLS4). I will therefore discuss the significant differences that arose in relation to my subjects' use and usefulness rating for these two guessing strategies.

Table 6.32 Independent sample t-test results for use of guessing strategies and perceived usefulness by major

VLS Number	Guessing strategies	Frequency of Use			Usefulness		
		t	sig.	η^2	t	sig.	η^2
VLS1	Saying the word aloud several times.	-1.513	.133		-.643	.522	
VLS2	Checking if it is similar to Arabic in sound	.507	.613		.727	.468	
VLS3	Analyzing the structure of the word (e.g. prefixes, suffixes)	4.577	**<.001**	**.149**	4.899	**<.001**	**.168**
VLS4	Analyzing the word part of speech	3.702	**<.001**	**.106**	5.355	**<.001**	**.198**
VLS5	Paying attention to pictures if they accompany the word or text.	-1.563	.121		-.737	.463	
VLS6	Reading the sentence or paragraph containing the unknown word.	.668	.505		.382	.703	

My subjects' reported frequency of use of VLS3 and their judgment of its usefulness each differed significantly between the groups. The EMLs use this guessing strategy significantly more frequently than the CompSMLs did, with a large effect size (mean: English=3.06, Computer Science=1.98; p <.001; η^2=.149). This means that the EMLs 'sometimes' use VLS3, while CompSMLs only 'rarely' use it. This result aligns with those presented by Siriwan (2007). Similarly, the EMLs opined that VLS3 is significantly more useful than the CompSMLs did, with a large effect size (mean: English=3.38, Computer Science=2.14; p <.001; η^2=.168). This means the EMLs view VLS3 as 'useful' while the CompSMLs see it as only 'slightly useful'. This is because the EMLs had the knowledge set required to utilise this strategy but the CompSMLs did not. The EMLs studied vocabulary in year 2 and more advanced grammar in year 3 which facilitates the use of such strategies (see 1.6).

The following interview extracts lends some support to this suggestion:

> *"Because knowing the word's prefix, or the suffix that is attached to it, facilitates the guessing process for me, thus I use it."* **(E.M.P4)**

> *"I have very little knowledge about prefixes and suffixes, thus I do not use this strategy."* **(CompS.M.P4)**

> *"It does not help me to guess the meaning of new words because I do not know what the affixes mean."* (**CompS.M.P3**)

The first quotation was from an EML, who indicates that his knowledge of affixes assists him when guessing the meaning of new words, while the second and third quotation were from a CompSMLs who stated the opposite. This supposition is also supported by Chin (1999: 9) who stated that "word form analysis would not be beneficial to EFL readers to conduct on their own unless they have a certain level of knowledge of word parts", which the third year EMLs were able to do. Moreover, EMLs claim that guessing the meaning of a word by analysing the structure of that word helps with retention as this interviewee claimed:

> *"I use this strategy because when I guess the word by analysing its structure it facilitates its retention."* (**E.M.P1**)

However, other CompSMLs claimed to prefer to guess meaning by using strategies such as 'pictures';

> *"I do not use this strategy but I use other strategies such as guessing on the basis of the pictures."* (**CompS.F.P6**)

This may be obvious, since EMLs are taught word segments unlike CompSMLs, as seen in their training courses (see 1.6), which means EMLs are at a relatively high level compared to CompSMLs.

Figure 6.16 displays significant differences in the EMLs' and CompSMLs' use of VLS3, and their judgment of its usefulness.

Figure 6.16 The differences reported in relation to guessing by 'analysing the structure of the word' by major
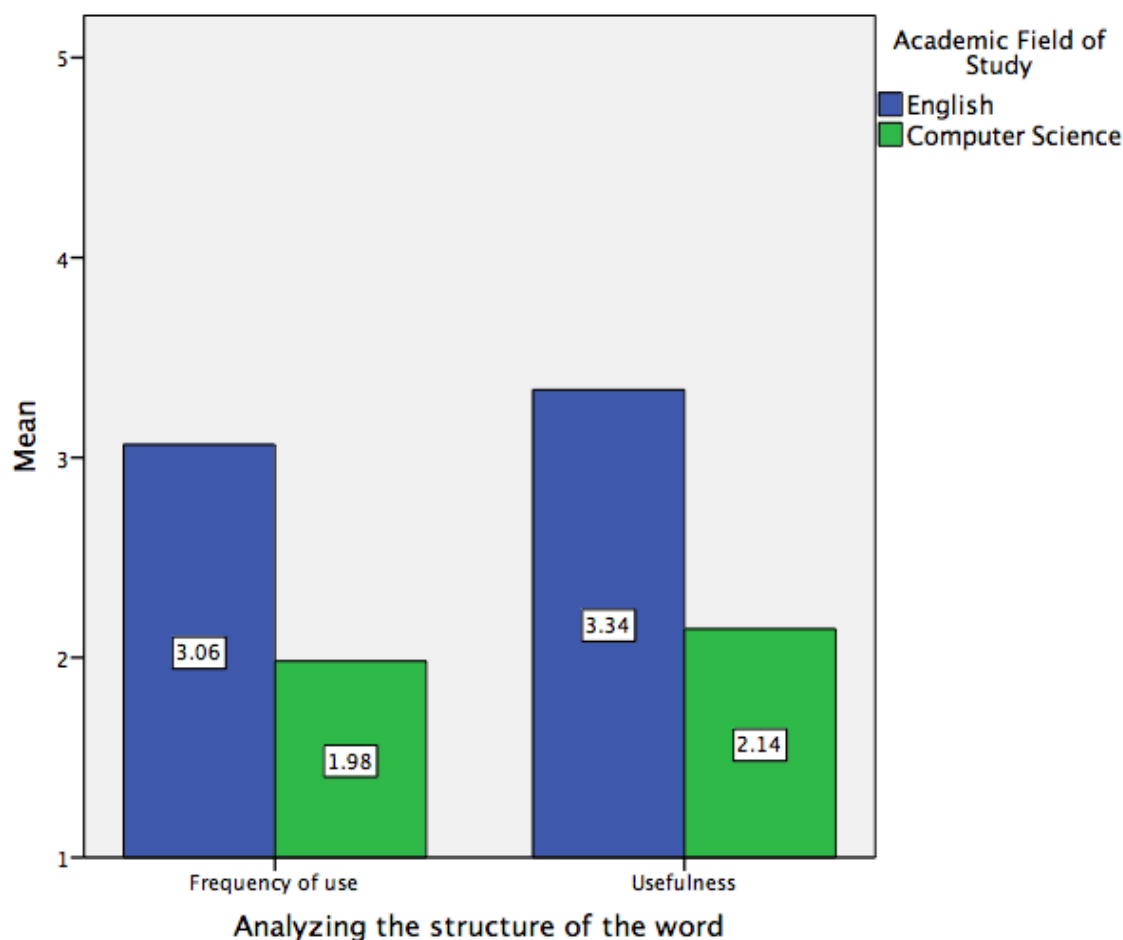
In addition, my subjects reported that the frequency of use of VLS4 and the judgment of its usefulness each varied significantly across majors. EMLs use this guessing strategy significantly more than the CompSMLs did, with a moderate effect size (mean: English=3.24, Computer Science=2.34; $p < .001$; $\eta^2 = .106$). This means the EMLs 'sometimes' use VLS4, while the CompSMLs only 'rarely' use it. Similarly, the EMLs consider VLS4 to be significantly more useful than the CompSMLs did with a large effect size (mean: English=3.42, Computer Science=2.14; $p < .001$; $\eta^2 = .198$). This means the EMLs consider VLS4 'useful' while the CompSMLs consider it only 'slightly useful'. This result aligns with those presented by Siriwan (2007).

These results can be explained by the fact that the EMLs have more experience with language as they follow advanced courses in Year 3, as shown in section 1.6,

which gives them the overall skill to use and benefit from this strategy. One of the explanations provided by an EML interviewee was:

> *"I use this strategy because sometimes I face a word preceded by [to] that suggests the word after it is a verb which then makes it easier for me to guess the meaning of the word."* **(E.F.P6)**

Other EMLs student said:

> *"I use this helpful strategy because using it makes guessing the meaning of new words easy for me"*
> **(E.F.P5)**

Moreover, such a strategy helps EMLs guess the meaning of new words more readily, as it provides clues indicating meaning. One EML stated:

> *"I think if I knew the word's part of speech, whether noun, or verb, it would make it a lot easier to focus on that and then facilitate the guessing of the meaning."* **(E.M.P1)**

In contrast, the interview data showed that some CompSML do not prefer this strategy, because they do not have enough knowledge about grammatical categories as they do not study grammar more as EMLs do (see training courses 1.6), which prevents them from using it, as this learner claimed;

> *"Because I have limited knowledge about grammar categories I rarely use this strategy."* **(CompS.M.P3)**

It seems that EMLs agree with what has been suggested before, that the word's part of speech should be known first before it is possible to guess its meaning (Clarke & Nation, 1980). Moreover, EMLs take more courses about the grammar and syntax and morphology than CompSMLs.

In fact, the CompSMLs use another strategy, which is guessing the category from its meaning in Arabic, as this CompSML claimed:

> *"I do not need to know what part of speech the word is because I can learn this from its meaning in*

Arabic." **(CompS.M.P2)**

Figure 6.17 displays the significant differences in EMLs' and CompSMLs' use of VLS4

and their consequent judgment of its usefulness.

Figure 6.17 The differences reported in relation to guessing by 'analysing the word's part of speech' by major
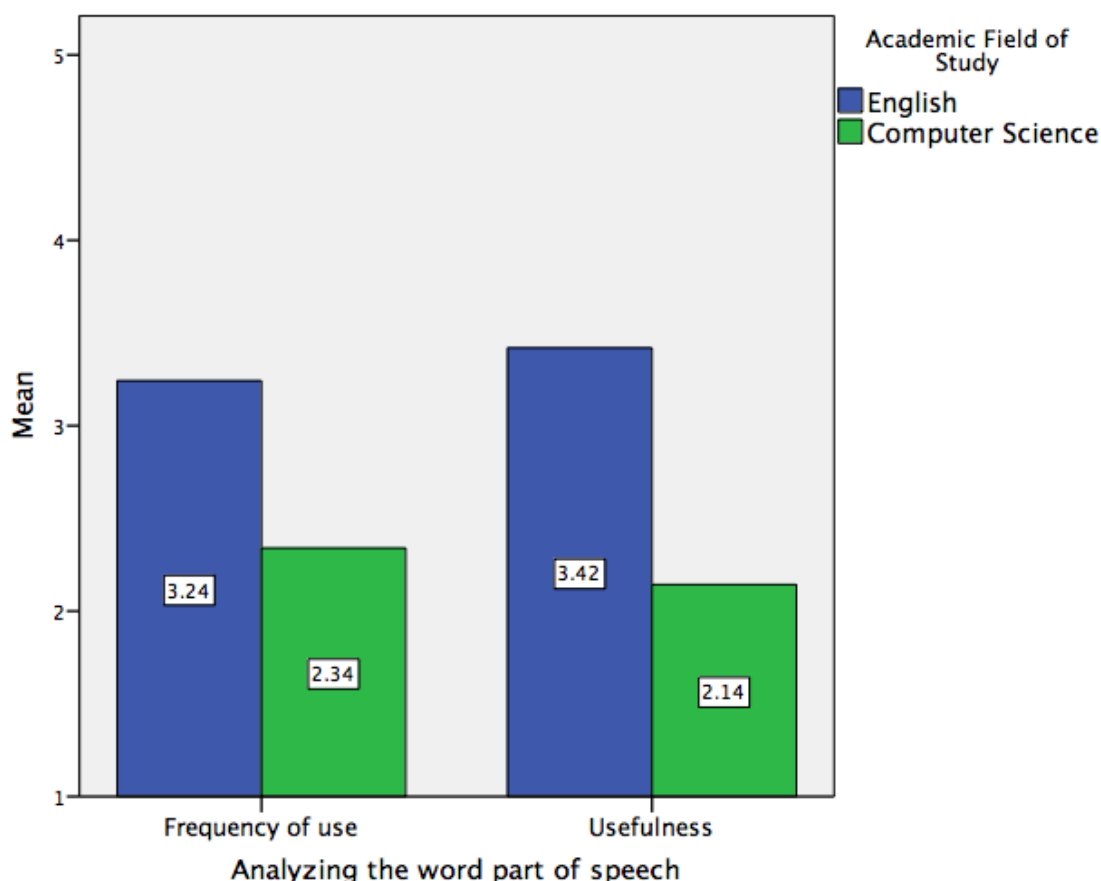
Moving forward to discuss rank order, Figure 6.18 and Figure 6.19 show the

frequency of use of the six guessing strategies individually reported by both majors and

their judgment of its usefulness. According to Figure 6.18, the guessing strategies most

used by both groups were VLS5 'paying attention to pictures' (mean: English=3.79,

Computer Science=4.09). This means learners from both majors claimed they 'often'

use VLS5 to guess the meaning of new words. In fact, this strategy was among the most

used VLSs for all learners. This result aligns with those presented by Marin (2005) and

Al-Qahtani (2005).

In terms of most useful VLSs, Figure 6.19 shows both EMLs and CompSMLs reported VLS5 'paying attention to pictures' as the most useful strategy, when examining the two groups independently (mean: EMLs=4.15, CompSMLs=4.27). A possible explanation for learners' increased use of VLS5 is that the strategy provides some clues to help learners guess the meaning of new words; a learner said;

> *"I guess the meaning of a word by focusing on the picture because pictures give clues to the meaning of words."* **(CompS.M.P4)**

Other CompSMLs said;

> *"I use this strategy because it facilitates my understanding of the meaning of the word."* **(CompS.F.P5)**

> *"A picture is worth a thousand words, so it gives me more information about the new words."* **(CompS.M.P2)**

Other EMLs claimed pictures make it easy for them to guess the meaning of new words because there are some relationships between new words and the pictures:

> *"I guess the meaning of the new word from the picture because it is easy for me to remember the picture and thus retain the word."* **(E.M.P4)**

> *"It is important to have pictures because I can make connections between the words and the pictures in order to help me to guess the meanings of the new words."* **(E.F.P5)**

To support this further, Moeser and Bregman (1973:91) state that learners can more successfully acquire L1 words accompanied by pictures than they can words alone. Moreover, Klinger (2000:10) observed "annotations with pictures could arouse students' attention and set a good start for their later stages of L2 vocabulary acquisition and retention" and "construction of referential connections can be done immediately". Clark and Paivio (1997) emphasized 'dual coding' in which learners benefit from combining words with pictures, facilitating the guessing of new words and retention.

Conversely, Figure 6.18 shows the least used strategy from the guessing strategies for both majors is VLS1 'saying the word aloud' (mean: English=1.63, Computer Science=1.89). Both majors reported that they 'never' use this strategy. This result is consistent with findings reported by Alyami (2011), Marin (2005) and Al-Qahtani (2005). It was among the least used VLSs by both groups, and it is apparent that both reported very close means, with no significant differences between majors (Figure 6.18).

In terms of least useful VLSs, Figure 6.19 shows both majors view VLS1 as the least useful VLS (mean: English=1.79, Computer Science=1.93). This means both find it a 'not useful' strategy. A possible explanation for why both groups disregard VLS1 is the health issues noted above:

> *"I do not guess the meaning of a word by saying it out loud because it causes me to cough."* **(E.M.P4)**

> *"I got a sore-throat when I used this strategy so I decided not to."* **(CompS.M.P1)**

The other reason could be because such strategies cause confusion of meaning as this EML claimed:

> *"Because I want to focus on the words and why I say the word aloud, I sometimes get confused and I do not focus about the word."* **(E.M.P2)**

Another reason shared by students from both majors was the psychological factor. Neither groups feel comfortable using this strategy as claimed in the interviews:

> *"I feel shy when I try to guess the meaning of a word by saying it out loud."* **(CompS.M.P3)**

> *"I feel really shy about using this strategy"* **(E.M.P3)**

Figure 6.18 Overall frequency of use of guessing strategies by major (VLSD1)
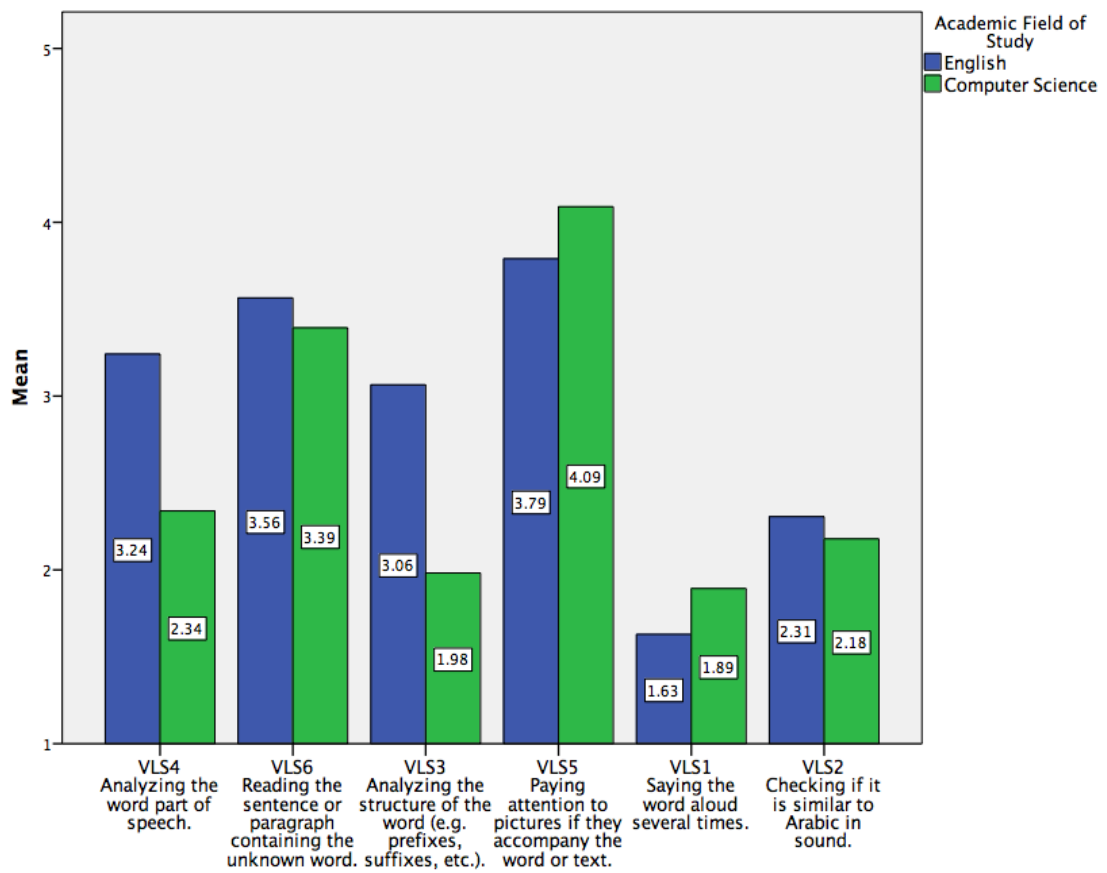
Figure 6.19 Overall of frequency of usefulness of guessing strategies by major (VLSD1)
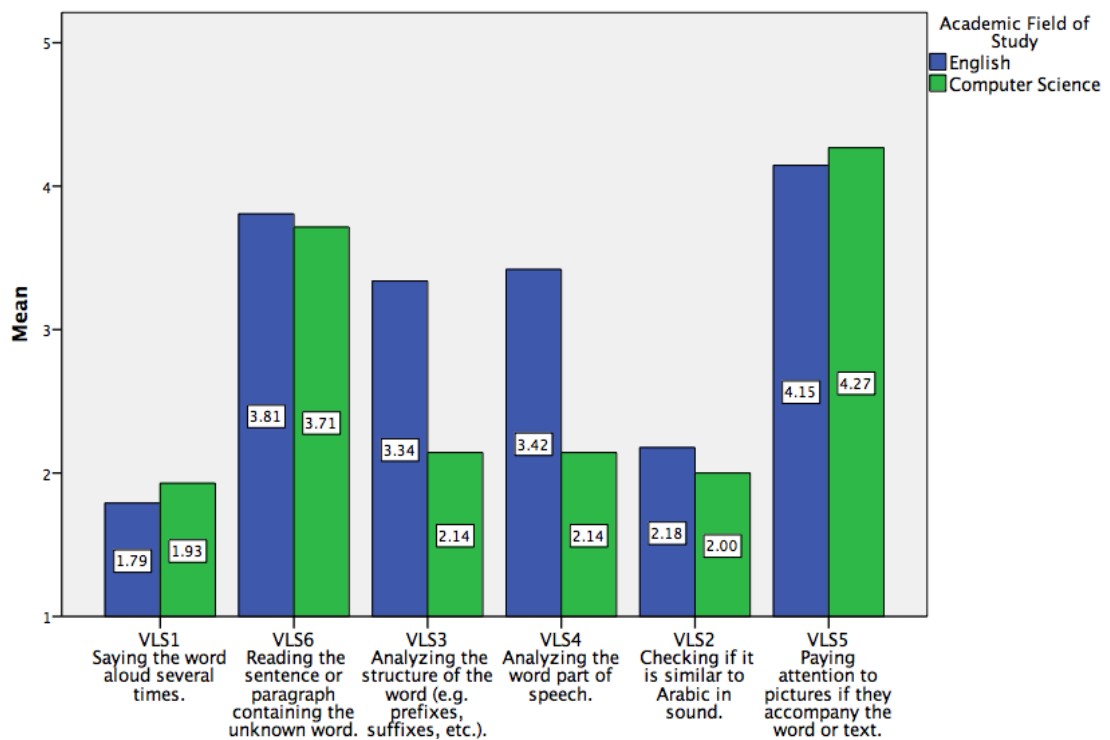
6.3.2 Perceived uses and usefulness for asking strategies (VLSD2)

Table 6.33 shows the descriptive statistics for the relationship between the learners' AFoS and the frequency with which they employ asking strategies and their views about their perceived usefulness. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of two of the guessing strategies, and in their reported usefulness (means for these are given in bold). These were VLS7 'asking teachers or friends about words', VLS8 asking for a 'definition in English', and VLS12 asking for 'its synonyms and antonyms'. There was also a notable difference in use of VLS10 getting 'an example sentence' in terms of perceived usefulness between the two EMLs and CompSMLs. For ease of reference, I will refer to the strategies by their VLS number (e.g. VLS7, VLS8, etc.).

Table 6.33 Descriptive statistics of using the asking strategies across majors (VLSD2)

VLS Number	Asking strategies	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS7	I ask teachers and friends about its Arabic equivalent.	English	3.709		1.464	4.112		1.160	62
		Computer Science	4.107	-.3974	1.231	4.375	-.2621	.9450	56
VLS8	Its definition in English.	English	**3.064**		1.377	**3.403**		1.323	62
		Computer Science	**2.232**	.8323	1.111	**2.607**	.7960	1.274	56
VLS9	Its spelling or pronunciation.	English	3.306		1.350	3.709		1.272	62
		Computer Science	3.035	.2707	1.439	3.428	.2811	1.248	56
VLS10	An example sentence.	English	2.580		1.138	**3.209**		1.175	62
		Computer Science	2.232	.3485	1.293	**2.553**	.6561	1.438	56
VLS11	Its grammatical category.	English	2.661		1.292	2.806	.3421	1.502	62
		Computer Science	2.285	.3755	1.260	2.464		1.361	56
VLS12	Its synonym & antonym in English.	English	**2.693**		1.325	**2.935**	.7212	1.469	62
		Computer Science	**1.892**	.8006	1.185	**2.214**		1.384	56

As shown in Table 6.34, the differences between the EMLs and CompSMLs in terms of their use of and the usefulness of these six strategies was significant for three (i.e. VLS8, VLS10 and VLS12). This leads to a discussion of the significant differences in the subjects' use and judgment of each of these three asking strategies' usefulness.

Table 6.34 Independent sample t-test results for use of asking strategies and perceived usefulness by major

VLS Number	Asking strategies	Frequency of Use			Usefulness		
		t	sig.	η^2	t	sig.	η^2
VLS7	I ask teachers and friends about its Arabic equivalent.	-1.587	.115		-1.336	.184	
VLS8	Its definition in English.	3.588	**<.001**	**.100**	3.320	**.001**	**.087**
VLS9	Its spelling or pronunciation.	1.054	.294		1.209	.229	
VLS10	An example sentence.	1.557	.122		3.168	**.008**	**.060**
VLS11	Its grammatical category	1.595	.113		1.291	.199	
VLS12	Its synonym & antonym in English.	3.444	**.001**	**.093**	2.736	**.007**	**.061**

The study participants' reported frequency of use of VLS8 and their judgment of its usefulness differed by major. The EMLs used VLS8 significantly more than CompSMLs did, however, with a moderate effect size (mean: English=3.06, Computer Science=2.23; p <.001; η^2=.100). This means the EMLs 'sometimes' use VLS8, while the CompSMLs 'rarely' use it. Similarly, the EMLs found VLS8 to be significantly more useful than the CompSMLs did, with a moderate effect size (mean: English=3.40, Computer Science=2.60; p <.001; η^2=.087). This means the EMLs consider VLS8 'useful', but the CompSMLs find it only 'slightly useful'. There are several possible reasons for these results. Firstly, the EMLs believe that the best way to accurately define a word is to check its definition in L2. Secondly, EMLs might use this strategy to deliberately expand their vocabulary repository. Thirdly, EMLs observe that such a strategy can assist in gathering more information about the new word. The following quotations were extracted from the English interviewees to support these motives;

> *"I sometimes ask for the explanation of the new word in English, because it gives me a more authentic meaning."* **(E.M.P4)**

> *"I use this strategy to expand my vocabulary."* **(E.F.P5)**

> *"Using this strategy gives me the pronunciation of the word, examples of its use and the context within which it can be used together with its spelling"* (**E.M.P1**)

In contrast, the CompSMLs offered some reasons for their low use of VLS8. These suggested that the majority of CompSMLs do not want to overload themselves with too many words; as stated by the following learners;

> *"I just get confused with too many unknown words given with the English definitions so I just ask for an Arabic translation."* **(CompS.M.P2)**

> *"I think it would make it difficult for me to retain the new word's meaning, because asking about the word's English definition would require me to also learn the meaning of new words which cause a lot of confusion to me."* **(CompS.M.P4)**

Moreover, lack of vocabulary causes problems for CompSMLs. One CompSML found it difficult to appreciate the meaning of the new words when given an English definition, as this inevitably involved more new words; therefore, although he saw the strategy as a good one, he preferred translation:

> *"It is a useful strategy but I sometimes do not know the words used in the English definition which makes it harder for me to understand the meaning of the word so I ask for its Arabic translation."* (**CompS.M.P3**)

Therefore, I conclude that the CompSMLs rely heavily on their L1, and as a result, they believe translation to be the most used and useful strategy in the asking category (see Figure 6.23 and Figure 6.24). By looking at both majors' training courses, it is clear that the EMLs took more vocabulary courses than the CompSMLs

The following Figure 6.20 displays the significant differences between the EMLs' and CompSMLs' use of VLS8 and their judgment of its usefulness.

Figure 6.20 The differences reported in relation to asking for a 'definition in English' by major
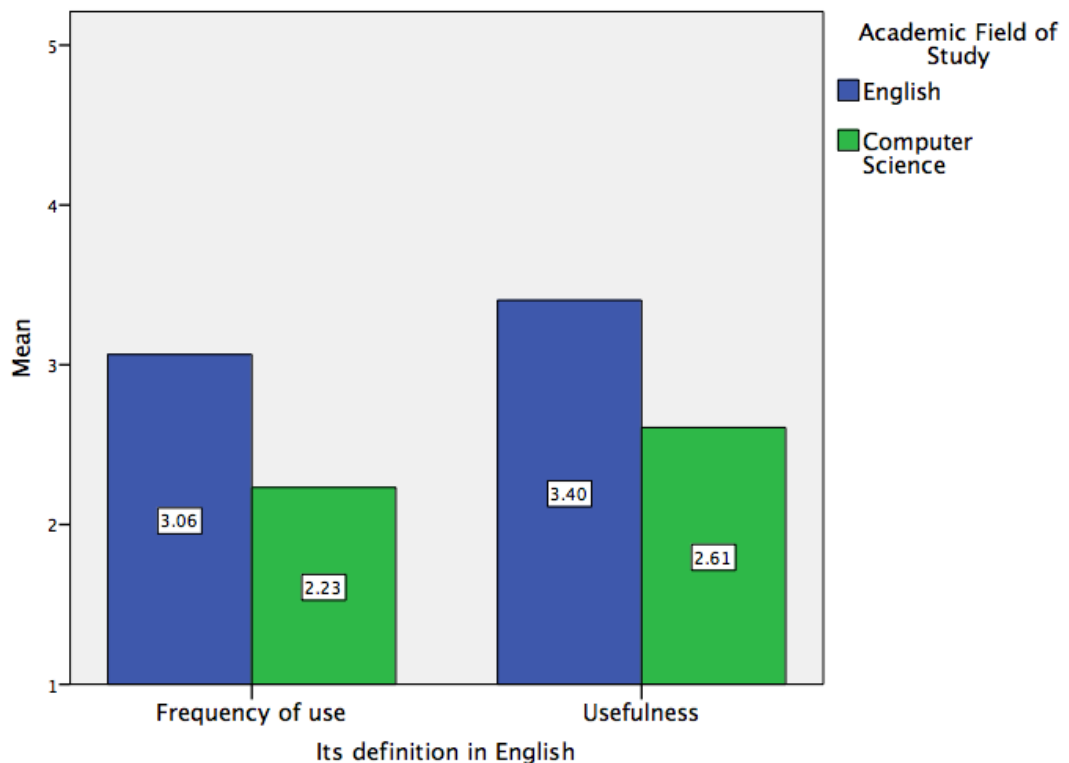
Also, my subjects reported their frequency of use of VLS10 and their judgment of its usefulness. The EMLs used VLS10 more than the CompSMLs did; however, not significantly (mean: English=2.58, Computer Science=2.23; p=122). This means the EMLs 'rarely' use VLS10 and the CompSMLs barely ever. However, the EMLs view VLS10 as significantly more useful than the CompSMLs do, with a moderate effect size (mean: English=3.20, Computer Science=2.55; p=.008; η^2=.060). This means the EMLs see VLS10 as 'useful' but the CompSMLs see it as only 'slightly useful'. Although the EMLs did not show extensive use of VLS10 (rarely), the mean is closer to '3' corresponding to 'sometimes'; thus, it is useful to suggest possible reasons from the interview data to explain why EMLs think VLS10 is more useful than the CompSMLs do.

Firstly, the EMLs claimed the current strategy is useful, because it affords more details about the new word, making it easier for them to comprehend it:

> *"Examples are a really helpful way of understanding new words since examples provide more detail."* **(E.M.P1)**

Secondly, VLS10 might assist EMLs to understand the contextual use of a new word;

> *"By using examples I can understand the appropriate use of the new words."* **(E.M.P2)**

Thirdly, VLS10 helps to clarify the meaning of new words;

> *"Because the examples clarify the meaning for me."* **(E.M.P3)**

This means EMLs can forge connections between the new words and their examples, whereas the latter helps retention and memorization of the former.

However, the CompSMLs mentioned several reasons for disregarding VLS10, which explain why they view it as less useful. For example, examples could confuse them, and they would rather ask about L1 meaning than examples;

> *"Well, examples probably will have more words that are difficult to understand for me, and thus I will be confused by these words and might not understand the meaning of the target word."* (**CompS.M.P4**)

Moreover, CompSMLs do not want to receive multiple words at a single time, to avoid comprehension problems;

> *"I do not use this strategy because I do not want to be given so many words."* (**CompS.F.P5**)

Figure 6.21 displays the significant differences between the EMLs' and CompSMLs' use of VLS10 and their judgment of its usefulness.

Figure 6.21 The differences reported in relation to asking for 'example sentences' by major
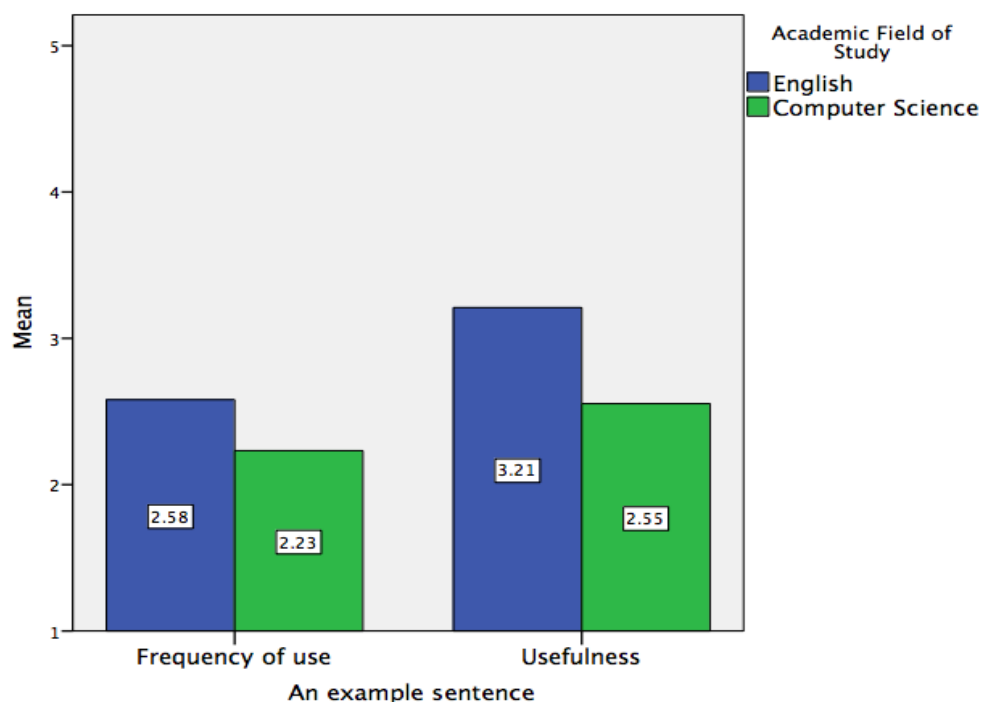
Also, my subjects' reported frequency of use of VLS12 and their judgment of its usefulness differed significantly by major. The EMLs used VLS12 significantly more than the CompSMLs did, with a moderate effect size (mean: English=2.69, Computer Science=1.89; $p=<.001$; $\eta^2=.093$). This means the EMLs 'rarely' use VLS12, while the CompSMLs 'never' use it. Similarly, the EMLs consider VLS12 to be significantly more useful than the CompSMLs did, with a moderate effect size (mean: English=2.93, Computer Science=2.21; $p=.004$; $\eta^2=.061$). This means the EMLs view VLS12 as 'useful', while the CompSMLs see it as only 'slightly useful'. Although the EMLs did not report a high use of VLS12, stating they use it 'rarely', the mean is close to '3', corresponding to 'sometimes'; thus, possible reasons were drawn from the interview data to explain this result.

First, the EMLs believe that they can increase their vocabulary size, as shown below;

> *"Because this way I can build up my vocabulary."*
> **(E.M.P3)**

Secondly, VLS12 might assist them in their lexical retention as mentioned below:

> *"By knowing the word's synonyms and antonyms I*
> *can easily remember the new words."* **(E.M.P2)**

However, some students stated that they do not use it, but focus more on asking about L1 meaning instead;

> *"I prefer to use ask about L1 meaning as it is easier*
> *for me."* **(E.M.P1)**

On the other hand, the CompSMLs mentioned some reasons for disregarding use of VLS12. Similar to VLS8, it appears that the CompSMLs do not want to load themselves with so many unknown words, as explained in the interview data;

> *"I do not use this strategy because I prefer not to*
> *confuse myself with more words."* **(CompS.M.P2)**

Other participants explained they want to learn one word at a time, as shown below;

> *"I prefer to learn one word rather than several*
> *words   during   one   learning   process."*
> **(CompS.F.P5).**

Other CompSMLs claimed that is not important or that they prefer to ask about the word's L1 meaning instead, as shown below:

> *"I do not use this strategy because I prefer to ask*
> *about L1 meaning"* **(CompS.M.P4)**

Overall, it is obvious that since the EMLs' training courses included lots of vocabulary exercises, they outperformed CompSMLs significantly.

Figure 6.22 displays the significant differences between the EMLs' and CompSMLs' use of VLS12, and their judgment of its usefulness.

Figure 6.22 The differences when asking about 'its synonyms and antonyms' by major
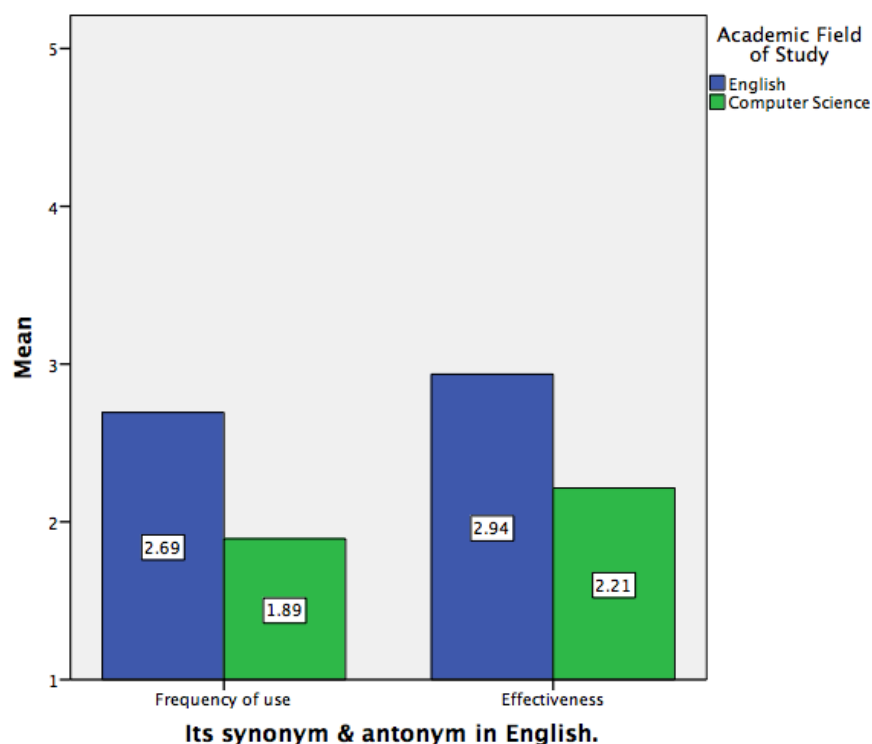
Moving on to discuss the rank order, Figure 6.23 and Figure 6.24 show the frequency of use of the six asking strategies individually reported by both majors and their judgment of its usefulness. According to Figure 6.23, the most used asking strategy for students from both majors was VLS7 'asking teachers about L1 meaning' (mean: English=3.71, Computer Science=4.11). This means the EMLs only 'sometimes' use VLS7, while the CompSMLs 'often' use it. This result corresponded to the findings stated by Marin (2005) and Al-Qahtani (2005).

In terms of the most useful VLS, Figure 6.24 shows both majors also view VLS7 as the most useful VLS (mean: English=4.11, Computer Science=4.38). This is unsurprising, because L1 information is important to learners. Other studies in fact have supported these results and found EFL learners prefer to use their L1 (e.g. Ahmed, 1988; Schmitt, 1997). Based on the CompSMLs data, I may conclude that using L1 is a universal strategy; meaning that whenever there is an English medium of instruction, there is extensive use of L1 by learners. In addition, there is a possible explanation for

why CompSMLs use VLS7 a lot compared to other asking strategies; i.e. lack of comprehension:

> *"Well, I find it difficult to understand in L2 and it is really easier for me to understand the meaning in Arabic."* **(CompS.F.P6)**

Moreover, an additional reason is that CompSMLs want to use new words correctly, asking about the word's meaning in Arabic as shown below:

> *"Because I want to use the new word correctly and appropriately."* **(CompS.M.P1)**

In terms of EMLs, firstly, one EML also noted that it is easiest for him to comprehend the meaning if the word is translated into his mother tongue:

> *"I can comprehend and retain the meaning of the new words if I get the meaning in my native language."* **(E.M.P2)**

However, not all EMLs gave positive reasons, several EMLs stated that this strategy does not help them as it lacks authenticity, as shown below:

> *"It is helpful but, sometimes, the Arabic translation does not provide me with the authentic meaning of the new words or their use."* **(E.F.P6)**

Also, a female EML made the point that if a word has different meanings (polysemy) then it is appropriate for her to ask about its L1 meaning, as shown below:

> *"I do ask about the word's meaning in Arabic because there are English words that have different meanings; I thus need to know their different meanings in my native language in order to not to become confused about their different uses later."* **(E.F.P5)**

This suggests EMLs do not necessarily agree that it is best to obtain a meaning in English rather than in their L1, although L1 meaning is not always accurately provided by an L2 lexical item.

On the other hand, Figure 6.23 shows the least used strategy type in the asking dimension for both groups. As the figure shows, VLS10 'an example sentence' was the

VLS least used by the EMLs (mean: English=2.58); however, this view does not align with Alyami's findings (2011). Indeed, VLS10 was not identified as the least useul strategy; rather it was considered a 'useful' strategy (mean English=3.21), as shown in Figure 6.24. This means that although the EMLs claimed they 'rarely' use VLS10, they do see it as a 'useful' strategy. I found significant differences between the majors in terms of their perception of the strategy's usefulness, as detailed above Figure 6.21.

However, according to the EMLs, the least useful strategy was VLS11 'its grammatical category', with a mean score of '2.81' which means they found it 'slightly useful'. There are possible reasons why EMLs use this strategy. One major reason is to understand the contextual use of the new words, as asking about grammatical category is significant, as shown below;

> *"In order to understand the context I have to know the grammar category of the new word and how it is used."* **(E.M.P4)**

> *"I need to know its contextual use"* **(E.M.P2)**

However, some of the EMLs added an interesting point, explaining that they do not consider it important to ask about a word's grammar category because they can ascertain this from other information:

> *"I think by knowing the word's meaning, I can guess its grammatical category."* **(E.F.P6)**

Additionally, I should note that at time2, the EMLs are more proficient in English, so their ability to establish a word's grammatical category is improved compared to time1.

For the CompSMLs, Figure 6.23 shows VLS12, regarding establish a word's 'synonyms and antonyms in English' was the least used VLS (mean 1.89), and it was also classified as the least useful strategy (mean 2.21) as shown in Figure 6.24. The data shows the CompSMLs claimed that they 'never' use VLS12, and that it is only 'slightly

useful' (Figure 6.22).

Figure 6.23 Overall frequency of use for asking strategies by major (VLSD2)
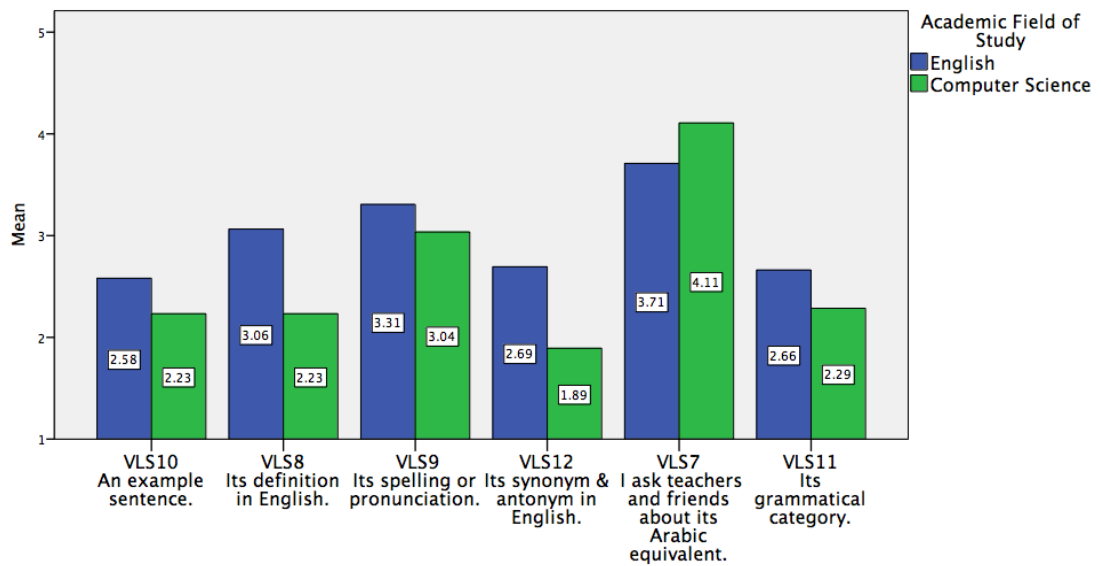
Figure 6.24 Overall frequency for usefulness of asking strategies by major (VLSD2)
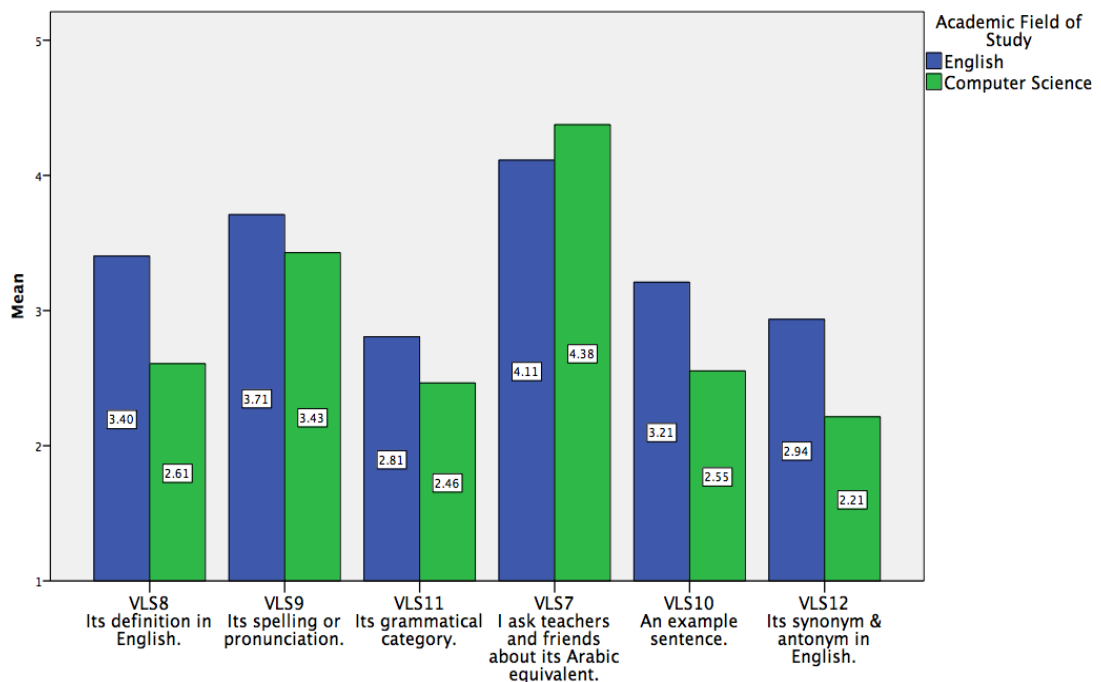
6.3.3 Perceived uses and usefulness for type of dictionary being used (VLSD3)

Table 6.35 shows the descriptive statistics for the relationship between learners' AFoS and the frequency of their use of types of dictionary strategies and their judgment of the usefulness of each strategy gathered for the main study. The table shows no noticeable difference between the EMLs and CompSMLs in their use, or in their perception of the usefulness of different types of dictionaries. Also, Table 6.36 shows the differences between the EMLs' and CompSMLs' use of different types of dictionary, and their preference as determined by usefulness, showing no significant difference. Hence, I can conclude that learners' academic field of study was unrelated to their use of the different types of dictionary, since the EMLs and CompSMLs did not differ statistically in this regard. For ease of reference, I will refer to strategies according to their VLS number (e.g. VLS13, etc.).

Table 6.35 Descriptive statistics for use of different types of dictionary by major (VLSD3)

VLS Number	Type of dictionary used	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS13	In a paper English-Arabic Dictionary.	English	2.274		1.404	2.129		1.360	62
		Computer Science	2.446	-.1722	1.463	2.517	-.3888	1.452	56
VLS14	In a paper English-English dictionary.	English	2.064		1.199	2.306		1.397	62
		Computer Science	1.714	.3502	1.123	1.875	.4314	1.453	56
VLS15	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	English	4.225		1.136	4.532		1.066	62
		Computer Science	4.321	-.0956	.9166	4.410	.1215	.9100	56
VLS16	On the internet.	English	3.096		1.544	3.677		1.523	62
		Computer Science	3.357	-.2603	1.457	3.892	-.2154	1.344	56
VLS17	I use a smartphone dictionary application to check the meaning of unknown words.	English	4.129		1.247	4.419		1.094	62
		Computer Science	4.375	-.2459	1.071	4.553	-.1342	1.025	56

Table 6.36 Independent sample t-test results for type of dictionary uses and usefulness by major

VLS Number	Type of dictionary used	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS13	In a paper English-Arabic Dictionary.	-.652	.516	-1.501	.136
VLS14	In a paper English-English dictionary.	1.632	.105	1.643	.103
VLS15	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	-.500	.618	.662	.509
VLS16	On the internet.	-.939	.350	-.811	.419
VLS17	I use a smartphone dictionary application to check the meaning of unknown words.	-1.143	.255	-.685	.495

In fact, the learners are reluctant to make progress, because they fear they will find sources in the target language challenging (Scholfield, 1999).

Figure 6.25 and Figure 6.26 show the frequency of use of the five types of dictionary strategy individually reported by both majors and their judgment concerning their usefulness. In terms of frequency of use, Figure 6.25 shows the dictionary most used by EMLs, was VLS15, the 'electronic dictionary', with a mean score of '4.23' corresponding to 'often'; it was also identified as the most useful strategy with a mean score of '4.53', corresponding to 'quite useful' (Figure 6.26). Marin (2005) found this strategy to be the least used dictionary type among his students, while it was the most used type according to Alyami (2011) and Al-Qahtani (2005).

The most used dictionary for CompSMLs was VLS17 'smartphone', with a mean score of '4.38', corresponding to 'often' (Figure 6.25). It was also the most useful dictionary for CompSMLs, with a mean score of '4.55', corresponding to 'quite useful. Interestingly, VLS15 and VLS17 were among the most used and most useful types of dictionary for both majors, as shown in Table 6.27 and Table 6.28, with a mean score

above '4' in terms of uses corresponding to 'often' and a mean above '4' in terms of usefulness, corresponding to 'quite useful'. Thus, I conclude that both VLS15 and VLS17 were preferred by both groups, since they are among the most used, with no significant differences between groups, as shown in Table 6.36. These results correspond to those reported in other studies, which found the 'electronic dictionary' to be among the most used dictionaries by learners (e.g. Alyami, 2011; Marin, 2005).

In terms of VLS15, there is a possible explanation for why it was the most popular among EMLs, and this was because it offers meanings in both L1 and L2 interchangeably:

> *"The electronic dictionary helps me to switch between Arabic and English easily and I can find the meaning so quickly compared with paper ones."* **(E.M.P1)**

Another reason was that the electronic dictionary makes it easy to check pronunciation;

> *"The electronic dictionary is the best option for me because I can check the pronunciation of any word unlike with a print one."* **(E.F.P5)**

Learners' reasons for using the dictionary were in accordance with the claim mentioned by Nation (2001), who states that bilingual dictionaries are easy to use, as they provide meanings in a straightforward way.

In terms of VLS17, it was probably the most used by CompSMLs as it works like an electronic dictionary and provides a lot of useful information. The following quotation was extracted from a CompSMLs during an interview:

> *"You can download as many different types of dictionaries as you want - a medical dictionary, or anything - so I prefer to use my smartphone."* **(CompS.M.P1)**

Another reason given was portability and convenience; learners take their smartphones everywhere with them:

> *"No one is without a smartphone nowadays, so it is easy to carry it around with me and use it when needed."* **(CompS.M.P2)**

On the other hand, with regard to EMLs, Figure 6.25 shows the least used dictionary strategy was VLS14, the 'paper English-English dictionary', with a mean score of '2.06' corresponding to 'rarely'. It was also the second least useful strategy, with a mean score of '2.31' corresponding to 'slightly useful', followed by the least useful strategy, which was VLS13 'in a paper English-Arabic dictionary', with a mean score of '2.13', corresponding to 'slightly useful' (Figure 6.26). For the CompSMLs, VLS14 was also the least used strategy also, with a mean score of '1.71' corresponding to 'never' (Figure 6.25). It was also considered the least useful strategy, with a mean score of '1.88' corresponding to 'not useful' (Figure 6.26).

There are possible explanations for the lack of popularity of VLS14 among the participants. It seems learners prefer to use electronic dictionaries compared to paper ones. This is understandable as paper dictionaries are extra weight to carry when going to and from the university to study. Therefore, electronic ones are much easier and lighter to carry; as stated by the following EML in interview;

> *"I prefer the electronic dictionary to the print dictionary, because it is easy to carry and bilingual, so I can use English-English or English – Arabic when I need to."* **(E.M.P4)**

The above extract showed two different reasons, one it is easy to carry electronic dictionaries compared to 'paper English- English dictionary' and they are bilingual. However, not all responses were negative. Two female EMLs said that a 'paper English-English dictionary' is helpful because such a dictionary provides authenticity and the

different meanings of the new words and how they are used, as shown below;

> *"I use it because the English definition is better and more authentic than the Arabic translation."* **(E.F.P5)**

> *"The English-to-English dictionary is much better for me because I can learn about the different meanings of a new word and how it is used."* **(E.F.P6)**

This is true, as it is said that bilingual dictionaries are mainly valuable for beginners of L2 (Hartmann, 1983). Carter (1987) suggested they should be used only in the initial stages of EFL learning and that more emphasis should be placed on using monolingual dictionaries as learners' proficiency increases.

With regard to the CompSMLs; they do not use VLS14 as they prefer to look for the meaning of new words in Arabic instead of in the L2. Therefore, electronic dictionaries are more suitable for them, because they are fast and provide accurate L1 meaning, as claimed by these two interviewees:

> *"I prefer not to use it because it takes me time to figure out the meaning of the new word so I prefer to look up the Arabic translation."* **(CompS.M.P2)**

> *"I think electronic ones are better and make it easier to look up the meaning in Arabic and to carry it around with me."* **(CompS.M.P3)**

A further explanation for their low use is that CompSMLs need to improve their language proficiency, which prevents them from using English-English dictionaries as shown below;

> *"I do not use the English-to-English dictionary because I still need to improve my language and I prefer to know the meaning first in Arabic."* **(CompS.M.P4)**

In fact, the learners are reluctant to make progress, because they fear they will find sources in the target language challenging (Scholfield, 1999).

Figure 6.25 Overall frequency of use of type of dictionary strategies used by major (VLSD3)
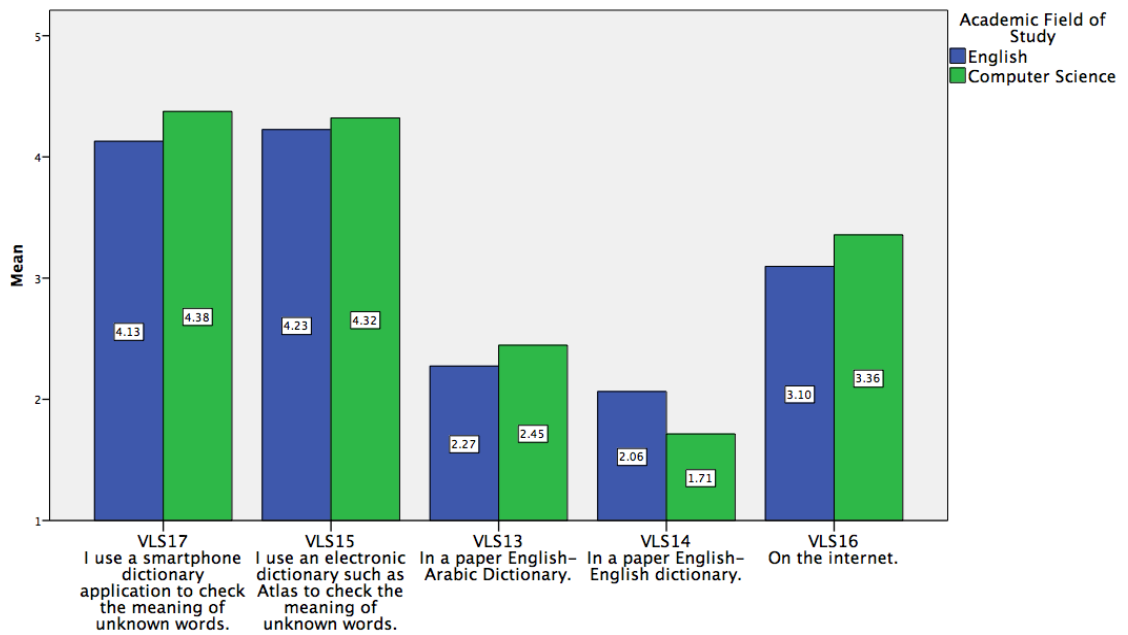
Figure 6.26 Overall frequency and usefulness of type of dictionary strategies used by major (VLSD3)
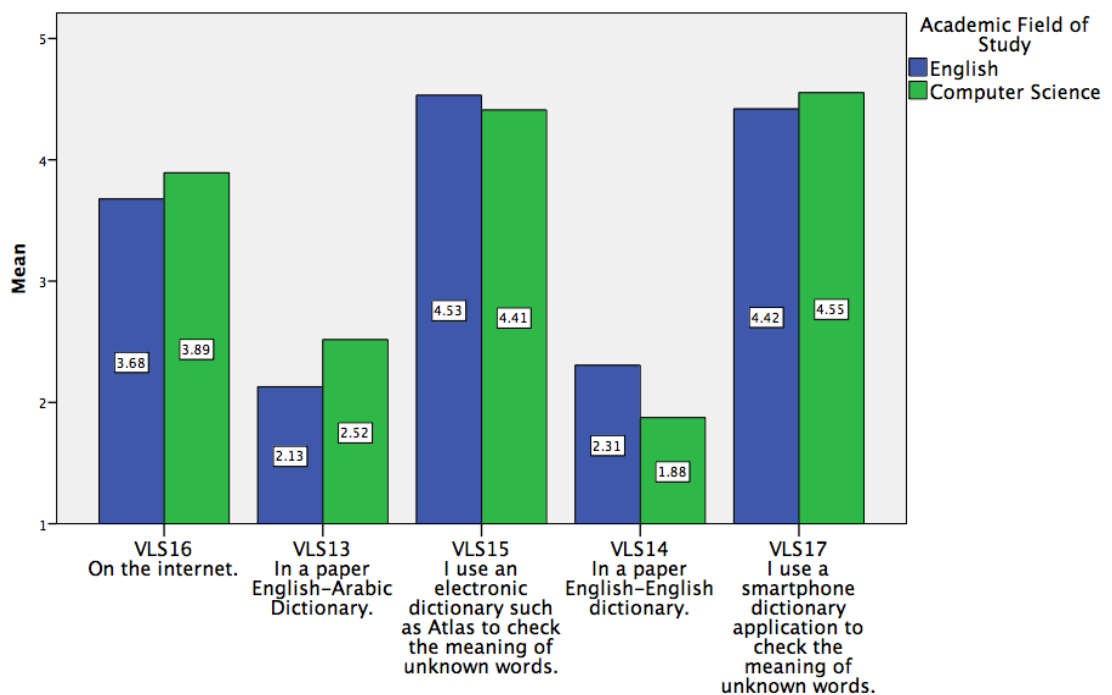
6.3.4 Perceived uses and usefulness for information taken from dictionaries (VLSD4)

Table 6.37 provides the descriptive statistics describing the relationship between the learners' AFoS and the frequency of use of information taken from dictionaries and their usefulness. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of the four types of information as well as in their judgment of their usefulness (means for these are in bold). These included using dictionaries and checking a new word's VLS20 'part of speech', VLS21 'its English meaning', VLS22 'its synonyms and antonyms', and VLS24 'its stem'. For ease of reference, I will refer to the strategies used by their VLS number (e.g. VLS20, VLS21, etc.).

Table 6.37 Descriptive statistics for the information taken from dictionaries by major (VLSD4)

| VLS Number | Information taken from dictionary | Major | Frequency of Use | | | Usefulness | | | N |
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS18	I look up the unknown word by using a dictionary and check its Arabic meaning.	English	4.016		1.234	3.838		1.162	62
		Computer Science	4.303	.2874	1.077	4.160	-.3220	.9867	56
VLS19	Its spelling.	English	3.612		1.486	3.467		1.490	62
		Computer Science	3.357	.2557	1.212	3.196	.2713	1.393	56
VLS20	Its part of speech.	English	**2.790**		1.202	**3.193**		1.412	62
		Computer Science	**2.250**	.5403	.9954	**2.428**	.7649	1.277	56
VLS21	Its English meaning.	English	**2.838**		1.357	**3.596**		1.372	62
		Computer Science	**2.045**	.8030	1.078	**2.375**	1.221	1.168	56
VLS22	Its synonym & antonym.	English	**2.709**		1.407	**3.354**		1.449	62
		Computer Science	**2.000**	.7096	1.044	**2.517**	.2493	1.235	56
VLS23	Looking for examples.	English	2.645		1.368	2.871		1.247	62
		Computer Science	2.309	.3594	1.317	2.464	.4066	1.439	56
VLS24	Its stem.	English	**2.596**		1.298	**2.677**		1.490	62
		Computer Science	**1.945**	.6513	1.112	**2.232**	.4452	1.401	56

As shown in Table 6.37, the differences between the EMLs and CompSMLs in terms of their judgments about each of the seven strategies' usefulness and their use of

them was significant for four (i.e. VLS20, VLS21, VLS22 and VLS24). However, in terms of usefulness, the difference noted for VLS24 was nearly significant. A discussion of the significant differences between my subjects' use and ratings of usefulness for each of the four strategies follows.

Table 6.38 Independent sample t-test results for information taken from dictionaries uses and usefulness by major

VLS Number	Information taken from dictionary	Frequency of Use			Usefulness		
		t	sig.	η^2	t	sig.	η^2
VLS18	I look up the unknown word by using a dictionary and check its Arabic meaning.	-1.341	.183		-1.627	.106	
VLS19	Its spelling.	1.028	.306		1.018	.311	
VLS20	Its part of speech.	2.642	**.009**	**.055**	3.074	**.003**	**.075**
VLS21	Its English meaning.	3.574	**.001**	**.093**	5.220	**<.001**	**.188**
VLS22	Its synonym & antonym.	3.130	**.002**	**.075**	3.384	**.001**	**.089**
VLS23	Looking for examples.	1.450	.150		1.644	.103	
VLS24	Its stem.	2.894	**.005**	**.068**	1.667	**.098**	

My subjects' reported frequency of use of VLS20 and their judgment of its usefulness each differed significantly between the groups. The EMLs used VLS20 significantly more often than the CompSMLs did with a small effect size (mean: English=2.79, Computer Science=2.25; p=.009; η^2=.055). The data shows both groups only 'rarely' use it, although the EMLs responses are closer to '3' which suggests 'sometimes'. Similarly, the EMLs considered VLS20 to be significantly more useful than the CompSMLs did, with a moderate effect size (mean: English=3.19, Computer Science=2.43; p=.003; 075). This means the EMLs see VLS20 as 'useful', while the CompSMLs see it as only 'slightly useful'. This pattern is similar to that noted in reference to use of 'grammar category' with regard to guessing strategies, as shown in Table 6.31 and asking strategies as shown in Table 6.33. This shows consistency in the findings, which reflects the validity of my questionnaire design and suggests the EMLs and CompSMLs answered the questionnaire items seriously. Hence, this in disagreement with the image of questionnaire use sometimes portrayed, that suggests

learners might not respond to their actual use but report on it randomly instead. Although VLS20 is rarely used by the EMLs, the interview data offered positive reasons for the reported use of VLS20 by the EMLs.

Firstly, the EMLs focused on how the new words are used, and expressed their enthusiasm to learn its grammatical category:

> *"Because I want to know the appropriate use of the word according to its grammatical category."* **(E.M.P4)**

Second, it seems that the EMLs use the strategy conditionally. In other words, when they think that a word is important, then they use it:

> *"If the new word is important to learn then I check what part of speech it is."* **(E.M.P1)**

Third, one EML claimed that he uses the current strategy when the word is not readily understandable:

> *"If there is a new word in the sentence and it is not clear to me."* **(E.M.P2)**

This finding echoes that of Nation (2001), who explained that if a new word cannot be guessed, then its part of speech could be guessed, clarifying meaning for learners.

On the other hand, the interview data showed several reasons for the reported lesser use of VLS20 by CompSMLs. First, some CompSMLs explained that it is not important for them to use the strategy without clarifying further:

> *"It is not important."* **(CompS.M.P2)**

Second, a female CompSML explained that she prefers to look up the words' meaning in Arabic first:

> *"I do not use it so often because I prefer to spend my time looking for its meaning in Arabic as then I find out which part of speech the word is."* **(CompS.F.P5)**

This is similar to what was reported earlier in reference to asking strategies, when it was reported that translation is the most useful option. The EMLs also shared this view (Table 6.33). Figure 6.27 illustrates the significant differences between the EMLs' and CompSMLs' use of VLS20, and their judgment of its usefulness.

Figure 6.27 The differences in interest in a new word's 'part of speech' by major
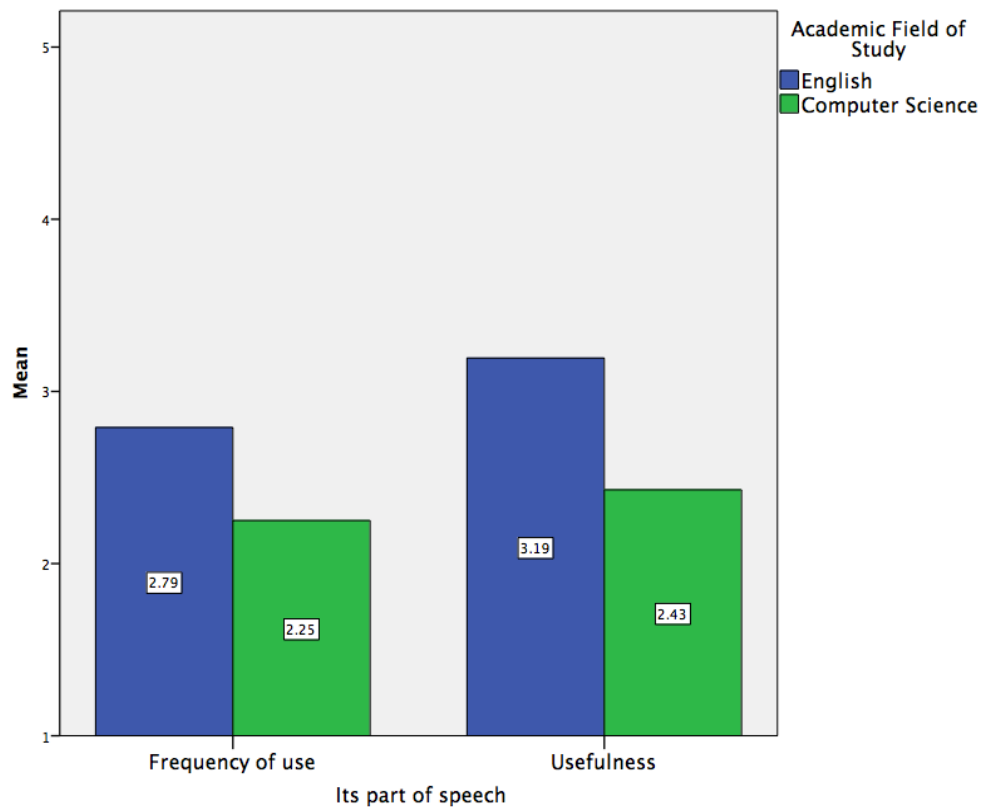
Furthermore, my subjects' reported frequency of use of VLS21 and their judgment of its usefulness each differed significantly between the groups. The EMLs used VLS21 significantly than more often than the CompSMLs did with a moderate effect size (mean: English=2.84, Computer Science=2.04; p=.001; η^2=.093). This denotes that both groups only 'rarely' use it, although the results for the EMLs were close to '3' meaning 'sometimes'. Similarly, the EMLs viewed VLS21 as significantly more useful than the CompSMLs did, with a large effect size (mean: English=3.59, Computer Science=2.37; p <.001; η^2=.188). This means the EMLs viewed VLS20 as 'useful', while the CompSMLs saw it as only 'slightly useful'. This pattern is similar to

that for use of 'L2' in asking strategies, as described in Table 6.31. Although the EMLSs rarely use VLS21, the interview data shows positive reasons for their use of VLS22 instead. A female EML claimed that the L2 definition provides access to authentic meaning:

> *"I sometimes look for a new word's explanation in English as it is more authentic."* **(E.F.P6)**

This relates to reasons given by EMLs in reference to asking strategies, and implies they are focusing closely on expanding their L2. Another reason is lexical development, as shown below:

> *"Because I want to build up my lexicon."* **(E.F.P5)**

> *"It improves my lexical repository."* **(E.M.P1)**

On the other hand, the interview data showed several reasons for reporting lesser use of VLS21 by the CompSMLs. They claimed that because of their limited vocabulary they were more likely to prefer L1 instead, for example:

> *"I would not know its meaning in English because my vocabulary is limited, so I prefer to find out what it means in Arabic."* **(CompS.M.P2)**

> *"I do not pay much attention to its meaning in English; I favour finding out its meaning in Arabic."* **(CompS.F.P5)**

This is in fact led to another problem, since the CompSMLs claimed that they lacked sufficient vocabulary to understand the definitions and this would mean they try to avoid using VLS21 because the L2 definitions include many words that they might not know, as this learner claimed:

> *"It has more words and confuses me when trying to find out a word's meaning."* **(CompS.F.P6)**

These reasons given above support the fact that, as explained earlier, EMLs have training courses that are designed to develop their English language proficiency unlike CompSMLs who follow their specialised courses without focusing too much on the language used.

Figure 6.28 depicts the significant differences in EMLs' and CompSMLs' use of VLS21 and how they judge its usefulness.

Figure 6.28 The differences in reference to 'its English meaning' across majors
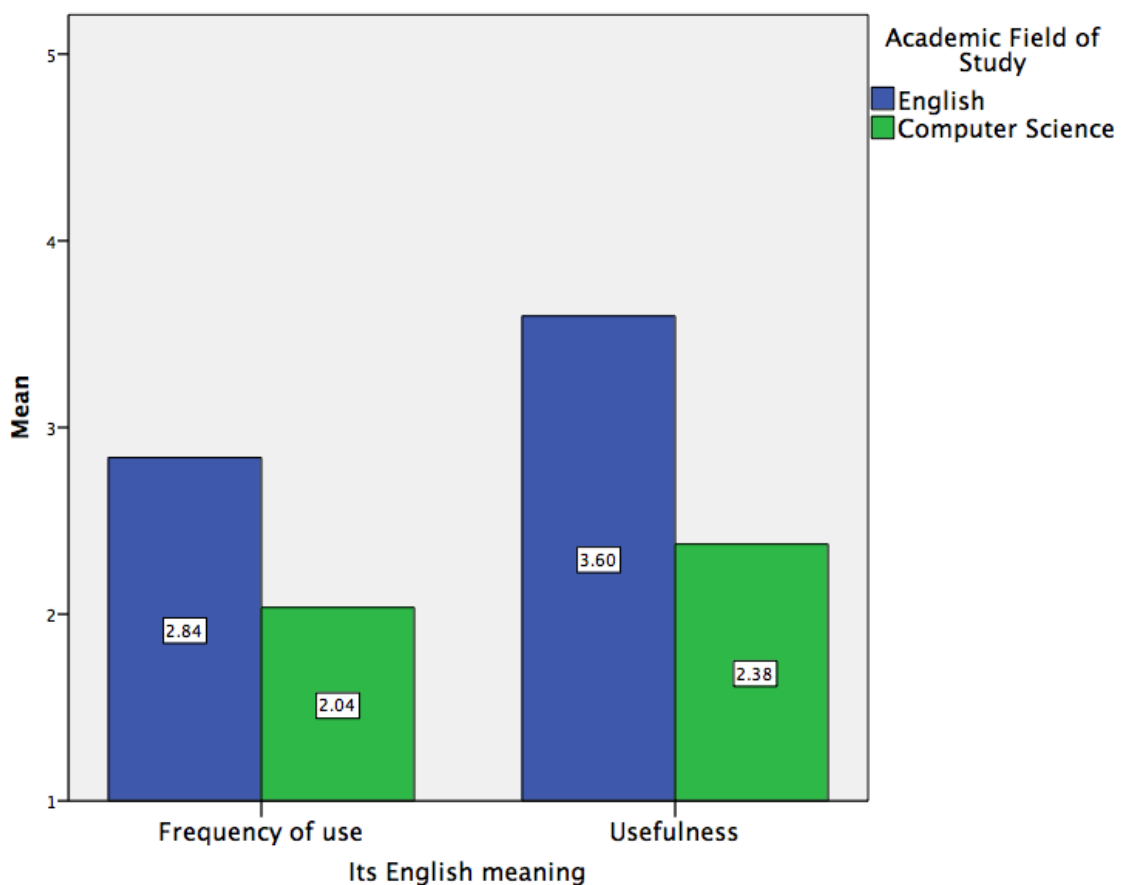
Also, my subjects' reported frequency of use of VLS22 and their judgment of its usefulness each differed significantly between the groups. The EMLs used VLS22 more often than the CompSMLs did with a moderate effect size (mean: English=2.71, Computer Science=2.00; p=.002 η^2=.075). This means both majors only 'rarely' use it; although, the EMLs results were close to '3' meaning 'sometimes'. Similarly, the EMLs

considered VLS22 significantly more useful than the CompSMLs did, with a moderate effect size (mean: English=3.35 Science=2.51; p=.001; η^2=.089). This means that EMLs see VLS22 as 'useful', while the CompSMLs consider it only 'slightly useful'. This pattern reflects the claims for use of 'synonyms and antonyms' under the asking strategies domain, shown in Table 6.31 which suggests that both majors are aware of this VLS.

Although VLS22 is rarely used by the EMLSs, the interview data showed positive reasons for its reported use when it occurred. A male EML claimed he wants to increase his language proficiency by looking for the word's 'synonyms and antonyms'; thus he thinks the method is important for language development:

> *"I sometimes use it because I want to develop my language in general and also build up my lexicon."* **(E.M.P4)**

Moreover, a female EML said;

> *"To improve my language proficiency."* **(E.F.P5)**

Meanwhile, the interview data showed several reasons for lesser use of VLS22 by the CompSMLs when compared to the EMLs. They claimed they become confused when they encounter synonyms or antonyms of new words, because they cannot comprehend all the words at one time. One male CompSML stated:

> *"I do not confuse myself with too many words; I would rather retain one word at a time."* **(CompS.M.P2)**

A similar reason was given by a female CompSML, who explained:

> *"As I said before, having more than one new word confuses me a lot."* **(CompS.F.P5)**

Another reason was that it will be difficult for them to memorise all the synonyms of the new words at a single time as shown below:

> *"It will be hard for me to memorise all of the synonyms."* **(CompS.F.P6)**

These reasons were similar to those given by CompSMLs when discussing asking strategies (6.3.2). Thus, I can conclude that CompSMLs prefer to focus on L1 meaning and generally do not value using L2 for clarification. However, the EMLs showed some interest in synonyms and antonyms. To illustrate, Figure 6.29 displays the significant differences between the EMLs' and CompSMLs' use of VLS22, and how they judge its usefulness.

Figure 6.29 The differences in reference to 'its synonyms and antonyms' by major
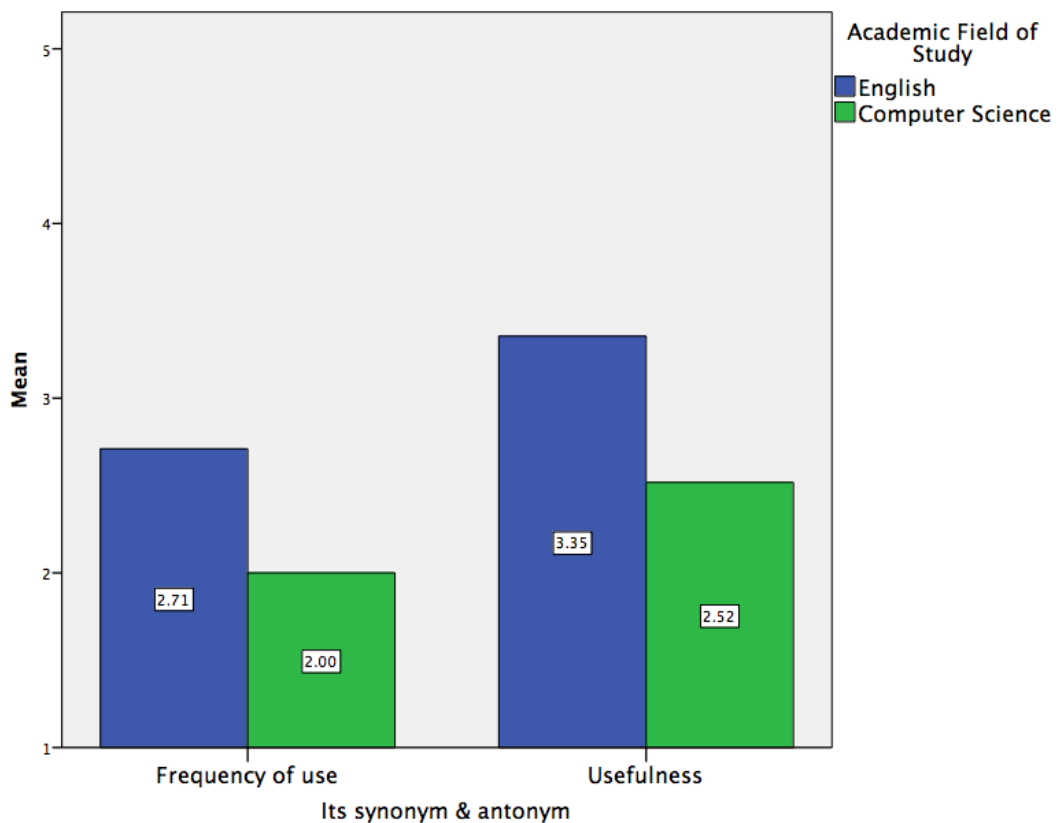
Finally, my subjects' reported frequency of use of VLS24 and their judgment of its usefulness each differed significantly between the groups. The EMLs used VLS24 more frequently than the CompSMLs did with a moderate effect size (mean: English=2.60, Computer Science=1.95; p=.005; η^2=.068). This means that EMLs 'rarely' use it, while the CompSMLs 'never use it. Similarly, the EMLs consider VLS24 to be more useful than the CompSMLs did, and the finding was nearly significant

(mean: English=2.68, Computer Science=2.23; p=.098). This means that both majors view VLS24 as a 'slightly useful' strategy. Although it is rarely used by the EMLSs, the interview data showed a positive reason for its reported use by EMLs. A male EML claimed he only uses it when the word is difficult to understand; he said:

> *"If the new word has complex affixations then I look*
> *for its stem to unlock the ambiguity."* **(E.M.P2)**

This means, as Schmitt put it (2000:126), "knowing the stem does help facilitate the learning of its derivations". This is also supported by one female EML, who claimed that stems can facilitate meaning as shown below:

> *"Sometimes I do not know the meaning of the new*
> *word, so I first try to guess its meaning by looking at*
> *its stem and then I try to find out its meaning."*
> **(E.F.P6)**

However, there were several negative reasons also; one male EML claimed that he focuses on the words' meaning in L1 instead:

> *"I look for its Arabic meaning"* **(E.M.P1)**

On the other hand, the interview data provides several reasons for the reported lesser use of VLS24 by CompSMLs than EMLs. They claimed not to have tried or encountered the strategy before, so do not know how to apply it:

> *"I do not know this strategy."* **(CompS.M.P2)**
> *"I have not tried this before."* (**CompS.M.P3)**

This suggests the CompSMLs know nothing about the current strategy as their major is not English, and they do not have courses that explain what stems are and how knowledge of them could be used strategically. Figure 6.30 displays the significant differences between the EMLs' and CompSMLs' use of VLS24 and their judgment of its usefulness.

Figure 6.30 The differences in reference to 'its stem' by major
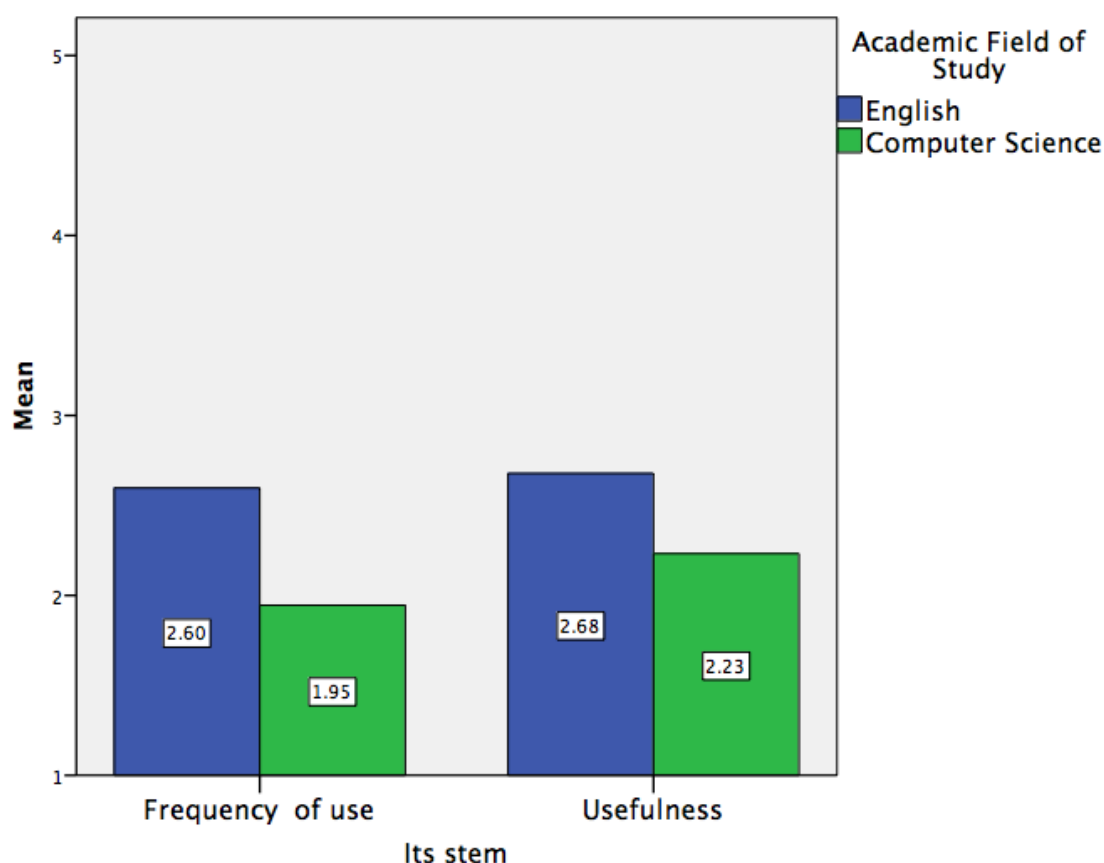
Moving on to discuss the rank order, Figure 6.31 and Figure 6.32 show the reported frequency for the seven items of information taken from dictionaries, as individually reported by learners from both majors in terms of VLSs uses and judgments of their usefulness. According to Figure 6.31, the most commonly used information from both groups was VLS18 'checking L1 meaning' (mean: English=4.02, Computer Science=4.29). This signifies that both majors claimed they 'often' use VLS18 when using a dictionary. In fact, this strategy was among the top ten most used strategies for both majors, and was top for asking strategies (see 6.3.2), which suggests using L1, regardless of any other factor, is the predominant strategy used by all learners. This result aligns with those reported by Marin (2005), Al-Qahtani (2005) and Alyami (2011).

In terms of the most useful VLS, Figure 6.32 shows both groups also reported VLS18 to be the most useful VLS (mean: English=4.48, Computer Science=4.16); i.e.

they both see it as a 'very useful' strategy. Additionally, it was also among the top 10 most useful VLSs reported by both groups. A possible explanation for learners' high use of VLS18 is its usefulness in terms of how to use new words contextually or in order to retain new words effectively.

> *"I think knowing its Arabic meaning allows me to learn its grammatical category, so I have more advantages by using this strategy."* **(CompS.F.P5)**

> *"It is vital to know its meaning in Arabic in order to figure out how to use it in writing or speaking."* **(CompS.F.P6)**

> *"I need to retain it so I have to know its meaning in Arabic."* **(E.F.P6)**

> *"Some words can only be understood via their meaning in Arabic."* **(E.F.P5)**

On the other hand, Figure 6.31 shows the least used strategy in this category for both majors was VLS24, guessing based on 'its stem' (mean: English=2.60, Computer Science=1.95). This means VLS24 was 'rarely' used by the EMLs and 'never' used by the CompSMLs. Similarly, Figure 6.32 shows VLS24 was also the least useful strategy for both majors (mean: English=2.68, Computer Science=2.23). Earlier I addressed the significant differences between majors in terms of using VLS24, with some explanation given regarding why the CompSMLs did not use VLS24 in the same way the EMLs did (see Figure 6.30).

Figure 6.31 Overall frequency of use of information taken from dictionaries by major (VLSD4)
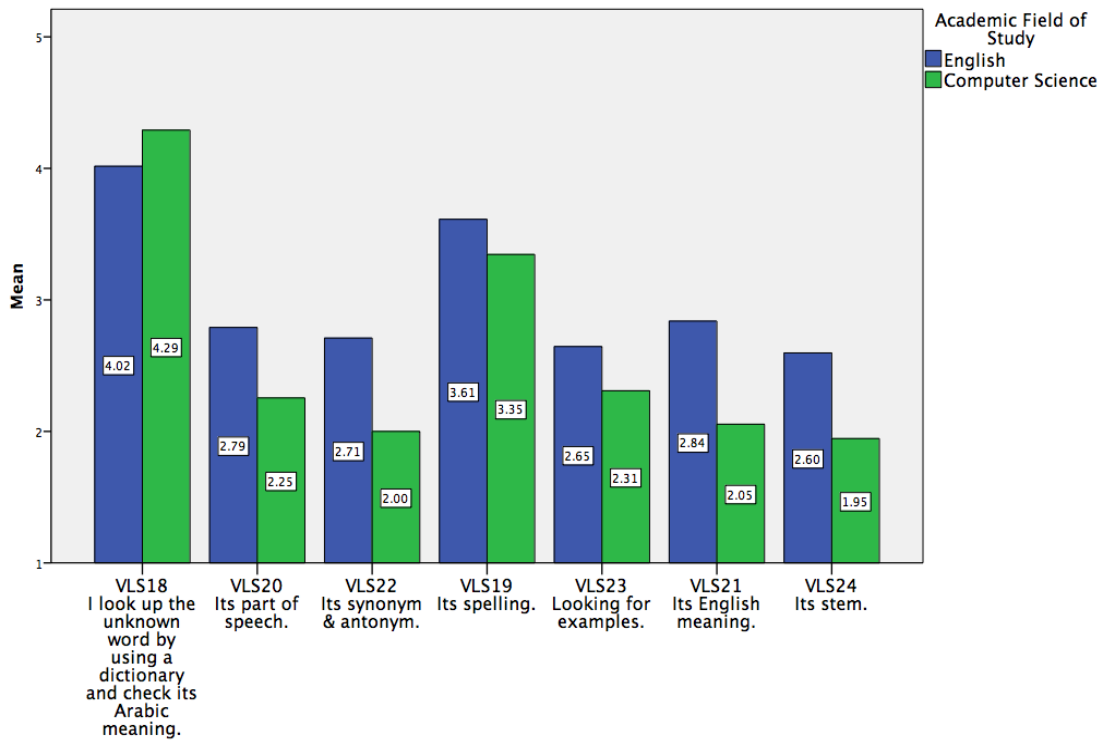
Figure 6.32 Overall of frequency of usefulness of information taken from dictionaries by major (VLSD4)
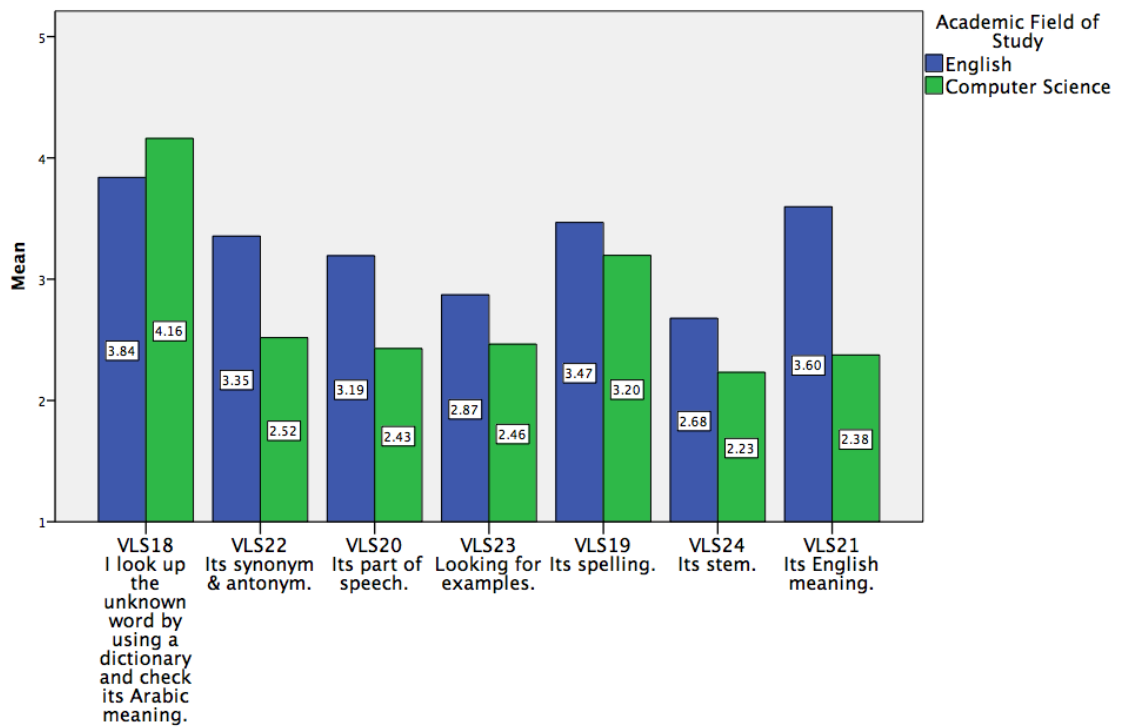
6.3.5 Perceived uses and usefulness for types of word and non-word information noted (VLSD5)

Table 6.39 shows the descriptive statistics for the relationship between the learners' AFoS and the reported frequency of use of types of word and non-word information, noted in reference to their judgment on level of usefulness. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of the three types of information noted and four in terms of reported usefulness (means for these are in bold). These were writing down the word and its VLS27 'English definition', VLS28 'synonyms and antonyms', VLS31 'grammatical category', and VLS33 'words of the same family'. For ease of reference, I will refer to the strategies by their VLS number (e.g. VLS27, VLS28, etc.).

Table 6.39 Descriptive statistics for types of word and non-word information noted (VLSD5)

VLS Number	Types of word and non word information noted	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS25	Only with nothing else.	English	2.290		1.272	1.887		1.174	62
		Computer Science	2.196	.0938	.9985	1.964	-.0771	.9716	56
VLS26	I write down the English word with its Arabic translation.	English	4.145		1.143	4.241		1.066	62
		Computer Science	4.375	-.229	.7991	4.517	-.2759	.7383	56
VLS27	I write down their English definition.	English	**2.822**		1.312	**3.532**		1.363	62
		Computer Science	**2.285**	.5368	1.448	**2.785**	.7465	1.592	56
VLS28	I write down synonyms and antonyms beside new words.	English	**2.661**		1.329	**3.419**		1.420	62
		Computer Science	**2.017**	.6434	1.151	**2.500**	.9193	1.375	56
VLS29	I write down example sentences using the new word.	English	2.290		1.310	2.209		1.307	62
		Computer Science	2.000	.2903	1.009	1.946	.2632	1.134	56
VLS30	I write down the English word with its pronunciation in the form of transliteration	English	2.225		1.430	2.612		1.507	62
		Computer Science	2.642	-.4170	1.393	3.089	-.4763	1.719	56
VLS31	I write down the grammatical category of the word.	English	2.371		1.283	**3.000**		1.367	62
		Computer Science	2.017	.3531	1.103	**2.571**	.4285	1.487	56
VLS32	I write down a note about the source I got it from	English	1.596		.7987	1.500		.7840	62
		Computer Science	1.535	.0610	.8937	1.607	-.1071	.9279	56
VLS33	I write English word down with the other related words of the same family	English	**2.516**		1.533	**2.935**		1.648	62
		Computer Science	**1.857**	.6589	1.016	**2.321**	.6140	1.376	56

Chapter 6: Results and Discussion

As shown in Table 6.40, the difference between the EMLs and CompSMLs in terms of use and perceived usefulness for the nine strategies was significant in three cases (i.e. VLS27, VLS28, and VLS33). Below, I discuss the significant differences in terms of the participants' use and perception of usefulness of all three strategies.

Table 6.40 Independent sample t-test results for types of word and non-word information noted use and perceived usefulness by major

VLS Number	Types of word and non word information noted	Frequency of Use			Usefulness		
		t	sig.	η^2	t	sig.	η^2
VLS25	Only with nothing else.	.443	.659		-.386	.700	
VLS26	I write down the English word with its Arabic translation.	-1.275	.205		-1.647	.103	
VLS27	I write down their English definition.	2.112	**.037**	**.037**	2.721	**.008**	**.061**
VLS28	I write down synonyms and antonyms beside new words.	2.795	**.006**	**.043**	3.564	**.001**	**.099**
VLS29	I write down example sentences using the new word.	1.355	.178		1.162	.248	
VLS30	I write down the English word with its pronunciation in the form of transliteration, i.e. transcribing the English word into sounds using the Arabic alphabet.	-1.601	.112		-1.593	.114	
VLS31	I write down the grammatical category of the word (e.g. noun, verb, adjective etc.).	1.594	.114		1.631	.106	
VLS32	I write down a note about the source I got it from (e.g. unit, film, where I encountered it).	.390	.698		-.680	.498	
VLS33	I write English word down with the other related words of the same family. (e.g. the words manager and management belong to the family of the word manage.	2.775	**.007**	**.060**	2.183	**.031**	**.039**

The participants reported their frequency of use of VLS27 and their opinion concerning its perceived usefulness, and the results obtained each differed significantly between the groups. The EMLs used VLS27 significantly more than the CompSMLs did, with a small effect size (mean: English=2.82, Computer Science=2.28; p=.037; η^2=.037). This means both majors 'rarely' use this strategy. Similarly, the EMLs evaluated VLS27 as more useful than the CompSMLs did significantly, with a moderate effect size (mean: English=3.53, Computer Science=2.78; p=.008; η^2=.061). This means

the EMLs view VLS27 as 'useful' while the CompSMLs view it as only 'slightly useful'. Although VLS27 is rarely used by the EMLSs, it was ranked close to '3' on the Likert scale, corresponding to 'sometimes'. The interview data also showed positive reasons for the reported use of VLS27 by EMLs. This result was predictable for a number of reasons. First I found similar results earlier, revealing that EMLs focus more on L2 than CompSMLs (see 6.3.2 and 6.3.3). Second, the EMLs prioritise their lexical improvements, as claimed by an EML:

> *"I use this strategy to improve my lexical proficiency."* **(E.M.P3)**

Third, an EML claimed he uses the strategy in specific situations:

> *"I use this strategy if I have to understand difficult words."* **(E.M.P2)**

This basically shows that learners try to use L2 even with difficult words, in order to understand them, which supports what I reported earlier, that EMLs are more enthusiastic about expanding their L2 than the CompSMLs are.

Fourth, using this strategy helps to provide the authentic meaning of the target words as stated by E.F.P5:

> *"I do that from time to time because it provides a more authentic meaning."* **(E.F.P5)**

Thus, the interview data also offers several reasons for the reported lesser use of VLS27 by the CompSMLs when compared to the EMLs. First, insufficient language proficiency is given as a reason:

> *"It is really difficult for me to write its English meaning since my language proficiency is not that great."* **(CompS.M.P1)**

Second, the CompSMLs seemed to prefer a translation strategy as claimed by this learner:

> *"I would prefer to write its meaning in Arabic."*
> **(CompS.F.P5)**

These results are understandable, since the EMLs are generally more proficient in English than the CompSMLs. Figure 6.33 displays the significant differences in the EMLs and CompSMLs use of VLS27 and their judgments of its usefulness.

Figure 6.33 The differences in reference to 'I write down its English definition' by major
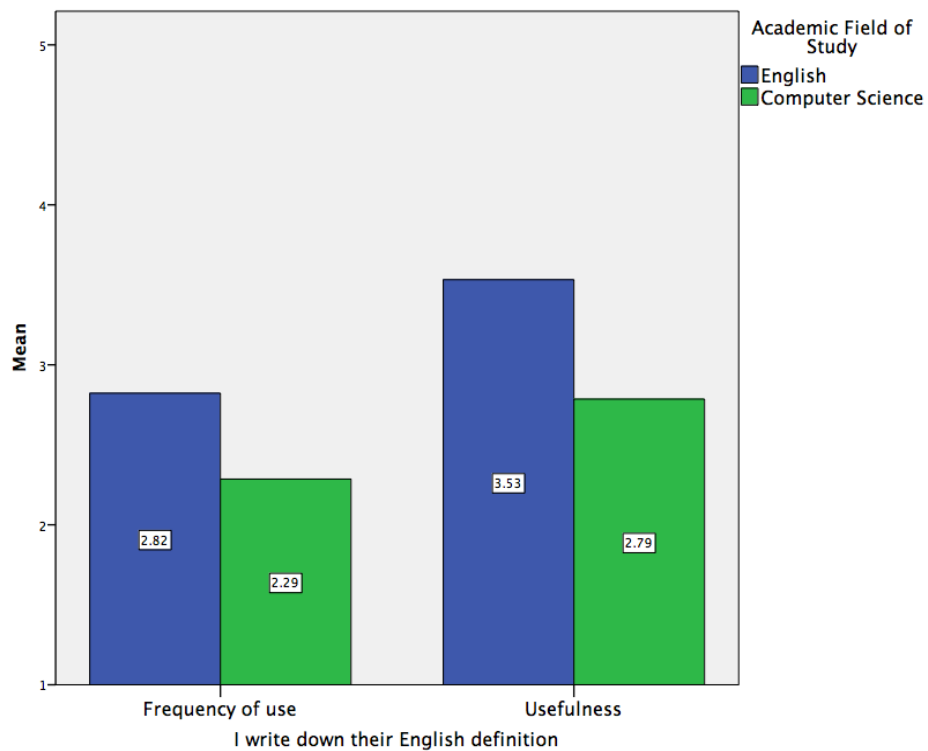
Additionally, the research subjects' reported on the frequency of use of VLS28 and giving their judgment regarding its usefulness. In this case there was a slight significant difference between the groups. The EMLs used VLS28 significantly more than the CompSMLs did, with a small effect size (mean: English=2.66, Computer Science=2.02; p=.006; η^2=.043). That means both majors 'rarely' use VLS28. Similarly, the EMLs consider VLS28 significantly more useful than the CompSMLs did with a big effect size (mean: English=3.42, Computer Science=2.50; p=.001; η^2=.099). This means the EMLs see VLS28 as 'useful', while the CompSMLs see it as only 'slightly useful'. A similar response emerged in reference to use of 'synonyms' under the asking

strategies in Table 6.34, and when using the dictionary in Table 6.38. This once more depicts a consistency in the reported use of the current strategies which reflects the validity of the questionnaire design and that EMLs and CompSMLs answered the questionnaires items thoughtfully.

The interview data showed positive reasons for the reported use of VLS28 by the EMLs. The first reason given was language and lexical development:

> *"I write down synonyms and antonyms besides the new word in order to expand my vocabulary repository"* **(E.M.P3)**
>
> *"Because I want to improve my vocabulary"* **(E.F.P5)**

The second was to understand the various meanings of new words:

> *"Well, because I wanted to know the different meanings of the word."* **(E.F.P6)**
>
> *"I think the strategy is helpful because it allows me to know the different synonyms of the new word and use them in my writing."* **(E.M.P2)**

On the other hand, the interview data provided several reasons for the lesser use of VLS28 by CompSMLs compared to EMLs. It appears the strategy is not important to the CompSMLs, but I could not clarify further from the interview data:

> *"It is not important to me."* **(CompS.M.P1)**

Secondly, the strategy probably causes considerable confusion to CompSMLs, since it includes several new words that require more explanation, in order to be retained more easily. One interviewee stated that she prefers to concentrate on retaining one word at a time:

> *"I do not want to have more than one word to focus on."* **(CompS.F.P5)**

A further comment made regarding this was:

> *"It is difficult for me to retain a number of words*
> *that have the same meaning, so I prefer to learn one*
> *word at a time."* **(CompS.M.P4).**

Figure 6.34 displays the significant differences between the EMLs' and CompSMLs' use of VLS28 and their judgments about its usefulness.

Figure 6.34 The differences in 'I write down its synonyms' by major
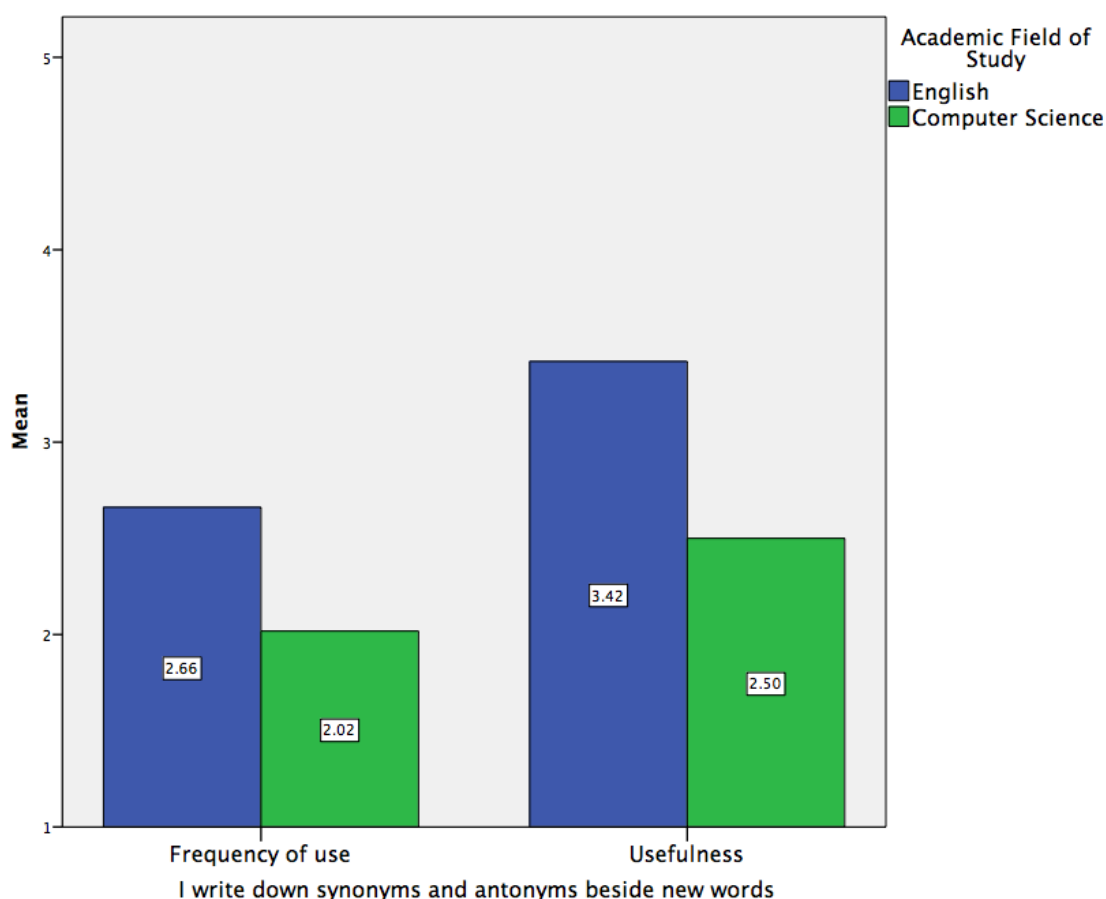
Finally, the subjects' reported their frequency of use of VLS33 and their perception of its usefulness. Significant differences were noted between the learners from each major. The EMLs used VLS33 significantly more frequently than the CompSMLs did with a moderate effect size (mean: English=2.52, Computer Science=1.86; p=.007; η^2=.060). This means the EMLs 'rarely' use VLS33, and the CompSMLs 'never' use it. Similarly, the EMLs view VLS33 as more useful than the CompSMLs did with a small effect size (mean: English=2.94, Computer Science=2.32; p=.031; η^2=.039). This means the EMLs consider VLS33 'useful', while the

CompSMLs see it as only 'slightly useful'. Several EMLs spoke positively about the strategy in interview; for example, one EML said:

> *"It helps me to retain the word."* **(E.M.P3)**

This is understandable, since knowing the word's family could make it easier for the EMLs to retain new words effectively. In addition, such a strategy can help EMLs to improve their knowledge of lexis, since they write down all the related words from the same family and memorise them, as shown below;

> *"I can memorise all new words and their related family. This method also helps me to expand my vocabulary."* **(E.F.P5)**

However, a negative reason also was noticed, in that learners do not prefer to use this strategy, as it takes considerable time and effort to use:

> *"I do not use this strategy often because it takes time."* **(E.M.P1)**

Meanwhile, for the CompSMLs, the interview data showed a number of reasons for their reported lesser use of VLS33 relative to the EMLs. It emerged that the CompSMLs prefer to concentrate on the new L2 word in isolation as reported below, and elsewhere above:

> *"I do not use this strategy because I want to focus on the new word itself and its meaning in L1."* **(CompS.M.P1)**

Another CompSML commented that it is not important to him, since his vocabulary proficiency is low:

> *"My vocabulary is low thus it is not important to me."* **(CompS.M.P3)**

This suggests that CompSMLs' lack of vocabulary could lead them to lose interest in exploring other new words, which would raise their vocabulary proficiency.

Figure 6.35 displays the significant differences in the EMLs' and CompSMLs' use of VLS33 and their judgment of its usefulness.

Figure 6.35 The differences in reference to 'other related words of the same family' by major
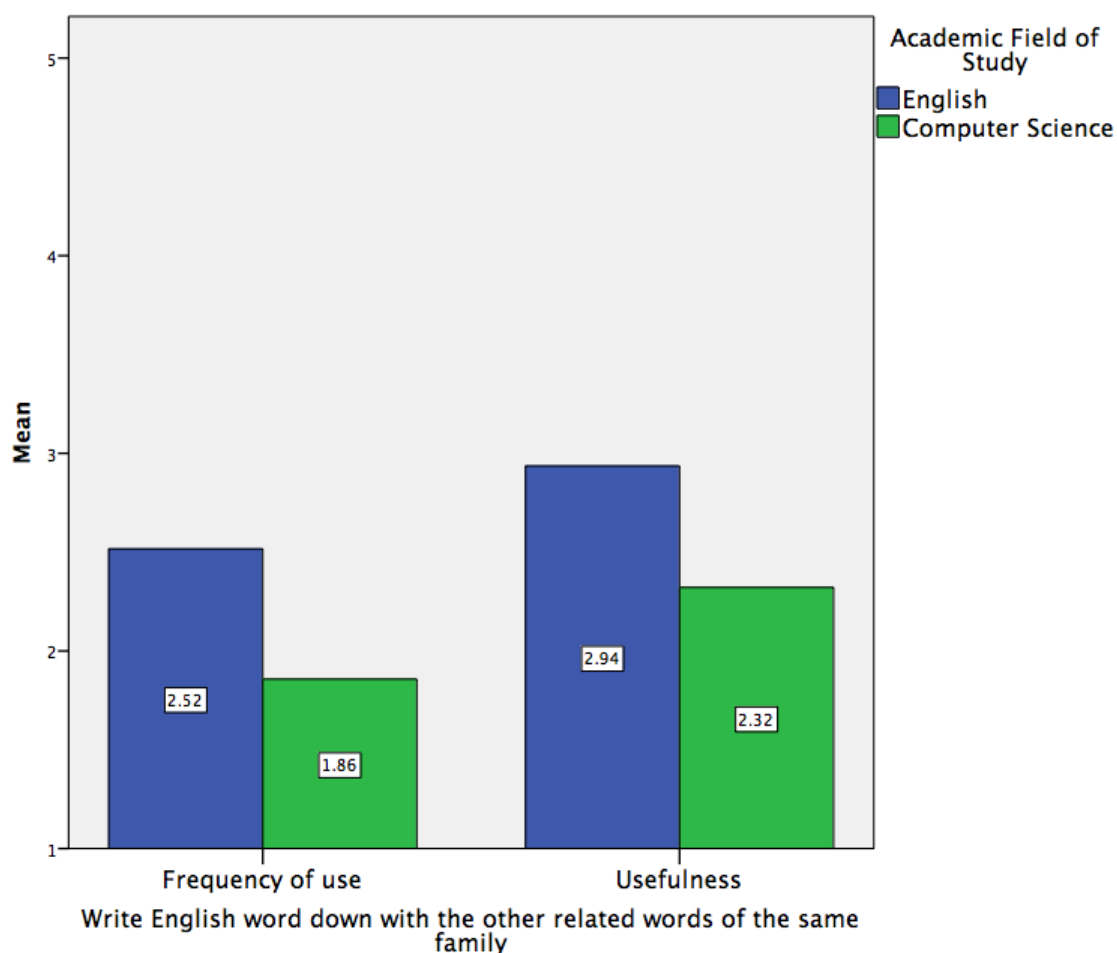
Moving on to discuss the rank order, Figure 6.36 and Figure 6.37 show the reported frequency for the nine types of word and non-word information noted individually, as reported by both majors in terms of VLS uses and usefulness. According to Figure 6.36, the most used information for both majors was VLS26 'its Arabic meaning' (mean: English=4.15, Computer Science=4.38). This means both majors claimed stated they 'often' use VLS26 when noting down words. In fact, this strategy was among the most used strategies for both majors (Appendices L and M), which suggests using L1, regardless of any factor, is the dominant strategy for all

learners.

In terms of the most useful VLSs, Figure 6.37 shows both groups reported VLS26 to be the most useful VLS (mean: English=4.24, Computer Science=4.51). This means both majors view VLS26 as a 'quite useful' strategy. Also, it was among the top 10 most useful VLSs as perceived by both groups (Appendices N and O). The main reason for learners' high use of VLS26 is because they find retaining the meaning of the new words is easier when they are translated; EMLs and CompSMLs all agreed:

> *"I write down its meaning in Arabic because I can retain the meaning very well."* **(CompS.F.P6)**

> *"It facilitates the retention of its meaning in Arabic."* **(E.F.P5)**

On the other hand, Figure 6.36 shows the least used strategy in this category for both majors was 'VLS32 word source' (mean: English=1.60, Computer Science=1.54). This means, VLS32 was 'never' used by EMLs or by CompSMLs. This result does not accord with those presented by Marin (2005), Al-Qahtani (2005) and Alyami (2011). This may be because the VLS was not covered in their studies, or because I have included comparatively more VLSs in this dimension.

Figure 6.32 shows that VLS32 was also seen as 'not useful' strategy by both groups (mean: English=1.50, Computer Science=1.61). In the interviews, both EMLs and CompSMLs simply confirmed that the strategy was unimportant, and they prefer other noting strategies, such as noting down the L1.

Figure 6.36 Overall frequency of use of the types of word and non-word information noted by major (VLSD5)
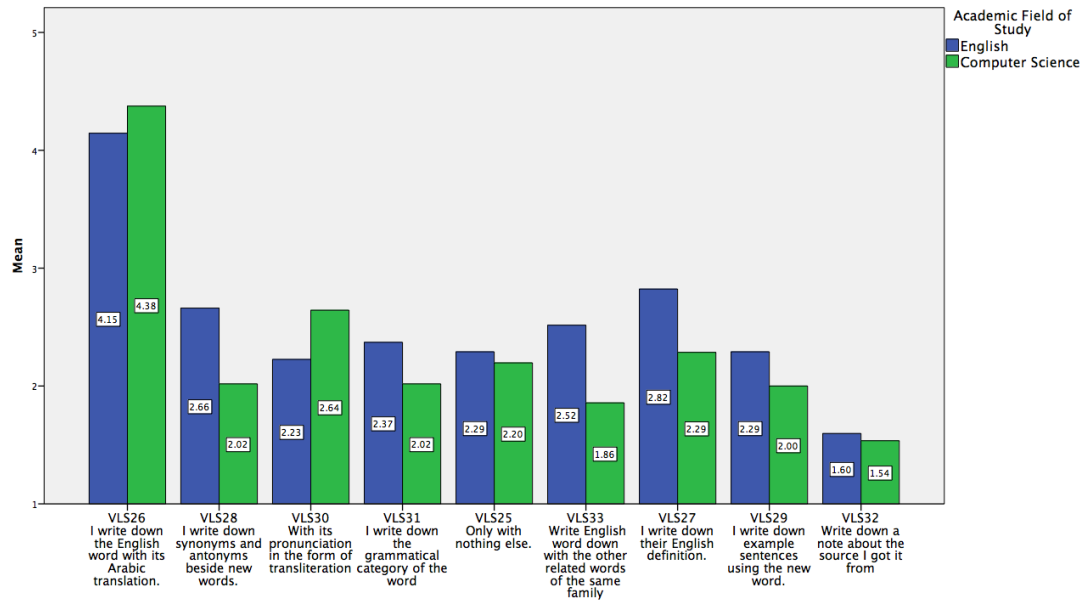
Figure 6.37 Overall frequency of perceived usefulness of the types of word and non-word information noted by major (VLSD5)
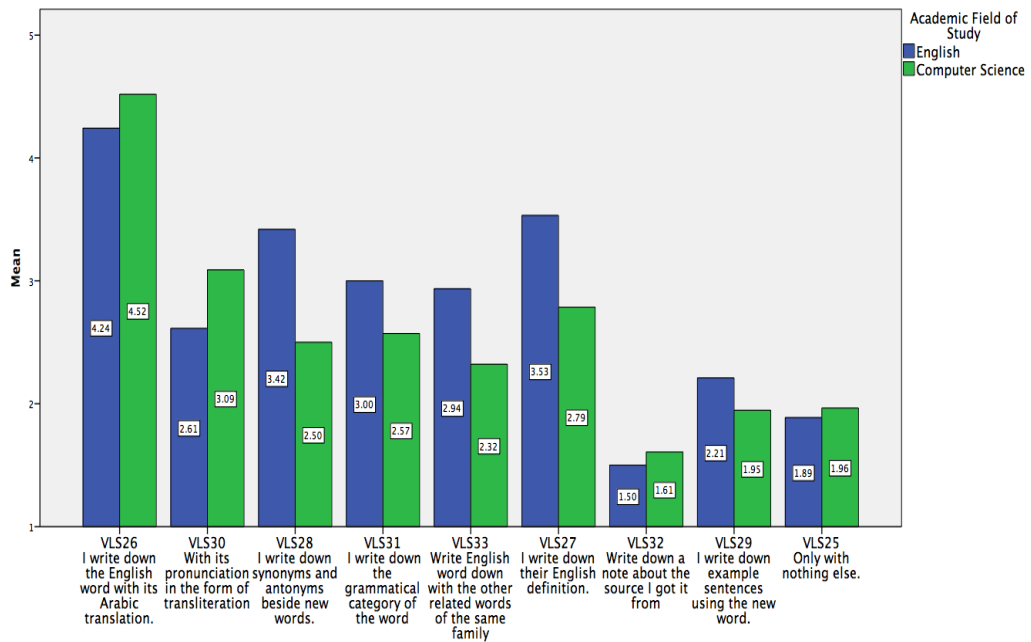
6.3.6 Perceived uses and usefulness for the location of vocabulary note-taking strategies (VLSD6)

Table 6.41 shows the descriptive statistics for the relationship between the learners' AFoS and the reported frequency of their use of each listed location for taking notes, and their judgment of the usefulness of using particular locations. As the table shows, there was no noticeable difference between the EMLs and CompSMLs in their use of note-taking locations, or in their perception of the usefulness of each different location. Also, Table 6.42 shows the differences between the EMLs' and CompSMLs' use of different locations when taking notes, as their reported usefulness was not significant in any case. Although in Siriwan's study (2007) she found the EMLs used VLS 37 and VLS 40 significantly more than Science learners, from this study I can conclude that a learner's AFoS does not affect where they choose to make notes.

Table 6.41 Descriptive statistics for the use of different locations for vocabulary note-taking by major (VLSD6)

VLS Number	The location of vocabulary note taking strategies	Major	Frequency of Use			Usefulness			
			Mean	Mean DF	SD	Mean	Mean DF	SD	N
VLS34	On the margins of my textbooks.	English	3.741		1.390	4.112		1.041	62
		Computer Science	3.910	-.1687	1.164	4.107	.0057	1.073	56
VLS35	Keep notes on cards.	English	1.419		.6664	1.371		.7941	62
		Computer Science	1.517	-.0985	.6873	1.464	-.0933	.6595	56
VLS36	In my (general) English notebook.	English	3.241		1.575	3.612		1.441	62
		Computer Science	2.857	.3847	1.393	3.303	.3093	1.413	56
VLS37	In my pocket/personal notebook.	English	3.451		1.444	4.064		1.084	62
		Computer Science	3.678	-.2269	1.252	3.910	.1538	1.239	56
VLS38	On separate pieces of paper.	English	1.645		.7487	1.709		.6868	62
		Computer Science	1.785	-.1405	1.090	1.821	-.1117	.9743	56
VLS39	In a computer file or other electronic device.	English	2.258		1.401	2.483		1.387	62
		Computer Science	2.392	-.1347	1.344	2.750	-.2661	1.365	56
VLS40	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	English	1.451		.8430	1.661		.8086	62
		Computer Science	1.517	-.0662	.8088	1.482	.1791	.7132	56

Table 6.42 Independent sample t-test results for the use of different locations for vocabulary note-taking and their perceived usefulness by major

VLS Number	The location of vocabulary note taking strategies	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS34	On the margins of my textbooks.	-.711	.479	.030	.976
VLS35	Keep notes on cards.	-.790	.431	-.690	.491
VLS36	In my (general) English notebook.	1.408	.162	1.175	.242
VLS37	In my pocket/personal notebook.	-.907	.366	.719	.474
VLS38	On separate pieces of paper.	-808	.421	-.713	.478
VLS39	In a computer file or other electronic device.	-.532	.596	-1.048	.297
VLS40	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	-.434	.665	1.270	.206

Moving on to discuss rank order, Figure 6.38 and Figure 6.39 show the frequency of location of Vocabulary note-taking strategies, as individually reported by both majors in terms of VLSs use and usefulness. According to Figure 6.38, the most used location of Vocabulary note-taking strategies used by both groups included VLS34 'the margins' (mean: English=3.74, Computer Science=3.91). This means both majors claimed that they 'sometimes' use VLS34 as a note-taking strategy. A similar pattern was found by Ahmed (1989), Nakamura (2000), Marin (2005), and more recently Alyami (2011).

In terms of the most useful VLS, Figure 6.39 shows both majors reported VLS34 to be the most useful VLS (mean: English=4.11, Computer Science=4.11). This suggests that both majors find VLS34 a 'quite useful' strategy. A possible explanation for learners' regular use of VLS34 is that learners frequently encounter new words in class, thus they take notes in 'the margin of their textbooks'.

Several learners from both majors claimed that the use of this strategy was easier and quick, and can be connected with learners' reasons for using electronic dictionaries, as I found that they use them more often due to ease of use and speed. For example, the

EMLs and CompSMLs offered the following reasons:

> *"I find it so helpful and easy to do."* **(E.M.P1)**

> *"It is easy and quick."* **(CompS.M.P2)**

Therefore, this offers the support that both majors agreed on in terms of the ease of use of the strategy. Interestingly, one EML gave an important reason for her use of VLS34 as contextual use:

> *"Because sometimes I need to know about its contextual uses therefore I note down any information about the new words close to where I came across it."* **(E.F.P5)**

This means the interviewee was aware of the purpose of note-taking and was engaged with the context. She benefitted from this strategy, although, to the best of my knowledge it is not an organised way of noting information that could facilitate in the retention of words. This is because VLS34 refers to a 'random order', which will be difficult for learners to manage when referring to specific words.

Conversely, for the EMLs, Figure 6.38 reveals the least used location was VLS35 'on cards', with a mean score of '1.42' corresponding to 'never'. This was also designated the least useful strategy, with a mean score of '1.37', corresponding to 'not useful', as shown in Figure 6.39. This is contrary to what Nation (2001:300) suggested, i.e. that learning from word cards is "focused, efficient, and certain". However, there are some possible explanations for this low use of VLS35. It appears that this strategy requires considerable time and effort from learners, as they themselves claimed:

> *"It takes a lot of effort to organise them."* **(E.M.P4)**

They also claimed that it is easy to lose cards:

> *"Easy to lose"* **(E.F.P6)**

In fact, the strategy has been criticised for being a decontextualizing technique, which makes it difficult for learners to remember how to use the words, because 'words on cards' are viewed out of context (Rebecca Oxford & Crookall, 1989). Also, words that are learnt in this way can easily be forgotten.

With regard to the CompSMLs; they reported that VLS35 'on cards' and VLS40 'on wall charts' were their least used strategies, sharing the same mean of '1.51', corresponding to 'never' (Figure 6.38). VLS35 'on cards' was the least useful strategy, with a mean score of '1.46', corresponding to 'not useful'; followed by the second least useful strategy, VLS40 'on wall charts' with a mean score of '1.48' corresponding to 'not useful' (Figure 6.39)

There provides a possible explanation for the low use of both strategies (i.e. VLS35, VLS40). Similar to VLS35, the EMLs noted that VLS40 'on wall charts' does not allow the contextualisation of new words, and thus it is not helpful for learners. This was raised by a CompSMLs, who said:

> *"It is not effective because it does not show me the*
> *context of the new words."* **(CompS.F.P6)**

Others said it is not helpful or useful, despite the opposing claims of some experts (e.g. Nation, 2001).

Interestingly, VLS35 and VLS40 were among the least five used and least apparently useful locations according to both groups, as shown in Table 6.27 and Table 6.28, with mean scores below '2' and above '1' in terms of uses and usefulness, corresponding to 'never'. Thus, I can say that both VLS35 and VLS40 were the least preferred for use by both majors, since they are among the least five used options by both majors, with no significant differences observed between majors, as shown in Table 6.36. Similar results were also observed in Ahmed's study (1989), Nakamura's

study (2002), Alyami's study (2011) and Al-Hatmi's study (2012), despite the different

contexts and study variables.

Figure 6.38 Overall frequency of use of strategic locations for vocabulary notes by major (VLSD6)
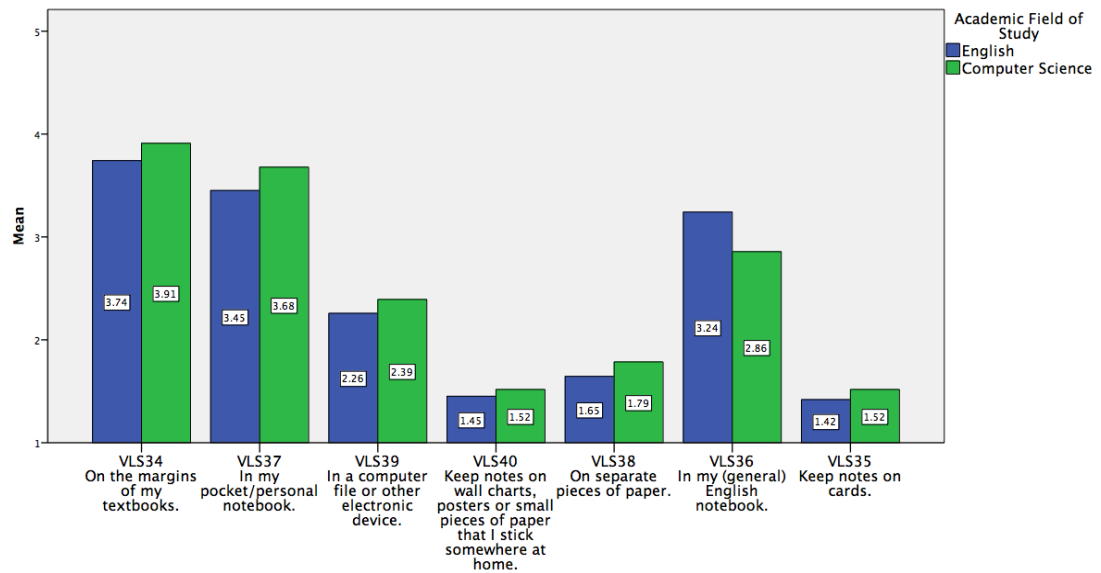
Figure 6.39 Overall frequency of perceived usefulness of strategic locations for vocabulary notes by major (VLSD6)
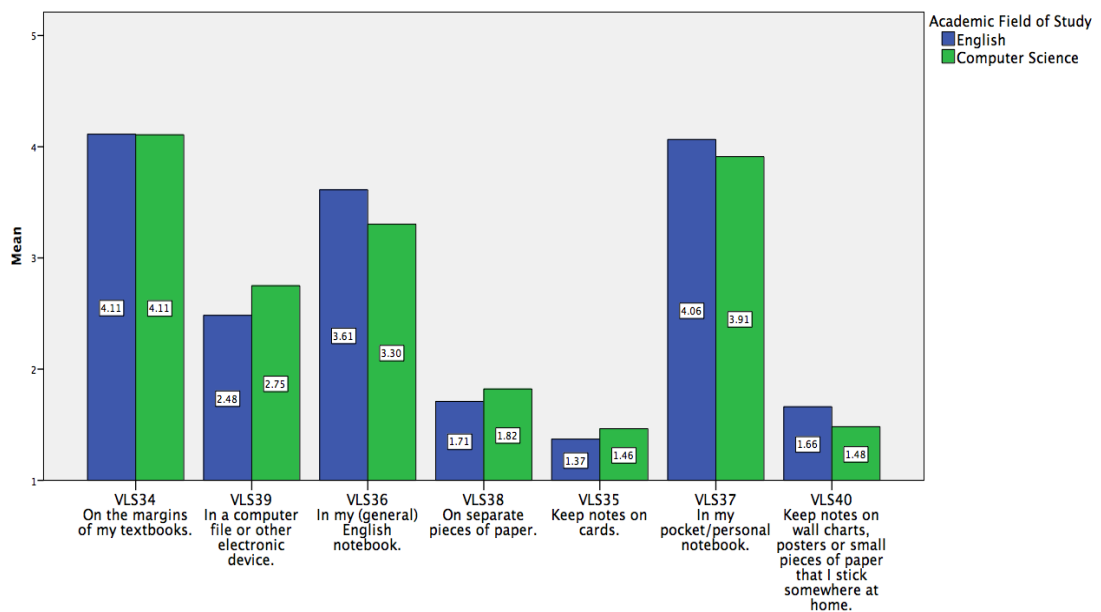
6.3.7 Perceived uses and usefulness for ways of organising noted words (VLSD7)

Table 6.43 shows the descriptive statistics for the relationship between the learners' AFoS and both the frequency of their use of different ways for organising the noted words and their perceived usefulness of these methods as determined for the main study. As the table shows, there were no noticeable differences between the EMLs and CompSMLs in terms of their use of seven different ways of organising the noted words, but one noticeable difference in their reported usefulness (means for these are given in bold). This was 'VLS44 organise the word by their grammatical category'. For ease of reference, I will refer to the strategies by their VLS number (e.g. VLS41, VLS42, etc.).

Table 6.43 Descriptive statistics of the ways of organising the noted words across majors (VLSD7)

VLS Number	The ways of organizing the noted words	Major	Frequency of Use Mean	Mean DF	SD	Usefulness Mean	Mean DF	SD	N
VLS41	By units or lessons of the textbook.	English	2.500		1.277	2.193		1.053	62
		Computer Science	2.196	.3035	1.197	2.482	-.2885	1.414	56
VLS42	I organize the words in alphabetical order.	English	1.612		.9470	1.596		.8581	62
		Computer Science	1.500	.1129	.8944	1.464	.1324	.8520	56
VLS43	In a random order.	English	3.758		1.196	3.790		1.147	62
		Computer Science	3.964	-.2062	1.061	3.571	.2188	1.305	56
VLS44	I organize the words by their grammatical category (e.g. noun, verb, adjective, etc.)	English	1.645		1.102	**2.338**		1.240	62
		Computer Science	1.375	.2701	.7022	**1.892**	.4458	1.231	56
VLS45	I organize the words by their meaning groups. (e.g. animals, fruits, food, colours, etc.).	English	1.677		.8051	2.725		1.439	62
		Computer Science	1.821	-.1440	.9928	2.428	.2972	1.109	56
VLS46	According to their difficulty (e.g. from easiest to most difficult).	English	1.580		.9842	1.645		.9767	62
		Computer Science	1.750	-.1693	1.066	1.821	-.1763	1.046	56
VLS47	I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive, etc.).	English	1.725		.9821	2.032		1.279	62
		Computer Science	1.464	.2615	.8310	1.714	.3179	1.139	56

Table 6.44 shows the differences between the EMLs' and CompSMLs' use of different strategies for organising the noted words, as well as their opinions regarding their usefulness; these were not significant in any case, although for VLS44 'organise the word by its grammar category' the variance approached significance. Below I

discuss the almost significant difference in my subjects' use and judgment of the usefulness of this strategy.

Table 6.44 Independent sample t-test results for ways of organising the noted words; their use and usefulness by major

VLS Number	The ways of organizing the noted words	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS41	By units or lessons of the textbook.	1.328	.187	-1.247	.215
VLS42	I organize the words in alphabetical order.	.664	.508	.841	.402
VLS43	In a random order.	-.986	.326	.963	.338
VLS44	I organize the words by their grammatical category (e.g. noun, verb, adjective, etc.).	1.602	.112	1.957	**.053**
VLS45	I organize the words by their meaning groups. (e.g. animals, fruits, food, colours, etc.).	-.869	.387	1.263	.209
VLS46	According to their difficulty (e.g. from easiest to most difficult).	-.897	.371	-.946	.346
VLS47	I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive, etc.).	1.596	.113	1.428	.156

The subjects' frequency of use of VLS44 and their judgment of its usefulness differed between groups. The EMLs used VLS44 more often than the CompSMLs did, but they still used it rarely (mean: English=1.65, Computer Science=1.38; p=.112). Similarly, the EMLs considered VLS44 to be nearly significantly more useful than the CompSMLs did (mean: English=2.33, Computer Science=1.89; p=.053). This represents the finding that EMLs consider VLS44 'slightly useful, while the CompSMLs see it as 'not useful. Although, both majors 'never' used the current VLS, the EMLs showed some interest in it. This might be because the EMLs do care about the word's grammar (as apparent in 6.3.1, 6.3.2 and 6.3.5). Therefore, the EMLs think it is more useful for them to organise words' based on their grammatical category, as this could facilitate their retention; however, they never used the strategy as it is too time

consuming:

> *"Organising the word by their grammar category is time consuming."* (**E.F.P. 5**)

Figure 6.40 displays the significant differences between the EMLs' and the CompSMLs' use of VLS44 and their opinions about its usefulness.

Figure 6.40 The differences in terms of recording 'grammatical category' by major
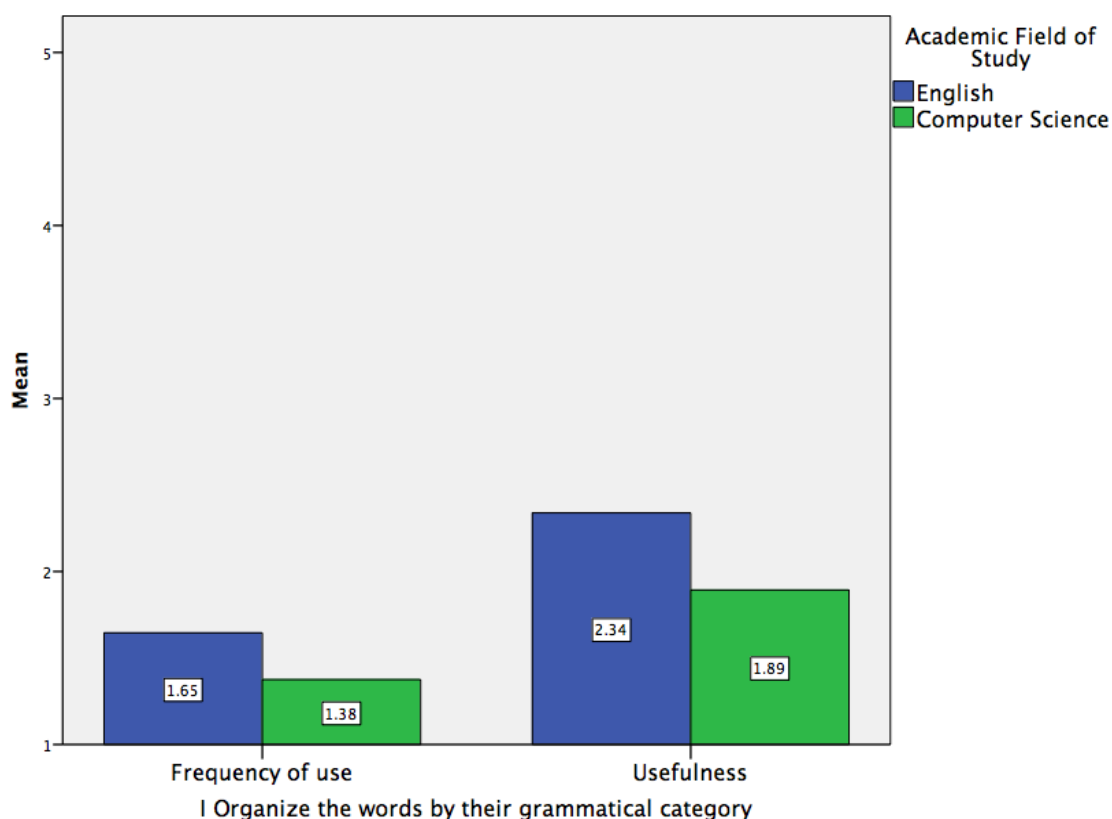
Describing the results for rank order, Figure 6.41 and Figure 6.42 show the frequency for ways of organising the noted words individually, as reported by both majors in terms of the VLSs used and their perceived usefulness. According to Figure 6.41 the most frequently used organisational methods by major were VLS43 'random order' (mean: English=3.76, Computer Science=3.96). This means that both majors claimed they 'sometimes' use VLS43 when organising noted words. A similar pattern was found by Nakamura (2000), and more recently Alyami (2011), despite the fact that we were researching learners from two different majors, while the aforementioned

studies were dealing with EMLs only. This finding parallels that regarding most used location 'on the margin of my textbooks' (see Figure 6.38). This might indicate that learners organise their notes words randomly but by lesson.

In terms of the most useful VLS, Figure 6.42 shows both majors reported VLS43 was the most useful VLS (mean: English=3.79, Computer Science=3.57). This means both majors view VLS43 as a 'useful' strategy.

A number of reasons were elicited from the interviewer to justify the results of this strategy, an incidence of use was apparent for both majors as follows: First, all the learners agreed that it is easy to execute:

> *"I think it does not take much effort or time, so it is easy for me to use this approach to organisation."* **(CompS.M.P2)**

> *"It is easy to do and helpful."* **(E.M.P2)**

> *"I use this way because it is easy and quick to organise the words, since I come across the new words in different places and this takes less effort."* **(E.M.P4)**

Second, a CompSMLs claimed that he used the current strategy because he wants to keep up with his teacher's classroom instructions:

> *"Because I want to keep up with my teachers' instructions."* **(CompS.M.P1)**

However, not all the feedback is positive, I noticed some negative feedback from an EML, who claimed that she does not use the current strategy because she is already a well-organised learner:

> *"I do not use it because I am an organised person and organisation helps me with my studies."* **(E.F.P6)**

The above quotation reflects Oxford's (1990) finding that organisation and neatness are important aspects of vocabulary note-taking strategies and important for

useful learning. However as I have noticed the majority were 'organising the noted words randomly'.

On the other hand, Figure 6.41 also shows the least used strategy in this category for both majors. The EMLs reported that 'VLS46 according to level of difficulty' is the least used strategy, with a mean score of '1.58', corresponding to 'never', and it was the second least useful strategy with a mean score of '1.65' corresponding to 'not effective' on the scale; followed by the least useful strategy, 'VLS42 in alphabetical order', with a mean score of '1.60', corresponding to 'not useful' (Figure 6.42).

In terms of CompSMLs, the learners reported that VLS44 'according to their grammatical category' was the least used strategy, with a mean score of '1.38' corresponding to 'never' (Figure 6.41). Additionally, it was judged the third least useful strategy, with a mean score of '1.89', corresponding to 'not useful', while the least useful strategy, was VLS42 with a mean score of '1.46', corresponding to 'not useful' (Figure 6.42)

Interestingly, VLS42, VLS46 for EMLs and VLS42, VLS44, VLS47 were among the least used and useful VLSs for the CompSMLs (Table 6.29 and Table 6.30). All of these aforementioned VLSs were reportedly 'never' used and 'not useful' strategies. Another VLSs, which also scored 'never' in this dimension and was among the top 12 least strategies was VLS45. Thus, VLSD7 is conclusively the least used dimensions among the learners from the different majors. I attained similar results in my preliminary study (see 4.6.1). The interview data also revealed these strategies were not important or time consuming for either major.

Figure 6.41 Overall frequency of use for ways of organising the noted words by major (VLSD7)
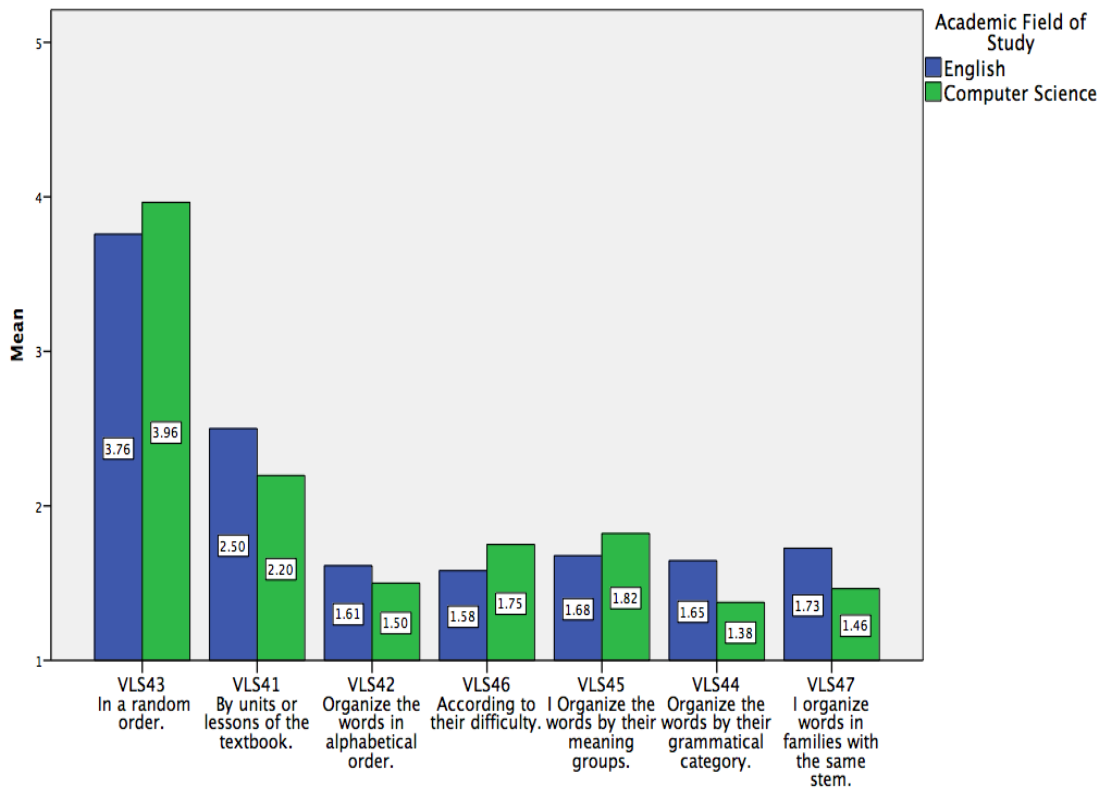
Figure 6.42 Overall frequency of usefulness for ways of organising the noted words by major (VLSD7)
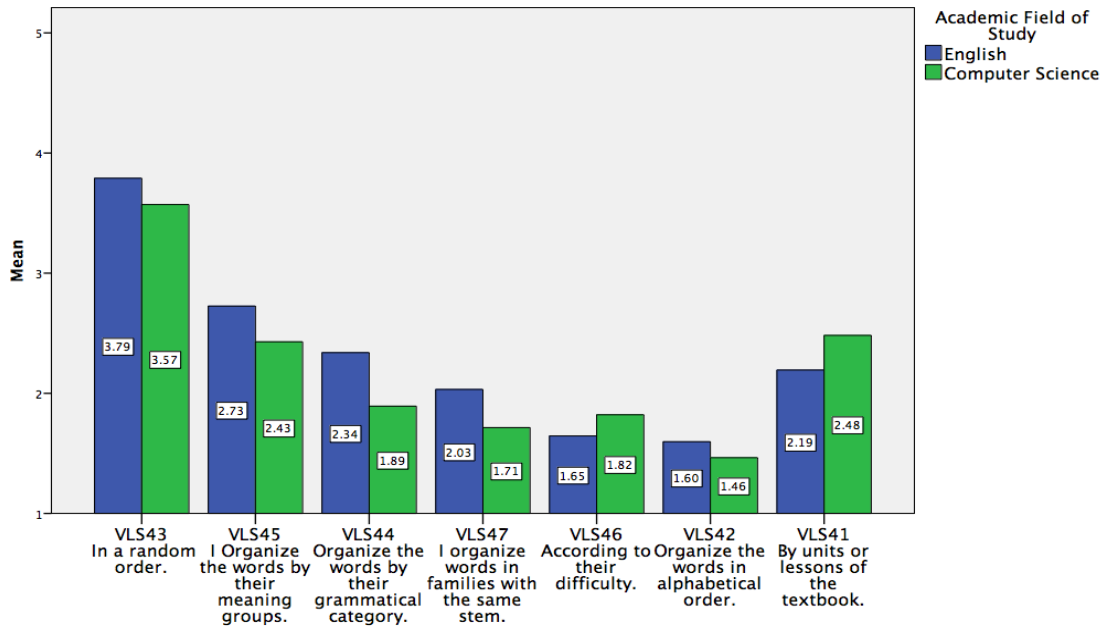
6.3.8 Perceived uses and usefulness for the reasons for word selection (VLSD8)

Table 6.45 details the descriptive statistics for the relationship between the learners' AFoSs and both the frequency of their reasons of the word selection and their perceived usefulness, according to the data gathered for the main study. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use and perception of usefulness in one VLSs; namely, selecting the word when VLS50 'the word is highly frequent in English'. However, as shown in Table 6.46, the differences in the EMLs' and CompSMLs' use of word selection when note-taking, as well as their reported effectiveness was not significant. Hence, I can conclude that learners' AFoS was not related to their use of word selection, or their perception of the usefulness of these VLSs, since the EMLs and CompSMLs were not statistically different in this regard. For ease of reference, I will refer to these strategies by their VLS number (e.g. VLS48, VLS49, etc.).

Table 6.45 Descriptive statistics for the reasons for word selection by major (VLSD8)

VLS Number	The reasons for Vocabulary note taking strategies	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS48	I select a word for note taking if I see that the word is unknown and thus new to me.	English	4.387		.9976	4.451		1.002	62
		Computer Science	4.464	.0771	1.061	4.642	-.1912	.8186	56
VLS49	I select a word for note taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	English	4.161		.9088	4.354		.8702	62
		Computer Science	4.035	.1255	1.008	4.232	.1227	.9907	56
VLS50	The word is important in that I realize it is a highly frequent word in English	English	**3.000**		1.366	**3.387**		1.419	62
		Computer Science	**2.589**	.4107	1.385	**2.946**	.4406	1.386	56
VLS51	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	English	3.419		1.300	3.596		1.286	62
		Computer Science	3.196	.2229	1.367	3.464	.1324	.9902	56
VLS52	The word is important in that it is a key word in the text where I met it.	English	3.612		1.135	3.822		1.248	62
		Computer Science	3.375	.2379	1.054	3.517	.3047	1.111	56
VLS53	I select a word for note taking if I see that the word is important in that the teacher said so.	English	3.967		1.173	4.338		1.133	62
		Computer Science	3.660	.3070	.9000	4.053	.2851	.9616	56
VLS54	I select a word for note taking if I see that the word is important in that it is needed when speaking or writing.	English	4.145		1.037	3.854		1.084	62
		Computer Science	3.910	.2344	.9200	3.767	.0869	.9143	56
VLS55	I select a word for note taking if I see that the word is useful to me.	English	4.354		.7912	4.467		.7403	62
		Computer Science	4.321	.0334	.7653	4.428	.0391	.7593	56
VLS56	The word is difficult for me.	English	3.709		1.233	3.483		1.351	62
		Computer Science	4.017	-.3081	1.103	3.767	-.2839	1.175	56

Table 6.46 Independent sample t-test results for the reasons for word selection by major

VLS Number	The reasons for Vocabulary note taking strategies	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS48	I select a word for note taking if I see that the word is unknown and thus new to me.	-.407	.685	-1.127	.262
VLS49	I select a word for note taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	.712	.478	.716	.475
VLS50	The word is important in that I realize it is a highly frequent word in English.	1.614	.109	1.574	.118
VLS51	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	.908	.366	.630	.530
VLS52	The word is important in that it is a key word in the text where I met it.	1.175	.242	1.394	.166
VLS53	I select a word for note taking if I see that the word is important in that the teacher said so.	1.582	.116	1.612	.110
VLS54	I select a word for note taking if I see that the word is important in that it is needed when speaking or writing.	1.293	.199	.468	.640
VLS55	I select a word for note taking if I see that the word is useful to me.	.233	.816	.284	.777
VLS56	The word is difficult for me.	-1.424	.157	-1.220	.228

Describing the results for rank order, Figure 6.43 and Figure 6.44 further show the frequency of reasons for selecting words when note-taking is individually reported by both majors in terms of VLSs use and usefulness. According to Figure 6.43, the most used selection of words for both majors was 'VLS48 the words new to me' (mean: English=4.38, Computer Science=4.46). This means both majors claimed they 'often' use VLS48 when choosing words for note-taking.

In terms of the most useful VLSs, Figure 6.44 shows EMLs reported VLS48 as the second most useful VLS, with a mean score of '4.45' and VLS55 'useful to me' as

the most useful strategy, with a mean score of '4'47'. However, CompSMLs reported that VLS48 was the most useful strategy overall with a mean score of '4.64'.

Interestingly, VLS48, VLS49, and VLS55, were among the top five used and most useful VLSs for both majors (Table 6.29 and Table 6.30). The interview data revealed that the EMLs and CompSMLs explained their higher use of VLS48 compared to the other VLSs in this dimension by asserting that it is more useful and easy to refer to when noting down new words.

Conversely, Figure 6.43 also shows the least used strategy in this category for both majors was 'VLS50 high frequent in English' (mean: English=3.00, Computer Science=2.59). This means VLS50 was 'sometimes' used by EMLs and 'rarely' used by the CompSMLs. Also, Figure 6.44 shows VLS50 was also the least useful strategy for both majors (mean: English=3.39, Computer Science=2.95).

A number of reasons were elicited from the interview that justified the result of VLS50 use for the learners from both majors. For example, the EMLs claimed that they 'sometimes' use this strategy because high frequency words are the most often used words in the English language. In addition, the EMLs claimed that they make use of these high frequency words, as this learner claimed:

> *"Because there are words that can be used a lot so I want to write them down and I do not want to burden myself with unimportant words."* **(E.M.P1)**

However, the CompSMLs justified their low use of VLS50, saying that they do not have sufficient knowledge of high frequency words as seen from the interview:

> *"I do not use this method because I do not know many of the high frequency English words."* **(CompS.M.P3)**

They also said it was not a useful method for them, although unfortunately I did not gain further clarification from the interviews on this point.

Figure 6.43 Overall frequency of use of reasons for word selection by major (VLSD8)
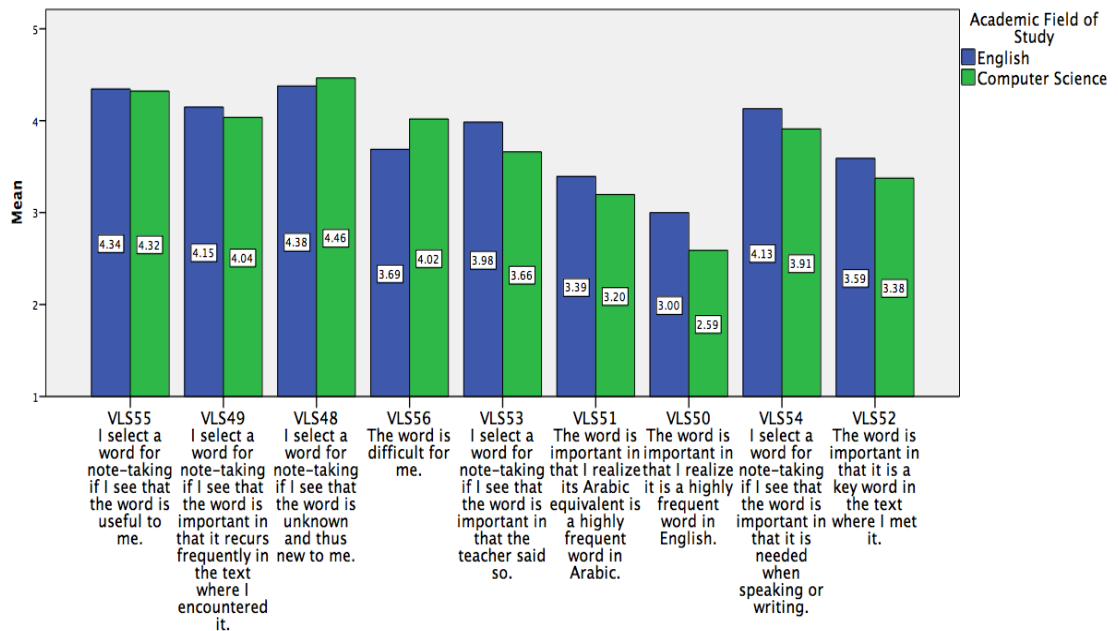
Figure 6.44 Overall frequency of perceived usefulness of reasons for word selection by major (VLSD8)
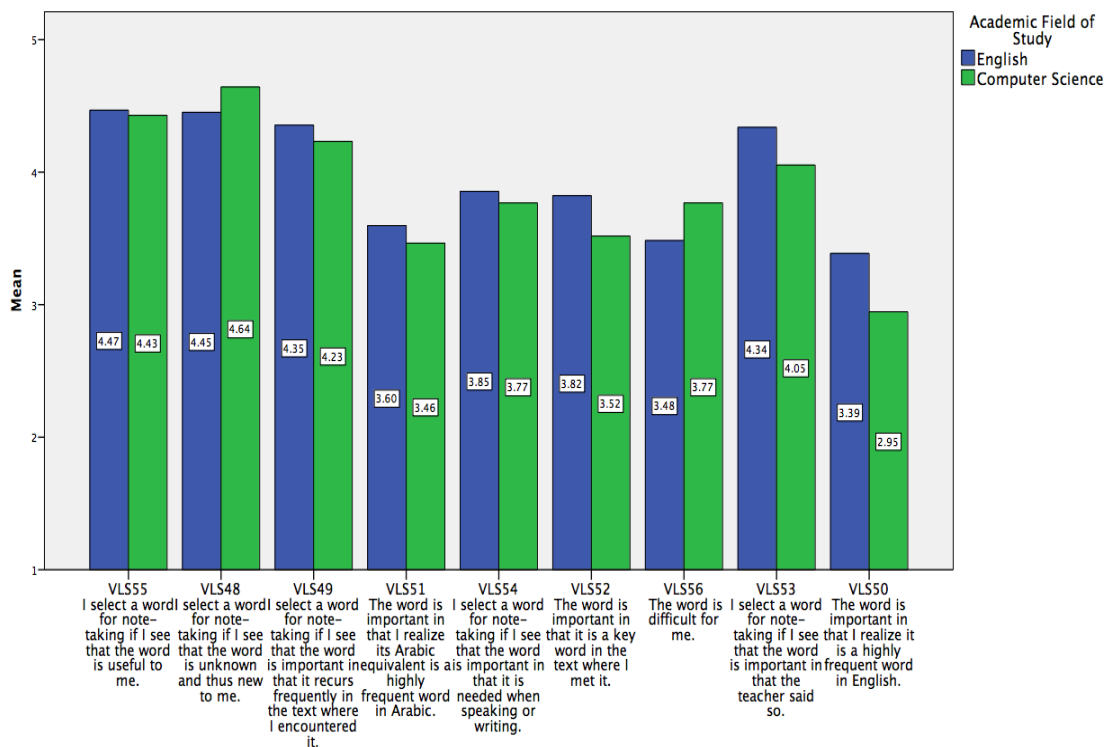
6.3.9 Perceived and usefulness for the methods of repetition (VLSD9)

Table 6.47 shows the descriptive statistics for the relationship between the learners' AFoS, and both the frequency of their use of the methods of repetition to memorise new words and their usefulness. As the table shows, there were no noticeable differences between the EMLs and CompSMLs in their use of and perception of usefulness regarding different methods of repetition. In addition, Table 6.48 the differences in my EMLs' and the CompSMLs' use of the methods of repetition, as well as their reported usefulness was not significant in any case. Hence, I conclude that learners' AFoS' were not related to their selection of the methods of repetition or in their perception of the usefulness of each VLSs, since the EMLs and CompSMLs were not statistically different in this regard.

Table 6.47 Descriptive statistics for methods of repetition used and their perceived usefulness by major (VLSD9)

VLS Number	Methods of repetition	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS57	I say the word aloud several times.	English	2.483	.1445	1.456	2.209	.2275	1.479	62
		Computer Science	2.339		1.352	1.982		1.542	56
VLS58	I repeat the word silently several times.	English	3.838	.2315	1.104	4.274	.2741	1.029	62
		Computer Science	3.607		1.274	4.000		1.143	56
VLS59	I write the word several times.	English	4.016	.1947	1.137	4.322	.2690	1.104	62
		Computer Science	3.732		1.271	4.053		1.235	56
VLS60	I listen to the word several times.	English	3.645	-.3237	1.438	4.000	.3571	1.173	62
		Computer Science	3.321		1.466	3.642		1.299	56

Table 6.48 Independent sample t-test results for methods of repetition used and their perceived usefulness by major

VLS Number	Methods of repetition	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS57	I say the word aloud several times.	.557	.579	.835	.405
VLS58	I repeat the word silently several times.	1.057	.293	1.403	.163
VLS59	I write the word several times.	1.280	.203	1.346	.181
VLS60	I listen to the word several times.	1.210	.229	1.569	.119

In reference to rank order, Figure 6.45 and Figure 6.46 show the frequency for

the four methods of repetition that assist memorisation, and which were individually reported by both majors in terms of VLS use and usefulness. According to Figure 6.45, the most used methods of repetition for both majors were 'VLS59 I write the word several times' (mean: English=4.02, Computer Science=3.73). Meaning both EMLs claimed they 'often' use VLS53, while CompSMLs only use it 'sometimes'. In terms of the most useful VLS, Figure 6.46 shows both groups also reported that VLS59, is the most useful VLS (mean: EMLs=4.32, CompSMLs=4.05). This means that both groups consider VLS59 a 'quite useful' method of repetition. The result was not supported by Alyami (2011); although, O'Malley et al. (1985) and Al-Qahtani's (2005) research showed the written mode was the most used by learners.

The interview data revealed the main reason for learners' high use of VLS59 among all learners was because it is helps them to memorise new words and their pronunciation and spellings;

> *"I use this method a lot because it gives me the opportunity to learn the words' spelling and pronunciation effectively."* **(E.M.P4)**

> *"This strategy enhances my writing of the new words so I can avoid spelling mistakes later on."* **(CompS.M.P2)**

> *"I write the word down several times because it is the best way for me to retain its meaning and spelling."* **(E.M.P3)**

> *"It very much helps me a lot to memorise the new words."* **(CompS.F.P6)**

This finding was also supported by Nakamura (2000), who claims that writing the new words several times helps learners to focus more on the words' spelling and thus facilitate understanding when reading.

On the other hand, Figure 6.45 shows the least used strategy in this category for

learners from both majors was 'VLS57 I say the word aloud' (mean: English=2.48, Computer Science=2.34). This means VLS57 was 'rarely' used by both majors. Figure 6.46 also shows that VLS57 was the least useful strategy and was seen as a 'slightly useful' strategy by both majors (mean: English=2.21, Computer Science=1.98). This means the EMLs view this strategy as 'slightly useful' while the CompSMLs consider it 'not useful' as a strategy. This contradicts the literature, which suggests saying a word aloud is helpful and could facilitate its retention (Read, 2000; Schmitt, 1997). However, in interview, learners from both majors confirmed that this strategy was embarrassing and that they prefer to use other methods, such as saying the words silently to themselves, rather than aloud.

Figure 6.45 Overall frequency of use of the methods of repetition by major (VLSD9)
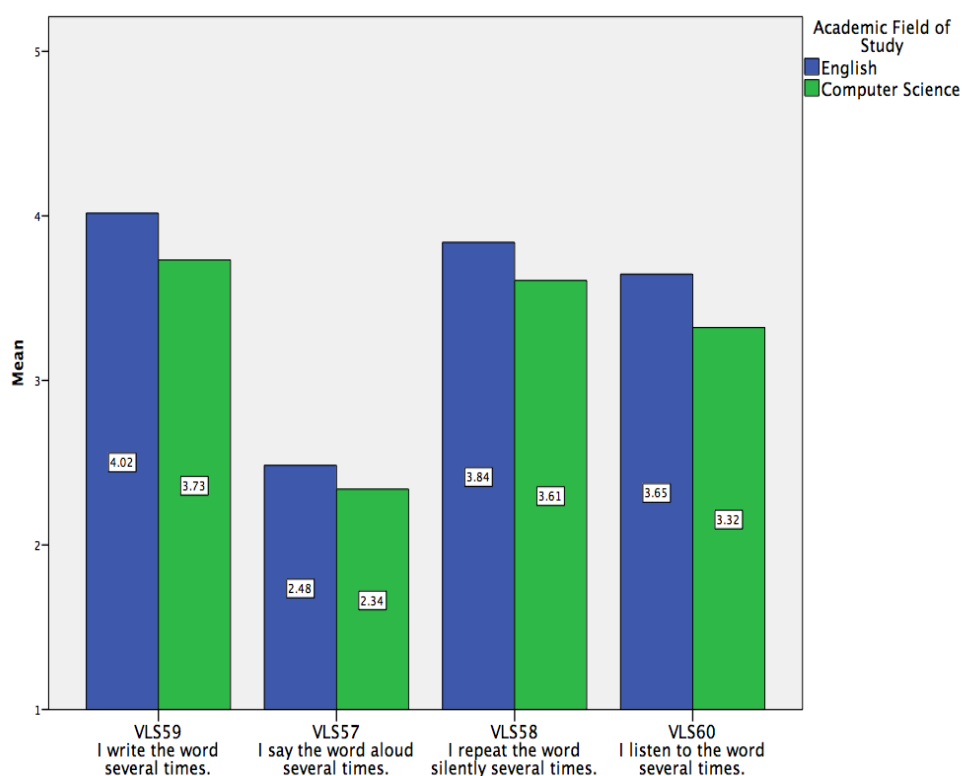
Figure 6.46 Overall frequency of usefulness of the methods of repetition by major (VLSD9)
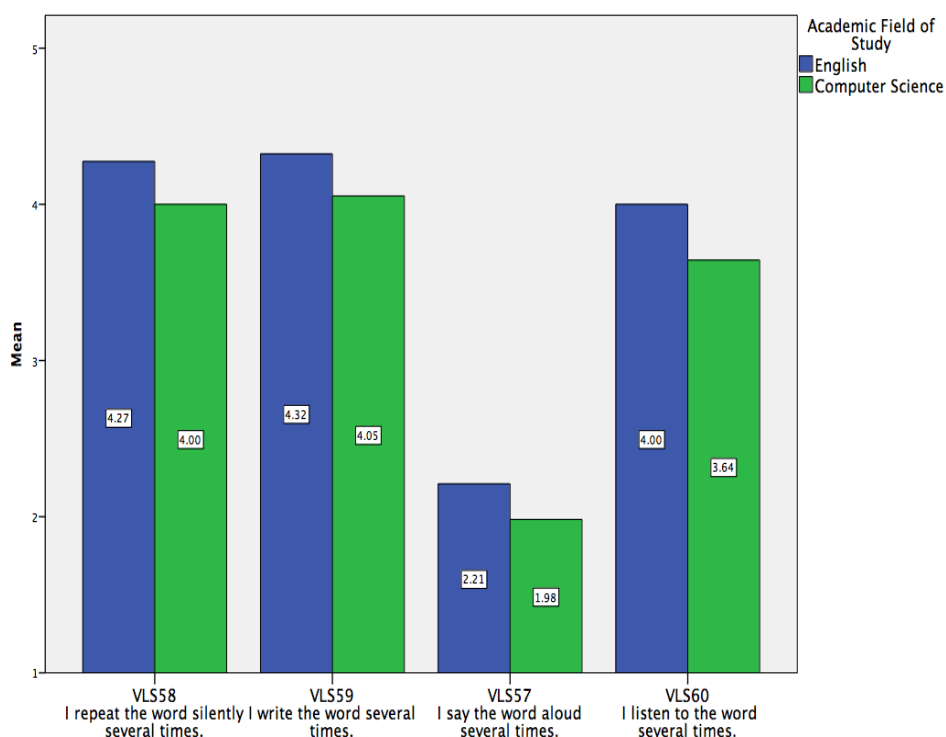
6.3.10 Perceived uses and usefulness for the information used when repeating new words (VLSD10)

Table 6.49 shows the descriptive statistics for the relationships between the learners' AFoS and the frequency of their use of certain information used when repeating new words, as well as their usefulness. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of information used when repeating new words, as well as their reported usefulness (means for these are in bold). This was VLS64 'repeating the word and its English definition'. For ease of reference, I will refer to the strategies by their VLS number (e.g. VLS61, VLS62, etc.).

Table 6.49 Descriptive statistics for the information used when repeating new words by major (VLSD10)

VLS Number	Information used when repeating new words	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS61	I say the word and its Arabic translation.	English	2.919		1.334	3.322		1.260	62
		Computer Science	3.303	-.3842	1.374	3.696	-.3738	1.385	56
VLS62	I only repeat the English word with nothing else.	English	3.725		1.416	4.032		1.305	62
		Computer Science	3.500	.2258	1.537	3.857	.1751	1.534	56
VLS63	I repeat example sentences several times.	English	2.483		1.251	2.677		1.275	62
		Computer Science	2.392	.0910	1.302	2.482	.1952	1.355	56
VLS64	I repeat the word and its English definition.	English	**2.790**		1.229	2.758		1.377	62
		Computer Science	**2.285**	.5046	1.289	2.598	.1687	1.439	56

As shown in Table 6.50, the difference between the EMLs and CompSMLs in terms of the use of and their perception of the usefulness of these four strategies was significant in one case (i.e. VLS64). I will now discuss the significant differences in my subjects' use and judge the usefulness of this strategy.

Table 6.50 Independent sample t-test results regarding information used when repeating new words by major

VLS Number	Information used when repeating new words	Frequency of Use			Usefulness		
		t	sig.	η²	t	sig.	η²
VLS61	I say the word and its Arabic translation.	-1.540	.126		-1.547	.125	
VLS62	I only repeat the English word with nothing else.	.830	.408		.665	.507	
VLS63	I repeat example sentences several times.	.387	.700		.905	.367	
VLS64	I repeat the word and its English definition.	2.175	**.032**	**.039**	.646	.520	

My subjects reported their frequency of use of VLS64 and their judgment of its usefulness. The EMLs used VLS64 significantly more often than the CompSMLs did with a small effect size (mean: English=2.79, Computer Science=2.29; p=.032; η^2=.039). This result aligns with those presented by Siriwan (2007). However, the EMLs consider VLS64 to be more useful than the CompSMLs did, but not significantly (mean: English=2.75, Computer Science=2.59; p=.520). Although VLS64 is rarely used

by EMLs, it scored close to '3' in my Likert scale, which corresponds to 'sometimes', the interview data also showed positive reasons for the reported use of VLS64 by EMLs. This result was expected for a number of reasons. First I found similar results previously, suggesting that EMLs focus on L2 more than CompSMLs do (see 6.3.2, 6.3.3 and 6.3.5). Second, it is useful to retain the words' meaning as claimed by an EML:

> *"Repeating the meaning in English helps me to retain the word and its meaning."* **(E.M.P1)**

This basically illustrates that the learner tries to use L2 to comprehend the meaning of new words, supporting what was mentioned above regarding a greater interest in expanding the L2 among CompSMLs. Moreover, using this strategy proved to be important for EMLs, because they need it for their exams as stated by one of the EMLs:

> *"I use this strategy because I sometimes have definition exams in which I have to define the English meaning of the word."* **(E.M.P2)**

On the other hand, the interview data showed several reasons for the reported lesser use of VLS64 by the CompSMLs, who prefer strategies involving their L1:

> *"I do not use this strategy because I repeat the English word with its Arabic translation."* **(CompS.F.P5)**

Secondly, the CompSMLs mentioned the possibility of becoming confused by the English definition, as claimed by this learner:

> *"Because if I say its meaning in English the words included in the definition confuse me."* **(CompS.M.P4)**

Finally, the CompSMLs found it difficult to retain the meaning of new words:

> *"I cannot retain the word if I say its meaning in*
> *English with it."* **(CompS.M.P2)**

This result can be understood readily, since the EMLs are probably more proficient in English in contrast to the CompSMLs. Figure 6.47 displays the significant differences in the EMLs' and CompSMLs' use of VLS64 and their judgment of its usefulness.

Figure 6.47 The differences for 'repeat the word and its English definition' by major
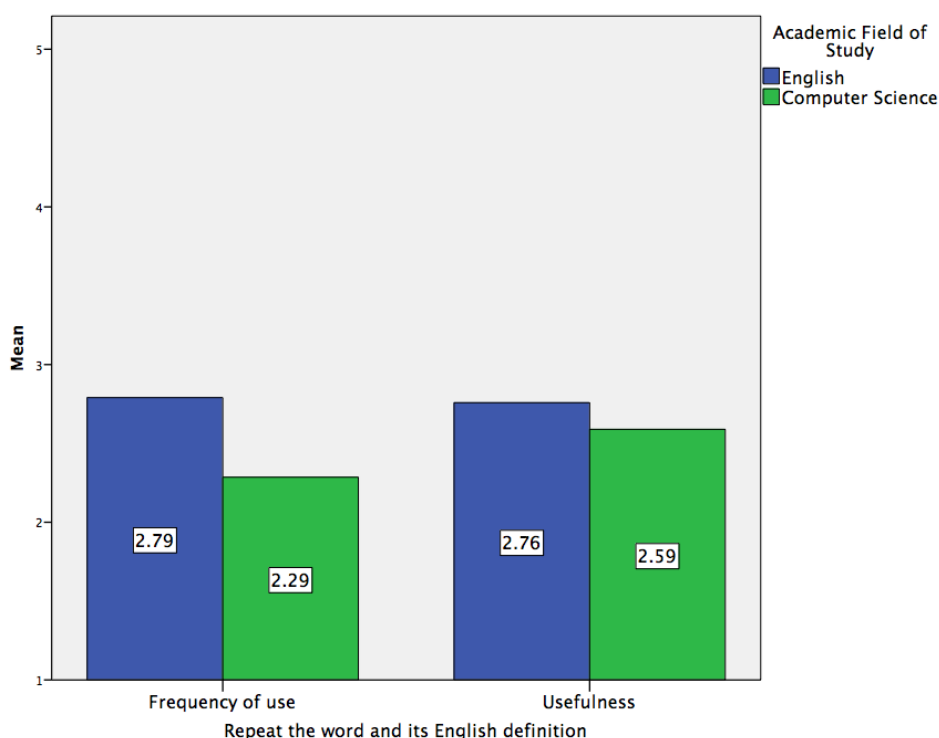
Moving on to rank order, Figure 6.48 and Figure 6.49 show the frequency of information type used when repeating new words individually, as reported by both majors in terms of VLSs use and usefulness. According to Figure 6.48, the most used information when repeating new words by both groups was VLS62 'with nothing else' (mean: English=3.73, Computer Science=3.50). This means both majors 'sometimes' use VLS62 when repeating new words. A similar pattern was found in Alyami (2011), despite the fact that this study considers learners on different courses, while the aforementioned study concerned EMLs only.

In terms of the most useful VLS, Figure 6.49 shows that both groups reported VLS62 to be the most useful VLS (mean: English=4.03, Computer Science=3.86). This means the EMLs see VLS62 as a 'quite useful strategy while CompSMLs see VLS56 as the only 'useful' strategy.

A number of reasons for this were elicited from the interview justifying the results of this strategy's extensive use by all learners, as follows:

First, all the learners agreed they do this in order to focus on the spelling of the words or their pronunciation:

> *"We study difficult terms that have complicated spelling or difficult pronunciation so I always use this method in order to retain the spelling and the pronunciation of the word."* **(CompS.M.P1)**

> *"I say the English word on its own because I want to focus on its spelling and pronunciation."* **(CompS.M.P2)**

> *"It helps me with my pronunciation and to focus on the words' spelling."* **(E.M.P2)**

These above quotations agree with Schmitt's (1997) claims that studying a word's spelling or pronunciation facilitates recollection. Second, both CompSMLs and EMLs claimed that they used the current strategy because they want to retain the new words easily:

> *"Because it helps me a lot to retain the word."* **(CompS.F.P6)**

> *"It helps to memorise the word perfectly."* **(E.M.P4)**

Meanwhile, Figure 6.48 shows the least used strategy in this category for both majors. The EMLs reported that VLS63 'repeat example sentences' is the least used strategy with a mean score of '2.48', corresponding to 'rarely' and it was the least useful strategy with a mean score of '2.68', corresponding to 'slightly useful' (Figure 6.49). The interview data revealed the reasons for learners' low use of VLS63 by EMLs.

For example, they claimed it was not helpful, or that the strategy does not aid word retention:

> *"It does not help me to retain the new word"*
> **(E.M.P3)**

However, the other EMLs claimed the opposite and agreed with other scholars that examples can be helpful, as they can show them the context of the new words; for example, an EML said

> *"I use examples because they show the authenticity of the new words."* (**E.F.P5**)

Among the CompSMLs, VLS64 was reportedly the least used strategy, with a mean score of '2.29', corresponding to 'rarely' (Figure 6.48). Additionally, it was deemed the second least useful strategy with a mean score of '2.59', corresponding to 'slightly useful' followed by the perceived least useful strategy which was VLS63 with a mean score of '2.48', corresponding to 'slightly useful' (Figure 6.49). The interview data revealed the reasons for the low use of VLS64 by the CompSMLs, as given above (Figure 6.47).

In a nutshell, Nation (2001;74-76) mentions that "repetition is essential for vocabulary learning because there is so much to know about each word that one meeting with it is not sufficient to gain this information, and because vocabulary items must not only be known, they must be known well so that they can be fluently accessed".

Figure 6.48 Overall frequency of use of information used when repeating new words by major (VLSD10)
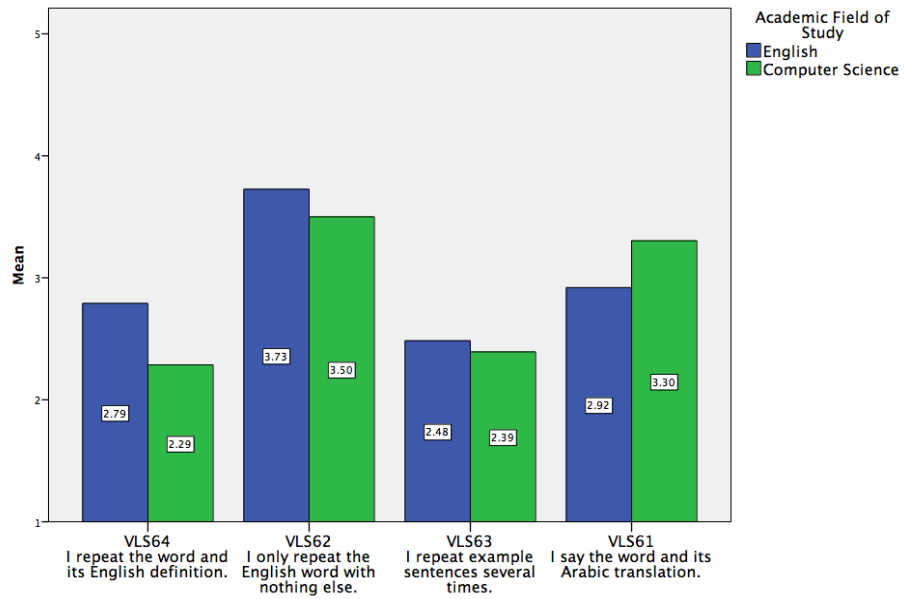
Figure 6.49 Overall frequency of usefulness of information used when repeating new words by major (VLSD10)
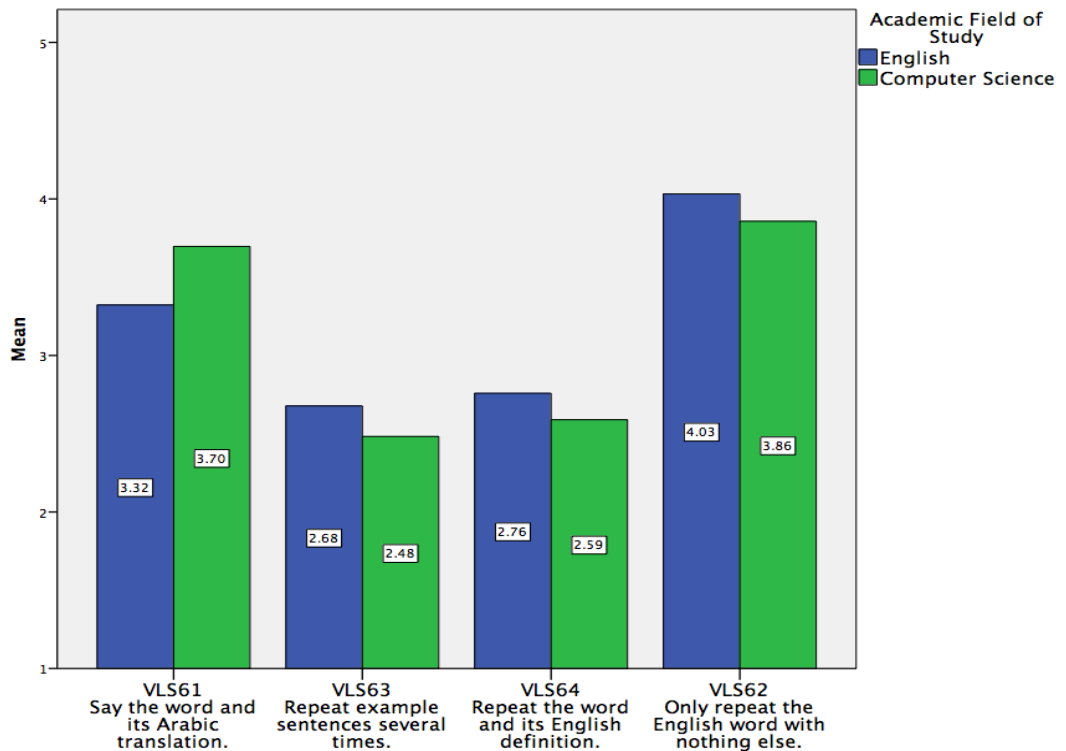
6.3.11 Perceived uses and usefulness for association strategies (VLSD11)

Table 6.37 shows the descriptive statistics for the relationship between the learners' AFoS and the frequency of their use of association strategies and their perceived usefulness. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of the four association strategies, and in their judgments regarding their usefulness (means for these are in bold). These were VLS65 'I relate the new word to other English words similar in sound or spelling', VLS66 'I relate the new word to synonyms or antonyms in English', VLS69 'I relate the new word to words that usually follow each other in speech or writing', and VLS71 'I break up the new word according to its syllables or structure'. For ease of reference, I will refer to the strategies by their VLS number (e.g. VLS65, VLS66, etc.).

Table 6.51 Descriptive statistics for association strategies by major (VLSD11)

VLS Number	Association strategies	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS65	I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	English	**3.016**		1.348	**3.371**		1.451	62
		Computer Science	**2.285**	.7304	1.289	**2.196**	1.174	1.367	56
VLS66	I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	English	**3.112**		1.294	**3.548**		1.398	62
		Computer Science	**2.160**	.9521	1.247	**2.696**	.8519	1.500	56
VLS67	I associate the new word with a word in Arabic similar in sound.	English	2.419		1.349	2.371		1.345	62
		Computer Science	2.821	-.4020	1.376	2.803	-.4326	1.482	56
VLS68	I use the keyword method.	English	2.225		1.310	2.306		1.350	62
		Computer Science	2.071	.1543	1.399	1.946	.3600	1.393	56
VLS69	I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	English	**3.241**		1.422	**3.725**		1.4277	62
		Computer Science	**2.178**	1.063	1.063	**2.357**	1.368	1.327	56
VLS70	I associate the new word with a physical action that I do or imagine.	English	2.419		1.397	2.274		1.369	62
		Computer Science	2.357	.0622	1.419	2.107	.1670	1.448	56
VLS71	I break up the new word according to its syllables or structure (e.g. prefixes uneducated, suffixes educator, etc.).	English	**2.935**		1.480	**3.677**		1.490	62
		Computer Science	**2.196**	.7390	1.181	**2.500**	1.177	1.361	56

As shown in Table 6.52, the difference between the EMLs and CompSMLs in terms of the use as well as the usefulness of these strategies was significant for four of them (i.e. VLS65, VLS66, VLS69 and VLS71). In fact, the EMLs in fact had been introduced to more advanced curriculums than the CompSMLs, which helped them to use these strategies more. For instance, the EMLs studied an introduction to linguistics and learnt phonology and morphology from Year 3 onwards (see Appendices P and Q as well as Training Courses in 1.6). I will now discuss the significant differences in terms of my subjects' use and judgment of their usefulness of the four strategies.

Table 6.52 Independent sample t-test results of the association strategies uses and perceived usefulness by major

VLS Number	Association strategies	Frequency of Use			Usefulness		
		t	sig.	η^2	t	sig.	η^2
VLS65	I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	2.999	**.003**	**.072**	4.512	**<.001**	**.149**
VLS66	I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	4.060	**<.001**	**.124**	3.192	**.002**	**.081**
VLS67	I associate the new word with a word in Arabic similar in sound.	-1.601	.112		-1.662	.100	
VLS68	I use the keyword method.	.135	.537		1.425	.157	
VLS69	I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	4.627	**<.001**	**.152**	5.376	**<.001**	**.104**
VLS70	I associate the new word with a physical action that I do or imagine.	.240	.811		.644	.521	
VLS71	I break up the new word according to its syllables or structure (e.g. prefixes uneducated, suffixes educator, etc.).	3.009	**.003**	**.071**	4.463	**<.001**	**.147**

My subjects' reported frequency of use of VLS65 and their judgment of its usefulness each differed significantly between the groups. The EMLs used VLS65 significantly more than the CompSMLs did with a moderate effect size (mean: English=3.02, Computer Science=2.29; p=.003; η^2=.072). This means the EMLs 'sometimes' use VLS65, while the CompSMLs only 'rarely' use it. This finding is unlike that reported by Siriwan (2007). Similarly, the EMLs found VLS65 to be

significantly more useful than CompSMLs did with a large effect size (mean: English=3.37, Computer Science=2.20; p <.001; η^2=.149). This means the EMLs consider VLS65 'useful', while the CompSMLs see it as 'slightly useful'. The interview data showed positive reasons for the reported use of VLS65 by EMLs. For example the strategy is helpful for retention:

> *"This strategy helps me to support the old words that I learnt and retain the new words easily."* **(E.M.P3)**

Also, several learners claimed the strategy helped them to discriminate between homophones or homographs:

> *"Using this strategy helps me to learn the differences between words that are similar in sound or spelling."***(E.M.P4)**

> *"Because this will help me to discriminate between words which are similar in sound and spelling."* **(E.F.P5)**

Other EMLs did this for fun as claimed by this learner:

> *"It is one of the education games that I play with myself and with my friends."* **(E.M.P1)**

On the other hand, the CompSMLs claimed not to use VLS65 because it was confusing, for instance:

> *"Relating the new word to other English words with similar sounds or spellings is confusing to me."* **(CompS.M.P2)**

The above extract seems to explain that the CompSMLs are confused by orthographically similar English words such as /see/ and /sea/. Since my participants are Semitic language speaking learners, there are two types of synonyms that can cause problems for them (Laufer, 1997): (1) Synonyms identical in consonant but different in vowels, such as base and bias; and (2) synonyms that differ in suffix, such as considerable and considerate. Thus learners might have learned two similar words but

not mastered one of them, therefore, the learners then produce the wrong pronunciation or spelling of one of the words.

Another reason, as claimed by this learner, could be that CompSMLs did not have sufficient L2 vocabulary to use this strategy;

> *"I cannot use this strategy because my vocabulary is not sufficient."* **(CompS.M.P3)**

Figure 6.50 displays the significant differences between the EMLs' and CompSMLs' use of VLS65 and judgment of its perceived usefulness.

Figure 6.50 The differences in 'words similar in sound or spelling' by major
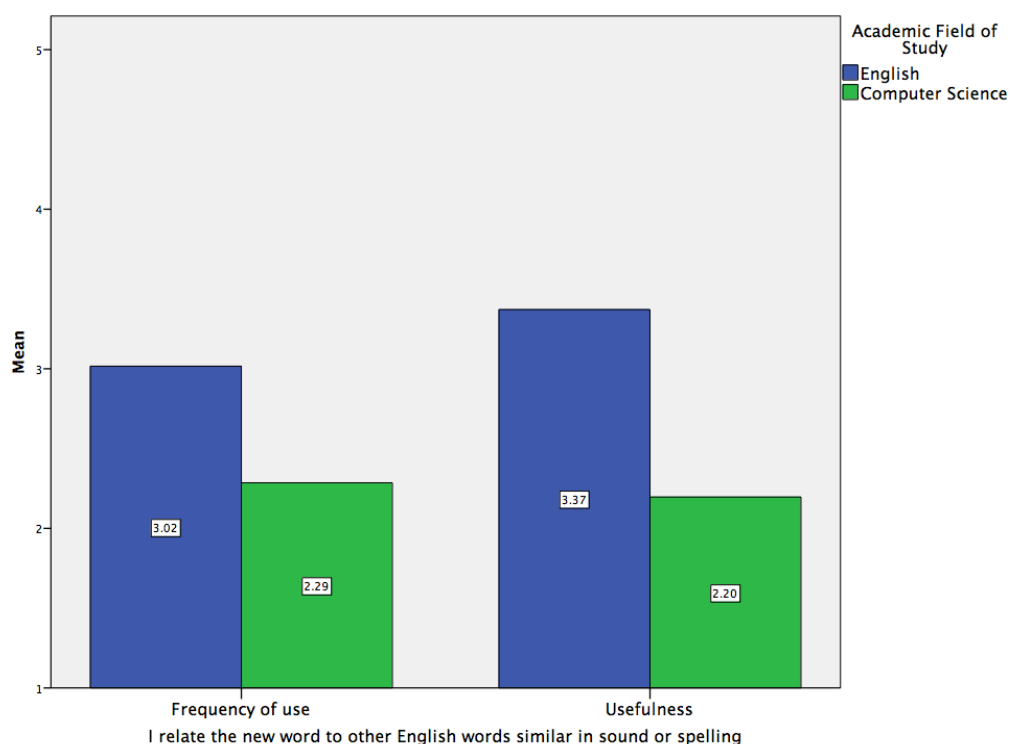
My subjects' reported frequency of use of VLS66 and their judgment of its usefulness each differed significantly by major. The EMLs used VLS66 more significantly than the CompSMLs did with a moderate effect size (mean: English=3.11, Computer Science=2.16; p<.001; η^2=.124). This means the EMLs 'sometimes' use VLS66, while the CompSMLs only 'rarely' use it. These findings differ from those detailed by Siriwan (2007). Similarly, the EMLs stated that VLS66 is significantly more

useful than the CompSMLs did, with a moderate effect size (mean: English=3.55, Computer Science=2.70; p=.002; η^2=.081). This means the EMLs see VLS66 as 'useful', because the mean is very close to '3' on my scale, while the CompSMLs viewed it as 'slightly useful'. The EMLs gave the following reasons for using this VLS. Firstly, consolidation of old vocabulary:

> *"It is effective for me, because I can reinforce the meaning of my old vocabulary and retain the new words."* **(E.M.P4)**

> *"Relating the new word to synonyms or antonyms in English is useful as it consolidates what I have already acquired and expands my lexicon."* **(E.M.P2)**

Gu (1994) found good language learners were more able to relate the old words to new words. In my case, the EMLs were relatively 'better' language learners than the CompSMLs. Secondly, to build up more vocabulary:

> *"When I meet a new word I try to find out all the related information about the word in order to improve my lexicon."* **(E.F.P6)**

Meanwhile, the CompSMLs claimed not to use VLS66 because it created confusion, for instance:

> *"Having lots of synonyms or antonyms in English in my mind confuses me when I recall them, so I rarely use them."* **(CompS.M.P2)**

This is supported by Nation (2001) who claims that the similarities between related items can create some difficulties for the learners when differentiating between them. Also, the CompSMLs claimed insufficient vocabulary might explain why they did not use this strategy, as shown below:

> *"I do not relate the new word to synonyms in English because it is difficult as my lexicon is insufficient."* **(CompS.F.P5)**

Other CompSMLs prefer to focus on the target language only:

> *"I get confused when I relate the new words to something else so I prefer to stick with the word itself and nothing else."* **(CompS.F.P6)**

Figure 6.51 displays the significant differences between the EMLs' and CompSMLs' use of VLS66 and their judgments about its usefulness.

Figure 6.51 The differences in 'synonyms or antonyms' across majors
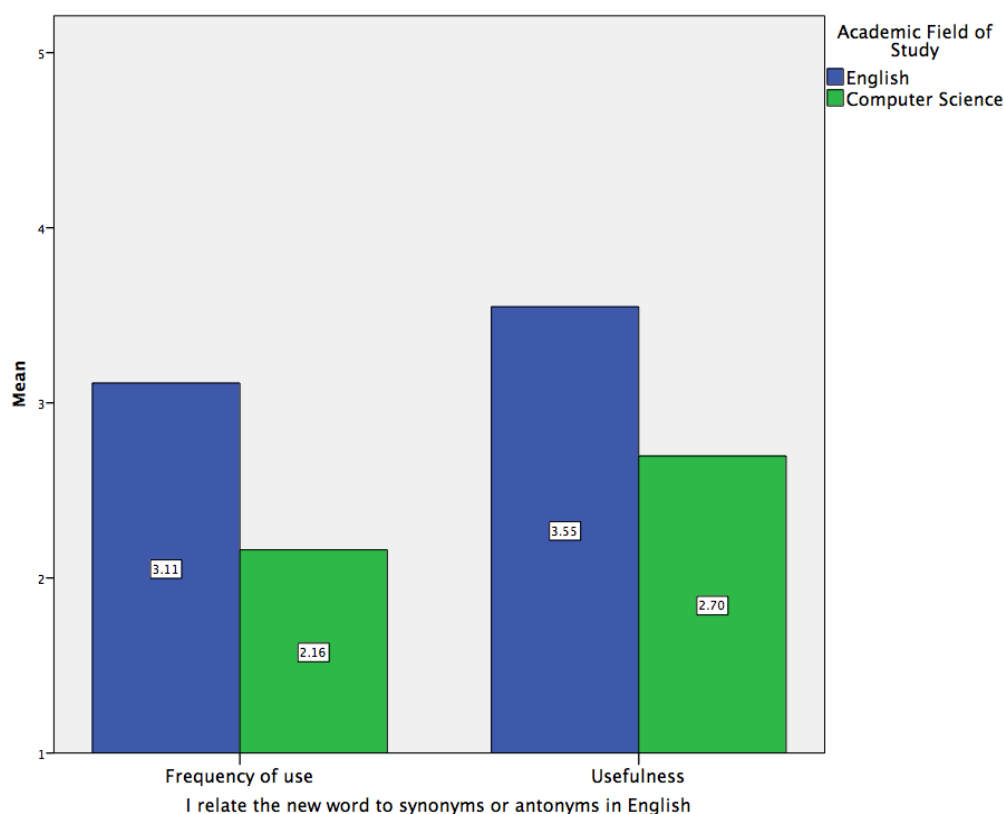
All the participants reported using VLS69 but differences in its perceived usefulness emerged between the two groups. The EMLs used VLS69 more than the CompSMLs did with a large effect size (mean: English=3.24, Computer Science=2.18; p<.001; η^2=.152). This means the EMLs 'sometimes' use VLS69, while the CompSMLs only 'rarely' use it. Similarly, the EMLs considered VLS69 to be significantly more useful than the CompSMLs did, with a moderate effect size (mean: English=3.73, Computer Science=2.36; p<.001; η^2=.104). This means the EMLs see VLS69 as 'useful' while the CompSMLs see it as only 'slightly useful'. The EMLs said that this strategy facilitates lexical retention:

> *"This method helps us to retain the new words that*
> *come together more easily."* **(E.M.P3)**

Secondly, it is more authentic because it provides the contextual use of the new words

> *"It is more authentic to do this because I can find*
> *out the contextual use of the new words."* **(E.M.P1)**

In contrast, the CompSMLs seemed to have a negative attitude toward this strategy:

> *"I get confused by this strategy so I do not use it."*
> **(CompS.M.P2)**

They also stated that they are not accustomed to using this VLS:

> *"I am not used to use this strategy.*" **(CompS.F.P5)**

Nation (2001) says that it is important to expose learners to lexical chunks and collocations when they are using L2 in their classrooms to increase their reading accuracy and speaking fluency. However, in this study, the CompSMLs were not exposed to these, since only the EMLs are taught about lexical chunks as shown in their training courses.

Figure 6.52 The differences regarding 'words follow each other in sound or spellings' by major
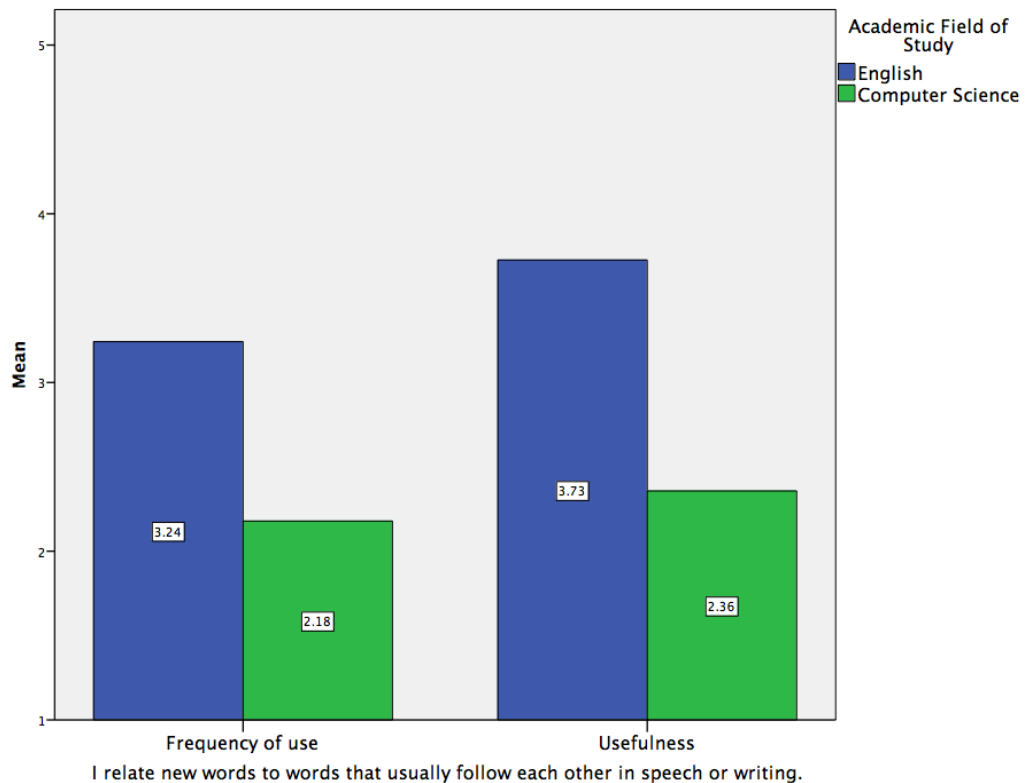
Finally, the subjects' reported their frequency of use of VLS71 and their judgment of its usefulness; both differed between the groups. The EMLs use VLS71 significantly more often that the CompSMLs, with a moderate effect size (mean: English=2.94, Computer Science=2.20; p=.003; η^2=.071). This means EMLs 'sometimes' use VLS71 because the mean is very close to '3' on the scale, while the CompSMLs only 'rarely' use it. Similarly, the EMLs view VLS71 as significantly more useful than the CompSMLs do, with a large effect size (mean: English=3.68, Computer Science=2.50; p=<.001; η^2=.147). This means EMLs see VLS71 as 'useful', while the CompSMLs see it as only 'slightly useful'. The EMLs claimed that this strategy is helpful for lexical retention:

> *"Breaking up the new words into syllables is easy*
> *because this sometimes helps me to retain and*
> *remember the new word."* **(E.F.P6)**

In contrast, the CompSMLs claimed not to use VLS66 because they do not know how to use it:

"I do not know how to do this." **(CompS.M.P2)**

This is because the CompSMLs have probably not been taught how to understand the syllables of the new words, or how to decipher the structures of the words, as stated by the interviewees:

"I have little knowledge about this; especially when the word is complicated. I am not able to understand its syllables. Beside this is not my interest since this is not my major." **(CompS.M.P1)**

Figure 6.53 displays the significant differences between the EMLs' and CompSMLs' use of VLS71 and their judgments regarding its usefulness.

Figure 6.53 The differences in 'its syllables or structure' across majors
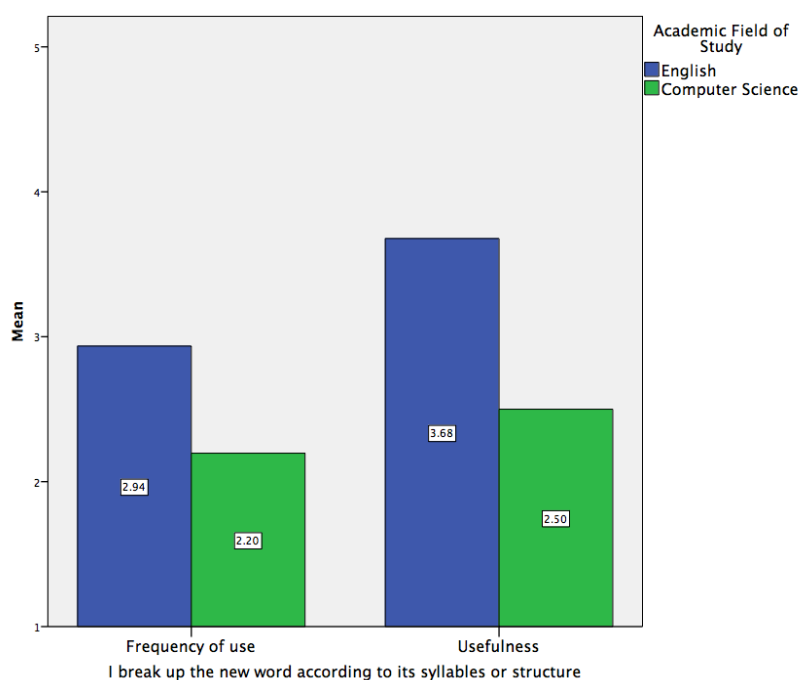
With regard to rank order, Figure 6.54 and Figure 6.55 show the frequency of the association strategies individually reported by the learners from both majors in terms of VLSs use and usefulness. According to Figure 6.54 the most used association strategy for EMLs was VLS69 'words follow each other in writing or speech', with a

mean score of '3.24' and it was also the most useful strategy in this dimension, with a mean score of '3.73' (Figure 6.55). I discussed this VLS previously (Figure 6.52).

In terms of the CompSMLs, Figure 6.54 shows the most used association strategy was VLS67, with a mean score of '2.82' and it was also assessed to be the most useful strategy in this dimension, with a mean score of '2.82' (Figure 6.55). Although this VLS is rarely used by the CompSMLs, they demonstrated that they use it more frequently than the EMLs, because it helps them recall new words more easily:

> *"This strategy helps me to remember new words more easily."* **(CompS.F.P5)**

In fact, Henning (1973) states that low proficiency learners, in this case CompSMLs, tend to encode vocabulary in memory according to acoustic or orthographic similarities and compared to highly proficient learners, in this case EMLs.

On the other hand, Figure 6.54 shows the least used strategy in this category for both groups. The EMLs reported that VLS68 is the least used strategy with a mean score of '2.23' corresponding to 'rarely', and that it was the second least useful strategy with a mean score of '2.31' corresponding to 'slightly useful', while the least useful strategy was VLS70 with a mean score of '2.27', which also means 'slightly useful' (Figure 6.55). The EMLs lesser use of VLS68 was because the strategy is considered time consuming.

In terms of the CompSMLs, Figure 6.54 shows the least used association strategy was VLS68 with a mean score of '2.07' corresponding to 'rarely', and it was also the least useful strategy in this dimension, with a mean score of '1.95' corresponding to 'not useful' (Figure 6.55). The CompSMLs lesser use of VLS68 was because they do not know what the 'key word method' is. This suggests the CompSMLs, have not been taught or instructed in the 'keyword method' or how to use it, probably because their major plays a factor here.

Figure 6.54 Overall frequency of use of association strategies by major (VLSD11)
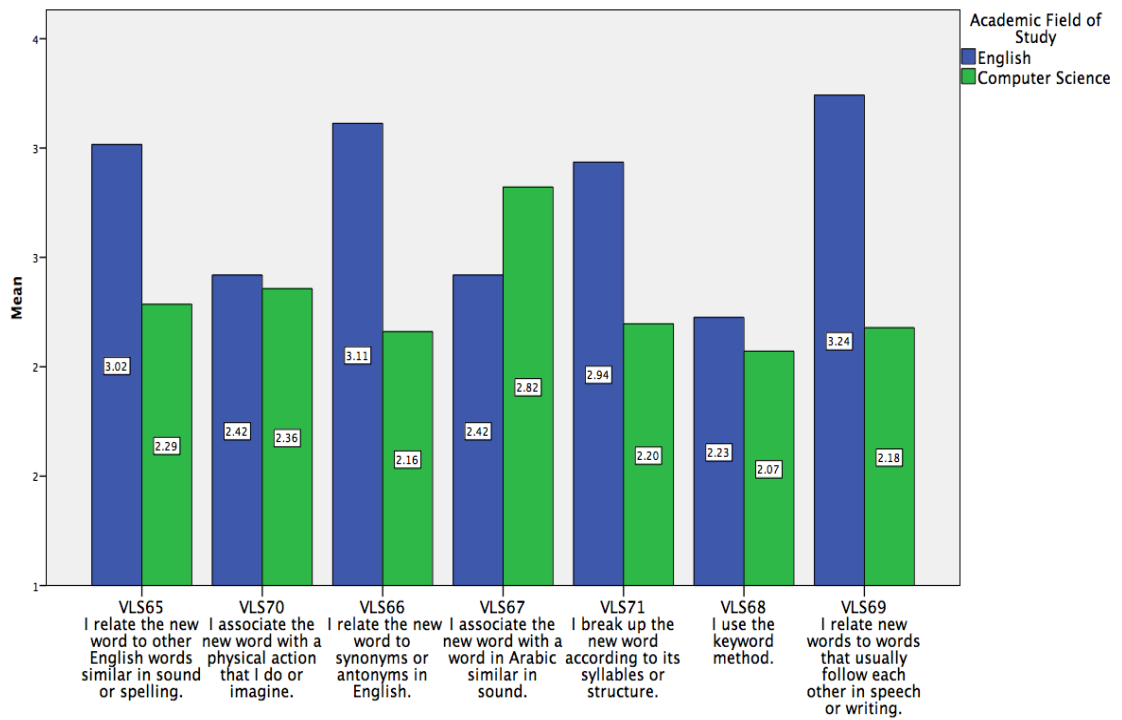
Figure 6.55 Overall frequency of perceived usefulness of association strategies by major (VLSD11)
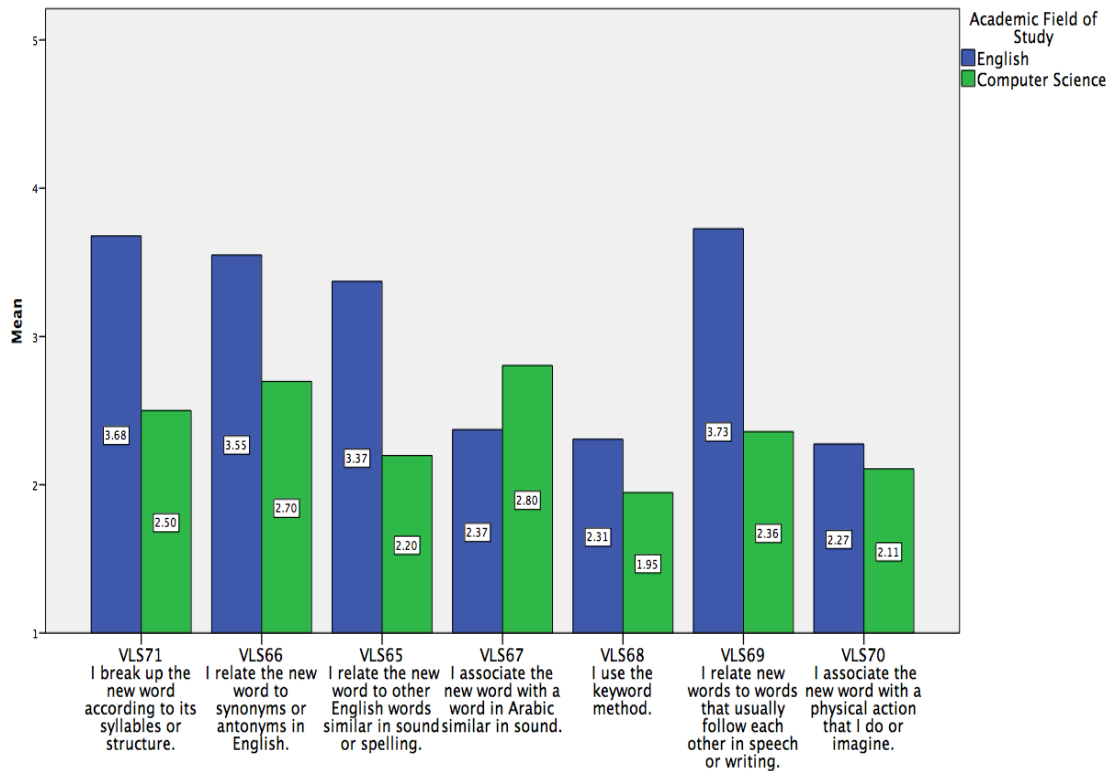
6.3.12 Perceived uses and usefulness for practise strategies (VLSD12)

Table 6.53 shows the descriptive statistics for the relationship between the learners' AFoS and both, the frequency of the practise strategies and their usefulness as gathered for the main study. As the table shows, there was a noticeable difference between the EMLs and CompSMLs in their use of the three practising strategies and their perception of usefulness of the three VLSs, namely, VLS72 'looking for opportunities', VLS73 'I quiz myself', and 'VLS74 saying things in English'. However, as shown in Table 6.54, the differences between the EMLs' and CompSMLs' use of the practise strategies as well as their reported usefulness was not significant in any case. This is unlike Siriwan (2007) who found English majors use VLS72 and VLS75 significantly more than Science and non-Science learners do (see 3.7.1). Hence, I can conclude that the learners' AFoS was not related to their use of the practise strategies.

Table 6.53 Descriptive statistics for practise strategies by major (VLSD12)

VLS Number	Practising/Consolidation strategies	Major	Frequency of Use			Usefulness			N
			Mean	Mean DF	SD	Mean	Mean DF	SD	
VLS72	I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	English	**3.612**		1.232	**4.000**		1.176	62
		Computer Science	**3.232**	.3807	1.293	**3.660**	.3392	1.293	56
VLS73	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	English	**3.177**		1.208	3.500		1.387	62
		Computer Science	**2.785**	.3917	1.410	3.214	.2857	1.344	56
VLS74	I practise saying things in English by myself.	English	**3.322**		1.315	3.177		1.317	62
		Computer Science	**2.928**	.3865	1.319	2.946	.2309	1.260	56
VLS75	I use as many new words as possible in speaking or in writing.	English	3.209		1.229	3.596		1.419	62
		Computer Science	2.857	.3525	1.242	3.196	.4003	1.285	56

Table 6.54 Independent sample t-test results for practise strategies' uses and usefulness by major

VLS Number	Practising/Consolidation strategies	Frequency of Use		Usefulness	
		t	sig.	t	sig.
VLS72	I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	1.637	.104	1.536	.127
VLS73	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	1.624	.107	1.133	.259
VLS74	I practise saying things in English by myself.	1.623	.103	.979	.329
VLS75	I use as many new words as possible in speaking or in writing.	1.548	.124	1.600	.112

In reference to rank order, Figure 6.56 and Figure 6.57 show the frequency of the practising strategies individually reported by both majors in terms of both VLSs use and perceived usefulness. According to Figure 6.56, the most used strategy for both majors was VLS72 (mean: English=3.61, Computer Science=3.23). This means both majors claimed they 'sometimes' use VLS72. This finding differs from that reported by Siriwan (2007), who found that EMLs used this strategy more often than Science learners.

In terms of the most useful VLSs, Figure 6.57 shows both majors also reported VLS72 as the most useful VLS (mean: English=4.00, Computer Science=3.66). This means that EMLs claimed that they see VLS72 as 'very useful' strategy while CompSMLs only see it as 'useful' strategy.

The interview data revealed that EMLs and CompSMLs explained their high use of VLS72 compared to other VLSs in this dimension as it is more useful since they meet new words and thus they can build up more vocabulary from different sources, such as TV, or reading different magazines as shown below;

"I look for the opportunities because I want to meet

new words that could increase my vocabulary."
(E.M.P4)

"I look for more opportunities in order to meet new words that help me to improve my language and my vocabulary." **(CompS.F.P5)**

On the other hand, Figure 6.56 shows the least used strategy in this category for both majors. The EMLs reported that VLS73 is the least used strategy, with a mean score of '3.18', corresponding to 'sometimes' and this was the second least useful strategy, with a mean score of '3.50' corresponding to 'useful' on the scale, while the least useful VLS was VLS74, with a mean score of '3.18', corresponding to 'useful' (Figure 6.57). The interview data revealed why EMLs use VLS73. For example, they claimed it is helpful because they can test themselves and measure progress learning new words.

With regard to the CompSMLs, they reported that VLS73 was the least used strategy with a mean score of 2.79' corresponding to 'rarely' and this made it the third least useful strategy overall, with a mean score of '3.21' corresponding to 'useful' on the scale, while the least useful VLS was VLS74 with a mean score of '2.95' corresponding to 'slightly useful' (Figure 6.57). The interview data revealed the reasons for CompSMLs use of VLS73. For example, they claimed it is helpful because the strategy helps them to improve their vocabulary and retain newly acquired vocabulary.

"I test myself to ensure that I have studied the new words very well and that I have memorised them correctly." **(CompS.F.P6)**

Figure 6.56 Overall frequency of use of the practise strategies by major (VLSD12)
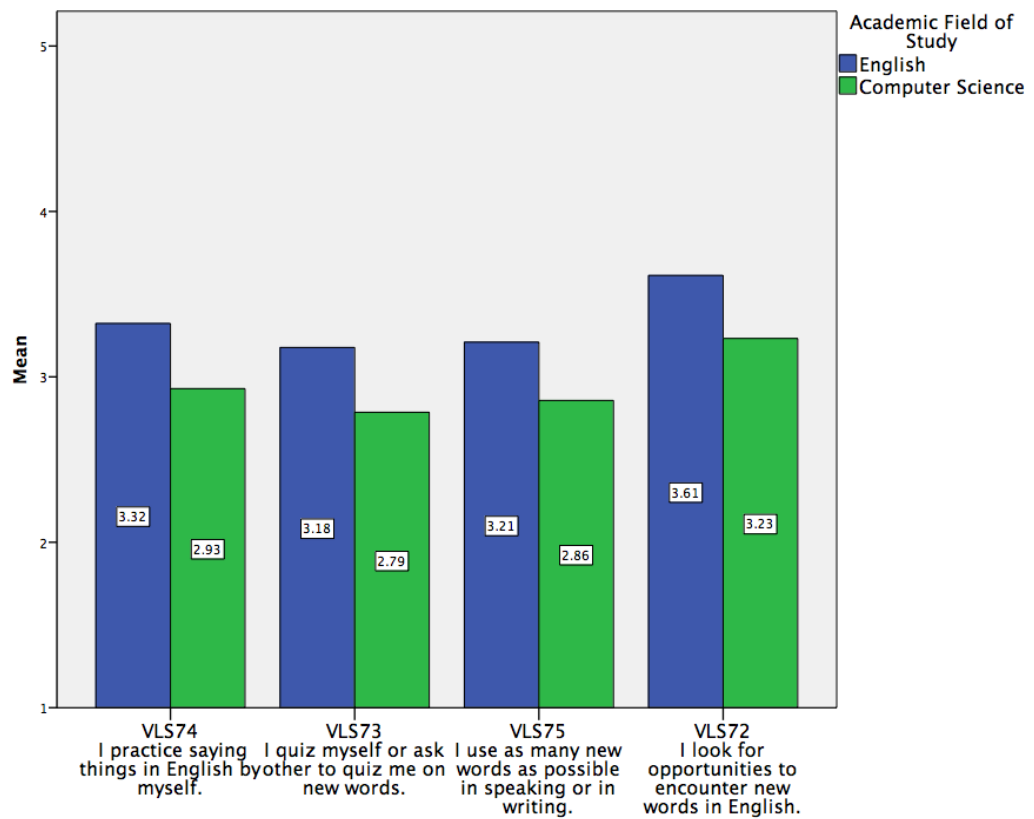
Figure 6.57 Overall of frequency of usefulness of the practise strategies by major (VLSD12)
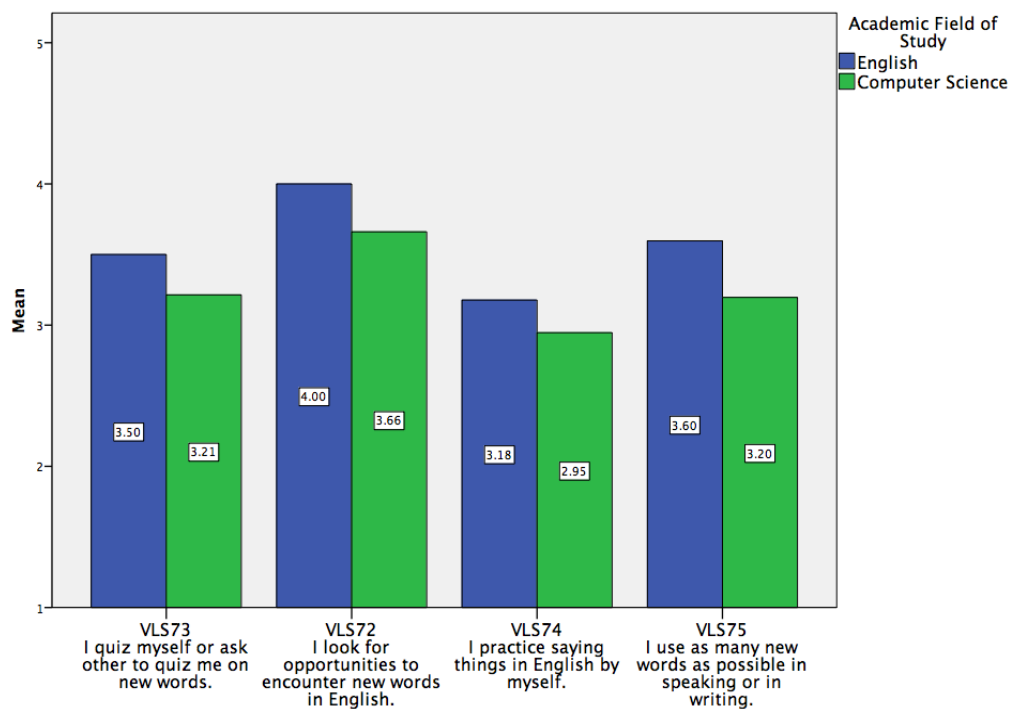
6.4 Perceived uses and usefulness of VLSs according to gender

This study did not examine gender as an explicit variable; gender was only specified to avoid bias, to avoid using data only related to male learners, to obtain reliable unbiased data for both majors and to support generalization of the results to students at Najran university, since the current study includes both genders. This investigation focused on majors, time, and strategy use and perceived usefulness in order to fill the research gap in those areas; however, as was said earlier, since there were female participants in the study, it was appropriate to present the results according to gender to determine whether the data collected supported the evidence given in the reviewed literature that there are no significant differences between genders in terms of strategy use. Hence, this section presents the significant results obtained in terms of the relationship between gender and frequency of use of various VLSs and their usefulness, as reported in the main study (i.e. third year). In order to identify any significant relationship between the twelve dimensions of VLS use, considering usefulness on one hand and gender and major on the other, a two-way ANOVA test was performed. If the data showed a significant result for any of these dimensions, then the dimension was statistically examined to ascertain which individual VLS within it was responsible for this significance.

As mentioned in the methodology chapter, the participants comprised 66 male university learners and 52 female university learners (see 5.4). Similarly, to what was reported earlier in addition to research into VLSs, the researchers presented the top 5 most used VLSs by subject (Ahmed, 1988; Schmitt, 1997; Catalan, 2003; Marin, 2005; Alyami, 2011). Herein the five most and least used VLSs for each gender are given, as are those perceived as most and least useful across the 12 dimensions.

The most used and the perceived usefulness of VLSs by gender are presented in Table 6.55 and Table 6.56, revealing the most used VLSs and the most useful ones by each gender. The top five strategies used by both genders were also present in the top five most useful strategies preferred by both groups. Thus, those that are used most by both genders, were identified as the most useful VLSs. For example, 'I use electronic dictionary' and ' I use a smartphone dictionary', were reported as the most used VLSs with the highest perceived usefulness for both males and females. This outcome confirms there are no differences between gender, either in terms of strategy use or perceived usefulness.

According to Table 6.55 four of the top five strategies used most frequently by female learners were also among the top five strategies most used by males, with one exception, which is: *'I write down the English word with its Arabic translation'*, which was not among the top five most used strategies by females; although it was among the top 10 strategies most used by female learners. However, instead of this strategy, female learners used dictionaries to look up the Arabic meaning of new words. Hence, individuals of both genders focused on the L1 meaning of new words taking different approaches. Furthermore, both genders reported the following strategies as their most used; 'if the word is unknown and thus new to me'; 'if the word is useful to me'; 'using smartphone dictionaries' and 'using electronic dictionaries'. These results support the findings in the literature, suggesting no differences between male and female learners in terms of their reported use of VLSs.

These results partially correlate with those presented in other studies, such as Catalán (2003), which found both males and females shared 8 out of 10 of the most commonly used strategies, including bilingual dictionary use, asking teachers for L1 meaning, taking notes, and repeating the word aloud when studying. Moreover, Table

6.55 shows the mean value for most used strategies, where a score over '4' on the scale corresponding to 'often' for both genders. Therefore, the VLS most used by both genders were 'I select a word for note taking if I see the word is unknow and thus new to me' with a mean score of 4.37 for male learners and 4.46 for female learners.

Table 6.55 also illustrates a noteworthy finding, which is that both genders are alike in their most used dimensions, and their strategy use, such as *'VLSD8 the reasons for word selection' and 'VLSD3 types of dictionary used'*. For example, two strategies drawn from VLSD3 and VLSD8 were among the five strategies used and rated most frequently by males, as compared to the two strategies most used by females, suggesting these dimensions was the most often used when compared with other dimensions, for learners of both genders. These results further support the suggestion that are no differences between male and female learners in terms of VLSs uses. Interestingly, Table 6.55 shows that the five strategies chosen correlate with four of the twelve dimensions identified: **VLSD3**=*Types of dictionary used;* **VLSD4**= *Information taken from dictionaries* **VLSD5**=*Types of word and non-word information noted*; **VLSD8**=*Reasons for word selection.*

There are additional explanations given for why these five strategies were most used by learners of both genders. For example, using an 'electronic dictionary such as Atlas to check the meaning of the unknown words' or 'using smartphone dictionaries' were chosen most often by all learners, because the central aim when using a dictionary is to establish meaning. This supports findings by Catalán (2003) and Manueli (2017), who found that male and female learners tend to use electronic dictionaries to check for meaning, and this was one of the most used strategies.

Table 6.55 The top five most frequently used vocabulary-learning strategies (VLSs) by gender

Rank	Male				Female			
	VLSs	**VLSD**	**Mean**	**SD**	**VLSs**	**VLSD**	**Mean**	**SD**
1	I select a word for note-taking if I see that the word is unknown and thus new to me	VLSD8	4.37	1.14	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.46	1.06
2	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.31	.705	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.37	1.07
3	I write down the English word with its Arabic translation.	VLSD5	4.30	1.03	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.37	.799
4	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.22	1.23	I look up the unknown word by using a dictionary and check its Arabic meaning.	VLSD4	4.32	.916
5	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.18	1.10	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.27	1.08

*Note: **VLSD3**=Types of dictionary used; **VLSD4**= Information taken from dictionaries* *VLSD5**=Types of word and non-word information noted*; ***VLSD8**=Reasons for word selection.*

Table 6.56 The top five most useful vocabulary learning strategies (VLSs) by gender

Rank	Male				Female			
	VLSs	**VLSD**	**Mean**	**SD**	**VLSs**	**VLSD**	**Mean**	**SD**
1	I look up the unknown word by using a dictionary and check its Arabic meaning.	VLSD4	4.59	.822	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	VLSD3	4.63	.767
2	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.53	.980	I select a word for note-taking if I see that the word is unknown and thus new to me.	VLSD8	4.55	.849
3	I select a word for note-taking if I see that the word is useful to me.	VLSD8	4.46	.637	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	VLSD8	4.53	.778
4	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.45	1.11	I use a smartphone dictionary application to check the meaning of unknown words.	VLSD3	4.51	.999
5	I ask teachers and friends about its Arabic equivalent.	VLSD2	4.42	.929	I select a word for note-taking if I see that the word is important in that the teacher said so.	VLSD8	4.48	.939

*Note: **VLSD2**= Asking strategies; **VLSD3**=Types of dictionary used; **VLSD4**=Information taken from dictionaries*; ***VLSD8**=Reasons for word selection.*

Least used VLSs for both genders and perceived least useful VLSs are set out in Table 6.57 and 6.58. Table 6.57 shows the five VLSs least used by participants and the mean values for those above '1' and below '2' on a corresponding scale. Similarly, Table 6.58 shows the five least perceived useful strategies, reported by both groups, and the mean scores for VLSs usefulness above '1' and below '2' on the scale, corresponding to 'not useful'. To further support the points addressed previously in the literature, there are no differences found between male and female learners, and Table 6.57 shows both genders reported the least used VLSs with the exception of two strategies. Male and female learners agreed that the least useful strategies were 'keep notes on cards'; 'keep notes on wallcharts'; 'organise the word according to its difficulty' and 'write down a note about the source'. However, male learners reported that 'organize the word according to its difficulty' and female reported 'organising the word alphabetically' also. However, these two VLSs did appear among the 10 least used strategies for both males and females. This further suggests there is no significant distinction between males and females in terms of VLS use.

Interestingly and crucially, the least five used strategies by both genders were also classified as the five least perceived useful strategies. Although, two of these VLS were not included in the least useful five VLSs as perceived by males; i.e. 'organising the word according to its difficulty' and 'using wallcharts' (they did appear in male learners lowest 10 strategies for perceived usefulness). In addition, they reported that 'organising the words with same stem' and 'organising the word alphabetically' in their perceived five least useful VLSs. For female learners, four of their least used strategies were classified as perceived least useful strategies also; the exception was, 'keeping notes on a sperate piece of paper', which was among the least perceived useful VLSs instead of 'organising the words according to their difficulty' (which did appear in their 10 strategies perceived as least useful). Table 6.57 shows the least used VLSs by group,

illustrating that 'according to their difficulty' assessment, VLSD7 was the least used VLS by males and females, with a mean score of '1.65' and '1.67' respectively.

In contrast, Table 6.58 sets out the least useful strategies reported by both majors. For example, among male learners, the perceived least useful strategy was 'keep notes on cards', taken from VLSD6, with a mean score of '1.39', while the least useful VLSs, was reported from females, and was 'organising the words in alphabetical order', with a mean score of '1.42'. These results support those reported elsewhere, such as by Al-Hatmi (2012) and Alyami (2011), which found 'keeping notes on cards' or 'organising the words in alphabetical order' were among the least used strategies reported by participants.

Table 6.57 The five least frequently used vocabulary-learning strategies (VLSs) by gender

Rank	Male				Female			
	VLSs	VLSD	Mean	SD	VLSs	VLSD	Mean	SD
75	Organize the words by their grammatical category.	VLSD7	1.34	.594	Organize the words in alphabetical order.	VLSD7	1.40	.773
74	Keep notes on cards.	VLSD6	1.40	.631	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	VLSD6	1.50	.828
73	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	VLSD6	1.46	.826	Keep notes on cards.	VLSD6	1.53	.726
72	Write down a note about the source I got it from.	VLSD5	1.56	.861	Write down a note about the source I got it from.	VLSD5	1.57	.824
71	According to their difficulty.	VLSD7	1.65	.984	According to their difficulty.	VLSD7	1.67	1.07

Note: VLSD5=*types of word and non-word information noted*; **VLSD6**=*Location of vocabulary NTS*; and **VLSD7**=*Ways of organising words noted*.

Table 6.58 The five least useful vocabulary-learning strategies (VLSs) by gender

Rank	Male				Female			
	VLSs	VLSD	Mean	SD	VLSs	VLSD	Mean	SD
75	Keep notes on cards.	VLSD6	1.39	.762	Organize the words in alphabetical order.	VLSD7	1.42	.775
74	I organize words in families with the same stem.	VLSD7	1.40	.840	Keep notes on cards.	VLSD6	1.44	.697
73	Write down a note about the source I got it from.	VLSD5	1.48	.808	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	VLSD6	1.44	.802
72	Organize the words by their grammatical category.	VLSD7	1.48	.728	Write down a note about the source I got it from.	VLSD5	1.63	.908
71	Organize the words in alphabetical order.	VLSD7	1.62	.907	On separate pieces of paper.	VLSD6	1.69	.829

Note: VLSD5=*types of word and non-word information noted*; **VLSD6**=*Location of vocabulary NTS*; and **VLSD7**=*Ways of organising words noted*.

6.4.1 Differences between the genders overall and by major

Similar to recent studies, such as Manueli (2017) and Ansari, Vahdany, and Banou Sabouri (2016), overall strategies for each dimension were examined ascertain whether there is a significant difference between gender, and the interaction between gender by major in terms of use of VLSs and their perceived usefulness. Where certain dimensions produced significant results, a further step was implemented to analyse the VLSs in that dimension to discover which VLSs were responsible for the significant result. Hence, the table below presents the **sig**. value for each dimension by gender, and gender by major.

a two-way ANOVA test was performed to establish the effects of gender and gender by AFoS on the frequency of use of VLSs and their perceived usefulness. Table 6.59 revealed a non-significant main effect from 'gender' in all twelve dimensions. This meant that all male and female participants, regardless of major, used different VLSs in each dimension. This confirmed data reported in the literature, which noted there are no differences between the genders in terms of VLSs uses (e.g. Lee, 2007; Ansari, et al., 2016; Manueli, 2017). Furthermore, the interactions between gender and AFoS, showed

no statistically significant difference among participants in all dimensions, except for *VLSD2*, in which a significant main effect was found for the interaction, F (7.793); p=006 with a moderate effect size $\eta^2 = 064$. In his study, Yilmaz (2017) did not observe any significant interaction between gender and major. Thus, my results confirm Yilmaz's (2017) finding, that there is no significant difference between genders within each academic field of study in terms of VLSs use, except in the dimension VLSD2. Thus, this dimension will be evaluated to discover which strategies caused the significant result, and which AFoS did.

Table 6.59 ANOVA results of gender and the interaction between gender and academic field of study regarding VLSs dimensions

Effect	Dimensions		Mean Square	F	Sig.	η^2
Gender	VLSD1	Guessing strategies.	.388	1.712	.193	
Gender * Major			.010	.043	.835	
Gender	VLSD2	Asking strategies.	.524	1.762	.187	
Gender * Major			2.320	7.793	**.006**	**.064**
Gender	VLSD3	Type of dictionary being used.	.036	.101	.751	
Gender * Major			1.175	3.317	.071	
Gender	VLSD4	Information taken from dictionaries.	.024	.074	.786	
Gender * Major			.945	2.893	.092	
Gender	VLSD5	Types of word and non-word information noted.	.045	.160	.690	
Gender * Major			.110	.395	.531	
Gender	VLSD6	Location of vocabulary NTS.	.043	.193	.661	
Gender * Major			.142	.632	.428	
Gender	VLSD7	Ways of organizing words noted.	.229	1.219	.272	
Gender * Major			.126	.672	.414	
Gender	VLSD8	Reasons for word selection.	.298	1.237	.268	
Gender * Major			.018	.074	.787	
Gender	VLSD9	Methods of repetition.	1.884	3.458	.066	
Gender * Major			1.339	2.459	.120	
Gender	VLSD10	Information used when repeating new words.	.459	.787	.377	
Gender * Major			.235	.403	.527	
Gender	VLSD11	Association strategies.	.074	.145	.704	
Gender * Major			.684	.1.335	.250	
Gender	VLSD12	Practising/ Consolidation strategies.	1.427	3.316	.071	
Gender * Major			.912	2.120	.148	

Table 6.60 presents VLSs uses in dimension VLSD2, the only dimension were a significant interaction occurred between genders by major. The table reveals no significant differences between genders in all but one strategy 'asking about L1

meaning', which applied to CompSMLs, where male students reported statistically significant higher mean scores (M = 4.51, SD = .961), than female CompSMLs (M = 3.600, SD = 1.35), at the specified .05 level, p < .004, and Cohen's η^2 was estimated at 0.139, which is considered a medium effect size.

Table 6.60 Inferential statistics for VLSD2 in relation to gender within AFoS in terms of VLSs uses.

VLS Number	Asking strategies	Major	Gender	Mean	SD	Sig	η^2
VLS7	I ask teachers and friends about its Arabic equivalent.	English	Male	3.571	1.52	.402	
			Female	3.889	1.39		
		Computer Science	Male	4.516	.961	**.005**	**.139**
			Female	3.600	1.35		
VLS8	Its definition in English.	English	Male	2.885	1.30	.248	
			Female	3.296	1.46		
		Computer Science	Male	2.161	1.06	.600	
			Female	2.320	1.18		
VLS9	Its spelling or pronunciation.	English	Male	3.428	1.17	.422	
			Female	3.148	1.56		
		Computer Science	Male	3.548	1.17	.052	
			Female	2.400	1.50		
VLS10	An example sentence.	English	Male	2.514	1.19	.605	
			Female	2.666	1.07		
		Computer Science	Male	2.354	1.51	.434	
			Female	2.080	.953		
VLS11	Its grammatical category.	English	Male	2.628	1.30	.823	
			Female	2.703	1.29		
		Computer Science	Male	2.419	1.23	.382	
			Female	2.120	1.26		
VLS12	Its synonym & antonym in English.	English	Male	2.600	2.60	.531	
			Female	2.814	2.81		
		Computer Science	Male	1.903	1.90	.943	
			Female	1.892	1.88		

With regard to perceived usefulness of VLSs, Table 6.61 depicts the non-significant interaction between gender by major across all twelve dimensions. Consequently, we can conclude, there is no significant difference between gender within each academic field of study in terms of perceived usefulness of VLSs. This replicates findings reported in the literature (e.g. Manueli, 2017).

In relation to gender, regardless of AFoS, Table 6.61 showed no significant differences in all 12 dimensions, with the exception of; 'ways of organising word noted

and practising strategies'. This means male and female participants, regardless of major, use different VLSs in each dimension, except for VLSD7 (F=23.23; p=048; η^2 =.039) and VLSD12 (F=7.58; p=007; η^2 =.062). This again confirms findings from the literature, stating no differences between genders in terms of perceived usefulness of VLSs (e.g. Lee, 2007; Ansari, et al., 2016; Manueli, 2017). Hence these two dimensions will be presented to understand the differences between males and females in these dimensions.

Table 6.61 ANOVA results of the interaction between gender and academic field of study regarding perceived usefulness of VLSs

Effect	Dimensions		Mean Square	F	Sig.	η^2
Gender	VLSD1	Guessing strategies.	2.002	7.642	.070	
Gender * Major			.444	1.695	.196	
Gender	VLSD2	Asking strategies.	.558	1.517	.221	
Gender * Major			.175	.476	.492	
Gender	VLSD3	Type of dictionary being used.	.000	.001	.978	
Gender * Major			1.359	3.282	.073	
Gender	VLSD4	Information taken from dictionaries.	.072	.200	.656	
Gender * Major			.176	.489	.486	
Gender	VLSD5	Types of word and non-word information noted.	1.339	2.459	.120	
Gender * Major			.198	.605	.438	
Gender	VLSD6	Location of vocabulary NTS.	.001	.007	.931	
Gender * Major			.008	.045	.833	
Gender	VLSD7	Ways of organizing words noted.	4.265	23.23	**.048**	**.039**
Gender * Major			.224	1.222	.271	
Gender	VLSD8	Reasons for word selection.	.613	2.763	.099	
Gender * Major			.775	3.489	.064	
Gender	VLSD9	Methods of repetition.	1.51	3.484	.065	
Gender * Major			.108	.248	.620	
Gender	VLSD10	Information used when repeating new words.	.684	.1.335	.250	
Gender * Major			.690	1.219	.272	
Gender	VLSD11	Association strategies.	.001	.003	.960	
Gender * Major			.361	.741	.391	
Gender	VLSD12	Practising/ Consolidation strategies.	3.144	7.585	**.007**	**.062**
Gender * Major			.912	2.120	.148	

Table 6.62 presents perceived usefulness of VLSs in dimension VLSD7. It shows no significant differences between genders, with the exception of 'organising the words randomly', which male respondents viewed as significantly more useful than

females did with a small effect size (Male mean = 3.93, SD = .1.10; Female mean = 3.36, SD= 1.29; p= 011; η^2 = .055). This again confirms previous findings, that suggest male and female learners do not differ significantly in terms of strategy use, but that females use more strategies than their male counterparts (e.g. Yilmaz 2017; Alyami, 2011; Lee 2007). Wei (2016) stated that when examining psychological aspects, we might see differences between female and male students in terms of language learning. They are also typically more organised than male learners, hence males tend to see random order as much more useful than females, although both males and females perceived the strategy as useful, rating VLS43 above 3 and below 4, which corresponds to 'useful'.

Table 6.62 Inferential statistics for VLSD7 in relation to gender in terms of perceived usefulness of VLSs

VLS Number	The ways of organizing the noted words	Gender	Mean	SD	Sig	η^2
VLS41	By units or lessons of the textbook.	Male	2.330	1.08	.062	✕
		Female	2.615	1.37		
VLS42	I organize the words in alphabetical order.	Male	1.612	.907	.212	✕
		Female	1.423	.775		
VLS43	In a random order.	Male	3.939	1.10	**.011**	**.055**
		Female	3.365	1.29		
VLS44	I organize the words by their meaning groups.	Male	2.409	1.34	.097	✕
		Female	2.807	1.20		
VLS45	According to their difficulty.	Male	1.712	.972	.841	✕
		Female	1.750	1.06		

Table 6.63 presents perceived usefulness of VLSs within this dimension. There appeared to be no significant differences between genders, expect for VLS72, which male learners found significantly more useful than females, with a medium effect size (Male mean = 4.18, SD = .1.09, Female mean = 3.40, SD= 1.20; p= 001; η^2 = .104). However, female learners do view VLS72 as a useful strategy, just not to the extent that male learners do. This is because in the Saudi context, female learners live in a conservative society, which limits their access to opportunities to speak with native foreign speakers. Moreover, Wei (2016) argues that to some extent female students may

not be as capable of self-recognition and self-evaluation as male learners, so this may

explain the apparent discrepancy here.

Table 6.63 Inferential statistics for VLSD12 in relation to gender in terms of perceived usefulness of VLSs

VLS Number	Practising/Consolidation strategies	Gender	Mean	SD	Sig	η²
VLS72	I look for opportunities to encounter new words in English.	Male	4.18	1.09	**.001**	**.104**
		Female	3.40	1.20		
VLS73	I quiz myself or ask other to quiz me on new words.	Male	3.24	1.499	.277	
		Female	3.51	1.17		
VLS74	I practise saying things in English by myself.	Male	3.19	1.29	.218	
		Female	2.90	1.25		
VLS75	I use as many new words as possible in speaking or in writing.	Male	3.62	1.11	.054	
		Female	3.13	1.59		

6.5 Summary of the chapter

This chapter reported the research findings collected during the main study and

discussed the implications of the data. It was divided into four main sections: (1) the

results of the analysis of EMLs' strategic behaviour and CompSMLs' strategic

behaviour, (2) the results and discussion regarding the different uses of various VLSs

according to major, and the most and least used VLSs and their perceived usefulness,

(3) explained the variables by major, representing the differences in terms of usefulness

by major, and the most and the least useful strategies according to learner perceptions,

and (4) finally, the results and discussion regarding the different uses of various VLSs

according to gender, and the most and the least used VLSs and their perceived

usefulness. The results showed that EMLs outperformed CompSMLs in various VLSs

and there were no significant differences between gender and gender within each AFoS.

Chapter 6: Results and Discussion

The following chapter presents a full summary of the research findings. It will also detail the study's limitations and offer recommendations for further research based on the findings of this study. Finally, the pedagogical implications will be presented.

Chapter Seven: Summary of Research Findings and Conclusions

7.1 Introduction

The aim of this study was to achieve the goals stated in the introduction (see 1.6). This chapter begins with a brief summary of the major findings of this study in relation to the research questions posed in chapter one (see 1.7) The limitations of the investigation are then discussed, followed by the implications for pedagogy. Finally, recommendations for further research are made based on the findings of the study.

7.2 Summary of the major results relating to the research questions

The results of the investigation were presented in Chapter Six in both quantitative and qualitative terms. The following is a summary of the main results of the preliminary and the main studies in relation to the research questions.

7.2.1 Frequency of vocabulary learning strategies (VLSs) use by all learners

One of the goals of this study was to examine the frequency of participants' use of vocabulary learning strategies irrespective of the academic field of study (i.e. AFoS). This goal was achieved using VLSQ during the preliminary study which was conducted with this aim in mind. The participants' responses to the VLSQ were analyzed using SPSS system. The data gathered through the preliminary study was analyzed using a variety of data analysis methods: first, a descriptive analysis was applied for each VLS item (75 items) with the aim of identifying the most and least frequently used strategies across 12 dimensions; and, second, the mean ratings for the 75 strategies were averaged to produce scores for each of the 12 study dimensions. The aim was to identify the most and least dealt with dimensions when participants used VLSs. A third test, the Friedman

test, was conducted to determine whether there was an overall significant difference in participants' use of VLSs within each dimension. Finally, the Wilcoxon signed-rank test was conducted within each dimension to identify specific strategies that differed significantly from the others in that dimension.

The three research questions posed in the preliminary phase specifically addressed this aspect of the study:

RQ1P: What are the ten most, and the ten least, frequently reported VLSs by Saudi university learners across all dimensions?

RQ2P: Which dimension is the most and the least used by Saudi university learners?

RQ3P: What are the most, and the least, frequently reported VLSs by Saudi university learners within the dimensions?

These research questions covered three main aspects; namely **1)** the frequency of VLS use across twelve dimensions **2)** the frequency of the use of VLSs by dimension; and **3)** the frequency of VLS use within each dimension.

Generally speaking, learners reported that they rarely used VLSs. Seven strategies out of the 75 measured using the VLSQ obtained a mean score of '4'; according to the 1-5 Likert scale used in the study this indicates that the learners used the strategies 'often'. Twenty-three strategies obtained a mean score of '3' denoting that they were used 'sometimes'; thirty-five strategies obtained a mean score of '2' denoting that they were used 'rarely' and the other ten strategies obtained a mean score that was lower than '2' on the scale.

1)   The frequency of VLS use across twelve dimensions

The ten most and the ten least used strategies, as reported by the learners, are reported in Table 4.3 (see 4.6.1). 'Using a dictionary to check the L1 meaning of the new words' was the most commonly used VLS by the learners (mean score = 4.58) followed by 'using a smartphone dictionary to check the meaning of the new words'

(mean score = 4.42) and 'asking about a word's L1 meaning' (mean score = 4.33). The aforementioned strategies suggest that learners tended to rely on the L1 meaning to discover the meaning of new words. This may be because the use of L1 helped the vocabulary learning process.[4] This result is in line with the results obtained by other studies that found that most of students tended to use the dictionary to discover L1 meanings (Schmitt, 1997; Marin, 2005; Al-Qahtani, 2005; Alyami, 2011).

Moreover, strategies such as 'selecting the words that are useful to the participants', 'the word is needed when speaking or writing', 'the word unknown thus new to the learners', 'the word recurs frequently in the text', 'using electronic dictionary to check the meaning of unknown words', 'select the words because the teacher said so' and 'writing down the English word with its Arabic meaning' were all among the most used VLSs by all learners across all dimensions and ranked from the fourth to the tenth most used VLSs. Most of the aforementioned strategies were taken from the dimension 'reasons for word selection' (VLSD8). This differs from other VLSs studies that did not include such dimensions when they examined the use of VLSs (e.g. Nakamura 2000, Marin 2005; and Alyami 2011).

Table 4.4 (see 4.6.1) lists the ten least frequently used VLSs, namely: 'keeping notes on wall charts', 'keeping notes on cards', 'writing down the note of the source', 'organising the words by their grammatical category', 'organising the words in alphabetical order', 'organising words by stem', 'using paper English-English dictionary', 'looking for examples', 'organising the words by their meaning groups', and 'writing English words down with other words of the same family'. These findings were similar to the other studies described earlier (e.g. Marin, 2005). Two main points are evident in these results. First, it can be seen that learners preferred to use the

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[4] The use of L1 in the appropriate dimensions was discussed above (see 4.6.3)

dictionary to check the meaning of new words over consolidating, especially with note taking. This means that learners focused on finding out the meaning of new words but did not try to consolidate the new meaning. Finally, learners seemed to rely on finding out the L1 meaning more than on any other VLS which meant that strategies using L1 were important to them or were a cultural preference. These reasons were evident from the interview data obtained in the study.

2)   The frequency of VLSs use by dimension/category

Table 4.5 (see 4.6.2) presents the most and the least commonly used dimension as reported by the learners. The results obtained were in line with earlier results depicting the most and least frequently used VLSs across a variety of dimensions. The 75 VLSs were categorised into twelve dimensions. The most frequently reported VLS dimension/category was *VLSD8 'reasons for vocabulary note taking'* that obtained a mean score of 3.73, similar to the results of Al-Hatmi (2012), whereas *VLSD7 'ways of organising words noted'* was the least used dimension, obtaining a mean score of 2.22, similar to the results obtained by Alyami (2011). The overall mean rating for all 75 VLSs (Appendix K) shows that strategies based on organizing words were the most rarely used strategies by learners suggesting that learners were not interested in organizing words. Learners reported in the interviews that this sometimes requires a high cognitive level of processing or is seen as being time consuming.

3)   The frequency of VLS use within each dimension/category.

- VLSD1 Guessing strategies

The results presented in Table 4.7 (see 4.6.3.1) show that the strategy 'guessing the meaning according to pictures' was used significantly more frequently than other guessing strategies except when reading a sentence or paragraph containing an unknown word (Bonferroni adjusted, p<.006). This result was in agreement with the results

obtained by Al-Qahrani (2005) and Alyami (2011) but did not reflect the findings of Marin (2005) who found that guessing the meaning from the written context was the most used strategy. However, there was no significant difference between the most used VLSs reported in this study and Marin's results indicating that pictures can facilitate the learning process. Mayer and Sims (cited in Klinger, 2000:10) justified the widespread use of pictures by participants as follows: "annotations with pictures could arouse students' attention and set a good start for their later stages of L2 vocabulary acquisition and retention" and "construction of referential connections can be done immediately" ".

On the other hand, the results reported in Table 4.7 show that 'guessing the meaning by analysing the structure of the word' was significantly less frequently used than the other strategies, with the exception of 'saying the word aloud several times' and 'checking if it is similar to Arabic in sound' (Bonferroni adjusted, p<.006).

- <u>VLSD2 Asking strategies</u>

'Asking questions about the Arabic meaning of new words' was the most frequently used strategy reported in this dimension. The results presented in Table 4.8 (see 4.6.3.2) show that this strategy was used significantly more frequently than the other asking strategies (Bonferroni adjusted p<.005). This result was in agreement with the findings of Ahmed (1988) and Al-Qahtani (2005). In fact, it is helpful, since the use of L1 could improve learning and role-play in the classroom (Tang, 2002).

In contrast, 'asking for the synonyms and antonyms of English words' was the least frequently used strategy. Hence, the results of this study appear to be inconsistent with the results obtained by Alyami (2011) who found that asking about the grammatical category of a word was the least frequently used strategy among participants. It could be because that all of Alyami's participants were EMLs, while those this study were from EMLs and CompSMLs. However, both aforementioned

strategies were among the least used strategies in both studies.

- <u>VLSD3 Types of dictionary being used</u>

The most frequently used dictionaries were dictionary applications installed on mobile phones followed by portable electronic dictionaries. The results presented in Table 4.11 (see 4.6.3.3) show that mobile phone dictionary applications were used significantly more frequently than other types of electronic dictionaries (Bonferroni adjusted $p<.007$). This result cannot be compared with the findings reported by Marin (2005) and Alyami (2011). This is because such types of dictionary were not included in their studies.

On the other hand, the results presented in Table 4.11 (see 4.6.3.3) show that the paper English-English dictionary was used less frequently than the other types of dictionaries (Bonferroni-adjusted $p<.007$). This result was in line with the results obtained by Marin (2005). This could be because monolingual dictionaries are difficult for beginners to use and my participants were in their second year of their studies.

- <u>VLSD4 Information taken from dictionary</u>

The results presented in Table 4.13 (see 4.6.3.4) show that 'using a dictionary to check the L1 meaning' was used significantly more than the other strategies in this dimension (Bonferroni-adjusted $p<.004$). This result was in agreement with the findings of Marin (2005) and Alyami (2011). This means that using L1 could be a universal strategy in vocabulary learning.

In contrast, the results presented in Table 4.13 show that using a dictionary to find examples was the least used VLS and there was a significant difference between learners' use of this strategy and the other strategies (Bonferroni-adjusted, $p<.004$), except for using 'the word's stem'.

- <u>VLDD5 Types of information noted</u>

'Writing down new words with their Arabic meaning' was the most used strategy used in this dimension. The results presented in Table 4.15 (see 4.6.3.5) show that the difference in use of this type of information and other types of information was significant (Bonferroni adjusted p<.003). This result agreed with Ahmed (1988)'s, Al-Qahtani (2005)'s and Marin (2005)'s findings. The qualitative data showed that noting down L1 meaning appeared to be an important element in learning vocabulary for both majors.

In contrast, writing down the sources of the noted words was the least used type by learners. The results presented in Table 4.15 (see 4.6.3.5) show that the difference between using this type of information and other types of information was also significant. This result could be attributed to the limited benefits for memory and communication associated with writing down the sources of words, compared to the other types of information (i.e. writing down the new word alongside its synonyms and antonyms).

- <u>VLSD6 Location of vocabulary note taking</u>

The margins of textbooks was the most frequently used location reported by the participants. The results presented in Table 4.17 (see 4.6.3.6) indicate that the difference between the participants' use of this location and the other six locations (except one which was similar to the margins) was significant (Bonferroni adjusted p<.004). This result was in line with the results obtained by Ahmed (1988), Nakamura (2000) and Marin (2005).

On the other hand, wall charts were the least frequently used location by all subjects. The results presented in Table 4.17 (see 4.6.3.6) show that the difference between using this location and the other locations was significant except for the use of

cards which was among the least frequently used locations. The result was partially consistent with Al-Qahtani's (2005) results.

- VLSD7 Ways of organising words noted

The most frequently used strategy for organising noted words was random ordering. The results presented in Table 4.19 (see 4.6.3.7) show that the difference between participants' use of random ordering and the other ways to organise words was significant (Bonferroni adjusted p<.005). This result was in line with the results obtained by Ahmed (1988), Nakamura (2000), Marin (2005), Al-Qahtani (2005) and Al-Hatmi (2012). The results suggest that when compared to other ordering systems, random ordering does not require any cognitive manipulation as participants note down words without using an ordering principle.

'Organising words by their grammatical category' was the least frequently used way to organise words. The results presented in Table 4.19 (see 4.6.3.7) show that there was a significant difference between subjects' use of the grammatical category and the other categories (Bonferroni adjusted p<.005) except for alphabetical ordering, meaning groups, and family stems which scored equally low on the scale. This is understandable, as grammatical ordering, for example, requires arrangement based on the part of speech of the word (i.e. noun, verb, adjective, adverb) requiring a mental process unlike random ordering.

- VLSD8 Reasons for word selection

The most frequently reported criterion for word selection was 'the word is useful to me'. The results presented in Table 4.21 (see 4.6.3.8) show that the difference between 'the word is useful' and other criteria was significant (Bonferroni adjusted p<.003) except for 'the word is needed when writing or speaking', 'the word is

unknown', and 'the word is important in that it recurs frequently in the text where I encountered it' which ranked equally high on the scale.

On the other hand, 'the word is a highly frequent word in English' was the least frequently reported criterion for word selection. The results presented in Table 4.21 (see 4.6.3.8) show that the difference between 'the word is highly frequent in English' and other criteria was significant (Bonferroni adjusted $p<.003$).

- VLSD9 Methods of repetition

'Writing down the new word several times' was the most frequently reported VLS used in this dimension. This result seems to be partially inconsistent with Marin's (2005) and Alyami's (2011) finding that repeating the word silently several times was the most frequently used form of repetition. However, the results presented in Table 4.23 (see 4.6.3.9) show that the difference between 'writing down the new word several times' and other strategies was significant (Bonferroni adjusted $p<.001$) except for 'repeating the word silently several times' and 'listening to the word several times' which ranked equally high on the scale.

In contrast, 'saying the word aloud several times' was the least frequently used by learners in this dimension. The results presented in Table 4.23 (see 4.6.3.9) show that this strategy was used significantly less frequently than all the other repetitions (Bonferroni adjusted $p<.001$).

- VLSD10 Information used when repeating

The most frequently used information was 'repeating the English word with nothing else'. The results presented in Table 4.25 (see 4.6.3.10) show there was a significant difference between this strategy and the others (Bonferroni adjusted, $p<.001$). This is in agreement with the findings of Marin (2005). The interview data

showed that all learners prefer to use such a strategy because it enables them to focus more on the new words.

In contrast, the least frequently used strategy in this dimension was 'repeating example sentences several times'. The results presented in Table 4.25 (see 4.6.3.10) show that there was a significant difference between this strategy and the others (Bonferroni adjusted, p<.001) except for 'repeating English words with their English definitions' which means that both strategies were equally rarely used by learners. This might be because they have deemed both strategies to be unimportant as the meaning is sufficiently clear, or because they were not useful for lexical retention when compared to the most frequently used words in the dimension as the qualitative data show.

- <u>VLSD11 Association strategies</u>

The most frequently used association strategy was associating the new word with a physical action. The results presented in Table 4.27 (see 4.6.3.11) show that the difference between the participants' use of this association strategy and other strategies was significant only in one case (Bonferroni adjusted p<.004).

On the other hand, using keyword methods was the least frequently reported VLS by learners. The results presented in Table 4.27 (see 4.6.3.11) show that the difference between the participants' use of an association strategy and other strategies was significant in only three instances (Bonferroni adjusted, p<.004). This result was in agreement with Marin (2005)'s results, who found the keyword method to be the least often used strategy by participants.

- <u>VLSD12 Practising strategies</u>

It was found the most frequently used VLS was 'looking for opportunities to encounter new words in English'. This result was consistent with Ahmed's (1988) and Alyami's (2011) findings. Activities such as watching TV and reading newspapers were

expected to develop learners' vocabulary as they afford rich sources of new words. The results presented in Table 4.29 (see 4.6.3.12) show no significant differences in the use of strategies in this dimension (Bonferroni adjusted p<.001).

In contrast, the least frequently reported VLS was 'quizzing myself on new words'. The results presented in Table 4.29 (see 4.6.3.12) show no significant differences between the least frequently used item and other strategies (Bonferroni adjusted, p<.001), which suggests that the participants believe that they use all strategies equally.

7.2.2 Change in VLS use over one year by dimension

Another goal of this study was to examine the learners' strategic behaviour use of VLSs over time. This means exploring whether the learners of the two majors' use of these VLSs decreased, increased or remained constant. To do this, VLSQ was distributed twice to the learners, allowing a one-year gap as this would help ensure that the participants would not recall how they had responded the first-time round. The subjects' responses were numerically entered into the SPSS on both occasions and the ANOVA measurement was used to analyse the data.

The main study posed the following research question:

RQ1M: Do learners from different academic fields of study differ in terms of how much they change their reported use of VLS over one year of university study?

This research question addresses two main aspects: 1) Reporting learners' strategic behaviour by dimension; and, 2) Reporting learners' strategic behaviour within each dimension.

Chapter 7: Summary of Research Findings and Conclusions

1)   Learners' strategic behaviour by dimensions

The data analysis showed that English major learners (EMLs) reported a significant increase in their use of strategies pertaining to two dimensions out of the twelve dimensions, with a moderate effect size, namely, *VLSD1 guessing strategies* (p=.026) and *VLSD4 information taken from dictionaries* (p=.008). Computer Science major learners (CompSMLs) showed an increased use of strategies in only one dimension, with a moderate effect size, namely, *VLSD3, types of dictionary being used* (p=.041).

One the other hand, EMLs showed a nearly significant decrease (p=.063) and CompSMLs a significant decrease (p=.007) in only one case, with a moderate effect size, namely *VLSD7 ways of organising word noted.* Overall scores for other dimensions remained constant for both majors.

2)   Learners' strategic behaviour within dimensions

This section dealt with learners' strategic behaviour in each VLS within each dimension. The strategy 'saying the word aloud several times' within the *VLSD1 guessing strategies* significantly decreased for both majors during the main study period, with a moderate effect size (EMLs p=.041, CompSMLs p=.025). Also, EMLs significantly increased their use of the strategy 'analysing the structure of the word' with a higher effect size (p=.001). There were no more changes in the use of VLSs in this dimension by the learners from the two majors.

In the dimension *VLSD2 asking strategies,* EMLs significantly increased their use of the strategy 'its synonym and antonym in English' with a moderate effect size (p=.038). CompSMLs did not show any significant changes. There were no more changes in the use of VLSs in this dimension by the learners from the two majors. In the dimension *VLSD3 types of dictionaries being used,* learners of both majors had

significantly increased the use of 'electronic dictionaries' with a moderate effect size for both majors (EMLs p=.019, CompSMLs p=.038). There were no more changes in the use of VLSs in this dimension by the learners from the two majors.

In the dimension *VLSD4 information taken from dictionaries,* the use of the strategy based on the word's 'synonym and antonym' was almost significantly decreased by CompSMLs (p=.083) and the use of 'looking for examples' was significantly increased by EMLs , with a moderate effect size, (p=.045). There were no more changes in the use of VLSs in this dimension by the learners from the two majors.

In the dimension *VLSD5 types of word and non-word noted,* only one VLS, namely 'write down the source of the new word' out of the nine strategies, was nearly significantly decreased in use by CompSMLs, with a moderate effect size, (p=.071). There were no more changes in the use of VLSs in this dimension by the learners from the two majors. In the dimension *VLSD6 location of VNTS,* EMLs and CompSMLs showed a significant decrease in the use of one VLS, namely 'on separate pieces of paper' (p=<.001) out of seven VLSs, with a higher effect size for both majors. Also, EMLs showed a nearly significant increase in the use of one VLS 'personal notebook' (p=.096). There were no more changes in the use of VLSs in this dimension by the learners from the two majors.

In the dimension *VLSD7 ways of organising words noted*, CompSMLs and EMLs respectively significantly and nearly significantly decreased the use of 'alphabetical order' (p=.043; p=.064), with a moderate effect size for CompSMLs. There were no more changes in the use of VLSs in this dimension by the learners from the two majors. In the dimension *VLSD8 reasons for word selection,* that none of VLSs in this dimension had undergone increased or decreased in their use by the learners from the two majors. In the dimension *VLSD9 methods of repetition,* there was no change in

the use of the VLSs by the learners from the two majors. In the dimension *VLSD10 information used when repeating new words,* there was no change in the use of the VLSs by the learners from the two majors. In the dimension *VLSD11 association strategies,* the use of 'I break up the new word according to its structure' was nearly significantly increased by only the EMLs. There was no significant change in the use of this strategy by the CompSMLs learners and there were no more changes in the use of VLSs in this dimension by the learners from the two majors. In the dimension *VLSD12 practising strategies,* there was no change in the use of the VLSs by the learners from the two majors.

Research has shown that the patterns of strategy use can change over time as a learner either matures or becomes more proficient in the target language. In a study of Mexican-American children in bilingual classrooms, Chesterfield and Chesterfield (1985) used an implicational scaling technique that allowed them to determine the sequence of strategy use. Their subjects first used receptive and self-contained strategies such as repetition, memorization, and formulaic expression. They subsequently moved on to strategies that permit interaction (requests for clarification or assistance) or which are metacognitive (elaboration and monitoring).

The present study confirms that the pattern of use for some strategies did change for both majors. Table 6.3 and Table 6.4, show that although guessing strategies such as 'saying the word aloud several times' are a mainstay of the Saudi learning process, their use decreases as the learners progress. Likewise, noting something down on ' a separate piece of paper' also seems to become less used and of less interest. However, both majors also showed some changes over time, such as using electronic dictionaries, when it increased amongst both majors. This shows that learners have some self-awareness of

some strategies. This is also supported by the qualitative data in which they some learners claimed that using L1 dictionaries helped them to learn vocabulary.

7.2.3 Perceived uses and usefulness of VLSs for EMLs and CompSMLs

A third goal of this study was to identify whether this academic field of study (AFoS) had any relationship with learners' frequency of using and rating usefulness of VLSs and why. To achieve this, an independent t-test was carried out to compare the frequency of use of VLS of the learners from the two different majors and their perception about the usefulness of VLSs. Two research questions were posited to address this aspect of the study:

RQ2M- What effect does academic field of study have on the reported use of VLSs by Saudi 3rd year students? Why?

RQ3M- What effect does academic field of study have on the perceived usefulness of VLSs, as reported by Saudi 3rd year students? Why?

This research question addressed two main aspects: 1) The frequency of VLS use and usefulness across twelve dimensions/categories; and, 2) The frequency of VLS use and the usefulness of their use within each dimension in relation to the major being followed.

1) **The frequency of VLS use and usefulness across twelve dimensions/categories**

The results presented in Table 4.27 and Table 6.28 (see 6.3) indicate the most used and the most reportedly useful VLSs according to major. Both groups reported that their most frequently used strategies are 'the word new to me', 'the word is useful', and 'I use an electronic dictionary'. These strategies were also among the top five useful strategies ranked by the learners from the two majors. Moreover, 'I use a smartphone

dictionary', and 'I write down L1 translation', were among the top five frequently used VLSs by CompSMLs and also among the top five most useful strategies; while EMLs ranked 'the word is needed when speaking or writing' and 'the words reoccurs frequently' among the top five frequently used VLSs. The qualitative data showed several reasons for the high use of such strategies. For example, both majors reported that the 'electronic dictionary' was the most used strategy because the central purpose when using a dictionary is to discover the meaning of the new words in L1.

Table 6.29 and Table 6.30 (see 6.3) present the least used and the least reportedly useful VLSs according to major. Learners from the two majors reported that 'keep notes on cards', 'write down the source', 'alphabetical order', and 'notes on wall charts' were among the least frequently used VLSs. 'According to their difficulty' was reported as being the least used and least useful VLS by EMLs and 'organise the words by their family stem' was reported as the least used and least useful VLS by CompSMLs. In addition, the qualitative data showed that both majors neglected such strategies, such as using 'cards' because they are easy to lose (see the results and discussion chapter)

2)   Frequency of VLS use and their usefulness within each dimension in relation to majors.

This section is a summary of the relationship between the participants' academic field of study (AFoS) and the frequency with which they employ VLSs in each dimension and their perceived usefulness.

- VLSD1 Guessing strategies

The results presented in Table 6.32 (see 6.3.1) show that there was a significant difference between EMLs and CompSMLs in terms of their use and perceived usefulness of two VLSs, with a large effect size, namely, 'analysing the structure of the

word' and 'the part of speech'. EMLs used and rated both strategies significantly more than CompSMLs. The qualitative data also showed several reasons for such significant differences. For example, EMLs used, 'analysing the structure of the word' more than the CompSMLs did; perhaps because the latter had less knowledge of this strategy, as claimed by EMLs during the interviews.

The results presented in Figure 6.18 and Figure 6.19 show the frequency of use of the six asking strategies individually reported by the learners of both majors and their judgment of its usefulness. 'Paying attention to pictures' was the most frequently used VLS and was deemed as being the most useful by both groups, while 'saying the word aloud' was the least used VLSs and was seen as being the least useful by both groups. The qualitative data showed several reasons for their use, for example for 'using pictures' as this facilitates word retention and enables learners to guess the meaning of the new words. Moeser and Bregman (1973:91) state that learners are more successfully able to acquire L1 words accompanied by pictures compared to words alone.

- VLSD2 Asking strategies

The results presented in Table 6.34 (see 6.3.2) show that there was a significant difference between EMLs and CompSMLs in their use and perceived usefulness of various VLSs. For example, 'asking about its definition in English', 'it is synonyms' 'analysing the structure of the word' and 'the part of speech' were significantly used more frequently and rated significantly more highly by EMLs than CompSMLs. 'Asking about an example sentence' was viewed as being significantly more useful by EMLs in terms of use, all with a moderate effect size. The qualitative data also showed several reasons for such significant differences between majors. For example, with

regards to 'asking about English definition', EMLs believed that that such a strategy would help obtain more information about the new word in contrast to CompSMLs.

The results presented in Figure 6.23 and Figure 6.24 show the frequency of use of the guessing strategies individually reported by learners from both majors and their judgment of its usefulness. 'Asking about L1 meaning' was the most frequently used VLS as well as the most useful one ranked by both groups. 'An example sentence' was the least used VLSs and 'its grammatical category' was the least useful strategy reported by EMLs. The CompSMLs, ranked 'asking about the words' and 'synonyms and antonyms in English' as the least used VLSs and the least useful.

- <u>VLSD3 Types of dictionary being used</u>

The results presented in Table 6.36 (see 6.3.3) show that there was no significant difference between the EMLs and CompSMLs in terms of their use and perception of the usefulness of different types of dictionaries. The results presented in Figure 6.25 and Figure 6.26 show the frequency of use of the types of dictionary individually reported by learners in both majors and their judgment of its usefulness. 'Electronic dictionary' was the most frequently used VLS as well as the most useful one as ranked by EMLs, while 'smartphone dictionary' was the most used VLS as well as the most useful one as ranked by CompSMLs. CompSMLs reported 'paper English-English dictionary' as being the least used and the least useful VLS. The EMLs also ranked this VLS as the least used; however, the least useful VLS was reported as being 'paper Arabic-English dictionary' by EMLs.

- <u>VLSD4 Information taken from dictionaries</u>

The results presented in Table 6.38 (see 6.3.4) show that there was a significant difference between the EMLs and CompSMLs in their use and perception of the usefulness of types of information. EMLs reported using 'its part of speech', 'its

English meaning', 'its synonym' and 'its stem' significantly more frequently than CompSMLs and these VLSs were also reported as being more significantly useful for EMLs than CompSMLs except for 'its stem'. The interview data offered positive reasons for the reported use of these strategies by the EMLs, compared to the negative reasons cited by the CompSMLs. For example, 'its part of speech' was used more by EMLs who believe that this strategy can help them learn the proper use of the new words. In contrast, CompSMLs are of the opinion that they can learn the words' part of speech through its Arabic meaning instead.

The results presented in Figure 6.31 and Figure 6.32 show the frequency of use of VLSs individually reported by learners from the two majors and their judgment of their usefulness. 'Check its L1 meaning' was reported to be the most frequently used VLS as well as the most useful by both groups, while 'its stem' was the least used VLS as well as deemed the least useful VLS by both groups.

- <u>VLSD5 Types of word information noted</u>

The results presented in Table 6.40 (see 6.3.5) show that there was a significant difference between the EMLs and CompSMLs in their use of VLSs and their perception of their usefulness in this dimension. EMLs ranked 'word's English definition', 'word's synonyms and antonyms', and 'word's family stem' more significantly than CompSMLs and these VLSs were also reported by EMLs as being significantly more useful. There was also a small to a moderate effect size, and none of the strategies had a higher effect size. The qualitative data showed several reasons for the significant differences between majors (see 6.3.5).

The results presented in Figure 6.36 and Figure 6.37 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. 'Writing down L1 meaning' was the most frequently used VLS as

well as the one deemed to be most useful by both groups, while 'writing down the source of the word' was the least used VLS and was deemed as being the least useful by both groups.

- VLSD6 Location of VNTS

The results presented in Table 6.42 (see 6.3.6) show that there was no significant difference between the use and perception of usefulness of VLSs by EMLs and CompSMLs in this dimension. The results presented in Figure 6.38 and Figure 6.39 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. 'The margins of textbooks' was the most frequently used VLS and was deemed to be the most useful by both groups, while 'on cards' was the least used VLS and was also deemed to be the least useful by both groups.

- VLSD7 Ways of organising noted words

The results presented in Table 6.44 (see 6.3.7) show that there was no significant difference between the EMLs and CompSMLs in their use of VLSs and their perception of their usefulness in this dimension. However, EMLs viewed 'grammatical category' as being nearly significantly useful. The results presented in Figure 6.41 and Figure 6.42 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. 'Random order' was the most frequently used VLS and was deemed to be the most useful by both groups. EMLs reported that 'alphabetical order' was the least used VLS and was deemed to be the least useful. On the other hand, while deeming 'alphabetical order' the least useful VLS, CompSMLs ranked 'grammatical category' as being the least used VLS.

- <u>VLSD8 Reasons for word selection</u>

The results presented in Table 6.46 (see 6.3.8) show that there was no significant difference between the EMLs and CompSMLs in their use of VLSs and their perception of their usefulness in this dimension. The results presented in Figure 6.43 and Figure 6.44 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. 'The word is new to me' was the most frequently used VLS by both majors and it was also deemed to be the most useful one by CompSMLs, while 'the word is useful to me' was deemed to be the most useful VLS by EMLs. EMLs reported that 'it is a highly frequent word in English' was the least used VLS and this was deemed to be the least useful VLS by both groups.

- <u>VLSD9 Methods of repetition</u>

The results presented in Table 6.48 (see 6.3.9) show that there was no significant difference between the EMLs and CompSMLs in their use of VLSs and their perception of their usefulness in this dimension. The results presented in Figure 6.43 and Figure 6.44 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. The most used methods of repetition for both majors were 'I write the word several times'. On the other hand, the least used strategy in this category for learners from both majors was 'I say the word aloud'.

- <u>VLSD10 information used when repeating new words</u>

The results presented in Table 6.50 (see 6.3.10) show that there was a significant difference, with a small effect size, between EMLs and CompSMLs in their use and their perception of the usefulness in one VLS in this dimension, namely, 'repeat the word and its English definition'. EMLs used this strategy significantly more than CompSMLs; however, there was no significant difference in the perception of usefulness of any of the VLSs in this category between the learners of the two majors.

The qualitative data showed why there was a significant difference between EMLs and CompSMLs. For example, it is useful to retain the words' meaning as claimed by an EML, while CompSMLs mentioned the possibility of becoming confused by the English definition.

The results presented in Figure 6.48 and Figure 6.49 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. The most used and useful information strategy for both majors were 'only repeat the English word with nothing else'. On the other hand, EMLs reported that the least used VLS was 'repeat example sentence' and it was also deemed to be the least useful. While CompSMLs reported that the least used VLS was 'repeat the English word and its definition' whereas the least useful one was deemed to be 'repeat example sentence'.

- VLSD11 Association strategies

The results presented in Table 6.52 (see 6.3.11) show that there was a significant difference between the EMLs and CompSMLs in their use and their perception of the usefulness of four VLSs in this dimension, namely, 'I relate the new word to other English sound similar in sound or spelling', 'to synonym or antonyms in English', 'words follow each other in speech or writing' and 'I break up the new word according to its syllable or structure'. EMLs used the strategies significantly more and rated their usefulness significantly higher than CompSMLs, they were also between a moderate to high effect size. The qualitative data showed several reasons for the learners' use of these strategies (see 6.3.11).

The results presented in Figure 6.54 and Figure 6.55 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their effectiveness. The most used and the most useful association strategy for EMLs

was 'words follow each other in writing or speech', while 'I associate the new word with a word in Arabic similar in sound' was the most used and deemed to be the most useful by CompSMLs. On the other hand, EMLs reported that the least used VLS was 'keyword method' while 'I associate the word with a physical action that I do' was deemed to be the least useful VLS. CompSMLs reported that the least used VLS and also the least useful one was 'keyword method'.

- <u>VLSD12 Practising strategies</u>

The results presented in Table 6.54 (see 6.3.12) show that there was no significant difference between the EMLs and CompSMLs in their use of VLSs and their perception of their usefulness in this dimension.

The results presented in Figure 6.56 and Figure 6.57 show the frequency of use of VLSs individually as reported by learners from the two majors and their judgment of their usefulness. The most used and the most useful practising strategy reported by learners from the two majors was 'I look for opportunities to encounter new words in English'. On the other hand, both groups reported that the least used VLS in this dimension was 'I quiz myself on new words'. The least useful VLS according to both the groups was 'I practise saying things in English by myself'.

7.2.4 Perceived uses and usefulness of VLSs according to gender

It was noted earlier that gender was not examined as an explicit variable in the study as the results of several studies reviewed in the literature review revealed no significant differences between genders. The inclusion of gender as a variable here is to add reliability to the results and to support generalization of the results to students at Najran university, since the current study includes both genders.

Table 6.55 and Table 6.56 presented the most used and the most perceived to be useful VLSs. These tables show that the top five strategies used by both genders were

also present in the top five most useful strategies preferred by both groups. For example, 'I use an electronic dictionary' and 'I use a smartphone dictionary' were reported to be the most used VLSs with the highest perceived usefulness by both males and females. Table 6.57 and Table 6.58 showed the least used VLSs for both genders and the perceived least useful VLSs. The results further support the points addressed previously in the literature, that is, that there are no differences between male and female learners in this regard (e.g. Al-Hatmi, 2012; Alyami, 2011).

Table 6.59 indicated that 'gender' has a non-significant main effect on the overall strategies in all twelve dimensions. This finding supports the conclusion drawn in the literature that there is no difference between the genders in terms of VLS use (e.g. Lee, 2007; Ansari, et al., 2016; Manueli, 2017). Furthermore, the interactions between gender and AFoS, showed no statistically significant difference among participants in all dimensions, except for *VLSD2*, where a significant main effect was found for the interaction, F (7.793); p=006 with a moderate effect size $\eta^2 = 064$. Table 6.60 showed that CompSMLs male students reported statistically significant higher mean scores (M = 4.51, SD = .961) than female CompSMLs (M = 3.600, SD = 1.35) with regard to the VLS 'asking about L1 meaning'.

In terms of the perceived usefulness of VLSs across the twelve dimensions Table 6.61 revealed that there is non-significant interaction between genders according to major across all the twelve dimensions. Thus, it can be concluded there is no significant difference between genders within each academic field of study in terms of perceived usefulness of VLSs. This replicates the findings reported in the literature (e.g. Manueli, 2017). However, Table 6.61 showed that, regardless of AFoS, gender led to significant differences in only two out of the twelve dimensions, namely: VLSD7 (F=23.23; p=048; η^2 =.039) and VLSD12 (F=7.58; p=007; η^2 =.062). Table 6.62 and

Table 6.63 showed that only 'organising the words randomly' in VLSD7 and 'I look for opportunities to encounter new words in English' in VLSD12 were perceived as significantly more useful by male learners than female learners, with a small effect size and medium effect size respectively (Male mean = 3.93, SD = .1.10; Female mean = 3.36, SD= 1.29; p= 011; η^2 = .055); (Male mean = 4.18, SD = .1.09, Female mean = 3.40, SD= 1.20; p= 001; η^2 = .104)).

7.3 Limitations of the study

The study has some limitations related to the design, participants, instruments and methodology used which are discussed below. However, these limitations have not affected the overall validity and reliability of the findings of the study.

1. The data that were gathered for this study was based on the self-reports submitted by the participants. This may have led to some overestimation or underestimation of VLS use and their usefulness. Sometimes self-reports are based on what the subjects think or say they do rather than on what they actually do. However, as Ellis (1994) posits, self-reporting questionnaires are considered to be one of the most successful and widely used instruments by researchers in LLS. Also, Oxford and Burry-Stock (1995) confirmed that the self-reported LLS questionnaire is one of the most useful instruments to use to find out the frequency of use of LLS. In fact, the interview data supported what the students said in the questionnaire. For example, when a learner 'never' used a strategy he/she provided the reasons for such behaviour.

2. There are numerous other variables such as vocabulary proficiency level, year of study, motivation and teaching methodology that could influence the use of VLSs and perception of their usefulness. However, because of the time and word count constraints, together with the limitations on data gathering imposed by the state of war occurring in the region, I chose to focus on time, major and, gender, and three

dependent variables: reported use, perceived usefulness, reported reasons for use. It is beyond the scope of this study to examine all the factors simultaneously and it is important to be selective, otherwise the data becomes too unwieldy to analyse effectively (Schmitt, 2016).

3. There were only four female learners who participated in the interviews. Thus, I could not get sufficient information on the reasons why they use certain VLSs and why they perceive their usefulness. There were several external factors that affected female participation, for example, gender restriction in Saudi Arabia which prevented me from interviewing more female participants.

4. The researcher could have given learners a short proficiency test with the questionnaires previously planned, but a) the time to give the learners more instruments to complete was made impossible by the war, and there was no additional time for data collection, as the researcher's university studies were stopped for ten months, and b) since the researcher was working with female learners, it was more complicated to organise tests for them because face-to-face contact was restricted. In addition, the war had already impacted on data collection in this regard.

5. There are other methods such as the think aloud procedure, class observations and vocabulary-based tasks that could have been enriching and valuable in examining VLS use by both groups of learners. However, gender restrictions in Saudi Arabia precluded their use. It was difficult for the researcher to examine the actual use of VLSs or their usefulness, especially with female participants as face to face meetings were needed in order to record their behaviour.. Furthermore, learners needed to be trained on how to use 'think loud' in which they have to do two tasks simultaneously, namely, verbalizing their thoughts and doing the task in hand. Some learners might be better at this than others. The think aloud technique could be used in future with male or female

participants, according to the researcher's gender, in order to gain a clearer picture of the most and least used VLSs among learners.

6. The participants in this study came exclusively from the English and Computer Science department of the Najran University in Saudi Arabia. I claim that the findings of this study can be generalized to the population of students in Najran majoring in English and Computer Science. However, it is recommended that future studies include more subjects from different universities with different majors in Saudi Arabia.

7. It should be stressed that participation in this study was, for ethical reasons, entirely voluntary, and subjects were given the choice of withdrawing from the study at any time. In fact, some participants who participated in the preliminary study did not want to participate in the main study. However, it is the author's opinion that this eventuality is inevitable in any longitudinal research study, and that those who withdrew were not systematically representative of any one type of learner. Hence their departure did not bias the sample and adversely affect the findings of the study.

8. There were some instances in the interview data where the participants uttered phrases such as 'useful' or 'not important' and did not provide further clarification, although they were pressed by the researcher with follow up questions. It would have been helpful if more explanation had been provided, but the researcher did not want to put undue pressure on the participants. Having said that, adequate interview data was obtained from the learners to inform the findings of the study (see chapter 6).

9. Although the study examined the reported frequency of the use of VLSs and their perceived usefulness, it did not examine the actual usefulness of implementing VLSs. For example, in cases where EMLs and CompSMLs agreed on the use of a strategy, it was not clear whether they differed in terms of how skilled they were at the point of implementation, or their success in employing the strategy. To assess usefulness more

objectively, vocabulary learning success could be measured using scores obtained in an actual word learning task. However, this was not possible in the current study because the gender restrictions in place in Saudi universities prevented the researcher from accessing female participants.

10. Learners reported their use of VLSs and the perception of their usefulness by filling out the VLSQ. In future research, it may be preferable for learners to report on their use of VLSs separately from their perceived usefulness of these VLSs. Due to the time restrictions and the lack of full accessibility of female participants, I could not do this.

11. Finally, due to time and word limit restrictions, it was not possible to examine the many correlations that could be explored. For example, it would be interesting to examine whether learners in the study who use any given VLS also perceive that VLS to be more useful. Again, are there subsets of strategies whose use mutually correlate? For instance, do students who engage more often in context-guessing also engage in other types of guessing more, or less? Do they tend to use any particular consolidation method more? All such areas could be examined in further research on VLSs.

7.4 Overall contribution of the study

As I stated in chapter one and demonstrated in chapter three, the VLS literature has not systematically addressed the issue of how fixed a learner's VLSs are and how readily they change, particularly in the absence of explicit instruction in their use. Saudi Arabia is a context on which such learner training is largely absent at all levels, from the start of English lessons at school to the final year of university. In such a situation, EFL VLS change, if it occurs, is likely to arise either simply because increasing language proficiency makes certain VLS (like context –guessing or the use of English-English dictionaries) more feasible, or as a response to changing demands from the learner regarding the learning and use of English. The latter might prompt students to change

their learning habits (for example a medical student might adopt the morphological decomposition strategy because he or she encounters many medical terms with this type of regular structure, such as *laparo-tomy, angio-plasty)*. Thus, one of the main contributions of this research is the discovery that the learners generally remained consistent over time in terms of their use of VLSs. As described in section (6.2.2) the EMLs changed significantly on only six VLS out of a total of 75 asked about, while the CompSMLs changed significantly only on four. This also reveals that the two major groups were similar in both changing quite little, and indeed three of the changes that were made were the same for both majors (greater use of electronic dictionary, less saying words aloud when guessing and less keeping notes on a separate piece of paper).

This then provides little evidence that any relevant differences in input from their courses that we described in section (1.6) had much impact on their VLS, although the few changes that did occur, and differed between majors, are consistent with differential input. For instance, the increased use by EMLs of 'analysing word structure', 'asking for synonyms and antonyms', and 'looking for examples in dictionaries' are all consistent with them taking an extensive vocabulary course over year two (which the CompSMLs did not). Word structure, semantic relations, and examples (e.g. for collocation) are covered by such a course even if their roles in VLS are not explicitly talked about. Similarly, the decrease by CompSMLs in use of notes on pieces of paper and notes kept in alphabetical order are both consistent with students who have ceased to take language improvement courses and have moved on to subject courses taught through the language. They see themselves now as learners of computer science rather than of English, so the notes they would take would be on the subject content of what they read or hear, and anything related to specific words would be appended to that and done quickly rather than made a topic in itself.

Chapter 7: Summary of Research Findings and Conclusions

Returning now to our discussion of the literature on changes over time (chapter three section 3.7.2), it is clear that our finding is consistent with those studies such as Al-Hatmi (2012) and Tassanangam (2004) which found little change at university level, in contexts where there was no explicit VLS instruction. By the same token our finding is not consistent with studies, especially with child beginners, which found an increase in VLS with time not prompted by explicit VLS teaching (e.g. Kirsch, 2012). Nor is it consistent with those that found a fall in VLS use (e.g. Kalajahi and Pourshahian, 2012; Sarani and Shirzaei, 2016).

The wider explanation for such findings I suggest could be that spontaneous VLS change, in the absence of explicit VLS instruction, does not follow a linear path. Beginners, often at a young age, need to establish a VLS repertoire and increasingly use some VLS to deal with vocabulary problems in the new language, and this at first increases with language proficiency, since some VLS like context guessing and using a monolingual dictionary clearly presuppose more language knowledge than others (Chesterfield and Chesterfield, 1985). There then comes a period when their strategies seem to them more or less adequate for their needs and, unless there is input from explicit strategy instruction, their VLS repertoire and use tends to fossilize, as perhaps seen in our EMLs. Later, if they reach higher levels of language proficiency, they meet fewer vocabulary problems in input and no longer need to use VLS so much, so their VLS as recorded by questionnaires about strategy use appear to fall. Alternatively, at a later time, learners may, like our CompSMLs, move on from learning English to learning other subjects with English only as a means to achieve that. Here again some VLS fall off can occur simply because the focus of learning has changed and the learner no longer wants to spend time on complicated guessing, note taking or memorizing VLS at the expense of attending to the discipline content. Thus, electronic dictionary searches may take over. Accessing such a resource on a mobile phone is so quick and

available these days that there is no longer a need to guess, note take and memorise. If the word is not remembered one can just look it up again in an instant.

In short, we are suggesting that the spontaneous developmental course of VLS over time, without explicit instruction, may follow an inverted U pattern in which our participants were just at the end of the top, about to start falling. This constitutes an interesting hypothesis to pursue in further research and is not something that we have found explicitly stated in this way before in the literature.

The implication of this scenario, if correct, is that in order to change the VLS use of learners such as ours, and prevent a falling off of VLS use, intervention to explicitly teach VLS would be required. We do not pursue this further, however, since our study does not supply us with definite information that this is either necessary or desirable. Our participants generally recorded quite high mean satisfaction with the usefulness of their VLS and our study did not include any more objective indicators of their usefulness. Therefore, we cannot say for certain whether there is a need to train them in the use of any specific VLS, and if so, which ones.

To sum up, this study achieved three main objectives (see 7.2.1, 6.2.1 and 7.2.3) which, it is hoped, has provided a significant contribution to L2 vocabulary research, mainly:

1. In examining this academic field of study in the Saudi context this study is one of a kind. Other studies have been carried out in this academic field of study (e.g. Siriwan, 2007) but in a different context.

2. Additionally, to the best of my knowledge, there is no previous empirical study that examined the perceived usefulness of the VLSs in a Saudi context using the academic field of study as a variable.

3. Furthermore, this is the first study in the literature on VLSs in which the repeated measurement design is used for both majors. The use of VLSs were gathered twice from the same participants following a one-year gap. This was done in order to examine whether there had been any changes in the subjects' use of various VLSs.

4. In terms of data analysis, this study is one of a kind in terms of measuring the effect size with both groups (i.e. academic field of study); that is, the analysis is not only based on *p* values but also takes into consideration the effect size, specifying whether there was a small, a medium or a large effect (Plonsky, 2015).

5. Additionally, no previous study has focused on the reasons why learners with different majors use VLSs as this study has done. This helped me to identify the weakness of several VLSs pertaining to each group of the study.

6. The results related to gender confirmed the arguments made by existing literature that there are no significant differences between gender and gender within AFoS.

7.5   Implications for future research and implications for pedagogy

A number of pedagogical implications can be drawn from this study. The following are some implications and recommendations for both learners and teachers.

1. Generally speaking CompSMLs suffered from poor knowledge of vocabulary and even EMLs were not sufficiently proficient. This was found in the interview data, in which several EMLs and CompSMLs claimed that they did not have enough knowledge of certain VLSs or vocabulary or needed to improve their language. Thus, both majors should have strategy instruction, probably in schools or at the latest during their preparation year. EMLs should then be offered more intensive English courses and CompSMLs should be offered an English course alongside their science courses to cater their specific vocabulary needs (for example computer science terminology). Such

strategy instruction has been found to help learners choose their 'good' strategies (Yabukoshi & Takeuchi, 2009).

Students should be tested for their vocabulary proficiency and allocated to specifically designed English courses. It is believed such courses could increase learners' proficiency level and could help expand their vocabulary to help them cross the 3,000-word threshold level.

2. Strategy training of students is a necessity. Oxford (1990:201) said "strategy training is especially necessary in the area of second and foreign languages. Language learning requires active self-direction on the part of learners; they cannot be spoon-fed if they desire and expect to reach an acceptable level of communicative competence". This is especially true of learners at the level of my participants who cannot rely on teachers to teach them all the English words they need, but must take on the responsibility for identifying and learning them themselves.

I feel that strategy training is important for both EMLs and CompSMLs for two further reasons: first, the interview data shows that several students from both groups did not receive explicit strategy instructions and, secondly, it seems that students do not use 'good' VLSs such as 'note taking', 'using the English-English dictionary', 'organizing new words according to their grammar category' or 'organizing the word according to families with the same stem'. Also, some CompSMLs and EMLs interviewees did not know how to use some association strategies such as 'using the keyword method'. Others think that some organization strategies are not important when in fact they have been shown to aid memorization. It is evident that learners have not been explicitly shown how to use VLSs; hence, help and guidance from their teachers on how to use VLSs for vocabulary learning is recommended. Oxford (1990:201) said, "learners need to learn how to learn, and teachers need to learn how to

facilitate the process".

3. In order to support the above VLS instruction, teachers should be aware of different types of VLSs and LLSs and their implications for the classroom. CompSML students are not taught by lecturers who have majored in applied linguistics and they may not have adequate knowledge of LLSs or VLSs. This may also apply to some lecturers teaching EMLs. Hence, a well-designed course of strategy instruction training would be helpful in this context. Al-Akloby (2001:253) said, "well-planned in-service training programs for teachers should be established. The occasional one-two-or three-day refresher programs are not enough". This could occur when leaners choose their academic field of study, either in school or during the preparation year.

4. This also suggests that the L2 curriculum or any curriculum that uses English as a medium of instruction should include strategy training, for example, by introducing VLSs with the teaching materials or including tasks that require learners to use certain VLS to work out the tasks successfully. Again, this could happen in school, or during the preparation year.

5. In this study EMLs stressed the usefulness of using the words' grammatical category in all categories that contain such a strategy. They claimed that this facilitates discovering the meaning of the new words. Thus, it is recommended that CompSMLs pay more attention to the grammatical category of particular words when learning vocabulary. The students could be trained in the use of this strategy through exercises which focus on guessing words' grammar category. This could happen during the preparation year or if English courses are offered alongside CompSMLs courses.

 6. Additionally, the data shows that the students in both of the groups did not use social strategies. Al-Hazemi (2000) recommends social strategies such as making friends and talking with English native speakers via social media. Nowadays there are plenty of

ways to do this, such as using 'Cambly' or 'Skype' to ask the meaning of new words and to ask native speakers about familiar words to reinforce their meaning. For example, CompSMLs could establish a connection with CompSMLs in the UK. Oxford (1990) suggests that teachers encourage their learners to be socially active and ask questions when they do not understand. Also, teachers could arrange for interactions to take place between students and universities should engage native English speakers as this help learners to talk with their lecturers in English at all times.

7. The results show that learners from both majors depend on electronic dictionaries. From my experience as a lecturer, learners do not know how to use such dictionaries effectively. Thus, learners should practise using dictionaries and the use of the English-English dictionary should be encouraged in order to develop the learners' vocabulary and their capacity for autonomous and authentic learning. Learners may be encouraged to use their phones as a dictionary, note taking device and means of connecting with native speakers.

8. The results relating to note taking strategies suggest that teachers should advise and train students following the two majors on how to use lexical grouping strategies noting down new words.

9. The data show that CompSMLs do practise the use of English among themselves and quiz themselves, but not as much as EMLs do. Thus, CompSMLs should be encouraged to reflect on their personal practise of vocabulary learning. It is also important to guide learners through the process of self-assessment and evaluating their vocabulary learning. By doing so, CompSMLs will gain more autonomy in vocabulary learning and they will also discover other strategies that are suited to their learning styles and majors.

In countries such as Taiwan, the government promotes this by requiring all students, regardless of major, to pass an international English tests at certain level

(TOEIC) in order to graduate. This is not the case in Saudi Arabia, and clearly it would have the effect of making all majors think of themselves as learners of English as much as leaners of their major subjects throughout their undergraduate studies.

7.6 Suggestions for future research

Areas related to the subject that might justify further study include the following:

1. To the best of my knowledge, this study is the first of its kind in terms of its focus on the strategic behaviour of university students following different majors. Hence, its findings need to be confirmed. It is recommended that researchers replicate the study with relevant and necessary changes and amendments in different context and subjects.

2. Strategy instruction may change the learners' use and their perception of the usefulness of VLSs; thus, I suggest investigating whether strategy instruction could be a factor in increasing learners' use of VLSs and increasing their usefulness.

3. Additionally, due to time and words limit restrictions, I could not examine the correlation between the learners' use of VLSs and their perception of their usefulness. This is an area that could be examined in further research on VLSs.

4. Since EMLs outperformed CompSMLs significantly in various VLSs, further studies should examine the relationship between strategy use and success.

5. Due to time restrictions and the war in Najran City where the study took place, the researcher could not interview teachers, or examine learners' proficiency level through VPT. Therefore, further research should consider these when studying VLSs.

6. As suggested by Locke et al. (1998), a replication of the study in different contexts, using different subjects or research designs should be carried out to establish the trustworthiness of the research findings and to ensure the reliability of the study findings.

7. The literature argued that there are no differences between genders, and the current results supported that. However, it would be appropriate to examine gender in a Saudi context to confirm the current findings, especially when examining different majors.

To conclude, this was the first large-scale comparative study of Saudi EMLs' and CompSMLs' use of VLSs and their perception of their usefulness. It was also the first study to examine the change over time with both majors, EMLs and CompSMLs. The results it yielded pertaining to the three aspects of VLSs under investigation provide a solid foundation for future researchers in this area either both within the Saudi context and elsewhere.

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Appendix A

Participant Information Sheet and Consent Form (English version)

Project: Vocabulary Learning Strategies Employed by English and Non-English Undergraduate Saudi Learners: Uses and Effectiveness

What is the project about?

This research will investigate the different types and taxonomies of vocabulary learning strategies (VLS) to discover how often they are used by undergraduate students taking both English and non-English majors. This research will investigate the relationship between the researcher's own set of variable (i.e. the academic field of study) and the use of vocabulary learning strategies. It will also investigate the usefulness of VLS, according to learners' perceptions and establish reasons for their claims.

What does participating involve?

It involves completing a short background questionnaire by giving your name, gender, age, academic field of study, year of study, and a vocabulary learning strategy questionnaire and being interviewed in either English or Arabic as you prefer. The interview will be audio-recorded. Should you have any complaints about any aspect of the study, please contact Dr. Christian Jones.

Please Read The Following Statements
I have read and understood the project information given above.
I have been given the opportunity to ask questions about the project.
I agree to take part in the project. Taking part in the project will include being interviewed and audio- recorded.
I understand that my taking part is voluntary; I can withdraw from participation at any time and if I want my data to be removed from the study I understand this must be done within the first 7 days of the study and I do not have to give any reasons for why I no longer want to take part. I understand that this will not affect my academic progress whatsoever.
Use of the information I provide for this project only
I understand my personal details such as name, email address and phone number will not be revealed to people outside the project.
I understand that my words may be quoted in publications, reports, web pages, and other research outputs.
Use of the information I provide beyond this project
I agree for the data I provide to be stored in a password protected electronic format.
I understand that other genuine researchers may use my words in publications, reports, web only if they agree to preserve the confidentiality of the information as requested in this form.

Checking the "agree" box below indicates that:
- You have read the above statements
- You voluntarily agree to participate
- You are at least 18 years of age   ☐ **Agree**
Researcher signature. _____   Participant signature. _____
Director of Studies: Dr. Christian Jones.
Email: CJones3@uclan.ac.uk.
Project contact details: Naji Alyami.
Email: nanalyami@uclan.ac.uk

Appendix B

Participant Information Sheet and Consent Form (Arabic version)

عنوان المشروع: استراتيجيات طرق تعلم مفردات اللغة الإنجليزية في قسم اللغة الإنجليزية والحاسب الآلي: استخداماتها وفعاليتها.

ما هو المشروع؟

هذا البحث عبارة عن التحقق في عدة استراتيجيات تعلم مفردات اللغة الإنجليزية لاكتشاف كم مرة يتم استخدامها من قبل طلاب المرحلة الجامعية تخصص اللغة الإنجليزية والحاسب الالي. هذا البحث سوف يبحث عن العلاقة بين علاقة المجال الأكاديمي واستخدام استراتيجيات تعلم المفردات. وسوف يحقق أيضا عن هذه الاستراتيجيات، حسب ما يتصوره المشاركين.

ما الذي تنطوي عليه المشاركة؟

وهو ينطوي على ملء استبيان عبارة عن تزويد الباحث بمعلومات عن اسمك، جنسك، عمرك، مجالك الأكاديمي وسنتك الاكاديمية، واستبيان استراتيجية تعلم مفردات اللغة الإنجليزية. آيضا على المشارك ان يشارك في مقابلة مسجلة (باللغة الإنجليزية / العربية) لتزويد الباحث بأسباب اختياره لاستراتيجيات تعلم مفردات اللغة الإنجليزية. إذا كان لديك أي شكاوى حول أي جانب من جوانب الدراسة، يرجى الاتصال الدكتور كريستيان جونز.

يرجى قراءة البيان التالي
لقد قرأت وفهمت معلومات المشروع المذكورة أعلاه.
لقد أتيحت لي الفرصة لطرح أسئلة حول المشروع.
أوافق على المشاركة في المشروع. وستشمل المشاركة في المشروع إجراء المقابلات والمسجلة بالصوت.
أدرك أن مشاركتي طواعية؛ يمكنني الانسحاب من المشاركة في أي وقت، وإذا أردت إزالة البيانات الخاصة بي من الدراسة فيجب أن يتم في غضون الأيام السبعة الأولى من الدراسة وليس لزاما علي بأبداء أسباب الانسحاب من الدراسة. وأنا أفهم أن هذا لن يؤثر على التقدم الدراسي لدي على الإطلاق.
استخدام المعلومات التي أقدمها لهذا المشروع
أنا أفهم أن تفاصيلي الشخصية مثل الاسم وعنوان البريد الإلكتروني ورقم الهاتف لن يتم الكشف عنها للأشخاص خارج المشروع.
أنا أفهم أن اجاباتي يمكن اقتباسها في المنشورات والتقارير وصفحات الويب، وغيرها من مخرجات البحوث.
استخدام المعلومات التي أقدمها خارج هذا المشروع
أوافق على البيانات التي أقدمها ليتم تخزينها في ملف محمي بكلمة مرور.
أدرك أن الباحثين الآخرين قد يستخدمون كلماتي في المنشورات والتقارير والويب شريطة ان يوافقوا على الحفاظ على سرية المعلومات كما هو مطلوب في هذا النموذج.

يشير تحديد مربع "موافق" أدناه إلى ما يلي:

لقد قرأت البيانات المذكورة أعلاه
٠أنت توافق طواعية على المشاركة
٠أنت على الأقل 18 سنة من العمر   □ **أوافق**
توقيع الباحث. _____ توقيع المشارك_____ .
مدير الدراسات: الدكتور كريستيان جونز.
البريد الإلكتروني: .CJones3@uclan.ac.uk
تفاصيل الاتصال بصاحب المشروع: ناجي اليامي.
البريد الإلكترون: <u>nanalyami@uclan.ac.uk</u>

Appendix C

Vocabulary Learning Strategy Questionnaire (Preliminary Study- English version)

This questionnaire is on the strategy of vocabulary learning Strategies used by many L2 learners to learn vocabulary and is designed for the purpose of gathering data for my PhD research study. The contents of the questionnaire, after you kindly fill it in, will be used solely for the above-mentioned study and will be kept ANONYMOUS. Your cooperation in filling in this questionnaire will be highly appreciated.

The questionnaire has **Two Parts**.

Part 1: The Student's Personal Background

Part 2: Strategies for Vocabulary Learning

PART ONE:

Background Information:

Your name please	…………………………………………………………	
Gender	(1) Male	(2) Female
Academic Field	(1) English	(2) Computer Science
Year of Study	…………………………………………………………	
Age		
Your Academic Number	…………………………………………………………	

PART TWO: Vocabulary Learning Strategy Questionnaire

Please note that,

Please note when responding to this questionnaire that there are no right or wrong answers, since students differ in their vocabulary learning habits and how useful they find them. The aim of the questionnaire is to discover how much you use vocabulary learning strategies. In other words, I really would like to know what you actually do when you use vocabulary learning strategies, not what you should do or want to do. If an item does not apply to you, please circle the word **never (0%).** If an item is used by you, please specify how much it is used by you by circling one of the words **rarely (around 25%)**, **sometimes (around 50%)**, **often (around 75%)** or **always (100%)**. Please read all the possible FIVE choices in each item before you

circle the only ONE choice that best applies to you. You may write in Arabic when you would like to add your own view or comment.

- **Category one: Strategies dealing with discovering the meaning of new words:**

When I meet ones which teacher or textbook does not give the meaning of

VLSD1. Guessing strategies: I guess the meaning of the unknown word by					
1. Saying the word aloud several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
2. Checking if it is similar to Arabic in sound (e.g. shy in English and /shai/ in Arabic "tea")	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
3. Analyzing the structure of the word (e.g. prefixes, suffixes; **mis**understanding. And compounds: sunflower etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
4. Analyzing the word part of speech (e.g. verb, noun, adjective...etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
5. Paying attention to pictures if they accompany the word or text.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
6. Reading the sentence or paragraph containing the unknown word.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD2. Asking Others: I request help from (colleagues, friend, teacher, relative, language competent or native speaker) regarding an unknown lexical item by Asking them about					
7. Its equivalent Arabic meaning.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
8. Its definition in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
9. Its spelling or pronunciation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
10 An example sentence.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
11. Its grammatical category	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
12. Its synonym & antonym in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD3. Type of dictionary used to check the meaning of unknown words:					
13. In a paper English-Arabic Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
14. In a paper English-English Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
15 In an Electronic Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
16. On the internet (i.e. on- line dictionaries)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
17. On the mobile/computer.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD4. Using Dictionary: I look up the unknown word by using Dictionary and check					
18. Its Arabic meaning	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
19. Its spelling	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
20. Its part of speech (i.e. verb, adjective, noun, ..etc)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
21. It is English meaning	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
22. Its synonym or antonym.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
23. Looking for example sentences.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
24. Its stem. (e.g. **actor** has stem **act**) (**decision** has stem **decide**)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

- **Category Two: Strategies dealing with vocabulary note taking**

VLSD5. When I take vocabulary notes, I write down the English word:					
25. Only with nothing else.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
26. With its Arabic translation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
27. I write down their English definition	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
28. I write down synonyms and antonyms beside new words	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
29. I write down example sentences using the new word	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
30. With its pronunciation in the form of transliteration, i.e. transcribing the English word into sounds using the Arabic alphabet. E.g. The word cat is transcribed as /كات/using transliteration.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
31. I write down the grammatical category of the word (e.g. noun, verb, adjective...etc).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
32. With a note about the source I got it from. (e.g. unit, film, where I encountered it).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
33. with other related words of the same family. E.g. The words *manager* and *management* belong to the family of the word manage	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD6. Location of vocabulary note taking: When I take vocabulary notes, I keep the notes:					
34. On the margins of my textbooks	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
35. On cards.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
36. In my (general) English notebook.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
37. In my pocket/personal notebook	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
38. On separate pieces of paper.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
39. In a computer file or other electronic device.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

40. On wall charts, posters or small pieces of paper I stick somewhere at home.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD7. Ways of organizing words noted When I take vocabulary notes: I organize (list) the words for note taking:					
41. By units or lessons of the textbook	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
42. In alphabetical order.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
43. In a random order.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
44. By their grammatical category (e.g. noun, verb, adjective etc.)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
45. By their meaning groups (e.g. animals, fruits, food, colors,etc)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
46. According to their difficulty (e.g. from easiest to most difficult).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
47. I organize words in families with the same stem. (e.g. I put together decide, decision, decisive, indecisive...etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD8. Reasons (Criteria) for selecting words: I select a word for note-taking if I see that					
48. The word is unknown and thus new to me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
49. The word is important in that it recurs frequently in the text where I met it.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
50. The word is important in that I realize it is a highly frequent word in English	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
51. The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
52. The word is important in that it is a key word in the text where I met it.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
53. The word is important in that the teacher said so.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
54. The word is important in that it is needed when speaking or writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
55. The word is useful to me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
56. The word is difficult for me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

• **Category Three: Strategies for Retention and Memorization**

VLSD9. Ways I do repetition to remember words:					
57. I say the word aloud several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
58. I repeat the word silently several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
59. I write the word several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
60. I listen to the word several times	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD10. Information I handle repeatedly; When I do repetition I					
61. Say the word and its Arabic translation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
62. Only repeat the English word with nothing else.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
63. Repeat example sentences several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
64. Repeat the word and its English definition.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD11. Associations I make to help me retain new words					
65. I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
66. I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
67. I associate the new word with a word in Arabic similar in sound (e.g. chock /shoak/- "thorn ", fine/ fine "tissue)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
68. I use the keyword method (e.g. if I want to memorize the English word 'fine' I may think of an Arabic word that sounds the similar like /f^in/ which means 'tissue' then I create a mental image of a person who uses tissue and looks fine).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
69. I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

70. I associate the new word with a physical action that I do or imagine.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
71. I break up the new word according to its syllables or structure (e.g. prefixes **Un**educated, suffixes educat**or**, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

VLSD12. Practising or other means of consolidating new words:					
72. I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
73. I quiz myself or ask others to quiz me on new words (answering vocabulary tests).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
74. I practise saying things in English by myself.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
75. I use as many new words as possible in speaking or in writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

Many thanks for your time!

Appendix D

Vocabulary Learning Strategy Questionnaire (Preliminary Study-Arabic version)

استبيان عن طرق استخدام استراتيجيات تعلم مفردات اللغة الإنجليزية
عزيزي الطالب/الطالبة،

هذا الإستبيان يتعلق بإستراتيجيات طرق تعلم مفردات اللغة الإنجليزية، وصمم لغرض جمع البيانات لبحثي المقدم لدرجة الدكتوراه. علماً أن محتويات هذا الإستبيان بعد تفضلكم بتعبئته سوف تستخدم لغرض الدراسة المذكورة أعلاه فقط، وسوف تظل محتوياته مجهولة المصدر.فلذلك هذا الإستبيان الذي أمامك ليس اختبار، وبالتالي لا يوجد إجابة صحيحة أو خاطئة أو جديدة أو سيئة لكل طريقه،فالرجاء الإجابة بكل صدق ودقه متناهيه فإجابتك لن يكون لها أي أثر على حالتك الأكاديمية أو تقييمك في دراستك الجامعية بتاتاً. هذا وأقدر لكم كثيرا تعاونكم في ملء هذا الإستبيان.

يحتوي هذا الإستبيان على جزئين:

<u>**الجزء الأول:** معلومات شخصية</u>

الجزء الثاني: استراتيجيات تعلم مفردات اللغة الانجليزية (**ثلاثة أقسام**)

<u>**الجزء الاول:** معلومات شخصية</u>

الاسم	....	
التخصص	(1) انجليزي	(2) حاسب آلي
السنة الدراسية	....	
الرقم الأكاديمي	....	
الجنس	(1) طالب	(2) طالبة
العمر	....	

<u>**الجزء الثاني:** استراتيجيات تعلم مفردات اللغة الانجليزية</u>

<u>**أرجو منك عزيزي الطالب/الطالبة قراءة هذه التعليمات بعناية تامة:**</u>

1- مرة أخرى، إن الإستبيان الذي أمامك ليس إختبار، وبالتالي لا يوجد إجابة صحيحة أو خاطئة أو جديدة أو سيئة لكل طريقه فالرجاء الإجابة بكل صدق ودقه متناهيه فإجابتك لن يكون لها أي أثر على حالتك الأكاديمية أو تقييمك في دراستك الجامعية.

2- الرجاء إختيار الطريقة التي تقوم بإستخدامها فعلاً من الإختيارات المتاحه في تعلمك مفردات اللغة الانجليزية وليس ما تعتقده أو ترى أنها هي المناسبة أو ترى أنه يجب عليك فعلها لأن الطلاب يختلفون في إستخدام الإستراتيجيات المناسبة لهم في تعلم الكلمات، بعبارة اخرى أنا حقاً أود أن أتعرف هنا على ما تقوم بعمله في تعلم الكلمات.

3- إذا كانت فقرة من الفقرات لا تنطبق عليك، يرجى وضع دائرة حول الخيار لا أستخدها أبدا (0) ٪ ، أما إذا كانت الفقرة تنطبق عليك، يرجى تحديد مدى انطباقها عليك بوضع دائرة حول إحدى الكلمات أستخدمها نادرا حوالي (25) ٪ ، أستخدمها أحيانا حوالي (50) ٪ ، أستخدمها كثيراً حوالي (75) ٪ ، أستخدمها دائما (100) ٪ . الرجاء قراءة جميع الخيارات الخمس أمام كل عبارة قبل وضعك لدائرة حول الخيار الوحيد الذي ينطبق عليك.

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القسم الأول: استراتيجيات التعامل مع الكلمات الجديدة •

عندما أصادف كلمات لم يقم المدرس أو الكتاب بشرحها أو أعطاء معناها فإنني:

(البعد الأول) استراتيجيات التخمين: أقوم بتخمين معاني الكلمات الجديدة عن طريق					
1. نطقها بصوت مرتفع عدة مرات	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
2. أخمن المعنى عن طريق ربطها بكلمة في اللغة العربية مشابه لها في الصوت مثلا shy بمعني خجول نربطها ب شاي /shai/ بالعربي (شاهي)	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
3. أعرف المعنى عن طريق تحليل أو تقسيم الكلمة كاللواحق مثل **mis**understanding و التراكيب مثلsun-flower	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
4. أخمن المعنى عن طريق معرفة فئتها النحوية (اسم، فعل، صفة، الخ)	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
5. النظر الى الصور المصاحبة للكلمة أو النص.	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
6. قراءة الجملة أو الفقرة التي تحتوي عليها الكلمة الجديدة	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
أخرى، أرجو ذكرها مع التقييم	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً

(البعد الثاني) طلب المساعدة: عندما أواجه كلمة جديدة أستعين بالمعلم، الزميل، الصديق، أحد الأقارب أو المتمكن من اللغة، وأساله عن الآتي					
7. اسأل عن معنى الكلمة الجديدة باللغة العربية	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
8. اسأل عن معنى الكلمة باللغة الإنجليزية	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
9. اسأل عن نطق الكلمة الجديدة أو تهجئتها	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
10. اسأل عن مثال على الكلمة الجديدة في جملة مفيدة	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
11. اسأل عن فئتها النحوية (اسم ،فعل، صفة الخ...)	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
12. اسأل عن مرادف او عكس الكلمة الجديدة	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
أخرى، أرجو ذكرها مع التقييم	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً

					(البعد الثالث) أنواع القواميس المستخدمة للبحث عن الكلمة الجديدة: أبحث عن الكلمة الجديدة في
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	13. قاموس ورقي (انجليزي-عربي)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	14. قاموس ورقي (انجليزي-انجليزي)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	15. قاموس إلكتروني محمول
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	16. قاموس على الإنترنت
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	17. قاموس على الجوال/الكمبيوتر
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

					(البعد الرابع) عندما أستعمل أحد القواميس أعلاه أبحث عن:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	18. عن معنى الكلمة الجديدة بالعربي
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	19. عن إملاء الكلمة الجديدة (كيف تكتب)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	20. عن نوع الكلمة (اسم، صفة، فعل ,الخ)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	21. عن معنى الكلمة الجديدة بالإنجليزي
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	22. عن مرادف أو عكس الكلمة الجديدة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	23. عن جمل أو أمثلة تستخدم فيها الكلمة الجديدة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	24. عن جذر الكلمة فمثلا كلمتي management و manager تنتميان إلى عائلة كلمة **manage**
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

- **القسم الثاني: الاستراتيجيات المستخدمة في تدوين أو كتابة الكلمات الجديدة.**

					(البعد الخامس) نوعية المعلومات التي يتم تدوينها /كتابتها مع الكلمات الجديدة: عندما أدون/أكتب كلمات ومعلومات عن هذه الكلمات الجديدة، أقوم بكتابة الكلمة الانجليزية:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	25. فقط ولا شي غير ذلك
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	26. مع ترجمتها العربية

	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	27. مع شرح معناها بالإنجليزية
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	28. مع مرادفها أو عكسها
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	29. أكتب جملة أو أمثلة لاستخدامات الكلمة الجديدة
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	30. مع نطقها باستخدام النقل الأبجدي أي تحويل الكلمة الانجليزية الى أصوات باستخدام الأبجدية العربية. على سبيل المثال كلمة cat تكتب صوتيا كالتالي بالعربي /كات/ باستخدام النقل الأبجدي.
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	31. أكتب الكلمة الإنجليزية مع نوعها أو فئتها النحوية (اسم، فعل، صفة،...الخ)
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	32. أكتب النص والموقع الذي يمكن استخدام الكلمة الجديدة فيه
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	33. أدون الكلمات الأخرى ذات الصلة من نفس العائلة. على سبيل المثال كلمتي management و manager تنتميان إلى عائلة كلمة manage.
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

	(البعد السادس) موقع تدوين /كتابة الكلمات: عندما أدون كلمات ومعلومات عن هذه الكلمات، أقوم بتدوين ذلك:					
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	34. على هوامش كتبي الدراسية.
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	35. على بطاقات
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	36. في دفتر اللغة الانجليزية العام
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	37. في دفتري الشخصي
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	38. على أوراق منفصلة
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	39. في ملف على الحاسوب أو غيرها من الأجهزة الإلكترونية كالجوال
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	40. على ملصقات وجداول حائطية أقوم بلصقها في مكان ما داخل المنزل.
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

(البعد السابع) طرق ترتيب وتنظيم الكلمات المدونة : عندما أدون كلمات ومعلومات عن هذه الكلمات، أرتب الكلمات التى أدونها :

البند	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
41. حسب ترتيب الوحدات أو الدروس الواردة في الكتاب المدرسي.	(1)	(2)	(3)	(4)	(5)
42. حسب الترتيب الأبجدي	(1)	(2)	(3)	(4)	(5)
43. أكتب الكلمات بطريقة عشوائية	(1)	(2)	(3)	(4)	(5)
44. حسب الفئة النحوية مثل أسماء، أفعال، صفا، الخ.	(1)	(2)	(3)	(4)	(5)
45. حسب فئة المعنى المنتمية إليها مثل حيوانات، فواكه، أغذية، ألوان، الخ.	(1)	(2)	(3)	(4)	(5)
46. وفقا لصعوبتها، مثلا من الأسهل إلي الأصعب	(1)	(2)	(3)	(4)	(5)
47. انظمها بوضع الكلمات ذو الجذر/العائلة الواحدة في جدول او قسم معين مثلا اجمع هذه الكلمات(decide, decision, decisive, indecisive)	(1)	(2)	(3)	(4)	(5)
أخرى، أرجو ذكرها مع التقييم	(1)	(2)	(3)	(4)	(5)

(البعد الثامن) سبب اختيارك للكلمات: أقوم بإختيار كلمة ما لتدوينها إذا رأيت أن :

البند	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
48. الكلمة غير معروفة وبالتالي جديدة بالنسبة لي.	(1)	(2)	(3)	(4)	(5)
49. الكلمة مهمة حيث أنها تكررت كثيرا في النص الذي رأيتها فيه	(1)	(2)	(3)	(4)	(5)
50. الكلمة مهمة لأني أدرك أنها كلمة كثيرة التكرار في اللغة الانجليزية.	(1)	(2)	(3)	(4)	(5)
51. الكلمة مهمة لأني أدرك أن الكلمة المرادفة لها بالعربية كلمة كثيرة التكرار في اللغة العربية	(1)	(2)	(3)	(4)	(5)
52. الكلمة مهمة حيث أنها كلمة أساسية في النص الذي رأيتها فيها	(1)	(2)	(3)	(4)	(5)
53. الكلمة مهمة حيث أن المعلم قال ذلك	(1)	(2)	(3)	(4)	(5)
54. الكلمة مهمة حيث انها ضرورية عند الحديث او الكتابة	(1)	(2)	(3)	(4)	(5)
55. الكلمة مفيدة بالنسبة لي	(1)	(2)	(3)	(4)	(5)
56. الكلمة صعبة بالنسبة لي	(1)	(2)	(3)	(4)	(5)
أخرى، أرجو ذكرها مع التقييم	(1)	(2)	(3)	(4)	(5)

القسم الثالث والأخير: طرق تذكر الكلمات وحفظ الكلمات

					(البعد التاسع) طرق حفظ الكلمات بواسطة التكرار: عندما أريد حفظ الكلمة الجديدة فأنني أكرر
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	57. نطق الكلمه الجديدة بصوت مرتفع.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	58. أكرر الكلمة في بالي عدة مرات.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	59. أكرر كتابة الكلمة عدة مرات.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	60. أستمع إلى الكلمة عدة مرات.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

					(البعد العاشر) المعلومات التي اكررها هي:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	61. أكرر نطق الكلمة ومعناها بالعربي.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	62. أكرر الكلمة الانجليزية بمفردها.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	63. أكرر نطق الأمثلة التي فيها الكلمة الجديدة عدة مرات.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	64. أكرر الكلمة الانجليزية الجديدة وشرحها بالانجليزي.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

					(البعد الحادي عشر) طرق حفظ الكلمات بواسطة الربط:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	65. أربط الكلمة الجديدة بكلمات إنجليزية أخرى سواء بالنطق أو الإملاء مثل (week - weak).
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	66. أربط الكلمة الجديدة بمرادفاتها او عكسها في اللغة مثل العكس (Good & Bad) والمرادف (good & nice)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	67. ربطها بكلمة في اللغة العربية مشابه لها في الصوت فقط مثلا fine بمعنى بخير نربطها ب فاين بالعربي (منديل)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	68. أستخدم أسلوب ربط الكلمة بالصوت والصورة معا فمثلا كلمة "fine" تعني بخير بالعربية ولكي أحفظها أقوم بربطها صوتيا بالعربي ك"فاين" بمعني منديل، ثم ارسم صورة ذهنية بأن شخصا يستخدم منديل ويبدو fine أي بخير.

(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	69. أربط الكلمات الجديدة بالكلمات التي تتبع بعضها عادةً في الكتابة او الحديث مثل (Make a mistake) (Commit a crime)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	70. أربط الكلمة الجديدة بحركة جسدية أفعلها او أتخيلها.
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	71. أفكر في تركيب الكلمة مثلا Uneducated او Educate
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

(البعد الاخير) طرق وممارسة استخدام الكلمة لتعزيز أو تثبيت حفظها فى الذاكرة					
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	72. أحاول إيجاد فرص لمقابلة الكلمات الجديدة مثل (قراءة الصحف او الاستماع للراديو او الافلام)
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	73. أختبر نفسي أواطلب من شخص أخر اختباري في الكلمات الجديدة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	74. أمارس التحدث مع نفسي مستخدماً الكلمات الجديدة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	75. استخدم أكبر عدد ممكن من الكلمات الجديدة في الحديث أو الكتابة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....

شكرا جزيلاً لكم على تعاونكم في ملء هذا الإستبيان

Appendix E

Vocabulary Learning Strategy Questionnaire (Main Study-English version)

This questionnaire is on the strategy of vocabulary learning Strategies used by many L2 learners to learn vocabulary and is designed for the purpose of gathering data for my PhD research study. The contents of the questionnaire, after you kindly fill it in, will be used solely for the above-mentioned study and will be kept ANONYMOUS. Your cooperation in filling in this questionnaire will be highly appreciated.

The questionnaire has **Two Parts**.

Part 1: The Student's Personal Background

Part 2: Strategies for Vocabulary Learning

<u>PART ONE:</u>

<u>Background Information:</u>

Your name please	……………………………………………………………	
Gender	(1) Male	(2) Female
Academic Field	(1) English	(2) Computer Science
Year of Study	……………………………………………………………	
Age		
Your Academic Number	……………………………………………………………	

<u>PART TWO: Vocabulary Learning Strategy Questionnaire</u>

Please note that,

Please note when responding to this questionnaire that there are no right or wrong answers, since students differ in their vocabulary learning habits and how useful they find them. The aim of the questionnaire is to discover the extent to which you use vocabulary learning strategies and how useful you find them to be. In other words, I would really like to know what you actually do when you use vocabulary learning strategies, not what you should do or want to do. I also want to know how useful the vocabulary learning strategies are to you. If an item does not apply to you, please circle

the word **never (0%),** and if it is not effective please circle the word **not useful (0%)**. If an item is used by you, please specify how much it is used by circling one of the words **rarely (around 25%)**, **sometimes (around 50%)**, **often (around 75%)** or **always (100%)**. In addition, if an item is useful to you, please specify how much it is useful to you by circling one of the words **quite useful (around 25%), useful (around 50%), very useful (around 75%)** or **extremely useful (100%)**. Please read all the possible FIVE choices in each item before you circle only ONE choice that best applies to you. You may write in Arabic when you would like to add your own view or comment.

- **Category one: Strategies dealing with discovering the meaning of new words:**

When I meet ones which teacher or textbook does not give the meaning of

VLSD1. Guessing strategies: I guess the meaning of the unknown word by					
1. Saying the word aloud several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
2. Checking if it is similar to Arabic in sound (e.g. shy in English and /shai/ in Arabic "tea")	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
3. Analyzing the structure of the word (e.g. prefixes, suffixes; **mis**understanding. And compounds: sunflower etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
4. Analyzing the word part of speech (e.g. verb, noun, adjective...etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
5. Paying attention to pictures if they accompany the word or text.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
6. Reading the sentence or paragraph containing the unknown word.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
	(1) Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD2. Asking Others:					
I request help from (colleagues, friend, teacher, relative, language competent or native speaker) regarding an unknown lexical item by Asking them about					
7. Its equivalent Arabic meaning.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
8. Its definition in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
9. Its spelling or pronunciation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
10 An example sentence.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
11. Its grammatical category	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
12. Its synonym & antonym in English.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify …...	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
	(1) Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD3. Type of dictionary used to check the meaning of unknown words:					
13. In a paper English-Arabic Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
14. In a paper English-English Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

	(1)	(2)	(3)	(4)	(5)
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
15 In an Electronic Dictionary	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
16. On the internet (i.e. on-line dictionaries)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
17. On the mobile/computer.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Other, please specify………………………………..……	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
……………………….…………………… ……………..……………………………..…	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD4. Using Dictionary: I look up the unknown word by using Dictionary and check					
18. Its Arabic meaning	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
19. Its spelling	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
20. Its part of speech (i.e. verb, adjective, noun, ..etc)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
21. It is English meaning	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
22. Its synonym or antonym.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

23. Looking for example sentences.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
24. Its stem. (e.g. **actor** has stem **act**) (**decision** has stem **decide**)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
	(1) Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

- **Category Two: Strategies dealing with vocabulary note taking**

VLSD5. When I take vocabulary notes, I write down the English word:					
25. Only with nothing else.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
26. With its Arabic translation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
27. I write down their English definition	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
28. I write down synonyms and antonyms beside new words	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
29. I write down example sentences using the new word	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
30. With its pronunciation in the form of transliteration, i.e. transcribing the English word into sounds using the Arabic alphabet. E.g. The word cat is transcribed as /كات/using transliteration.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always

How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
31. I write down the grammatical category of the word (e.g. noun, verb, adjective...etc).	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
32. With a note about the source I got it from. (e.g. unit, film, where I encountered it).	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
33. with other related words of the same family. E.g. The words *manager* and *management* belong to the family of the word *manage*	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
Others, please specify	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
....	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful

VLSD6. Location of vocabulary note taking: When I take vocabulary notes, I keep the notes:

	(1)	(2)	(3)	(4)	(5)
34. On the margins of my textbooks	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
35. On cards.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
36. In my (general) English notebook.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
37. In my pocket/personal notebook	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
38. On separate pieces of paper.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always

	(1)	(2)	(3)	(4)	(5)
How useful do you think this strategy is?	Not useful	Quite useful	Useful	Very useful	Extremely useful
39. In a computer file or other electronic device.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
40. On wall charts, posters or small pieces of paper I stick somewhere at home.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
Others, please specify	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
....	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful

VLSD7. Ways of organizing words noted When I take vocabulary notes: I organize (list) the words for note taking:					
41. By units or lessons of the textbook	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
42. In alphabetical order.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
43. In a random order.	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
44. By their grammatical category (e.g. noun, verb, adjective etc.)	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
45. By their meaning groups (e.g. animals, fruits, food, colors,etc)	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
46. According to their difficulty (e.g. from easiest to most difficult).	(1) Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Always
How useful do you think this strategy is?	(1) Not useful	(2) Quite useful	(3) Useful	(4) Very useful	(5) Extremely useful
47. I organize words in families with	(1)	(2)	(3)	(4)	(5)

the same stem. (e.g. I put together decide, decision, decisive, indecisive...etc.).	Never	Rarely	Sometimes	Often	Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD8. Reasons (Criteria) for selecting words: I select a word for note-taking if I see that					
48. The word is unknown and thus new to me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
49. The word is important in that it recurs frequently in the text where I met it.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
50. The word is important in that I realize it is a highly frequent word in English	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
51. The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
52. The word is important in that it is a key word in the text where I met it.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
53. The word is important in that the teacher said so.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
54. The word is important in that it is needed when speaking or writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
55. The word is useful to me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
	(1)	**(2)**	**(3)**	**(4)**	**(5)**

How useful do you think this strategy is?	Not useful	Quite useful	Useful	Very useful	Extremely useful
56. The word is difficult for me.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

- **Category Three: Strategies for Retention and Memorization**

VLSD9. Ways I do repetition to remember words:					
57. I say the word aloud several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
58. I repeat the word silently several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
59. I write the word several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
60. I listen to the word several times	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD10. Information I handle repeatedly; When I do repetition I					
61. Say the word and its Arabic translation.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
62. Only repeat the English word with nothing else.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

63. Repeat example sentences several times.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
64. Repeat the word and its English definition.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD11. Associations I make to help me retain new words					
65. I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
66. I relate the new word to synonyms or antonyms in English (e.g. good & bad, specific & particular).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
67. I associate the new word with a word in Arabic similar in sound (e.g. chock /shoak/- "thorn ", fine/ fine "tissue)	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
68. I use the keyword method (e.g. if I want to memorize the English word 'fine' I may think of an Arabic word that sounds the similar like /f^in/ which means 'tissue' then I create a mental image of a person who uses tissue and looks fine).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
69. I relate new words to words that usually follow each other in speech or writing (e.g. make a mistake, commit a crime).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
70. I associate the new word with a physical action that I do or imagine.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not	**(2)** Quite	**(3)** Useful	**(4)** Very	**(5)** Extremely

	useful	useful		useful	useful
71. I break up the new word according to its syllables or structure (e.g. prefixes **Un**educated, suffixes educat**or**, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

VLSD12. Practising or other means of consolidating new words:					
72. I look for opportunities to encounter new words in English (reading magazines, watching T.V, using internet, etc.).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
73. I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
74. I practise saying things in English by myself.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
75. I use as many new words as possible in speaking or in writing.	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
How useful do you think this strategy is?	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful
Others, please specify	**(1)** Never	**(2)** Rarely	**(3)** Sometimes	**(4)** Often	**(5)** Always
....	**(1)** Not useful	**(2)** Quite useful	**(3)** Useful	**(4)** Very useful	**(5)** Extremely useful

Many thanks for your time!

Appendix F

Vocabulary Learning Strategy Questionnaire (Main Study-Arabic version)

استبيان عن طرق استخدام استراتيجيات تعلم مفردات اللغة الإنجليزية

عزيزي الطالب/الطالبة،

هذا الإستبيان يتعلق بإستراتيجيات طرق تعلم مفردات اللغة الإنجليزية، وصمم لغرض جمع البيانات لبحثي المقدم لدرجة الدكتوراه. علماً أن محتويات هذا الإستبيان بعد تفضلكم بتعبئته سوف تستخدم لغرض الدراسة المذكورة أعلاه فقط، وسوف تظل محتوياته مجهولة المصدر. فلذلك هذا الإستبيان الذي أمامك ليس اختبار، وبالتالي لا يوجد إجابة صحيحة أو خاطئة أو جديدة أو سيئة لكل طريقه،فالرجاء الإجابة بكل صدق ودقه متناهيه فإجابتك لن يكون لها أي أثر على حالتك الأكاديمية أو تقييمك في دراستك الجامعية بتاتاً. هذا وأقدر لكم كثيرا تعاونكم في ملء هذا الإستبيان.

يحتوي هذا الإستبيان على جزئين:

الجزء الأول: معلومات شخصية

الجزء الثاني: استراتيجيات تعلم مفردات اللغة الانجليزية (**ثلاثة أقسام**)

الجزء الاول: معلومات شخصية

		الاسم
(2) حاسب آلي	(1) انجليزي	التخصص
....		السنة الدراسية
....		الرقم الأكاديمي
(2) طالبة	(1) طالب	الجنس
....		العمر

الجزء الثاني: استراتيجيات تعلم مفردات اللغة الانجليزية

أرجو منك عزيزي الطالب/الطالبة قراءة هذه التعليمات بعناية تامة:

4- مرة أخرى، إن الإستبيان الذي أمامك ليس إختبار، وبالتالي لا يوجد إجابة صحيحة أو خاطئة أو جديدة أو سيئة لكل طريقه فالرجاء الإجابة بكل صدق ودقه متناهيه فإجابتك لن يكون لها أي أثر على حالتك الأكاديمية أو تقييمك في دراستك الجامعية.

5- الرجاء إختيار الطريقة التي تقوم بإستخدامها فعلاً من الإختيارات المتاحه في تعلمك مفردات اللغة الانجليزية وليس ما تعتقده أو ترى أنها هي المناسبة أو ترى أنه يجب عليك فعلها لأن الطلاب يختلفون في إستخدام الإستراتيجيات المناسبة لهم في تعلم الكلمات، بعبارة اخرى أنا حقاً أود أن أتعرف هنا على ما تقوم بعمله في تعلم الكلمات. ايضا أرجو منك أن تحدد فعالية كل استراتيجية حسب ماتراه مناسبا لك

6- إذا كانت فقرة من الفقرات لا تنطبق عليك، يرجى وضع دائرة حول الخيار لا أستخدمها أبدا **(0)** ٪ ، أما إذا كانت الفقرة تنطبق عليك، يرجى تحديد مدى انطباقها عليك بوضع دائرة حول إحدى الكلمات؛ أستخدمها نادرا حوالي

(25) % ، أستخدمها أحيانا حوالي (50) % ، أستخدمها كثيرا حوالي (75) % ، أستخدمها دائما (100) % . ينطبق ذلك ايضا على تقييمك لمدى فعالية الاستراتيجيات بالنسبة لك، فاذا كانت الفقرة لا تعتبر فعالة لديك، يرجى وضع دائرة حول الخيار غير مفيدة (0)%، اما اذا كانت فعاله، فيرجى تحديد مدى فعاليتها لديك بوضع دائرة حول إحدى الكلمات؛ مفيدة بشكل محدود (25)%، مفيدة (50)%، مفيدة جدا (75)%، مفيدة بشكل مطلق (100)%. الرجاء قراءة جميع الخيارات الخمس أمام كل عبارة قبل وضعك لدائرة حول الخيار الوحيد الذي ينطبق عليك.

- **القسم الأول: استراتيجيات التعامل مع الكلمات الجديدة**

عندما أصادف كلمات لم يقم المدرس أو الكتاب بشرحها أو أعطاء معناها فإنني:

	(1)	(2)	(3)	(4)	(5)
(البعد الأول) استراتيجيات التخمين: أقوم بتخمين معاني الكلمات الجديدة عن طريق					
1. نطقها بصوت مرتفع عدة مرات	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
2. أخمن المعنى عن طريق ربطها بكلمة في اللغة العربية مشابه لها في الصوت مثلا shy بمعني خجول نربطها ب شاي /shai/ بالعربي (شاهي)	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
3. أعرف المعنى عن طريق تحليل أو تقسيم الكلمة كاللواحق مثل **mis** understanding و التراكيب مثلsun-flower	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
4. أخمن المعنى عن طريق معرفة فئتها النحوية (اسم، فعل، صفة،، الخ)	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
5. النظر الى الصور المصاحبة للكلمة أو النص.	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
6. قراءة الجملة أو الفقرة التي تحتوي عليها الكلمة الجديدة	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
أخرى، أرجو ذكرها مع التقييم	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً

(5)	(4)	(3)	(2)	(1)	
مفيدة بشكل مطلق	مفيد جداً	مفيدة	مفيدة بشكل بحدود	غير مفيدة	....

					(البعد الثاني) طلب المساعدة: عندما أواجه كلمة جديدة أستعين بالمعلم، الزميل، الصديق، أحد الأقارب أو المتمكن من اللغة، وأساله عن الآتي
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	7. اسأل عن معنى الكلمة الجديدة باللغة العربية
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	8. اسأل عن معنى الكلمة باللغة الإنجليزية
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	9. اسأل عن نطق الكلمة الجديدة أو تهجئتها
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	10. اسأل عن مثال على الكلمة الجديدة في جملة مفيدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	11. اسأل عن فئتها النحوية (اسم ،فعل، صفة الخ...)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	12. اسأل عن مرادف او عكس الكلمة الجديدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

(البعد الثالث) أنواع القواميس المستخدمة للبحث عن الكلمة الجديدة: أبحث عن الكلمة الجديدة في					
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	13. قاموس ورقي (انجليزي-عربي)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	14. قاموس ورقي (انجليزي-انجليزي)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	15. قاموس إلكتروني محمول
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	16. قاموس على الإنترنت
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	17. قاموس على الجوال/الكمبيوتر
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

(البعد الرابع) عندما أستعمل أحد القواميس أعلاه أبحث عن:					
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	18. عن معنى الكلمة الجديدة بالعربي
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	19. عن إملاء الكلمة الجديدة (كيف تكتب)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	20. عن نوع الكلمة (اسم، صفة، فعل ,الخ)

(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	21. عن معنى الكلمة الجديدة بالإنجليزي
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	22. عن مرادف أو عكس الكلمة الجديدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	23. عن جمل أو أمثلة تستخدم فيها الكلمة الجديدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	24. عن جذر الكلمة فمثلا كلمتي mentmanage و manager تنتميان إلى عائلة كلمة **manage**
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

• **القسم الثاني: الإستراتيجيات المستخدمة في تدوين أو كتابة الكلمات الجديدة.**

					(البعد الخامس) نوعية المعلومات التى يتم تدوينها /كتابتها مع الكلمات الجديدة: عندما أدون/أكتب كلمات ومعلومات عن هذه الكلمات الجديدة، أقوم بكتابة الكلمة الانجليزية:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	25. فقط ولا شي غير ذلك
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	26. مع ترجمتها العربية
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	27. مع شرح معناها بالإنجليزية

	(1)	(2)	(3)	(4)	(5)
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
28. مع مرادفها أو عكسها	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
29. أكتب جملة أو أمثلة لإستخدامات الكلمة الجديدة	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
30. مع نطقها باستخدام النقل الأبجدي أي تحويل الكلمة الانجليزية الى أصوات باستخدام الأبجدية العربية. على سبيل المثال كلمة cat تكتب صوتيا كالتالي بالعربي /كات/ باستخدام النقل الأبجدي.	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
31. أكتب الكلمة الإنجليزية مع نوعها أو فئتها النحوية (اسم، فعل، صفة،...الخ)	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
32. أكتب النص والموقع الذي يمكن استخدام الكلمة الجديدة فيه	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
33. أدون الكلمات الأخرى ذات الصلة من نفس العائلة. على سبيل المثال كلمتي management و manager تنتميان إلى عائلة كلمة manage.	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
أخرى، أرجو ذكرها مع التقييم	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق

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(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	34. على هوامش كتبي الدراسية.
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	35. على بطاقات
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	36. في دفتر اللغة الانجليزية العام
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	37. في دفتري الشخصي
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	38. على أوراق منفصلة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	39. في ملف على الحاسوب أو غيرها من الأجهزة الإلكترونية كالجوال
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	40. على ملصقات وجداول حائطية أقوم بلصقها في مكان ما داخل المنزل.
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

	(5)	(4)	(3)	(2)	(1)	(البعد السابع) طرق ترتيب وتنظيم الكلمات المدونة : عندما أدون كلمات ومعلومات عن هذه الكلمات، أرتب الكلمات التى أدونها :
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	41. حسب ترتيب الوحدات أو الدروس الواردة في الكتاب المدرسي.
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	42. حسب الترتيب الأبجدي
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	43. أكتب الكلمات بطريقة عشوائية
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	44. حسب الفئة النحوية مثل أسماء،، أفعال، صفات... الخ
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) ستخدمها نادراً	(1) لا أستخدمها أبداً	45. حسب فئة المعنى المنتمية إليها مثل حيوانات، فواكه، أغذية، ألوان...االخ.
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) ستخدمها أحياناً	(2) ستخدمها نادراً	(1) لا أستخدمها أبداً	46. وفقا لصعوبتها، مثلا من الأسهل إلي الأصعب
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) ستخدمها أحياناً	(2) ستخدمها نادراً	(1) لا أستخدمها أبداً	47. انظمها بوضع الكلمات ذو الجذر/العائلة الواحدة في جدول او قسم معين مثلا اجمع هذة الكلمات(decide, decision, decisive, indecisive)
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
	(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) ستخدمها أحياناً	(2) ستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
	(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
(البعد الثامن) سبب اختيارك للكلمات: أقوم بإختيار كلمة ما لتدوينها إذا رأيت أن :					
48. الكلمة غير معروفة وبالتالي جديدة بالنسبة لي.	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
49. الكلمة مهمة حيث أنها تكررت كثيرا في النص الذي رأيتها فيه	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
50. الكلمة مهمة لأني أدرك أنها كلمة كثيرة التكرار في اللغة الانجليزية.	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
51. الكلمة مهمة لأني أدرك أن الكلمة المرادفة لها بالعربية كلمة كثيرة التكرار في اللغة العربية	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
52. الكلمة مهمة حيث أنها كلمة أساسية في النص الذي رايتها فيها	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
53. الكلمة مهمة حيث أن المعلم قال ذلك	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
54. الكلمة مهمة حيث انها ضرورية عند الحديث او الكتابة	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
55. الكلمة مفيدة بالنسبة لي	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق
56. الكلمة صعبة بالنسبة لي	(1) لا أستخدمها أبداً	(2) أستخدمها نادراً	(3) أستخدمها أحياناً	(4) أستخدمها كثيراً	(5) أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	(1) غير مفيدة	(2) مفيدة بشكل بحدود	(3) مفيدة	(4) مفيد جداً	(5) مفيدة بشكل مطلق

(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

● القسم الثالث والأخير: طرق تذكر الكلمات وحفظ الكلمات

(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	(البعد التاسع) طرق حفظ الكلمات بواسطة التكرار:عندما أريد حفظ الكلمة الجديدة فأنني أكرر
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	57
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	58.أكرر الكلمة في بالي عدة مرات
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	59. أكرر كتابة الكلمة عدة مرات
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	60.أستمع إلى الكلمة عدة مرات
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	(البعد العاشر) المعلومات التي اكررها هي:
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	61. أكرر نطق الكلمة ومعناها بالعربي
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	62. اكرر الكلمة الانجليزية بمفردها

البيان	(1)	(2)	(3)	(4)	(5)
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
63. أكرر نطق الأمثلة التي فيها الكلمة الجديدة عدة مرات	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
64. أكرر الكلمة الانجليزية الجديدة وشرحها بالانجليزي	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
أخرى، أرجو ذكرها مع التقييم	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق

(البعد الحادي عشر) طرق حفظ الكلمات بواسطة الربط:

البيان	(1)	(2)	(3)	(4)	(5)
65. أربط الكلمة الجديدة بكلمات إنجليزية أخرى سواء بالنطق أو الإملاء مثل (week - weak)	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
66. أربط الكلمة الجديدة بمرادفاتها او عكسها في اللغة مثل العكس (Good & Bad) والمرادف (good & nice)	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
67. ربطها بكلمة في اللغة العربية مشابه لها في الصوت فقط مثلا fine بمعنى بخير نربطها ب فاين بالعربي (منديل)	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق
68. أستخدم أسلوب ربط الكلمة بالصوت والصورة معا فمثلا كلمة "fine" تعني بخير بالعربية ولكي أحفظها أقوم بربطها صوتيا بالعربي ك"فاين" بمعني منديل، ثم ارسم صورة ذهنية بأن شخصا يستخدم منديل ويبدو fine أي بخير.	لا أستخدمها أبداً	أستخدمها نادراً	أستخدمها أحياناً	أستخدمها كثيراً	أستخدمها دائماً
مامدى تقييمك لهذه الإستراتيجية؟	غير مفيدة	مفيدة بشكل بحدود	مفيدة	مفيد جداً	مفيدة بشكل مطلق

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(5)	(4)	(3)	(2)	(1)	
أستخدمها دائماً	أستخدمها كثيراً	أستخدمها أحياناً	أستخدمها نادراً	لا أستخدمها أبداً	69. أربط الكلمات الجديدة بالكلمات التي تتبع بعضها عادةً في الكتابة او الحديث مثل (Make a mistake) (Commit a crime)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	70. أربط الكلمة الجديدة بحركة جسدية أفعلها او أتخيلها.
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	71. أفكر في تركيب الكلمة مثلا Uneducated او Educate
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

					(البعد الاخير) طرق وممارسة استخدام الكلمة لتعزيز أو تثبيت حفظها في الذاكرة
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	72. أحاول إيجاد فرص لمقابلة الكلمات الجديدة مثل (قراءة الصحف او الاستماع للراديو او الافلام)
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	73. أختبر نفسي أواطلب من شخص أخر اختباري في الكلمات الجديدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	74. أمارس التحدث مع نفسي مستخدماً الكلمات الجديدة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟
(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	75. استخدم أكبر عد ممكن من الكلمات الجديدة في الحديث أو الكتابة
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	مامدى تقييمك لهذه الإستراتيجية؟

(5) أستخدمها دائماً	(4) أستخدمها كثيراً	(3) أستخدمها أحياناً	(2) أستخدمها نادراً	(1) لا أستخدمها أبداً	أخرى، أرجو ذكرها مع التقييم ....
(5) مفيدة بشكل مطلق	(4) مفيد جداً	(3) مفيدة	(2) مفيدة بشكل بحدود	(1) غير مفيدة	....

شكرا جزيلاً لكم على تعاونكم فى ملء هذا الإستبيان

Appendix G

Interview Guide (English version)

Involvement

1. Hi. What is your name?

2. What is your major?

3. What year of study are you in?

4. I will ask you questions based on your answers from your questionnaire, OK?

Main Questions

Category one: Strategies dealing with discovering the meaning of new words

- **VLSD1: Guessing strategies**

1. Based on your answers in the questionnaire, why do you mostly use (e.g. chosen items in the questionnaire a, b, c)?
2. Based on your answers in the questionnaire, why not so much of (e.g. chosen items in the questionnaire d, e, f)?
3. Have you ever been encouraged or taught how to use guessing strategies?

- **VLSD2: Asking others**

4. Based on your answers in the questionnaire, why do you ask mostly for (e.g. chosen items in the questionnaire a, b, c)
5. Based on your answers in the questionnaire, why not so much for (e.g. chosen items in the questionnaire d, e, f)?

- **VLSD3: Type of Dictionary**

6. Based on your answers in the questionnaire, why do you mostly use this type of dictionary (e.g. chosen items in the questionnaire a, b, c)?
7. Based on your answers in the questionnaire, why not much of this type of dictionary (e.g. chosen items in the questionnaire d, e, f)?

- **VLSD4: Using dictionary**
  (I look up the unknown word by using Dictionary and check…)

8. Based on your answers in the questionnaire, why do you mostly look up these types of information (e.g. chosen items in the questionnaire a, b, c)?
9. Based on your answers in the questionnaire, why do not you look up much of these types of information (e.g. chosen items in the questionnaire d, e, f)?

10. Have you ever been encouraged to use a dictionary?

Category Two: Strategies dealing with vocabulary note taking

- **VLSD5: Types of information noted**

11. Based on your answers in the questionnaire, why do you mostly take notes of (e.g. chosen items in the questionnaire a, b, c)?
12. Based on your answers in the questionnaire, why not much of these notes (e.g. chosen items in the questionnaire d, e, f)?

- **VLSD6: Location of vocabulary note taking**

13. Based on your answers in the questionnaire, why do you mostly keep notes of English new words in (e.g. chosen items in the questionnaire a, b, c)
14. Based on your answers in the questionnaire, why not much in (e.g. chosen items in the questionnaire d, e, f)?

- **VLSD7: Ways of organizing words noted:**

15. Based on your answers in the questionnaire, why do you mostly organize these notes about new words in (e.g. chosen items in the questionnaire a, b, c)
16. Based on your answers in the questionnaire, why not much of (e.g. chosen items in the questionnaire d, e, f)?

- **VLSD8: Reasons (Criteria) for selecting words**

17. Based on your answers in the questionnaire, why is this criterion (chosen reasons from the questionnaire) is important to you?
18. Have you ever been encouraged or taught how to use note-taking strategies?

Category Three: Strategies for Retention and Memorization

- **VLSD9: Ways of repetition to remember words**

19. Based on your answers in the questionnaire, why do you mostly do repetition in form of (e.g. chosen items in the questionnaire a, b, c)
20. Based on your answers in the questionnaire, why not so much of (e.g. chosen items in the questionnaire d, e, f)

- **VLSD10: Information handled repeatedly**

21. Based on your answers in the questionnaire, why do you mostly repeat English word and its (e.g. chosen items in the questionnaire a, b, c)?
22. Based on your answers in the questionnaire, why not so much of (e.g. chosen items in the questionnaire d, e, f)

- **VLSD11: Association**

23. Based on your answers in the questionnaire, why do you use (e.g. chosen items in the questionnaire a, b, c) types of associations?
24. Based on your answers in the questionnaire, why not so much of (e.g. chosen

items in the questionnaire d, e, f)?

- **VLSD12: Practising or other means of consolidating new words:**

25. Based on your answers in the questionnaire, why do you mostly practise a new word by (e.g. chosen items in the questionnaire a, b, c)
26. Based on your answers in the questionnaire, why not much of (e.g. chosen items in the questionnaire d, e, f)?
27. Have you ever been taught or encouraged how to memorize new words?

Appendix H

Interview Guide (Arabic version)

أسئلة المقابلة عن أسباب استخدام استراتيجيات تعلم مفردات اللغة الإنجليزية

- **الأسئلة الاستفتاحية**

1. مرحباً، ما اسمك؟
2. ما هو تخصصك الأكاديمي؟
3. في أي سنة دراسية؟
4. سوف أسألك أسئلة بناء على إجاباتك من الاستبيان الخاص بك، هل أنت موافق؟

- **الأسئلة الرئيسية**

- **الفئة الأولى: استراتيجيات التعامل واكتشاف معنى الكلمات الجديدة**

أ. استراتيجيات التخمين (VLSD1):

1. بناءً إلى إجاباتك في الاستبيان، لماذا تستخدم في الغالب (العناصر المختارة في الاستبيان أ، ب، ج)؟
2. بناءً على إجاباتك في الاستبيان، لماذا لا يكون الكثير من (العناصر المختارة في الاستبيان د، هـ، و)؟
3. هل سبق أن تم تشجيعك أو تم تدريبك على كيفية استخدام استراتيجيات التخمين؟

ب. استراتيجيات سؤال الاخرين (VLSD2):

4. بناءً على إجاباتك في الاستبيان، لماذا تسأل في الغالب عن (العناصر المختارة في الاستبيان أ، ب، ج)
5. بناءً على إجاباتك في الاستبيان، لماذا لا يكون ذلك كثيراً عن (العناصر المختارة في الاستبيان د، هـ، و)؟

ج. نوع القاموس المستخدم (VLSD3):

6. بناءً على إجاباتك في الاستبيان، لماذا تستخدم في الغالب هذا النوع من القاموس (العناصر المختارة في الاستبيان أ، ب، ج)؟
7. بناءً على إجاباتك في الاستبيان، لماذا لا يكون الكثير من هذا النوع من القاموس (العناصر المختارة في الاستبيان د، هـ، و)؟

د. استخدام القاموس (VLSD4)
(أنا أبحث عن كلمة مجهولة باستخدام القاموس والتحقق عن ...)

8. بناءً على إجاباتك في الاستبيان، لماذا تبحث في الغالب عن هذه الأنواع من المعلومات (العناصر المختارة في الاستبيان أ، ب، ج)؟
9. بناءً على إجاباتك في الاستبيان، لماذا لا تبحث عن الكثير من هذه الأنواع من المعلومات (العناصر المختارة في الاستبيان د، هـ، و)؟
10. هل سبق لك أن تم تشجيعك على استخدام القاموس؟

- **الفئة الثانية: استراتيجيات التعامل مع تدوين المفردات:**

هـ. نوعية المعلومات المدونة (VLSD5):

11. بناءً على إجاباتك في الاستبيان، لماذا غالبا تدون معلومات عن (العناصر المختارة في الاستبيان أ، ب، ج)؟

12. بناءً على إجاباتك في الاستبيان، لماذا لا يكون الكثير من (العناصر المختارة في الاستبيان د، هـ، و)؟

و. موقع تدوين الكلمات (VLSD6):

13. بناءً على إجاباتك في الاستبيان، لماذا تدون الكلمات في الغالب (العناصر المختارة في الاستبيان أ، ب، ج)؟
14. بناءً على إجاباتك في الاستبيان، لماذا لا يكون في (العناصر المختارة في الاستبيان د، هـ، و)؟

ز. طرق تنظيم الكلمات المدونة (VLSD7):

15. بناءً على إجاباتك في الاستبيان، لماذا تنظم هذه الكلمات المدونة غالبا في (العناصر المختارة في الاستبيان أ، ب، ج)؟
16. بناءً على إجاباتك في الاستبيان، لماذا لا يكون في (العناصر المختارة في الاستبيان د، هـ، و)؟

ح. أسباب اختيار الكلمات للتدوين (VLSD8):

17. بناءً على إجاباتك في الاستبيان، لماذا يعتبر هذا السبب (الأسباب المختارة من الاستبيان) مهماً بالنسبة لك؟
18. هل سبق أن تم تشجيعك على كيفية استخدام استراتيجيات تدوين الملاحظات؟

● الفئة الثالثة: استراتيجيات الحفظ والتذكر:

ط. طرق حفظ الكلمات بواسطة التكرار (VLSD9):

19. بناءً على إجاباتك في الاستبيان، لماذا في الغالب عند حفظك للكلمات تكرر (العناصر المختارة في الاستبيان أ، ب، ج)؟
20. بناءً على إجاباتك في الاستبيان، لماذا لا تستخدم كثيراً (العناصر المختارة في الاستبيان د، هـ، و)؟

ي. المعلومات المستخدمة مع التكرار (VLSD10):

21. بناءً على إجاباتك في الاستبيان، لماذا تكرر في الغالب الكلمة الإنجليزية و (العناصر المختارة في الاستبيان أ، ب، ج)؟
22. بناءً على إجاباتك في الاستبيان، لماذا لا تكرر في الغالب الكلمة الإنجليزية و (العناصر المختارة في الاستبيان د، هـ، و)؟

ك. استراتيجيات الربط (VLSD11):

23. بناءً على إجاباتك في الاستبيان، لماذا تستخدم كثيرا (العناصر المختارة في الاستبيان أ، ب، ج)؟
24. بناءً على إجاباتك في الاستبيان، لماذا لا يكون الكثير من (العناصر المختارة في الاستبيان د، هـ، و)؟

ل. طرق تعزيز الحفظ والتدرب على الكلمات الجديدة (VLSD12):

25. بناءً على إجاباتك في الاستبيان، لماذا تمارس في (العناصر المختارة في الاستبيان أ، ب، ج)؟
26. بناءً على إجاباتك في الاستبيان، لماذا لا يكون الكثير (العناصر المختارة في الاستبيان د، هـ، و)؟
27. هل سبق لك أن تم تدريس أو تشجيعك على كيفية حفظ الكلمات الجديدة؟

Appendix I

A Sample Interview Transcript
(E.F.P5)

R: Hi, how are you?
S: I am fine, thank you, how are you?
R: I am great.
R: Can you tell me your name please?
S: Yes, my name is (H).
R: What is your major (H)?
S: It is English
R: What level of study are you in?
S: I am in year three.
R; OK (H), were the questionnaires clear to you?
S: Yes, they were.
R: Is it a good time for us to go over the questionnaires now?
S: Yes, sure.
R: I will ask you questions based on your questionnaire responses, is this OK?
S: Yes.
R: Based on your answers given on the questionnaire, why do you rarely guess the meaning of the new words by saying the word aloud several times?
S: Well, "I rarely raise my voice to guess the meaning but I always say the words silently and try to guess their meaning."
R: Good, do you have any other reasons?
S: No.
R: OK, I noticed that you also never use guessing the meaning of a new word by checking if it is similar in sound to an Arabic one; why is that?
S: Yes, "It is not really an effective strategy for me."
R: Thank you (H) for your answer, can you think of any other reasons please?
S: No, sorry.
R: That is fine.
R: OK, let us move on to the next strategy, you say that you sometimes guess the meaning of the new words by analysing the structure of the word; why is that?
S: Yes "it helps me to guess the meaning of the word and memorise the word."
R: OK, so affixes are helpful when attached to new words?
S: Yes they are.
R: OK, I see that you sometimes use guessing the word by analysing its part of speech, can I know why please?
S: Sure, "I use this helpful strategy because using it makes guessing the meaning of new words easy for me"
R: Good, what else please?
S: I have only this, sorry.
R: OK, you said that you often use these two strategies when guessing new words - which are, paying attention to pictures as well as reading the sentence or paragraph containing the new word; why is that?
S: Yes, all of these are useful.
R: OK, let us talk why you use them in more details please?
S: Sure, well "it is important to have pictures because I can make connections between the words and the pictures in order to help me to guess the meanings of the new words."

Similarly, " Reading is an essential and important strategy for me because I can build up more vocabulary and I can guess the new word's meaning more easily."

R: Can you think of any other strategies that differ from the ones above?

S: No, I am sorry.

R: Have you been taught or encouraged to guess the meaning of new words in any way?

S: No, I do not remember.

R: OK, let us now move on to the next subcategory which is asking strategies, I noticed that you always ask about a new words' Arabic meaning; why is that?

S: Well, "I do ask about the word's meaning in Arabic because there are English words that have different meanings; I thus need to know their different meanings in my native language in order to not to become confused about their different uses later."

R: What about the new word's definition in English, I noticed that you sometimes ask for this; why is that?

S: "I use this strategy to expand my vocabulary."

R: OK, I noticed that you sometimes ask about the word's spelling or pronunciation; why is that?

S: "I ask about the pronunciation because there are words I do not know how to write or pronounce, although I know their meaning."

R: Good, you said that you never ask for examples using the word; why is that?

S: "I do not use this strategy frequently if the words are slang."

R: You said that you sometimes ask about the word's grammatical category; why is that?

S: Yes, "Sometimes I can guess the meaning of the new words by knowing their grammar category."

R: OK, you said that you often ask about the word's synonyms or antonyms in English; why is that?

S: "I have to know the word's synonyms and antonyms because I am examined on vocabulary in my subject."

R: Do you have any thing to say please?

S: No. Thank you.

R: OK, moving on to the dictionary category. I can see that you never use a paper English Arabic dictionary, why is that?

S: "It takes me time to find the word so I use the electronic one which is faster."

R: OK, you also said that you sometimes use a paper English-English dictionary; why is that?

S: "I use it because the English definition is better and more authentic than the Arabic translation."

R: I can see that you always use an electronic dictionary; why is that?

S: "The electronic dictionary is the best option for me because I can check the pronunciation of any word unlike with a print one."

R: OK, why do you often use online dictionaries?

S: Well, because "I can find anything I need online."

R: OK, I can see that you always use your smartphone dictionary to check the meaning of new words; why is that?

S: "The Oxford Dictionary has lots of information and I can look for anything I want on my smartphone."

R: OK, let us move on to the next subcategory, I note that you often look for the meaning of new words in Arabic; why is that?

S: Yes, "Some words can only be understood via their meaning in Arabic."

R: OK, when you use a dictionary you always look for a word's spelling; why is that?

S: "I check the spelling because I need to retain the word in my mind."

R: It seems that you rarely look for a words' part of speech; why is that?

S: "It is important for me"
R: Why is it important please?
S: "Because I want to know how and when to use the new word."
R: You said that you rarely look for a word's English meaning; why is that?
S: Yes, "because I want to build up my lexicon."
R: OK, it seems that you sometimes look for the word's synonyms and antonyms; why is that?
S: "To improve my language proficiency."
R: OK, I can see that you often look for an example of a word; why is that?
S: "To build up my vocabulary knowledge."
R: OK, it can be seen that you sometimes look for the word's stem; can you give reasons for this please?
S: Yes, because I "to know the new word's meaning"
R: Ok, have you ever been encouraged to use a dictionary?
S: Yes.
R: Let us move to the next subcategory, which is note-taking strategies.
R: Based on your questionnaire answers, you never take notes about new words with nothing else, why is that?
S: "Because if I did not write any information about the new word I waste my time because I might forget its meaning and then check about it again, so I write its L1 meaning for example."
R: Based on your questionnaire answers, you often take notes about new a word with its Arabic meaning, why is that?
S: "It facilitates the retention of its meaning in Arabic."
R: It seems that you sometimes write down its English meaning; why is that?
S: "I sometimes do that because it is more authentic."
R: Based on your answers on the questionnaire, I can see that you sometimes write down a new word with its synonyms and antonyms; why is that?
S: Yes, " because I want to improve my vocabulary"
R: Ok, you sometimes write down examples using the word; why is that?
S: "It helps me in terms of retention."
R: OK, you never write down the new word with its pronunciation in the form of transliteration; why is that?
S: "I use English phonetics instead."
R: Ok, you sometimes write down new words with their grammatical category; why is that?
S: "It illustrates the meaning."
R: How please?
S: "It makes it easier for me to know the meaning of the word next time I see it."
R: It can be observed you never write down the new word with the source that you got it from; why is that?
S: "It is not necessary."
R: Why?
S: I do not know I feel it is not going to help me a lot.
R: OK, why do you sometimes note down new words with related words from the same family?
S: "This strategy helps me to retain the new words more easily."
R: How please?
S: "I can memorise all new words and their related family. This method also helps me to expand my vocabulary."
R: OK, let us move on to the location of vocabulary note taking strategies.
R: I can see that you sometimes choose to write down new words in the margins of your textbooks, why is that?

S: "Because sometimes I need to know about its contextual uses therefore I note down any information about the new words close to where I came across it."

R: Based on you answers on the questionnaire, I can see that you never place your notes on cards, why is that?

S: "I prefer to write down any information in my personal notebook."

R: I can see that you always choose to write down new words in your English notebook, why is that?

S: "It is easier for me to have individual English notebooks for every course that I attend because it makes it easier for me to refer to them when needed."

R: I can see that you often choose to write down new words in your personal/pocket notebook; why is that?

S: It is useful because I can do whatever I want to do with my personal notebook compared to my class notebook.

R: I can see that you never place your notes on separate pieces of paper, why is that?

S: "Easy to lose, I think".

R: You rarely transfer your notes to your computer; why is that?

S: Well, it is risky, "If my computer were to break down I would lose all my data."

R: I can see that you never place your notes on wall charts, why is that?

S: I think, "it is easy to lose."

R: OK, let us move now to ways of organizing noted words

R: It seems that you never organise your words according to the units or lessons in the textbooks; why is that?

S: Yes, "it is not important or useful"

R: OK, I also noticed that you never organise new words according to their alphabetical order?

S: "It requires high mental processes so I do not use it."

R: what about organising the new words randomly, why do use always do this?

S: "It is not important to have systematic organisation so I use this strategy."

R: I also noticed that you never organise new words according to their grammatical category, why is that?

S: "Organising the word by their grammar category is time consuming."

R: OK, I also noticed that you never organise new words according to their meaning groups, why is that?

S: Yes, "I do not organise the words by their meaning groups, I have them in a random order instead."

R: I also noticed that you never organise new words according to their difficulty from easiest to the difficult, why is that?

S: "Because most of English words are easy to learn."

R: I also noticed that you sometimes organise new words according to their family stems, why is that?

S: "Because this strategy helps me to refer to the words more easily when they are needed, and I can build up more lexical items into my memory."

R: OK, moving on to the reasons for note-taking strategies, you often select a word if the word is unknown and thus new to you, why is that?

S: "Because I want to retain the meaning of the new words."

R: You always select the word if the word is important and recurs in the text frequently, why is that?

S: "Because it helps to know the meaning of the text."

R: You sometimes select a word if the word is high frequency in English; why is that?

S: "Because there are high frequency words that I can use in speaking and writing."

R: You sometimes select a word when the word is high frequency in Arabic; why is that?

S: "It is not useful"

R: You sometimes select a word if the word is a key word in the text; why is that?

S: "It is useful"

R: Why please?

S: "I can then understand the meaning of the context."

R: You often select a word if the teacher instructs you to do so; why is that?

S: "It may occur in the exams"

R: You often select the word if it is needed for speaking or writing; why is that?

S: "It helps me with my speaking"

R: I can see that you select the word if the word is useful to you, why?

S: "Because I can improve my spelling."

R: You sometimes select a word if the word is difficult for you; why is that?

S: "Since it is difficult then I need to know its meaning or to know how it is written or pronounced."

R: Any other reason you would like to add?

S: No.

R: Have you ever been encouraged or taught how to use note-taking strategies?

S: No, I do not remember.

R: OK, we are going to talk about the next subcategory (i.e. memorisation), which is about ways of repetition.

R: Why do you never say a word aloud several times?

S: " I feel shy to use raise my voice when someone is around me."

R: You sometimes repeat the word silently, why is that?

S: "I repeat the word silently several times because this way I can retain the new word efficiently."

R: You often write the new word down several times; why is that?

S" It is good strategy to memorise the new words."

R: You sometimes listen to the word several times; why is that?

S: "I use this strategy because it gives me the proper pronunciation of the new words."

R: Anything else?

S: No.

R: OK let us move to information used when you repeat, based on your answers, I can see that you rarely say a new word with its Arabic translation; why is that?

S: "I sometimes do not need this because I already know its meaning in Arabic."

R: You sometimes repeat the new word only with nothing else; why is that?

S: "Saying the word on its own saves time because it helps me to retain the word easily."

R: Ok, why do you sometimes repeat the new word with its examples several times?

S: "I use examples because they show the authenticity of the new words."

R: Why do you sometimes repeat the new word with its English meaning several times?

S: Again, "it is more authentic to use the definition in English."

R: OK let us move on to the association VLS section.

S: OK.

R: Based on your answers on the questionnaire, I can see that you sometimes relate new words to other English words that are similar in sound or spelling in order to retain them; why is that?

S: "Because this will help me to discriminate between words which are similar in sound and spelling."

R: OK, you sometimes relate new words to synonyms or antonyms in English, can I know why please?

S: "Because this way it makes the retention of the new word easier for me."

R: OK, I noticed that you never associate new words with words in Arabic that are similar in sound, and you rarely use the keyword method; why is that?

S: "It confuses me and it is not effective to relate Arabic to English; English should be learnt in English."

R: What about the keyword method?

S: "I have not tried this strategy before."

R: OK, you stated that you sometimes relate new words to the words that follow them in speech or writing; why is that?

S: "This method helps us to retain the new words that come together more easily."

R: OK, you never associate the new word with a physical action that you do or imagine; why is that?

S: "It is embarrassing to use this strategy."

R: OK I noticed that you sometimes break up new words according to their syllables or structure; why is that?

S: "It is easy for me to break up the words because I can retain the new words more easily."

R: Can you think of any other reasons different from the above ones?

S: No.

R: OK, let us move to the last subsection, which is about practising. I noticed from the answers that you always look for opportunities to encounter new words in English such as watching TV, why is that?

S: "I look for opportunities such as reading English news print as this improves my vocabulary."

R: I noticed from the answers that you sometimes quiz yourself or aske others to quiz you on new words, why is that?

S: "I use this way to discover any lexical weaknesses."

R: I noticed from the answers that you sometimes practise saying things in English by yourself, why is that?

S: "I practise saying things in English by myself because it is difficult to spend time with native speakers so I need to improve my speaking ability."

R: I noticed from the answers that you sometimes use as many new words as possible when speaking or writing; why is that?

S: "I use as many new words as possible in speaking or writing because this increases my vocabulary." Also, "It helps me to avoid spelling or pronunciation mistakes."

R: Do you have any other method of memorization that can help you to retain new words and can you describe it for me please?

S: No.

R: Ok have you ever been taught or encouraged how to memorize new words?

S: No.

R: OK, that is the end of the interview (H). I really appreciate your time.

S: Thank you.

Appendix J

Reasons of Vocabulary Learning Strategies Use

<u>VLSD1: Guessing strategies</u>

VLS	Themes/Coding	Interview Quotations	Participants coding
1. Guessing by saying the word aloud several time	**1.** Using other strategies	"I do not guess the words by saying them out loud but say the words silently and try to guess their meaning."	E.M.P4
		"I rarely raise my voice to guess the meaning but I always say the words silently and try to guess their meaning."	E.F.P5
	2. Psychological issues	"I feel shy when I try to guess the meaning of a word by saying it out loud."	CompS.F.P6
		" I feel embarrassed to do this"	CompS.M.P3
		" I feel really shy about using this strategy"	E.M.P3
		"I do not feel comfortable guessing the words by saying them out loud. It looks weird to me."	CompS.M.P2
	3. Health issues	"I do not guess the meaning of a word by saying it out loud because it causes me to cough."	E.F.P6
		"I have problems with my vocal cords so I do not use this strategy."	CompS.F.P5
		"I got a sore-throat when I used this strategy so I decided not to."	CompS.M.P1
	4. Used for another category (memorisation)	"I do not say the word out loud several times when I am trying to guess the meaning but I say the word silently when I want to retain it."	E.M.P1
		" In fact I prefer to use other strategies, such as focusing on pictures more."	CompS.M.P4
	5. Meaning confusions	"Because I want to focus on the words and why I say the word aloud, I sometimes get confused and I do not focus about the word."	E,M.P2

2. Guessing the meaning of a word by checking if it is similar to Arabic in sound	1. Not useful in lexical guessing.	"I do not try to guess the meaning of a word by checking if it sounds similar to Arabic because this strategy is not useful to me."	CompS.M.P1
		"It is not really an effective strategy for me."	E.F.P5
	2. Helpful	" It is a helpful strategy for me because I have sometimes been able to guess the meaning of the word by checking the if it is similar to Arabic in sound such as 'alcohol'."	CompS.F.P5
		"It is helpful for me, but most of the time I guess the meaning by paying attention to the pictures of the new words."	CompS.M.P4
	2. Lead to confusions	"It confuses me a lot because there is no link between Arabic and English; each language has its own system."	E.F.P6
	3. Does not give an accurate meaning	"I do not use this strategy because I might guess the meaning incorrectly."	E.M.P3
	4. Relationship between sounds of English and Arabic not sufficient.	"I rarely see any relationship between the sounds of Arabic and English and thus I do not use it."	E.M.P4
		"It only works in the case of a very few words; thus I never use this strategy."	E.M.P2
		"There is not much similarity between the Arabic and the English language in terms of sounds."	E.M.P1
	5. The two languages have completely different language systems	"Arabic and English have different language systems, and thus, I do not use this strategy."	CompS.M.P2
	6. Use another strategy	" I pay more attention to pictures."	CompS.M.P3
		" I read again and again in order to guess the meaning of the new word."	CompS.F.P6
3. Guessing the meaning of a word by analysing the	1. Helpful/effective strategy	"It helps me guess the meaning of the new words easily."	E.M.P2
		"It is really an effective	E.F.P6

structure of the word		strategy for me and it helps me to guess the meaning of new words."	
	2. Facilitate retention	"I use this strategy because when I guess the word by analysing its structure it facilitates its retention."	E.M.P1
		"It helps me to guess the meaning of the word and memorise the word."	E.F.P5
	3. Good knowledge of affixes	"It is easier for me to use this strategy because I know about prefixes and suffixes."	E.M.P3
		"Because knowing the word's prefix or the suffix that is attached to it facilitates the guessing process for me, thus I use it."	E.M.P4
	4. Not useful strategy	"I do not try to guess the meaning by using this strategy because it is not a useful strategy for me. I guess the meaning of words by reading the sentence several times."	CompS.M.P1
		"It does not help me to guess the meaning of new words because I do not know what the affixes mean."	CompS.M.P3
	5. Weak knowledge of affixes	"If I knew about affixes, I would probably use this strategy, but I do not know them."	CompS.M.P2
		"I have very little knowledge about prefixes and suffixes, thus I do not use this strategy."	CompS.M.P4
	6. Use of another strategy	"I do not use this strategy but I use other strategies such as guessing on the basis of the pictures."	CompS.F.P6
		"I prefer to try and guess the meaning of words by reading the sentence several times rather than using this strategy."	CompS.F.P5
4. Guessing the meaning of a word by analysing the word part of speech	**1.** Conditional use	"I use this strategy because sometimes I face a word preceded by [to] that suggests the word after it is a verb which then makes it easier for me to guess the meaning of	E.F.P6

		the word."	
	2. Not important strategy	"It is not important to me to know the grammatical category of the word; thus I do not use this strategy. I am more likely to try to guess the meaning by reading texts or using pictures."	CompS.F.P5
		" Not really necessary for me to use this strategy; in fact I would use the reading strategy more."	CompS.M.P1
	3. Important strategy	"It is important to know the grammar category of a word because knowing the category helps me to guess the meaning."	E.M.P4
		"It is really important to me to know the type word it is because it makes it easier for me to guess the meaning."	E.M.P3
		" I think if I knew the word's part of speech, whether noun, or verb, it would make it a lot easier to focus on that and then facilitate the guessing of the meaning."	E.M.P1
	4. Helpful strategy	"I use this helpful strategy because using it makes guessing the meaning of new words easy for me.	E.F.P5
		" Using this strategy is really helpful because it helps me learn the meaning of the new words in this way."	E.M.P2
	5. Not enough knowledge about grammar categories	"Because I have limited knowledge about grammar categories I rarely use this strategy."	CompS.M.P3
	6.Not helpful strategy	"Knowing the grammar category of the word is not enough for me so this strategy does not help me and I do not use it."	CompS.M.P4
	7. Limited source of information	"I do not use this strategy because it does not add more information about the meaning of a word."	CompS.F.P6
	8. Guess the category from its meaning in Arabic	"I do not need to know what part of speech the word is because I can learn this from its meaning in Arabic."	CompS.M.P2

5. Guessing the meaning of a word by paying attention to pictures if they accompany the word or text	1. Gives more details about the meaning	"I guess the meaning of a word by focusing on the picture because pictures give clues to the meaning of words."	CompS.M.P4
		"A picture is worth a thousand words, so it gives me more information about the new words."	CompS.M.P2
	2. Help for retention	"I guess the meaning of the new word from the picture because it is easy for me to remember the picture and thus retain the word."	E.M.P4
		"Pictures help me to guess the meaning of the new words."	E.M.P3.
	3. Attractive	"Because pictures attract me a lot and I can guess the meaning from pictures and retain the words too."	CompS.M.P3
	4. Important and useful	"It is important to have pictures because I can make connections between the words and the pictures in order to help me to guess the meanings of the new words."	E.F.P5
		" It is useful to have pictures with new words."	E.M.P1
		"For me it is useful to have pictures with the words because I find it easier and useful to have more information about the words from the pictures and thus guess the meaning of the new words. Therefore I use this strategy when there are pictures with the words."	CompS.F.P6
		"Pictures are really useful for learning words."	CompS.M.P1
	5. Facilitates the meaning of words	"I use this strategy because it facilitates my understanding of the meaning of the word."	CompS.F.P5
		"I often use this technique because pictures provide a clear meaning of the word."	E.F.P6
		" I think pictures hold lot of clues that could facilitate the meaning of the new words."	E.M.P2

6. Guessing the meaning of a word by reading the sentence or paragraph containing the unknown word.	**1.** More clues	"I often guess the meaning of a word by reading it in the context of a sentence or paragraph, because this provides information that helps me understand the meaning of the target word."	E.M.P4
		"Reading is helpful because we can unlock any new words."	E.F.P6
		"Because there are many clues that could help me to now the meaning of the new words."	CompS.M.P4
		"More reading, I think more clues and understanding the new words in the context."	E.M.P3
		"Because I will find more clues that indicate the meaning of the new words."	CompS.F.P6
		"Because I sometimes come across synonyms of the targeted words that can help me to guess the meaning of the new words."	E.M.P2
		"I use this strategy to guess the meaning of the new words because often there is a relationship between the targeted word and the context that surrounds the targeted words; thus I can guess the meaning."	E.M.P1
	2. For more clarifications	"I always use this strategy because the context helps clarify the meaning of the new word."	CompS.M.P2
	3. Other aims	"I use this strategy because I can often guess the meaning of the new word from the context and also I learn when and how the word is used."	CompS.M.P1
		" By reading the texts again and again I can easily unlock the meaning of the new words."	CompS.F.P5
	4. Important	" Reading is an essential and important strategy for me because I can build up more vocabulary and I can guess the new word's meaning more easily."	E.M.P5

		" It is important for me to read because reading the sentence or paragraph containing the unknown word makes guessing the meaning a lot more easier."	CompS.M.P3

VLSD2: Asking strategies

VLS	Themes/Coding	Interview Quotations	Participants coding
1. Asking teachers and friends about the words Arabic meaning	**1.** Understanding the meaning of L2	"I ask my teachers because they can explain the meaning of the new words more precisely."	CompS.M.P4
		"Because if I do not get the meaning of the word in Arabic, I might ask again for more clarification about its meaning, so I ask my teachers to give me the meaning in Arabic."	CompS.M.P2
	2. Technical terms	"I use this because we have technical terms and I have to know their meaning in my native language in order to understand the words."	CompS.M.P3
	3. Use the new words correctly	"Because I want to use the new word correctly and appropriately."	CompS.M.P1
	4. Insufficient vocabulary	"Well, I find it difficult to understand in L2 and it is really easier for me to understand the meaning in Arabic."	CompS.F.P6
	5. Time saving	"Knowing the meaning in Arabic is easy and quick."	CompS.F.P5
		"I get the meaning of the new words so quickly."	E.M.P1
	6. Different meanings of the new words	"I do ask about the word's meaning in Arabic because there are English words that have different meanings; I thus need to know their different meanings in my native language in order to not to become confused about their different uses later."	E.F.P5
	7. Word retention	"It is really important as it makes it easier for me to retain the meaning of the new	E.M.P4

		word."	
	8. Authenticity	"It is helpful but, sometimes, the Arabic translation does not provide me with the authentic meaning of the new words or their use."	E.F.P6
	9. Comprehension	" I can comprehend and retain the meaning of the new words if I get the meaning in my native language."	E.M.P2
		"It is important to know its L1 meaning to make is easier for me to understand the new word."	E.M.P3
2. Asking about its definition in English	**1**. Lack of vocabulary	"If I had more vocabulary I would ask about the word's meaning in English since it would give me a more authentic feel of the word but I do not have sufficient vocabulary."	CompS.M.P1
		"It is a useful strategy but I sometimes do not know the words used in the English definition which makes it harder for me to understand the meaning of the word so I ask for its Arabic translation."	CompS.M.P3
	2. Confusion	"I just get confused with too many unknown words given with the English definitions so I just ask for an Arabic translation."	CompS.M.P2
		" I think it would make it difficult for me to retain the new word's meaning, because asking about the word's English definition would require me to also learn the meaning of new words which cause a lot of confusion to me."	CompS.M.P4
	3. Use of other strategies	" I prefer to ask about its Arabic meaning because this would make it easier for me to learn its meaning more quickly."	CompS.F.P5
	4. Saving time	"I do not use it because I just want a straightforward answer."	CompS.F.P6
	5. More authentic	"I sometimes ask for the explanation of the new word	E.M.P4

	meaning	in English, because it gives me a more authentic meaning."	
		"Because I can understand the meaning of the new words and their precise use."	E.M.P3
		"I think this strategy helps me more to better know the exact meaning of the new word."	E.M.P2
	6. Increased vocabulary	"I use this strategy to expand my vocabulary."	E.F.P5
		" An English definition would give me more words to retain and then increase my vocabulary."	E.F.P6
	7. Getting more information about the new words	"Using this strategy gives me the pronunciation of the word, examples of its use and the context within which it can be used together with its spelling, so I prefer to ask for its definition in English."	E.M.P1
3. Asking about the new word's spelling or pronunciation	**1.** From native speakers	"There are English native speakers at my university so I sometimes ask them about the pronunciation of a word when it is not clear in the electronic dictionary."	E.M.P3
		" I need to say things like native speakers of English."	E.M.P2
	2. The need for the speaking and writing skills	"I ask about the pronunciation because there are words I do not know how to write or pronounce, although I know their meaning."	E.F.P5
		"It is important to me to know how to say the words properly so I can use them correctly when speaking to my teacher."	CompS.F.P6
		"I ask about the spelling because I need to write the word down properly."	CompS.M.P2
		" There are words that are difficult to pronounce, so I ask for their pronunciation in order to say them properly later when needed."	CompS.M.P1
	3. Need for exams	"I ask about the spelling of words because I have to write the words down correctly in	CompS.M.P3

		written exams."	
		"I have speaking exams and I need to know how to pronounce the words properly to achieve high scores."	E.M.P1
		"I do not want to lose marks in my exams especially when writing about important topics using the terminology of my subject, so I am careful and ask about spelling."	CompS.M.P4
	4. Spelling clarifications	"Sometimes there are words that have a similar pronunciation, so I need to make sure I have the right spelling for the target word - as in 'right' and 'write'."	E.M.P4
		" I ask about the word's spelling because I need to write these new words properly for later use."	E.F.P6
	5. Not important	"It is not important for me."	CompS.F.P5
	6. Not required	"We are not required to write the words correctly."	CompS.F.P5
4. Asking about an example sentence	**1.** Effective strategy	"Examples are a really helpful way of understanding new words since examples provide more detail."	E.M.P1
		"Because it is useful and helps to memorise the new words easily."	E.F.P6
	2. Specific conditions	"I do not use this strategy frequently if the words are slang."	E.F.P5
	3. Clarifying the meaning	"Because the examples clarify the meaning for me."	E.M.P3
		"Some words need examples to clarify their meaning."	E.M.P2
		"Examples illustrate the meaning of the new words."	E.M.P4
	4. Clarifying the use	"By using examples I can understand the appropriate use of the new words."	E.M.P2
	5. Use of other strategies	"I only care about its L1 meaning."	CompS.M.P3
		"I only ask about its spelling or Arabic meaning "	CompS.F.P6
		"I do not use this strategy because I do not want to be given so many words."	CompS.F.P5
		" I actually ask about the	CompS.M.P1

		words' spelling."	
	6. Not important	"It is not important to me."	CompS.M.P2
	7. Meaning confusion	"Well, examples probably will have more words that are difficult to understand for me, and thus I will be confused by these words and might not understand the meaning of the target word."	CompS.M.P4
5. Asking about its grammatical category	**1**. Not important	"It is not important to me to ask about the grammar category of new words."	CompS.F.P6
		"I do not need to know the grammar category of the new words."	CompS.M.P2
		"I do not feel that this is important to me."	CompS.M.P4
	Use of others	"I ask about its translation in L1."	CompS.F.P5
	2. From Arabic translation	"I can get its grammatical category from its Arabic translation more easily."	CompS.M.P2
		"It is easier to learn its grammatical category from its Arabic meaning; thus I can get two things here at the same time; its Arabic meaning and its grammatical category."	CompS.M.P3
	3. Important	"I sometimes ask about the grammar category as it is important to me to know it."	E.M.P2
		"I need to know the word's grammar category for my studies."	E.M.P1
		"In order to understand the context I have to know the grammar category of the new word and how it is used."	E.M.P4
		"If the word is important in the context, then I ask about its grammar category."	E.M.P3
	4. Seeking the meaning	"Sometimes I can guess the meaning of the new words by knowing their grammar category."	E.F.P5
		"I think by knowing the word's meaning, I can guess its grammatical category."	E.F.P6
	5. Contextual use	"I need to know its contextual use"	E.M.P2
6. Asking about	**1.** Lack of	"It is not important to know."	CompS.M.P4

	importance	"It is not necessary to know the synonyms or the antonyms of the new words."	CompS.M.P3
the word's synonyms and antonyms		"It does not matter in my major."	CompS.M.P1
	2. Slow process	"I prefer to learn one word rather than several words during one learning process."	CompS.F.P5
	3. Confusion/Overload	"I do not use this strategy because I prefer not to confuse myself with more words."	CompS.M.P2
		"I do not use this strategy because I prefer not to overload myself with more words."	CompS.F.P6
	4. Lexical repository	"I ask about the word's synonyms and antonyms because in this way I can build up my vocabulary."	E.M.P3
		" I can expand my vocabulary by asking about the word's synonyms and antonyms."	E.F.P6
	5. Facilitate retention of the new words	"By knowing the word's synonyms and antonyms I can easily remember the new words."	E.M.P2
	6. Exams	"I have to know the word's synonyms and antonyms because I am examined on vocabulary in my subject."	E.F.P5
	7. Use of other VLSs	"I do not use this strategy because I prefer to ask about L1 meaning"	CompS.M.P4
		" I prefer to use ask about L1 meaning as it is easier for me."	E.M.P1
		"I ask about its Arabic meaning instead."	E.M.P4
	8. Uses	"Thus I will know when and where to use the new words."	CompS.M.P4

VLSD3: Dictionary Types

VLS	Themes/Coding	Interview Quotations	Participants coding
1. In a paper English-Arabic Dictionary	**1.** Use of other types of dictionaries	"I use electronic dictionaries more often than this one."	CompS.M.P3
		"Nowadays we have smartphones and on them we can install dictionaries, such as Longman, which has lots	CompS.F.P6

		of information, so I use my phone instead of this one."	
		"I use the online dictionary more than the print dictionary."	CompS.M.P1
		"I use a print English-to-English dictionary."	E.F.P6
	2. Authenticity	"I do not use the print English-to-Arabic dictionary because it does not provide me with the authentic meaning of the new words, and this could affect my knowledge of vocabulary."	E.M.P4
	3. Time consuming	"It takes me time to find the word so I use the electronic one which is faster."	E.F.P5
	4. Simplicity	"I sometimes use the print English-to-Arabic dictionary because I can insert comments if needed."	CompS.M.P2
	5. Heavy	"I do not use it because it is too heavy to carry around with me."	E.M.P 1
		"It is heavy to have paper dictionary."	E.M.P2
		"It is not easy to carry this book all the time."	E.M.P3
		"The book is heavy; I prefer to use electronic ones."	CompS.F.P5
	6. Build more vocabulary	"I want to know more English words."	CompS.M.P4
2. In a paper English-English dictionary	**1.** Use of other types of dictionary	"I prefer the electronic dictionary to the print dictionary, because it is easy to carry and bilingual, so I can use English-English or English – Arabic when I need to."	E.M.P4
		"I think electronic ones are better and make it easier to look up the meaning in Arabic and to carry it around with me."	CompS.M.P3
		"I always use my Atlas electronic dictionary."	E.M.P3
		"Online dictionaries are more comprehensive so I use several websites to look for the meaning of the new words rather than print ones."	CompS.M.P1
		"I use the Oxford application	CompS.F.P6

		that I have on my iPhone."	
	2. Authenticity	"I use it because the English definition is better and more authentic than the Arabic translation."	E.F.P5
	3. Different meanings	"The English-to-English dictionary is much better for me because I can learn about the different meanings of a new word and how it is used."	E.F.P6
	4. Lack of language proficiency	"I do not use the English-to-English dictionary because I still need to improve my language and I prefer to know the meaning first in Arabic."	CompS.M.P4
		"I prefer not to use it because it takes me time to figure out the meaning of the new word so I prefer to look up the Arabic translation."	CompS.M.P2
	5. Heavy	"I do not use it because it is too heavy to carry around with me."	E.M.P2
		"As I said, it is heavy to carry this all the time"	E.M.P1
		"It is heavy for me and it takes time to find the words compared to the electronic ones."	CompS.F.P5
3. Electronic dictionary	**1**. Easy to use	"I use the electronic dictionary because it is easier to use than print ones."	E.M.P4
		"It is easy to use, thus I can find the meaning of the new word quickly."	E.M.P3
		"I always use it because it is not difficult to use and I can get the meaning of the word so quickly."	CompS.M.P3
		"I can look up anything in no time."	CompS.M.P4
		"Well, because an electronic dictionary does not require much effort to use"	CompS.M.P2
	2. Not heavy	"It does not require much space to carry."	E.M.P1
		"Because there are small types of electronic dictionaries that are easy to carry."	CompS.M.P1
		"It is easy to carry with me."	E.M.P2

		"It is easy to carry with me."	CompS.M.P2
	3. Pronunciation	"The electronic dictionary is the best option for me because I can check the pronunciation of any word unlike with a print one."	E.F.P5
		"Because it helps me with pronunciation."	CompS.M.P2
		"Because it helps me with pronunciation."	CompS.F.P5
	4. More information	"Modern dictionaries now have lots of information and a big screen that can even show pictures relating to the words."	CompS.F.P6
	5. Learning programmes	"I use the electronic dictionary because I can test myself in certain aspects as there are preinstalled tests."	E.F.P6
	6. L1 and L2	"The electronic dictionary helps me to switch between Arabic and English easily and I can find the meaning so quickly compared with paper ones."	E.M.P1
		"Well, dictionaries assist with understanding the meaning of the new words and they can be monolingual or bilingual dictionaries"	CompS.M.P2
		"It is bilingual"	CompS.M.P3
		"Many dictionaries are bilingual."	CompS.M.P4
4. On the internet (online)	**1.** Accessibility	"I use my computer a lot so I use the online dictionary."	CompS.M.P1
		"You know my subject is Computer Science so I use my computer for my homework and I use the internet dictionary when needed."	CompS.M.P3
	2. Large information	"You can find everything you online, so if I need pronunciation, links, spellings, anything, I use the internet dictionary."	E.F.P6
		"I can find anything I need online."	E.F.P5
		"The online dictionary provides lots of accurate USA or UK pronunciation."	E.M.P1
		" The online dictionary	CompS.M.P4

		covers lots of aspects of words." " For example, pronunciations, spellings and etc.."	
		"I can check the spelling and the pronunciation of the new words."	CompS.F.P5
		"The online dictionary has lots of information that I want."	CompS.F.P6
		"It is helpful because I can look for more examples about the new word."	E.M.P3
		"A lot of information about a particular word can be found online."	E.M.P4
	3. Internet availability	"I use it when there is an internet connection."	CompS.M.P2
	4. Easy of use	"It is easy and quick to use like an electronic dictionary."	E.M.P2
5. Smartphones applications	**1.** Easy to carry	"I love to use my iPhone because it is so easy to carry with me at all times."	E.M.P1
		"It is easy to have around whenever you go."	CompS.M.P3
		"No one is without a smartphone nowadays, so it is easy to carry it around with me and use it when needed."	CompS.M.P2
		"Because I have my phone with me and use it regularly."	E.M.P4
		"It is easy to carry compared to the other dictionaries."	E.M.P2
		"Smartphone applications are easy to have and carry all the time."	E.M.P3
	2. Large amount of information	"I have a Longman dictionary which is no different from the electronic version so I use it instead."	CompS.F.P5
		"The Oxford Dictionary has lots of information and I can look for anything I want on my smartphone."	E.F.P5
		"You can download as many different types of dictionaries as you want - a medical dictionary, or anything - so I prefer to use my smartphone."	CompS.M.P1
		"It is easy to use."	E.F.P6
	3. Ease for use	" I find it more easy to use	CompS.M.P4

| | | whenever I go.” | |
| | | “ I like to have it because it is easy for me to use.” | CompS.F.P6 |

VLSD4: Types of information

VLS	Themes/Coding	Interview Quotations	Participants coding
1. Its Arabic meaning	**1**. Important	“It is really important to know the meaning of the new word in Arabic first and then I can find out its definition in English if I want to.”	CompS.M.P1
		“I have to know the word's meaning in Arabic in order to know how and when to use the new English word.”	CompS.M.P2
		“It is vital to know its meaning in Arabic in order to figure out how to use it in writing or speaking.”	CompS.F.P6
		“ It is important for me to know its Arabic meaning in order to know how to use the word.”	E.M.P1
		“I think it is important to me to know its meaning in Arabic.”	CompS.M.P3
		“ I think knowing its Arabic meaning allows me to learn its grammatical category, so I have more advantages by using this strategy.”	CompS.F.P5
		“Some words can only be understood via their meaning in Arabic.”	E.F.P5
	2. Word retention	“I need to retain it so I have to know its meaning in Arabic.”	E.F.P6
		“It makes it easier for me to retain the word's meaning if I know its L1 meaning.”	CompS.M.P4
		“In order to retain the new words I have to know their meaning in Arabic.”	E.M.P4
		“In order to retain it and use it when I want.”	E.M.P3
		“It makes the word retention much easier for me.”	E,M.P2
	3. Uses	“In order to use it later when needed.”	CompS.M.P3

2. Its spelling	**1.** Not important	"It is not important to me to know the word's spelling because my major is not English."	CompS.F.P5
		"It is not necessary for me as I focus on speaking instead."	CompS.M.P1
	2. Avoid spelling mistakes	"It is important to me to avoid spelling mistakes."	CompS.M.P3
		"I want to avoid spelling mistakes."	CompS.M.P2
		"I want to avoid spelling mistakes because I won't get high marks in my written exams if there are mistakes."	E.F.P6
		"I need to write a good paper with no spelling mistakes."	E.M.P2
		"My future career is as an English teacher so I need to know how to write English words perfectly."	E.M.P4
	3. To retain the new words	"It is good for me in order to retain the new word's meaning."	CompS.M.P4
		"I check the spelling because I need to retain the word in my mind."	E.F.P5
	4. To avoid writing another words with different meanings	"Sometimes I write another word which has a different meaning so I have to check the spelling to make sure that this is what I want to write."	E.M.P1
	5. Improvement	"I want to improve my writing skills."	CompS.F.P6
		"I always do that because I need to produce a good paper with no spelling mistakes."	E.M.P3
3. Its part of speech	**1.** Not important	"The reason that I do not use it as much is because it is not important to me to look up what part of speech the word is."	CompS.M.P1
		"It is not important."	CompS.M.P2
	2. Use for other strategies	"I do not use it so often because I prefer to spend my time looking for its meaning in Arabic as then I find out which part of speech the word is."	CompS.F.P5
		"I am concerned only with the word's meaning in Arabic."	CompS.M.P4

			“ I focus on the word's Arabic meaning.”	CompS.M.P3
		3.New words	“I sometimes check what part of speech the word is if it is new to me.”	CompS.F.P6
			“If there is a new word in the sentence and it is not clear to me.”	E.M.P2
		4. Importance	“If the new word is important to learn then I check what part of speech it is.”	E.M.P1
			“It is important for me”	E.F.P5
		5. To know the word's uses	“Because I want to know the appropriate use of the word according to its grammatical category.”	E.M.P4
			“ I think looking for the new word's part of speech helps me to use the word correctly when needed.”	E.F.P6
			“Because I want to know how and when to use the new word.”	E.F.P5
		6. Unlocking its meaning	“If I knew what part of speech the new word is, I may be able to guess its meaning.”	E.M.P3
4. Its English definition	**1.** Authenticity		“I sometimes look for a new word's explanation in English as it is more authentic.”	E.F.P6
			“If I have time I look for its definition in English because sometimes it is more accurate than the Arabic definition.”	E.M.P4
	2. Teacher encouragements		“From time to time, teachers remind us to check the English explanation first.”	E.M.P2
	3. Lexical development		“Because I want to build up my lexicon.”	E.F.P5
			“It improves my lexical repository.”	E.M.P1
	4. Use for other strategies		“I think that knowing Arabic meaning of the new word is best for me.”	CompS.M.P4
			“I sometimes look for its synonyms and antonyms instead.”	E.M.P3
	5. Language improvement		“If my language skills improve then I will use it because it provides more detail about the new word.”	CompS.M.P3

		"It needs a high level of English which I have not yet reached."	CompS.M.P1
	6. Meaning confusion	"It has more words and confuses me when trying to find out a word's meaning."	CompS.F.P6
		"Because I may confuse myself with many new words rather than the target word."	CompS.F.P5
	7. Lack of vocabulary	"I would not know its meaning in English because my vocabulary is limited, so I prefer to find out what it means in Arabic."	CompS.M.P2
	8. Less attention	"I do not pay much attention to its meaning in English; I favour finding out its meaning in Arabic."	CompS.F.P5
5. Its Synonyms and Antonyms	**1.** Language development	"I sometimes use it because I want to develop my language in general and also build up my lexicon."	E.M.P4
		"To improve my language proficiency."	E.F.P5
	2. Clarifying meanings	"Because I can find out the meaning of the new word."	E.F.P6
		"Because the meaning can be unlocked."	E.M.P2
	3. Important	"It is really important to my lexical development."	E.M.P1
	4. Diversity	"Because I want to show my teachers that I have learnt synonyms."	E.M.P3
	5. Not important	"It is not important to me."	CompS.M.P1
	6. Use of other strategies	"I look for the meaning in Arabic instead."	CompS.M.P3
		"I care about the word's meaning in Arabic only."	CompS.M.P4
	7. Confusion	"I do not want to confuse myself with too many words; I would rather retain one word at a time."	CompS.M.P2
		" As I said before, having more than one new word confuses me a lot."	CompS.F.P5
		" It will be hard for me to memorise all of the synonyms."	CompS.F.P6
6. Its Examples	**1.** Textual use	"Because I want to know how and when a certain word can be used in the text."	E.M.P1
	2. Authenticity	"I think it is good to have	E.M.P2

		authentic examples of the use of the new word."	
	3. Meaning clarification	"I sometimes use this in order to understand the meaning of the new word."	CompS.F.P6
		"Because the meaning of the new word can be illustrated though examples."	E.M.P3
		"Examples can make the meaning of the new word easier for me to understand."	E.M.P1
	4. Grammar uses	"I look for examples because I want to find out how the word can be used grammatically."	E.F.P6
	5. Vocabulary knowledge	"To build up my vocabulary knowledge."	E.F.P5
		"I want to increase my vocabulary."	E.M.P4
	5. Use of other strategies	"I only care about its L1 meaning."	CompS.F.P5
		"I only look to check its spelling or Arabic meaning."	CompS.M.P3
	6. Inclusions	"I do not use this strategy because examples might include words that I might not know the meaning of."	CompS.M.P2
		"I do not want to focus on too many words when I look up, for example, sentences for the new words."	CompS.M.P4
	7. Not important	"It is not important to me."	CompS.M.P2
		"It is not important to me."	CompS.M.P1
7. Its stem	**1.** Unimportant	"It is not important to me."	CompS.F.P5
	2. Unaware of it	"I do not know this strategy."	CompS.M.P1
		"I do not know how to use it."	CompS.F.P5
	3. No experience	"I have not tried this before."	CompS.M.P3
		" I do not know this strategy"	CompS.M.P2
	4. It useful	"It is useful for me in order to find out the word's derivation."	E.M.P4
		"To know the new word's meaning"	E.F.P5
	5. Use of other strategies	"I used to look for its meaning in English."	E.F.P6
		" I look for its Arabic meaning"	E.M.P1
		" I look for its Arabic meaning"	CompS.M.P4
		" I used to look for its Arabic meaning"	CompS.F.P6

	6. For more clarification	"If the new word has complex affixations then I look for its stem to unlock the ambiguity."	E.M.P2
		"Sometimes I do not know the meaning of the new word, so I first try to guess its meaning by looking at its stem and then I try to find out its meaning."	E.F.P6
	7. For exams	"I care about the word stem because I have to get high scores when it comes to exams."	E.M.P3

VLSD5: Content of vocabulary note taking strategies

VLS	**Themes/Coding**	**Interview Quotations**	**Participants coding**
1. Only with nothing else	**1.** Not effective	"There is no benefit for me in writing the English word with nothing else because I would not retain anything about the new word."	CompS.M.P2
		"It is not important to me."	CompS.M.P1
		"It is not important"	E.M.P4
		"It is not useful and not important"	CompS.F.P6
		" It is not useful"	E.M.P2
	2. Retention	"I cannot retain the new word if I do not write down its meaning."	CompS.M.P3
	3. Time	"I use this way if I have no time and I want to keep up with my teachers."	E.M.P1
		"I do not use this strategy because I have to check on the word's meaning later and this would waste my time."	CompS.M.P4
	4. Use of other strategies	"I write down its meaning in Arabic instead."	E.M.P 4
		"I prefer to write down its meaning in Arabic"	CompS.F.P5
		"Because when I make revisions I need to know its meaning in Arabic, which is much better for me than writing only English words."	CompS.M.P1
		"I prefer to write down its meaning in English"	E.M.P3
		"I see it as being more	E.F.P6

		effective for me to write down its synonyms and antonyms."	
	5. Time saving	"Because if I did not write any information about the new words I waste my time because I might forget its meaning and then check about it again, so I write its L1 meaning for example."	E.F.P5
2. With its Arabic meaning	**1.** Helpful for retention	"I use this because it helps me a lot to retain the meaning of the new word."	CompS.F.P5
		"I write down its meaning in Arabic because I can retain the meaning very well."	CompS.F.P6
		"Because I want to retain it for use when needed."	CompS.M.P2
		"It facilitates the retention of its meaning in Arabic."	E.F.P5
		"It helps me to retain lexical meaning in order to retain its meaning in Arabic for future use."	E.M.P4
	2. Important	"It is really important in order to retain its meaning in Arabic for future use."	E.F.P6
		"It's important to know its meaning in Arabic, because it facilitates its use for me."	CompS.M.P1
		"It is not sufficient to know how it's written; I also need to know its meaning in Arabic."	E.M.P1
	3. For use	"It facilitates its use for me."	CompS.M.P3
	4. Saves time	"It saves time for me."	CompS.M.P4
	5. Not authentic	"It is helpful, but I write its meaning in English instead of its L1 meaning because it is more useful and authentic for my lexical development."	E.M.P3
	6. Testing my guessing	"I write its meaning in Arabic first and then check its meaning by looking it up in the dictionary to determine whether my guess was right."	E.M.P2
3. With its English meaning	**1.** Authentic	"I sometimes do that because it is more authentic."	E.F.P5
		"I do that from time to time because it provides a more authentic meaning."	E.F.P6
	2. Lexical	"It is helpful for my lexical	E.M.P1

	developments	development."	
		"I use this strategy to improve my lexical proficiency."	E.M.P3
		"Because it increases my vocabulary."	E.M.P4
	3. Not important	"I rarely use this strategy because it is not useful to me."	CompS.M.P3
		"It is not important to write its English meaning."	CompS.M.P4
	4. Conditional use	"I write it only if it is given by my teachers."	CompS.F.P6
	5. Difficulty/confu sions	"It is really difficult for me to write its English meaning since my language proficiency is not that great."	CompS.M.P1
		" I do not want to confuse myself with too many unknown words."	CompS.M.P2
	6. Use for other ways	"I would prefer to write its meaning in Arabic."	CompS.F.P5
	7.Spesifc conditions	" I use this strategy if I have to understand difficult words."	E.M.P2
	8. Overloading	"I do not want to overload myself with unimportant words other than the target ones."	CompS.M.P4
		"I do not want to confuse myself with new words."	CompS.F.P5
4. With its Synonyms and Antonyms	**1.** Lexical improvements	"I sometimes do it because I want to build up my vocabulary."	E.M.P4
		"I write down synonyms and antonyms besides the new word in order to expand my vocabulary repository"	E.M.P3
		" Because I want to improve my vocabulary"	E.F.P5
	2. Different meaning	"Well, because I wanted to know the different meanings of the word."	E.F.P6
		" I think the strategy is helpful because it allows me to know the different synonyms of the new word and use them in my writing."	E.M.P2
	3. Not important	"It is not important to me."	CompS.M.P1
		"It is not important to me, because it will be difficult for me to memorise the new words and their synonyms or	CompS.M.P2

		antonyms."	
		"I do not write down synonyms and antonyms alongside the new word, because it is not important for me."	CompS.M.P3
	4. Meaning focus	"I really need to know its meaning in Arabic instead."	CompS.F.P6
	5. Meaning confusion	"I do not want to have more than one word to focus on."	CompS.F.P5
	6. Not easy for retention	"It is difficult for me to retain a number of words that have the same meaning, so I prefer to learn one word at a time."	CompS.M.P4
		"I want only to retain the meaning of the target words only."	CompS.M.P3
	7. Use of other VLS	" I do not use this strategy because I note down the word's Arabic meaning."	E.M.P1
5. With its examples	**1**. Helpful	"It is good to know the different uses of the word in different contexts."	E.F.P6
		"It helps me in terms of retention."	E.F.P5
	2. Time	"It takes time and it is tedious for me to write down examples of the use of the new words."	E.M.P 1
		"I would rather spend my time writing down its meaning in L1 rather than giving examples."	CompS.M.P2
	3. Not important	"It is not important to me, because it takes time and effort to think of good examples, and also one word may have different meanings in different contexts."	CompS.M.P1
		"It is not useful to me."	CompS.F.P5
		" It is not important to me."	CompS.F.P6
		"It is not that effective for me."	E.M.P2
	4. Effort	"It takes too much effort for me to think about authentic examples of the use of new words."	E.M.P4
	5. Use of other strategies	"I would spend time writing something else like its Arabic meaning or synonyms."	E.M.P3

		" I prefer to write its Arabic meaning instead."	CompS.M.P4
		" I used to write the new words' L1 meaning."	CompS.M.P3
6. With its pronunciation in the form of transliteration	**1.** Not helpful for pronunciation	"I rarely use it because it does not provide me with the right pronunciation."	E.M.P1
		"It is not useful to me because there are some difficult words than can't be pronounced perfectly this way."	E.M.P2
	2. Not important to me	"It is not important to me."	E.M.P4
		" It is not helpful to me."	E.M.P3
	3. Use of other ways	"I use English phonetics instead."	E.F.P5
		"We have learnt phonetics so I prefer to use phonetics symbols."	E.F.P6
		"I only write its meaning in Arabic in order to retain its meaning perfectly."	CompS.M.P1
		" I write its Arabic meaning"	CompS.M.P3
	4. Useful	"It sometimes helps me to retain the new words easily."	CompS.M.P4
		"I have no knowledge of English phonetics, it is best way for me is to use this way."	CompS.F.P5
	5. Confusing	"It confuses me to have two Arabic words alongside the new word, one giving its meaning in Arabic and one giving its pronunciation; so it is best for me to just learn its meaning in Arabic."	CompS.F.P6
	6. Good for pronunciation	"Although it is not always a good way to learn the pronunciation of words, I use this strategy from time to time with long words because they are hard to pronounce."	CompS.M.P2
7. With its grammatical category	**1**. Meaning clarification	"I write down its grammar category because it clarifies its meaning for me if the word is difficult."	E.F.P6
		"It illustrates the meaning." "It makes it easier for me to know the meaning of the word next time I see it."	E.F.P5
	2. Guessing the meaning	"Because it makes me guess the meaning correctly."	E.M.P1

		"It helps me establish the appropriate meaning and use of the words."	E.M.P2
	3. Knowledge of grammar category	"Because I already know the grammatical category of most words."	E.M.P 4
	4. Not important	"It is not necessary for me."	E.M.P 3
		"It is not important for me"	CompS.M.P3
	5. Effort	"It needs too much effort to think about the word's grammar category."	CompS,M.P4
	6. More knowledge	"It requires good knowledge about the word's grammar categories."	CompS.F.P5
	7.Use of the other strategies	"I write down its meaning in Arabic and then I can find out its grammar category."	CompS.F.P6
		"I note its meaning in L1 instead of its grammatical category. By doing so, I am able to know its grammatical category from the Arabic meaning. "	CompS.M.P2
	8. Knowing its Grammar category	"I know its grammar category by its meaning in L1 that I write down so there is no point in paying much attention to that for me."	CompS.M.P1
8. With its source	**1.** Not important	"It is really not important."	E.M.P1
		"It is not important and it wastes my time"	E.M.P2
		"It is not important."	E.M.P3
		"It is not important."	CompS.M.P4
		" It is not important"	CompS.M.P2 CompS.F.P6
		"It does not help me with anything."	CompS.M.P1
		"I do not write down an English word with a note about the source I got it from, because it is not important to me."	CompS.F.P5
		"It is not necessary."	E.F.P5
		"There is no value to me to write down an English word with the source I got it from."	E.F.P6
	2. Use of other strategies	"I never use it because I note down its meaning in Arabic."	CompS.M.P3
		"Noting down its meaning in English is better than the source."	E.M.P4
9. With its related	**1.** Helpful for	"It helps me to retain the	E.M.P3

words of the same family	retention	word."	
		"This strategy helps me to retain the new words more easily."	E.F.P5
	2. Lexical improvement	"In this way I can build up my vocabulary."	E.M.P4
		" This way can help me to expand my vocabulary."	E.F.P6
		"I can memorise all new words and their related family. This method also helps me to expand my vocabulary."	E.F.P5
		"My vocabulary is low thus it is not important to me."	CompS.M.P3
	3. No knowledge	"If I knew the word's family I would write it down."	CompS.F.P5
	4. Conditional use	"If the words are important and easy I write down related words."	CompS.F.P6
	5. Useful	"If the words are known to me and useful I take note of their family."	CompS.M.P3
	6. Confusion	"I do not want to confuse myself with too many words that I have to retain later."	CompS.M.P4
		"I do not use this strategy because I want to focus on the new word itself and its meaning in L1."	CompS.M.P1
	6. Time consuming	"I do not use this strategy often because it takes time."	E.M.P1
		" It is not useful."	E.M.P2
		"Not important and it takes time."	CompS.M.P2

VLSD6: Locations of vocabulary note taking strategies

VLS	Themes/Coding	Interview Quotations	Participants coding
1. On the margins of my textbooks	**1.** Quick	"I use my personal notebook but when I do not have time I write the notes in the margins of my textbooks."	CompS.F.P5
		"It is easy and quick."	CompS.M.P2
		"It is quick to do."	CompS.F.P6
		"I find it so helpful and easy to do."	E.M.P1
	2. Contextual use	"Because sometimes I need to know about its contextual uses therefore I note down	E.F.P5

		any information about the new words close to where I came across it."	
		"If I do revisions to the words that I took before, it is much easier for me to know the contextual use of these words."	CompS.M.P1
	3. Use of other strategy	"I mostly use my English notebook."	E.F.P6
		"I prefer to use my English notebook."	E.M.P3
		"I have a personal notebook where I can note down all the information related to the new words."	E.M.P2
	4. Studying	"I write down all the information about the new words in the margins of my textbooks because it helps me with my studies."	CompS.M.P3
		"I find it helpful."	CompS.M.P1
		"It helps me with my studies because during exam time I prefer to have one book that contains all the information that I need."	CompS.M.P4
		"Because during my studies I can refer to the information quickly."	E.M.P4
2. Keep notes on Cards	**1.** Ease of loss	"I tried it before and it is easy to lose the cards."	CompS.F.P5
		"Easy to lose"	E.F.P6 CompS.M.P4
		"It is easy to lose"	E.M.P2
	2. Use of other strategies	"I prefer to write down any information in my personal notebook."	E.F.P5
		"I think using my personal notebook is better for me."	CompS.M.P1
		"I do not use it because I use my English notebook"	E.M.P 3
		"I write down the information in my English notebook rather than on a loose piece of paper, or cards"	CompS.M.P3
		" I prefer to use my personal notebook."	CompS.M.P4
	3. Usefulness	"I do that sometimes because I love to stick these cards to the unit that I am studying and make it more organised	E.M.P1

		and tidy.”	
		“It is not useful”	CompS.F.P6
	4. Effort	“It takes a lot of effort to organise them and it is easy to lose them.”	E.M.P4
		“Cards are easy to lose and takes time to tidy them up.”	CompS.M.P2
3. In my English notebook	**1**. Not in the Unit	“I write down the new words in my English notebook when it is not mentioned in the lesson.” “Any words that are not in the lesson I write separately, because when there is an examination I know that I am studying my course words and nothing more.”	CompS.M.P1
		“I mostly write down the new word and any related information in my English notebook if it is not mentioned in the unit.”	CompS.F.P5
	2. Ease of use	“It is easier for me to have individual English notebooks for every course that I attend because it makes it easier for me to refer to them when needed.”	E.F.P5
		“It is easy for me to refer to when needed.”	CompS.F.P6
		“I have a notebook for each course because it is easy for me to study the new words pertaining to each course.”	E.M.P3
	3. Use of other strategies	“I write down the new words in the margin of my textbooks as this makes it easier to refer to them.”	CompS.M.P2
		“I mostly use my English notebook.”	CompS.M.P3
	4. Availability	“Because I sometimes have my English notebook with me.”	E.M.P4
	5. Important	“ It is important”	E.M.P2
		“It is important for me”	E.M.P1
		“It is necessary to have it.” “Because all the academic words that I take in the class are written in my English notebook, so it is easy for me	E.F.P6

		to study my academic work for the exams."	
4. In my personal/Pocket notebook	**1.** Useful	"It is a useful strategy." The majority of participants agreed that having a personal notebook is good because this remains accessible whenever they go. Sometimes other notebooks, such as the English notebooks, are handed over to their teachers and they are not allowed to write down vocabulary, apart from the words that they encounter during the course, or they can do whatever they want with their notebook compared to the class notebook.	All participants said that
5. On separate pieces of paper	**1.** Ease of lose	"I will lose the paper easily."	CompS.F.P.5
		"Easy to lose"	E.F.P6 E.F.P5
		"It takes a lot of effort to organise them and it is easy to lose them."	E.M.P4
		"Keeping my notes on separate pieces of paper is not useful because I am likely to lose them."	CompS.M.P4
	2. Not useful	"It is not effective to write down new words on a piece of paper."	E.M.P1
		"I think they are useless because they can easily get torn."	CompS.M.P2
	3. Waste of time	"It wastes my time."	CompS.M.P1
		"Waste of time"	E.M.P2
		"I would rather spend my time writing my notes in my personal list of vocabulary."	CompS.F.P6
	4. Compensation strategies	"I write down the new words in the margin of my textbooks."	CompS.M.P3
		"I use my English notebook instead."	E.M.P3
6. In a Computer or other electronic devices	**1**. Waste of time/time consuming	"Writing new words on a computer or other electronic device is a waste of time."	E.M.P4
		"Writing new words on a computer or other electronic	CompS.M.P2

		device is time consuming."	
	2. Not effective	"It is not effective."	E.M.P1
		"It is not important and it is time consuming."	CompS.M.P1
		"I think it is not important."	E.M.P3
	3. Risky	"If my computer were to break down I would lose all my data."	E.F.P 5
		"I have viruses in my device so I hardly use it."	E.F.P6
	4. Use of computer	"I frequently write down my new words on a computer because I spend a lot of my time on it."	CompS.F.P5
		"I use the internet frequently so I discover many new words and I add them to my computer."	CompS.M.P3
	5. Compensation strategies	"Well, I write down my notes on my English notebook."	E.M.P2
		"I write down my notes in my personal notebook."	CompS.M.P4
		"Most of the time I write down my notes in my personal notebook."	CompS.M.P1
		"Most of the time I write down my notes in the margin of my textbook."	CompS.F.P6
7. Keeping notes on wall charts	**1.** Not effective	"It is not effective because it does not show me the context of the new words."	CompS.F.P6
	2. Ease of lose	"It is easy to lose."	E.F.P5 E.F.P6 E.M.P1 E.M.P4
		"It takes a lot of effort to organise them and it is easy to lose them."	CompS.M.P1
	3. Unimportant	"It is not important."	CompS.M.P3
		"It is not effective."	E.M.P3
		"It is not helpful to use."	CompS.M.P2
		"It is not useful."	CompS.F.P5
	4. Size	"It does not help with learning because wall charts are kind of large posters and I cannot use them whenever I go."	CompS.M.P3
		"Wall charts are big to handle."	CompS.M.P4

VLSD7: Ways of note taking

VLS	Themes/Coding	Interview Quotations	Participants coding
1. By units or lessons of the textbooks	**1.** Unimportant	"Organising new words according to the units or lessons of the textbooks is not important."	CompS.F.P6
		"It is not important or useful"	E.F.P5
		"Organising new words according to the units or lessons of the textbooks is not important or useful to me."	E.M.P4
		"It is not useful."	CompS.F.P5
	2. No Experience	"I am not used to organising new words according to the units or lessons of the textbook."	CompS.M.P3
		"I do know this strategy."	CompS.M.P1
		"I am not used to using such a strategy."	E.M.P3
	3. Time consuming	"It is time consuming."	CompS.M.P2
		" It takes time"	E.M.P1
	4. Ease of reference	"It helps me to refer to words that belong to the lesson where I first came across them."	E.F.P.6
		"It is easy for me to organise the words by the units or lessons of the textbooks because I can refer back to the words when I need and I do not have to know which lessons or units the words belonged to."	E.M.P2
	5. Compensation strategies	"I organise the words randomly."	E.M.P1
		"I always use random strategies."	CompS.M.P4
2. In alphabetical order	**1**. Not useful	"I do not use this organisational strategy because it is not useful to me."	CompS.M.P3
	2. Unimportant	"I think it is neither helpful nor important."	E.M.P1
		"Not important for me."	CompS.M.P1
	3. Time consuming	"It takes time and effort to use such a strategy."	E.F.P6
	4. Use of other strategies	"The best way for me is to organise the words randomly because I came across these words in different places."	E.M.P2

	5. Mental process	"It requires high mental processes so I do not use it."	E.F.P5
		"It needs a lot of mental process for me."	CompS.F.P6
	6. Effort	"It takes lots of effort on my part."	E.M.P3
		"It needs lots of effort and concentration."	CompS.M.P4
		"I think these ways of organisation take time and effort to use them."	E.M.P4
	7. Time consuming	" It takes a lot of time for me to do this"	CompS.M.P2
		"It is time consuming."	CompS.F.P5
		"It wastes my time"	CompS.M.P1 and CompS.M.P3
3. In a random order	1. Contextual use	"I use this from time to time in order to create links between the words and their contextual use."	E.M.P1
	2. Easy to use and to refer to	"I use this way because it is easy and quick to organise the words, since I come across the new words in different places and this takes less effort."	E.M.P4
		" It is easy to use."	CompS.M.P3
		"I think it does not take much effort or time, so it is easy for me to use this approach to organisation."	CompS.M.P2
		"It is quick to do."	CompS.F.P5
		"It is easy to do and helpful."	E.M.P2
	3. Used to	"I used to use such a strategy."	E.M.P3
		"I used to use random organization and this does not require much effort or time."	CompS.M.P4
		"It is just easy and convenient for me."	CompS.F.P6
	4. Not important	"It is not important to have systematic organisation so I use this strategy."	E.F.P5
		"I do not care about lexical organisation so I used a random order."	CompS.F.P6
	5. Teachers' instructions	" Because I want to keep up with my teachers' instructions."	CompS.M.P1
	6. Self-organized	" I do not use it because I am an organised person and	E.F.P6

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		organization helps me with my studies."	
4. By their grammar category	**1.** Unimportant	"Organising new words according to their grammar category is not important to me."	CompS.F.P5
		"It is not important to use"	CompS.M.P2
		"It is not important"	CompS.M.P3
		"It is not important"	E.F.P6
		"It is not important"	E.M.P2
	2. Not used to	"I am not used to using this strategy."	CompS.F.P6
		"I do not know how organise my words based on their grammatical category."	CompS.M.P1
	3. Time consuming	"Organising the word by their grammar category is time consuming."	E.F.P. 5
		" It takes time and effort."	E.M.P1
		" It takes time and effort."	E.M.P3
		"I think these ways of organisation take time and effort to use them."	E.M.P4
		" It takes time."	CompS.M.P4 and CompS.F.P5
		"It takes time to do because I have to check the grammatical category of the word and then organise it accordingly."	CompS.M.P3
5. By their meaning groups	**1.** Not useful	"Using this way does not show the new words in context."	E.M.P1
		"It is not useful"	E.F.P6
	2. Not important	"This strategy is not important."	CompS.M.P1
		" It takes time and effort."	CompS.M.P4
		"It is not important because it is time consuming."	CompS.M.P3
	3. Compensation strategy	"I do not organise the words by their meaning groups, I have them in a random order instead."	E.F.P5
		"I organise the words randomly, because this requires me to pay more attention to the meaning groups."	CompS.F.P.6

	5. Effort and Time	"It needs effort and time."	E.M.P2
		"It requires time and thinking." " I prefer to organise the new words randomly as the current strategy needs lots of effort to do so."	E.M.P3
		"I think these ways of organisation take time and effort to use them."	E.M.P4
		"It takes time and effort to use."	CompS.M.P2 and CompS.F.P5
		"It requires time and thinking."	CompS.M.P1
6. According to their difficulty	**1.** Unimportant	"It is not important to organise these words based on their difficulty because the main goal for me is to know their meaning."	E.M.P1
		" I think it is not important because it takes effort and time do such organisation."	CompS.M.P1
	2. Not useful	"I am not used to doing this this way because it is not useful."	E.M.P2
		"Because most of English words are easy to learn."	E.F.P5
		"It is not useful"	E.F.P6
		"It is not useful"	CompS.M.P4
	3. Useful	"I have a notebook for difficult words only because it makes it easy for me refer to these difficult words quickly."	CompS.M.P3
	4. Time consuming	"Organising the words according to their difficulty is time consuming."	E.M.P3
		"I think these ways of organisation take time and effort to use them."	E.M.P4
		"It is time consuming"	CompS.M.P2
		"It takes time."	CompS.F.P5
7. Organising words families with the same stem	**1.** Time consuming	"Using this strategy to organise the words takes a lot of time."	CompS.M.P1
		"It takes a lot of time"	E.M.P1 and E.M.P2
		"I think these ways of organisation take time and	E.M.P4

		effort to use them."	
	2. Not important	"It is not important to me."	CompS.M.P4 and CompS.F.P6
	3. Lack of knowledge	"Honestly, I never thought of this strategy before"	E.M.P3
		"I do not have enough knowledge about many words' stems, so I do not use it."	CompS.M.P3
		"I do not have enough vocabulary knowledge to use this strategy."	CompS.F.P5
		"I do not have enough vocabulary knowledge in order to use this strategy."	CompS.F.P6
	4. Easy to refer	"Because this strategy helps me to refer to the words more easily when they are needed, and I can build up more lexical items into my memory."	E.F.P5
		"Because this strategy helps me to retain the new words and their families more easily as they are in one place."	E.F.P6

VLSD8: Reasons of note taking

VLS	Themes/Coding	Interview Quotations	Participants coding
1.The word is unknown and thus new to me	**1**. Helpful for retention	"I use this way because it helps me to retain the new words."	E.M.P4
		"Because I want to retain the meaning of the new words."	E.F.P5
	2. Ease of reference	"I select a word for note taking if I do not know it because I can refer to the new words when needed."	CompS.M.P3
		"This technique helps me to find the new words more easily and revise them when needed."	CompS.F.P5
		"Because it is easy for me to refer to when needed"	E.M.P1
	3. It is Effective and helpful	"It is an effective way to choose words that are new to me."	E.M.P3
		"It is helpful"	CompS.M.P1
		"I think it is effective to do	CompS.M.P2

		this"	
	4. Build more vocabulary	"Because I will then add this word increasing my vocabulary knowledge, since it is new to me."	CompS.M.P2
		"I want to know as many words as possible."	E.M.P2
		"I want to improve my lexical items by adding new words to my language system."	E.F.P6
	5. Unlocking the meaning	"Because I want to know the new word's meaning."	E.M.P3
		"Because I want to know the new word's meaning."	CompS.F.P6
		"Because I need to know its meaning"	CompS.F.P5
2. If the word is important and recurs in the text frequently	**1**. Effectiveness	"Selecting words that are important in the text is effective because it will help me to learn their contextual uses."	E.M.P4
		" It is effective for me"	E.M.P1
		"Because it can be used later in any task."	E.M.P3
	2. Unlocking the meaning	"I note down the important words because I want to learn their meaning in case I meet them again in a different context."	CompS.M.P4
		"Because it helps to know the meaning of the text."	E.F.P5
		"Because I think the word is important and I need unlock its meaning to understand the context."	E.M.P1
		"Because it seems the word is the main keyword in the text."	CompS.M.P3
		"Because it means that the word is important in unlocking the meaning of the whole paragraph or subject."	E.F.P6
		"Because if it reoccurs more than once, it means that it could facilitate the understanding of the text, so I had to check its meaning."	CompS.F.P5
		"Because it means that this word is the keyword in the text which facilities the text understanding."	CompS.M.P1
		"I think it is important	CompS.M.P2

		"because by doing so I will unlock the meaning of the words and understand their contextual uses."	
	3. Importance	"It is important."	E.M.P2
	4. Main word	"Since it is the main word, it means it has important position in the context."	E.M.P2
		"Because it is the main word in the text, which will help me to comprehend the text."	CompS.F.P6
3. The word is highly frequent in English	**1**. Lack of vocabulary	"I do not use this method because I do not know many of the high frequency English words."	CompS.M.P3
		"I do not know many high frequency words."	CompS.M.P2 CompS.M.P4
	2. Language proficiency	"I rarely use this strategy as I do not know what the high frequency words are."	CompS.F.P5
		"If I new a sufficient number of English words, I would use it."	CompS.F.P6
	3. Not useful	"It is not important and useful to me."	CompS.M.P1
	4. Used	"Because the high frequency words are the most used words in English."	E.M.P2 E.F.P6
		"Because I want to retain the high frequency English words for later use."	E.M.P3
		"It is useful"	E.F.P6
	5. Meaning clarification	"Because I will meet these words again and again and I have to note their meaning in Arabic for future use."	E.M.P4
	6.Speaking and writing	"Because there are high frequency words that I can use in speaking and writing."	E.F.P5
		"Because there are words that can be used a lot so I want to write them down and I do not want to burden myself with unimportant words."	E.M.P1
4. The word is highly frequent in Arabic	**1**.Used	"Because if a word is used frequently in Arabic I can use it in English too."	CompS.M.P1
		"It means that I may use it in English more frequently too."	CompS.F.P5
		"I think because the most high frequency words in	E.F.P6

	2. Easy for retention	"Because it is easy for me to retain its Arabic meaning."	CompS.M.P2
		"Arabic can also be the most used ones in English."	
	2. Easy for retention	"Because it is easy for me to retain its Arabic meaning."	CompS.M.P2
	3. To know its grammar category	"Because in this way I learn the grammar category of this word."	E.F.P6
	4. To learn its use in context	"Because in this way I know the contextual use of the new words."	E.M.P 4
		"Because I want to know its contextual use."	E.M.P2
	5. Not useful	"It is not useful"	E.F.P5 and E.M.P3
	6. Speaking skill	"Because this helps me with my speaking."	CompS.F.P6
5. The word is a key word in the text	1. Usefulness	"It is useful."	E.M.P1, CompS.F.P5
		"It is effective."	CompS.M.P3
		"It is useful to do this because I will able to understand the paragraph that has this keyword."	CompS.M.P2
		"It is useful"	E.F.P5
	2. Important	"Because it is important."	CompS.M.P1
	3. Unlocking the meaning	"Because key words help me to unlock the meaning of the text, so I write them down with their meaning in Arabic."	E.M.P4
		"I would be able to understand the text if I knew the key word's meaning."	CompS.F.P6
		"It facilities the comprehension of the text that I am reading."	CompS.F.P5
		"Well, because this way helps me to understand the text."	CompS.M.P4
		"I think this strategy would help me to understand the meaning of the new word and thus the text."	E.M.P1
		"Because then I can comprehend the text."	E.F.P6
		"I can then understand the meaning of the context."	E.F.P5
		"Because the words can help me to know the meaning of the theme."	E.M.P3
	4. The main word	"Because the main words can help in understanding the texts."	E.M.P2

6. The teacher said so	**.1** Exam	"If the teacher says the word is important then he/she means it might come up in the exam."	E.M.P4
		"I think it means that the word is important and it may occur in the exams."	E.M.P1, E.M.P2, E,F.P5,
		"It may come in the exams."	CompS.M.P1
		"If the teacher said that, then it may be in the exam."	CompS.F.P5
		"Important for my exams."	CompS.M.P2
	2. Told by teacher	"Because my teachers said so."	E.F.P6 and E.M.P3 CompS.F.P6 CompS.M.P4
7.The word is needed when speaking and writing	**1**. Used in writing	"I have to sit for written exams so I need to know as many words as I can."	E.M.P4
		"I need to improve my writing skills."	E.F.P6
		"It helps me with my writing ability."	E.M.P2
		"It will improve my writing and speaking ability."	E.M.P3
	2. Used in speaking	"I want to know as many words as possible in order to be able to communicate with native speakers."	CompS.M.P1
		"It helps me with my speaking"	E.F.P5 and CompS.F.P6
		"I need it to improve my speaking skill"	E.M.P1
		"I think by doing so I will gain lots of words that can help me to communicate with others."	CompS.M.P2
		"In order to use it when I write or speak." "Because I want to use it when needed"	CompS.M.P3 CompS.M.P4
8.Useful to me	**1**. Speaking	"Because it helps me to have more vocabulary to use when speaking."	E.M.P2
	2. Writing	"Because it helps me to have more vocabulary to use in my writing."	E.F.P6
	3. Spelling	"I need to improve my spelling."	E.M.P3
		"I may need it for something like my writing or speaking or my exams."	E.M.P1
		"Because I can improve my	E.F.P5

		spelling."	
	4. Similar in sound different in spelling	"I write down words that sound similar but are spelt differently to learn the difference."	E.M.P4
	5. Different goals	"I pick words that I need for my writing, or for my speaking or even for my exams."	CompS.M.P2
	6.Useful	"Because it is useful to me"	E.M.P1, CompS.F.P6, CompS.M.P3
	7. Lexical improvements	"Because then I can expand my vocabulary if I want to."	CompS.M.P4
9.The word is difficult for me	**1**.Focus	"I write down the difficult words because I want to focus on them."	CompS.M.P2
		"I want to focus on these words only."	E.M.P1
		"I prefer to study the difficult words until I master them."	CompS.F.P5
	2. Burden	"I do not want to include every word because it is going to put a burden on me; therefore I often write down the difficult words."	E.M.P4
	3. Clarification of meaning	" I need to know their meanings."	CompS.M.P3
		"In order to memorise the meaning of the difficult words."	CompS.M.P4
		" I need to know its meaning."	E.M.P2, ComS.M.P1
		"I need to know the word's meaning"	CompS.F.P6
		"Because the words are difficult and I need to know their meaning."	E.F.P6
		"Since it is difficult then I need to know its meaning or to know how it is written or pronounced."	E.F.P5
		"I must know its meaning, spelling or pronunciation if it is difficult in order to use it when needed."	E.M.P3

VLSD9: Ways of Repetition

VLS	Themes/Coding	Interview Quotations	Participants coding
1. I say the world aloud several times	**1**. Not useful	"It is not useful to me."	CompS.M.P1
		"It is not useful to me."	E.M.P3
		"I think it is not helpful and useful to me."	CompS.M.P4
	2. Embarrassing	"I cannot do this in front of the students because I feel embarrassed."	CompS.F.P5
		"I feel shy and embarrassed to imagine someone seeing you do that."	CompS.M.P4
		" I feel shy to use raise my voice when someone is around me."	E.F.P5
		"I am a bit shy to raise my voice when my friends are around me."	E.F.P6
	3. Health issues	"I cough when I raise my voice."	E.M.P4
		" As I said, raising my voice causes me to cough."	E.M.P1
	4. Compensation strategies	"I always repeat the word silently several times instead."	CompS.M.P2
		"I write down the word several times because it helps me remember its spelling rather than just say it out loud."	CompS.M.P3
	5. Uncomfortable	"I do not say the word out loud several times because it bothers me."	E.M.P2
		"I prefer to study in a quiet place."	CompS.F.P6
2. I repeat the word silently several times	**1**. Perfect for retention	"I repeat the word silently several times in order to be able to retain it perfectly."	E.M.P4
		"I repeat the word silently several times because this way I can retain the new word efficiently."	E.F.P5
		"It helps me to memorise the new words more easily."	CompS.M.P3
		"It helps me to retain the new words more effectively."	CompS.M.P4 and CompS.F.P5
		"It is effective for me to use this way."	CompS.F.P5

		"I can memorise the word if I use this method."	CompS.M.P2
	2. Helpful	"It is a helpful strategy for me."	E.M.P3
		" It is a good strategy"	E.M.P2
		"It is a helpful strategy for me."	CompS.M.P4
	3. Use of other strategies	"I write the word down several more times than I repeat it silently."	E.F.P6
		"I prefer to write down the word several times instead of saying it silently."	CompS.M.P1
	4. Useful	"Repeating the word silently several times is useful to help me retain it."	E.M.P1
		"This strategy is useful for my lexical retention."	CompS.F.P6
3. I write the word several times	**1**. Helpful	"I use this method a lot because it gives me the opportunity to learn the words' spelling and pronunciation effectively."	E.M.P 4
		"It is helpful for me"	E.M.P2
		"It is helpful for me because it helps me with my spelling."	CompS.M.P1
		"It is important and helpful for me"	E.M.P1
		"It is helpful for me"	E.F.P6
	2. Useful for correct spelling	"I use this strategy to avoid spelling mistakes."	CompS.M.P3
		"It helps me to memorise the word's spellings"	E.M.P1 and E.M.P2
		"Because I now can write words correctly, this greatly helps me to improve my writing skills."	E.F.P6
		"This strategy enhances my writing of the new words so I can avoid spelling mistakes later on."	CompS.M.P2
	3. Not helpful	"I do not like this way because I come across too many new words."	CompS.M.P4
		"It is not a helpful strategy for me because it takes time for me."	CompS.F.P5
	4. Perfect for retention purposes	"I write the word down several times because it is the best way for me to retain its meaning and spelling."	E.M.P3
		" It is good strategy to	E.F.P5

VLS	Themes/Coding	Interview Quotations	Participants coding
		memorise the new words."	
		"It very much helps me a lot to memorise the new words."	CompS.F.P6
4. I listen to the word several times	**1**. Effective for language development	"I listen to the word several times because it is helpful for my language development and my listening skills."	E.M.P4
		"This strategy helps me to improve my language a lot."	E.M.P2
		"I use this strategy because it gives me the proper pronunciation of the new words."	E.F.P5
		"I listen to the new words several times because I can retain them successfully and know their proper pronunciation."	CompS.M.P2
		"Using this strategy make it easy for me to retain the new words more effectively."	CompS.M.P1
	2. Effective for retention	"It facilitates word retention."	E.M.P2
		"It helps me to remember the new words and their pronunciation."	E.F.P6
		"It helps word retention."	E.M.P1
		"Helps me to retain the new word more easily."	E.M.P3
		"It helps me to retain the new word"	CompS.F.P6
		"I use this strategy when the English word is difficult to pronounce and is long."	CompS.M.P3
		" It is effective for word retention."	CompS.M.P4
	3. Important	" It is important for me."	CompS.F.P5
	4. Uses	"I want to say it correctly when I use it again."	CompS.F.P5

VLSD10: Information used when repeating

VLS	Themes/Coding	Interview Quotations	Participants coding
1. Say the word and its Arabic translation	**1**. Feeling objectives	"I feel that I have accomplished something when I say the word and know its Arabic translation."	CompS.M.P2
	2. Retention aims	"Because I want to memorise the meaning of the new word very well."	CompS.F.P6
		"I have to say its meaning in Arabic in order to retain it."	CompS.M.P1

	3. Useful	"It is useful for me to know its Arabic translation in order to know how to use it properly."	CompS.M.P3
		" It is useful to link the new word with its Arabic meaning in order to remember it effectively."	CompS.M.P4
	4. Effective	"I sometimes do this because I want to retain its meaning in Arabic."	E.M.P1
		"We have difficult words on the course and it is important for me to know their meaning in Arabic."	E.M.P4
	5. Unimportant	"I sometimes do not need this because I already know its meaning in Arabic."	E.F.P5
	6. Not effective	"It is not effective for vocabulary learning."	E.M.P2
	7. Conditional use	"If the word is long and is hard to pronounce, then I do not use this way; instead I just say the word out loud on its own."	E.M.P3
	8. Uses	"I want to retain its meaning in Arabic in order to use it when needed."	E.F.P6
		"I say the word and its Arabic translation because I want to know its contextual uses."	CompS.F.P5
2. I say the word with nothing else	1. Time saving	"I say the English word on its own because it saves time."	E.M.P1
		"Saying the word on its own saves time because it helps me to retain the word easily."	E.F.P5
	2. For pronunciation and spelling	"I say the English word on its own because I want to focus on its spelling and pronunciation."	CompS.M.P2
		"It helps me with my pronunciation and to focus on the words' spelling."	E.M.P2
		"We study difficult terms that have complicated spelling or difficult pronunciation so I always use this method in order to retain the spelling and the pronunciation of the word."	CompS.M.P1
	3. Perfect for retention	"Because it helps me a lot to retain the word."	CompS.F.P6

		"It is good for word retention."	CompS.F.P5
		"It helps to memorise the word perfectly."	E.M.P4
	4. Effective	"It is easier for me to repeat the word on its own in order to retain it effectively."	E.M.P3
		"It is effective because I can focus on the word alone."	E.F.P6
		"It is effective because it helps me to retain the new word."	CompS.M.P4
	5.Easy	"It is easy just to say the word on its own because it helps to retain it."	CompS.M.P3
3. Repeat example sentences several times	**1**. Not helpful	"It does not help me to focus on the new word itself."	CompS.M.P2
		" It does not help me to retain the new word"	E.M.P3
		"It is not a helpful strategy"	CompS.M.P1
		"It is not effective because I prefer to repeat one word at a time."	CompS.F.P6
	2. Meaning confusion	"Giving examples would confuse me because there are likely to be a few words in the example that I do not know."	CompS.M.P3
		"I do not want to confuse myself with examples and I need only to focus on the word itself."	E.M.P1
		"I do not want to confuse myself with many new words in the examples which means I then won't focus on the target words."	CompS.M.P1
	3. Compensation strategies	"I do not use this way but I say the word with its meaning in Arabic because it helps me to retain the new word effectively."	CompS.M.P4
		"I actually repeat its meaning in English more than the examples."	E.M.P4
	4. Not important	"It is not important to me."	E.M.P1
	5. Different contextual use	"It is not helpful for me because sometimes there are words that can be used within different contexts and have different meanings so that would confuse me."	CompS.F.P5

	6. Useful	"This way helps me to retain the word properly."	E.M.P2
	7. Authenticity	"I use examples because they show the authenticity of the new words."	E.F.P5
	8. Conditional use	"If the word is new to me then there is no need for me to repeat the examples several times."	E.F.P6
4. Repeat the word and its English meaning	1. Exams	"I use this strategy because I sometimes have definition exams in which I have to define the English meaning of the word."	E.M.P2
	2. Authenticity	"It is more authentic to use the definition in English."	E.F.P5
		"It is more authentic."	E.M.P4
	3. Important	"It is important to me."	E.M.P3
	4. Useful for retention	"Repeating the meaning in English helps me to retain the word and its meaning."	E.M.P1
	5. Compensation strategy	"I do not use this strategy because I repeat the English word with its Arabic translation."	CompS.F.P5
		"I do not use this strategy because I repeat the English word on its own."	CompS.F.P6
	6. Difficult	"It is difficult for me."	CompS.M.P1
		"I cannot retain the word if I say its meaning in English with it."	CompS.M.P2
	7. Meaning confusion	"Because if I say its meaning in English the words included in the definition confuse me."	CompS.M.P4
	8. Not important	"It is not important."	E.F.P6
	9. Focus on pronunciation	"My aim is to focus on its pronunciation."	CompS.M.P3

VLSD11: Association strategies

VLS	Themes/Coding	Interview Quotations	Participants coding
1. I relate the new word to other English words similar in sound or spelling	1. Confusing	"Relating the new word to other English words with similar sounds or spellings is confusing to me."	CompS.M.P2
		" It is a confusing strategy for me."	CompS.F.P5
		" It confuses me."	CompS.M.P1
	2. Lack of vocabulary	"I cannot use this strategy because my vocabulary is not	CompS.M.P3

	proficiency	sufficient."	
	3. Retention	"This strategy helps me to support the old words that I learnt and retain the new words easily."	E.M.P3
	4. Fun	"It is one of the education games that I play with myself and with my friends."	E.M.P1
		"It is fun to do."	E.M.P2
	5. Awareness of lexicon orthography issues	"Using this strategy helps me to learn the differences between words that are similar in sound or spelling."	E.M.P4
		"I use this strategy because I want to be aware of these words in order to know their meaning when I encounter them."	E.F.P6
		"Because this will help me to discriminate between words which are similar in sound and spelling."	E.F.P5
	6.Lack of knowledge	"I do not know how to use this strategy."	CompS.M.P4
	7. Not important	"It is not important for me."	CompS.F.P6
	8. L1 meaning	"I only want to know its Arabic meaning"	CompS.F.P6
2. I relate the new word to synonyms or antonyms in English	**1**. Confusing	"This strategy confuses me so I do not use it."	CompS.M.P1
		"Having lots of synonyms or antonyms in English in my mind confuses me when I recall them, so I rarely use them."	CompS.M.P2
	2. Insufficient vocabulary	"I do not relate the new word to synonyms in English because it is difficult as my lexicon is insufficient."	CompS.F.P5
		"This strategy requires sufficient vocabulary but I do not have that ability so I rarely use it."	CompS.M.P4
	3. Compensation strategy	"I do not relate the new word to synonyms or antonyms in English; instead I prefer to focus on the word itself."	CompS.M.P3
		"I get confused when I relate the new words to something else so I prefer to stick with the word itself and nothing else."	CompS.F.P6

		"Focusing on the word itself is more useful for me than using its synonyms or antonyms."	E.M.P1
	4. Consolidation purposes	"Relating the new word to synonyms or antonyms in English is useful as it consolidates what I have already acquired and expands my lexicon."	E.M.P2
	5. Retention purpose	"Because this way it makes the retention of the new word easier for me."	E.F.P5
		" Helps with word retention."	E.M.P3
	6. Build up the lexicon	"When I meet a new word I try to find out all the related information about the word in order to improve my lexicon."	E.F.P6
	7. Effective	"It is effective for me, because I can reinforce the meaning of my old vocabulary and retain the new words."	E.M.P4
	8. Lack of knowledge	"Because I do not know how use this strategy"	CompS.M.P1
3. I associate the new word with a word in Arabic similar in sound	**1**. Helpful	"I associate the new word with a word in Arabic which is similar in sound because I meet some English words which are similar to Arabic in sound and this is an effective way for me to retain the meaning of the new word."	CompS.F.P6
		"I think it is helpful because sometimes there are words that sound similar in Arabic and English which makes them easy to remember."	CompS.M.P4
	2. Easy	"This strategy helps me to remember the new words more easily."	CompS.F.P5
		" Sometimes it helps me to remember the new words."	CompS.M.P2
	3. Unauthentic	"It is not authentic to relate Arabic to English as both languages have different systems."	E.M.P4
		"I would rather learn English in English."	E.F.P6
	4. Confusing	"I see it as a confusing	E.M.P3

		strategy."	
		"It confuses me and it is not effective to relate Arabic to English; English should be learnt in English."	E.F.P5
	5. Not effective	"I do not use this strategy because it is not effective for word retention."	E.M.P2
		" Not effective for me."	CompS.M.P3
		" Not helpful because it is hard to find similarities between Arabic and English."	CompS.M.P1
		"It is not effective because only a few words are related to Arabic."	CompS.M.P3
	6. Use of other strategies	"I would rather relate the new word to other English words which are similar in sound or spelling."	E.M.P1
4. I use the keyword method	**1**. Time consuming	"It is time consuming."	E.M.P4
		"It is time consuming."	CompS.M.P1
		"It is time consuming."	CompS.M.P3
	2. Confusing	"It confuses me."	E.M.P1
	3. Helpful	"It is good to use if possible"	E.M.P3
	4. Not useful	"It does not help me with my vocabulary leaning."	E.M.P2
	5. Unknown strategy	"I have not tried this strategy before."	E.F.P5
		"I do not know this strategy."	CompS.M.P2 CompS.M.P1 CompS.F.P5 E.F.P6 CompS.F.P6
		"I do not know this strategy."	CompS.M.P4
5. I relate new words to words that usually follow each other in speech or writing	**1**. Authentic	"It is more authentic to do this because I can find out the contextual use of the new words."	E.M.P1
		"I sometimes do that because I can then retain the authentic use of vocabulary items"	E.M.P4
	2. Good for retention	"This method helps us to retain the new words that come together more easily."	E.M.P3 and E.F.P5
		"It makes the word retention more easy for me"	E.M.P2
	3. Good for comprehension	"It makes comprehension of the new words easier for me."	E.F.P6
	4. Confusing	"I get confused by this strategy so I do not use it."	CompS.M.P2
		"This strategy confuses me"	CompS.M.P4

	5. Not important	"It is not important to me."	CompS.M.P1
		"Not useful to me."	CompS.F.P6
		"It is not important to me."	CompS.M.P3
	6. Not used	"I am not used to use this strategy."	CompS.F.P5
	7. Level of language proficiency	"I do not know how many of the words follow each other in speech or writing"	CompS.M.P1
		"My major is not English, so my level of English is not that great."	CompS.M.P3
6. I associate the new word with a physical action that I do or imagine	1. Not effective	"It is not effective for me."	E.M.P4
		"I do not use this strategy because it is not effective for vocabulary learning, at least for me."	E.M.P1
	2. Unnecessary	"It is not necessary for me."	CompS.M.P1
		"It is not necessary for me."	CompS.M.P2
		"It is not important for me."	CompS.M.P3
		"It is not necessary for me."	E.M.P2
		"It is not necessary for me."	E.M.P3
	3. Useless	"It is useless because I sometimes encounter abstract words."	CompS.M.P2
		"This strategy does not help me with anything."	CompS.M.P4
	4. Social issues	"I cannot do a physical action as this embarrasses me."	E.M.P4
		"It is embarrassing to use this strategy."	E.F.P5 E.F.P6
		" I feel shy to use a physical action to help retain the word."	CompS.F.P6
	5. Use of other strategies	"Because I would rather associate the new word with a word in Arabic which is similar in sound."	CompS.F.P5
7. I break up the new words according to its syllables or structure	1. Easy	"It is easy for me to break up the words because I can retain the new words more easily."	E.F.P5
		"Breaking up the new words into syllables is easy because this sometimes helps me to retain and remember the new word."	E.F.P6
	2. Helpful	"If there are long words then using this strategy is helpful."	E.M.P4
		"It is a really helpful strategy for me."	E.M.P1
		"This strategy helps me to retain the new words	E.M.P3

		effectively."	
		"It is helpful because it facilitates guessing the meaning of the new words."	E.M.P2
	3. Unknown	"I do not know how to do this."	CompS.M.P2
		"I do not know how to break up the words according to its syllables"	CompS.M.P3
		"I have little knowledge about this; especially when the word is complicated. I am not able to understand its syllables. Beside this is not my interest since this is not my major."	CompS.M.P1
	4. Conditional use	"If the words are easy I use this strategy because it makes retaining the new words easier."	CompS.M.P4
	5. Not important	"It is not important for me."	CompS.F.P.5

VLSD12: Practising strategies

VLS	Themes/Coding	Interview Quotations	Participants coding
1. Looking for opportunities to encounter new words in English (e.g. reading magazines, watching TV.)	**1.** Vocabulary improvement	"I look for the opportunities because I want to meet new words that could increase my vocabulary."	E.M.P4
		"I look for opportunities such as reading English news print as this improves my vocabulary."	E.F.P5
		"I can expand my vocabulary with this strategy."	E.M.P3
		"I read the Saudi Gazette because it helps me to build up my lexicon."	E.M.P2
	2. Retention purposes	"I use English websites that are related to my subject in order to help me to retain new words."	CompS.M.P3
		"It reinforces the new words that I have previously encountered."	CompS.M.P4
		"Watching TV helps me to retain new words."	CompS.M.P1
	3. Effective source	"The media, TV programmes etc. are effective sources because	E.F.P6

		they are vital sources of new vocabulary."	
	4. Language improvements	"I look for more opportunities in order to meet new words that help me to improve my language and my vocabulary."	CompS.F.P5
	5. Communication improvement	"Looking for opportunities, such as watching movies, will help develop my communication skills, because they provide L2 input for me."	CompS.M.P2
		"I always watch movies and it helps me to hear English words and see them in the subtitles which helps me to retain the words, so that is why I watch movies."	CompS.F.P6
		"I try to speak with native speakers as this improves my communication skills."	E.M.P1
2. I quiz myself or ask others to quiz me on new words	**1.** Use for revision	"I use this strategy to revise my new words."	E.M.P1
		"It is my way to make sure that I have successfully memorised the new words"	E.M.P2
		" Because I want to revise my new words."	CompS.M.P1
		"I test myself to ensure that I have studied the new words very well and that I have memorised them correctly."	CompS.F.P6
	2. Lexical Evaluation	"I quiz myself in order to test my vocabulary."	E.M.P4
		"This strategy helps me to know my lexical development"	E.F.P6
		"This is because I want to examine my vocabulary"	CompS.M.P3
	3. Social issues	"I feel embarrassed to ask someone to quiz me but I quiz myself."	CompS.F.P5
	4. Consolidation purpose	"I quiz myself to make sure that I have mastered the meaning of the new words that I have discovered."	CompS.M.P2
	5. Weakness identification	"I use this way to discover any lexical weaknesses."	E.F.P5

	6. Exams	"I do this whenever I have an exam to make sure that I know the new English words in my subject."	E.M.P3
		"I do this to prepare myself for my exams."	CompS.M.P4
3. I practise saying things in English by myself	1. Speaking skill	"I practise saying things in English by myself to improve my speaking skills."	CompS.M.P2
		"I practise saying things in English by myself because it is difficult to spend time with native speakers so I need to improve my speaking ability."	E.F.P5
	2. Fluency	"I practise saying things in English by myself because I want to speak fluently."	E.M.P4
		" I need to be fluent when I speak, so this strategy helps me to achieve this."	E.M.P2
	3. Retention objective	"I practise saying things in English by myself in order to retain the new words in my subject area."	CompS.M.P4
		"This strategy helps me a lot with the word retention."	E.M.P3
		"I practise saying things in English by myself in order to retain the new words."	E.M.P1
		"I want to retain the new word successfully."	CompS.F.P6
	4. Pronunciation	"Because I want to practise how to spell the new words properly."	CompS.F.P5
	5. Revision	"I practise saying new words by myself to revise the new words."	E.F.P6
		"I use it for revising new words"	CompS.M.P1
		"For revision."	CompS.M.P3
4. Using as many new words as possible in speaking or writing	1. Useful for lexical improvements	"I use as many new words as possible in speaking or writing because it is useful for my lexical improvement."	E.M.P4
		"I use as many new words as possible in speaking or writing because this increases my vocabulary." "It helps me to avoid	E.F.P5

		spelling or pronunciation mistakes."	
		"Because it improves my vocabulary."	CompS.M.P2
	2. Retention purposes	"I use as many new words as possible in speaking and writing because it helps me to retain the new words."	CompS.M.P1
	3. Speaking purposes	"I use as many new words as possible in speaking and writing because I want to improve my speaking ability."	E.F.P6
		"To improve my speaking ability."	E.M.P1
	4. Habit	"I use as many new words as possible in speaking and writing because I used to do this when I encountered new words."	CompS.F.P5
		"I use as many new words as possible in speaking and writing because I got used to doing this in order to develop my writing skills."	E.M.P2
		"I want to develop my wiring skills."	E.M.P3
	5. Use of other practising strategies	"I quiz myself with new words instead."	CompS.M.P3
		" I used to quiz myself with new words."	CompS.M.P4
	6. Importance	"Only if the new words are important to my course."	CompS.F.P6

Appendix K

Overall Use of VLSs in Mean Frequency Order by All Learners

Rank	VLSs	N	Mean	Std. Deviation
1	Its Arabic meaning	158	4.5823	.84624
2	On the mobile/computer.	155	4.4258	.99315
3	Its equivalent Arabic meaning.	158	4.3354	1.00071
4	The word is useful to me.	158	4.3228	.84664
5	The word is important in that it is needed when speaking or writing.	158	4.2278	.99616
6	The word is unknown and thus new to me.	158	4.1709	1.16309
7	The word is important in that it recurs frequently in the text where I met it.	158	4.0380	.96358
8	In an Electronic Dictionary	158	3.9241	1.24432
9	The word is important in that the teacher said so.	158	3.8354	1.11081
10	With its Arabic translation.	158	3.8228	1.13721
11	Paying attention to pictures if they accompany the word or text.	158	3.8165	1.00215
12	Only repeat the English word with nothing else.	158	3.7532	1.27538
13	I write the word several times.	158	3.7342	1.18600
14	I repeat the word silently several times.	158	3.6835	1.16798
15	The word is difficult for me.	158	3.6329	1.22788
16	Its spelling or pronunciation.	158	3.6203	1.08027
17	On the margins of my textbooks	158	3.6076	1.31544
18	Reading the sentence or paragraph containing the unknown word.	158	3.5823	1.19561
19	I listen to the word several times.	158	3.5570	1.28437
20	In a random order.	158	3.5443	1.21349
21	The word is important in that it is a key word in the text where I met it.	158	3.5190	1.09847
22	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	158	3.3861	1.22980
23	Its spelling	158	3.3797	1.17081
24	I look for opportunities to encounter new words in English.	158	3.2595	1.22178
25	In my (general) English notebook.	158	3.2025	1.43992
26	I use as many new words as possible in speaking or in writing.	158	3.1962	1.28915
27	In my pocket/personal notebook.	158	3.1709	1.38781
28	On the internet.	158	3.1329	1.50627
29	I practise saying things in English by myself.	158	3.1266	1.28556

30	Say the word and its Arabic translation.	158	3.0190	1.27929
31	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	158	2.9937	1.39378
32	I associate the new word with a physical action that I do or imagine.	158	2.9494	1.29082
33	I say the word aloud several times.	158	2.8734	1.43093
34	I relate the new word to synonyms or antonyms in English.	158	2.8354	1.28123
35	An example sentences.	158	2.8101	1.34094
36	Analyzing the word part of speech	158	2.7911	1.24693
37	I break up the new word according to its syllables or structure.	158	2.7595	1.34700
38	I relate new words to words that usually follow each other in speech or writing.	158	2.6835	1.37812
39	I relate the new word to other English words similar in sound or spelling.	158	2.6772	1.36503
40	I associate the new word with a word in Arabic similar in sound.	158	2.6646	1.35257
41	By units or lessons of the textbook	158	2.6139	1.24012
42	Its part of speech.	157	2.5732	1.12776
43	Its definition in English.	158	2.5570	1.20241
44	Repeat the word and its English definition.	158	2.5253	1.28539
45	Repeat example sentences several times.	158	2.5190	1.22979
46	I write down synonyms and antonyms beside new words	158	2.4937	1.21428
47	50. The word is important in that I realize it is a highly frequent word in English	156	2.4615	1.26177
48	I write down their English definition	157	2.4522	1.26312
49	In a paper English-Arabic Dictionary	158	2.4430	1.36608
50	On separate pieces of paper.	158	2.4114	1.25241
51	Its synonym or antonym.	158	2.4051	1.27213
52	I use the keyword method.	158	2.3734	1.32821
53	Its grammatical category.	158	2.3671	1.21747
54	According to their difficulty.	158	2.3354	1.29973
55	Only with nothing else.	158	2.3101	1.16149
56	With its pronunciation in the form of transliteration	158	2.2785	1.36318
57	Its English meaning	158	2.2658	1.06728
58	Checking if it is similar to Arabic in sound	158	2.2595	1.35994
59	In a computer file or other electronic device.	158	2.2405	1.28405
60	Its synonym & antonym in English.	158	2.2215	1.23445
61	Saying the word aloud several times.	158	2.2089	1.17324
62	Analyzing the structure of the word	158	2.1899	1.23201

63	I write down the grammatical category of the word	158	2.1456	1.04562
64	Its stem	156	2.1154	1.16376
65	I write down example sentences using the new word	158	2.1139	1.07060
66	With other related words of the same family.	158	1.9367	1.17122
67	By their meaning groups.	158	1.8924	1.03188
68	Looking for examples	158	1.8671	1.08319
69	In a paper English-English Dictionary	158	1.7975	1.11023
70	I organize words in families with the same stem.	158	1.7848	1.00535
71	In alphabetical order.	158	1.7025	1.00006
72	By their grammatical category	158	1.6899	.97027
73	With a note about the source I got it from.	157	1.5987	.93274
74	On cards.	158	1.5633	.82503
75	On wall charts, posters or small pieces of paper I stick somewhere at home.	158	1.5127	.93575

Appendix L

Overall Use of VLSs in Mean Frequency Order by English Major

Rank	VLSs	N	Mean	Std. Deviation
1	I select a word for note-taking if I see that the word is unknown and thus new to me.	62	4.3871	.99762
2	I select a word for note-taking if I see that the word is useful to me.	62	4.3548	.79128
3	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	62	4.2258	1.13685
4	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	62	4.1613	.90886
5	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	62	4.1452	1.03776
6	I write down the English word with its Arabic translation.	62	4.1452	1.14300
7	I use a smartphone dictionary application to check the meaning of unknown words.	62	4.1290	1.24774
8	I write the word several times.	62	4.0161	1.13790
9	I look up the unknown word by using a dictionary and check its Arabic meaning.	62	4.0161	1.23464
10	I select a word for note-taking if I see that the word is important in that the teacher said so.	62	3.9677	1.17303
11	I repeat the word silently several times.	62	3.8387	1.10429
12	Paying attention to pictures if they accompany the word or text.	62	3.7903	1.11821
13	In a random order.	62	3.7581	1.19679
14	On the margins of my textbooks.	62	3.7419	1.39008
15	Only repeat the English word with nothing else.	62	3.7258	1.41618
16	I ask teachers and friends about its Arabic equivalent.	62	3.7097	1.46419
17	The word is difficult for me.	62	3.7097	1.23324
18	I listen to the word several times.	62	3.6452	1.43831
19	Its spelling.	62	3.6129	1.48605
20	I look for opportunities to encounter new words in English.	62	3.6129	1.23281
21	The word is important in that it is a key word in the text where I met it.	62	3.6129	1.13592
22	Reading the sentence or paragraph containing the unknown word.	62	3.5645	1.23635
23	In my pocket/personal notebook.	62	3.4516	1.44492

24	The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	62	3.4194	1.30004
25	I practise saying things in English by myself.	62	3.3226	1.31541
26	T. Its spelling or pronunciation.	62	3.3065	1.35003
27	I relate new words to words that usually follow each other in speech or writing.	62	3.2419	1.42214
28	In my (general) English notebook.	62	3.2419	1.57527
29	Analyzing the word part of speech.	62	3.2419	1.28912
30	I use as many new words as possible in speaking or in writing.	62	3.2097	1.22992
31	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	62	3.1774	1.20823
32	I relate the new word to synonyms or antonyms in English.	62	3.1129	1.29444
33	On the internet.	62	3.0968	1.54400
34	Analysing the structure of the word.	62	3.0645	1.46959
35	Its definition in English.	62	3.0645	1.37746
36	I relate the new word to other English words similar in sound or spelling.	62	3.0161	1.34885
37	The word is important in that I realize it is a highly frequent word in English.	61	3.0000	1.36626
38	I break up the new word according to its syllables or structure.	62	2.9355	1.48071
39	Say the word and its Arabic translation.	62	2.9194	1.33427
40	Its English meaning.	62	2.8387	1.35735
41	I write down their English definition.	62	2.8226	1.31229
42	Its part of speech.	62	2.7903	1.20296
43	Repeat the word and its English definition.	62	2.7903	1.22992
44	Its synonym & antonym.	62	2.7097	1.40709
45	Its synonym & antonym in English.	62	2.6935	1.32552
46	I write down synonyms and antonyms beside new words.	62	2.6613	1.32990
47	Its grammatical category.	62	2.6613	1.29239
48	Looking for examples.	62	2.6452	1.36822
49	Its stem.	62	2.5968	1.29892
50	An example sentences.	62	2.5806	1.13871
51	Write English word down with the other related words of the same family.	62	2.5161	1.53369
52	By units or lessons of the textbook.	62	2.5000	1.27716
53	Repeat example sentences several times.	62	2.4839	1.25112
54	I say the word aloud several times.	62	2.4839	1.45694
55	I associate the new word with a word in Arabic similar in sound.	62	2.4194	1.34954
56	I associate the new word with a physical action that I do or imagine.	62	2.4194	1.39729

57	I write down the grammatical category of the word.	62	2.3710	1.28336
58	Checking if it is similar to Arabic in sound.	62	2.3065	1.39776
59	I write down example sentences using the new word.	62	2.2903	1.31058
60	Only with nothing else.	62	2.2903	1.27250
61	In a paper English-Arabic Dictionary.	62	2.2742	1.40455
62	In a computer file or other electronic device.	62	2.2581	1.40182
63	With its pronunciation in the form of transliteration.	62	2.2258	1.43057
64	I use the keyword method	62	2.2258	1.31098
65	In a paper English-English dictionary.	62	2.0645	1.19933
66	I organize words in families with the same stem.	62	1.7258	1.01091
67	Organize the words by their meaning groups.	62	1.6774	.80519
68	Organize the words by their grammatical category.	62	1.6452	1.10285
69	On separate pieces of paper.	62	1.6452	.74870
70	Saying the word aloud several times.	62	1.6290	.89138
71	Organize the words in alphabetical order.	62	1.6129	.94704
72	Write down a note about the source I got it from.	62	1.5968	.79876
73	According to their difficulty.	62	1.5806	.98428
74	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	62	1.4516	.84305
75	Keep notes on cards.	62	1.4194	.66649

Appendix M

Overall Use of VLSs in Mean Frequency Order by Computer Science Major

Rank	VLSs	N	Mean	Std. Deviation
1	I select a word for note-taking if I see that the word is unknown and thus new to me.	56	4.4643	1.06112
2	I use a smartphone dictionary application to check the meaning of unknown words.	56	4.3750	1.07132
3	I write down the English word with its Arabic translation.	56	4.3750	.79915
4	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	56	4.3214	.91666
5	I select a word for note-taking if I see that the word is useful to me.	56	4.3214	.76532
6	I look up the unknown word by using a dictionary and check its Arabic meaning.	56	4.3036	1.07736
7	I ask teachers and friends about its Arabic equivalent.	56	4.1071	1.23109
8	Paying attention to pictures if they accompany the word or text.	56	4.0893	.93957
9	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	56	4.0357	1.00841
10	The word is difficult for me.	56	4.0179	1.10357
11	In a random order.	56	3.9643	1.06112
12	On the margins of my textbooks.	56	3.9107	1.16427
13	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	56	3.9107	.92002
14	I write the word several times.	56	3.7321	1.27195
15	In my pocket/personal notebook.	56	3.6786	1.25201
16	I select a word for note-taking if I see that the word is important in that the teacher said so.	56	3.6607	.90004
17	I repeat the word silently several times.	56	3.6071	1.27463
18	Only repeat the English word with nothing else.	56	3.5000	1.53741
19	Reading the sentence or paragraph containing the unknown word.	56	3.3929	1.52170
20	The word is important in that it is a key word in the text where I met it.	56	3.3750	1.05421
21	Its spelling.	56	3.3571	1.21249
22	On the internet.	56	3.3571	1.45763
23	I listen to the word several times.	56	3.3214	1.46607
24	Say the word and its Arabic translation.	56	3.3036	1.37404
25	I look for opportunities to encounter new words in English.	56	3.2321	1.29321
26	T. The word is important in that I realize its Arabic equivalent is a highly frequent word in Arabic.	56	3.1964	1.36741

27	Its spelling or pronunciation.	56	3.0357	1.43925
28	I practise saying things in English by myself.	56	2.9286	1.31919
29	I use as many new words as possible in speaking or in writing.	56	2.8571	1.24212
30	In my (general) English notebook.	56	2.8571	1.39386
31	I associate the new word with a word in Arabic similar in sound.	56	2.8214	1.37652
32	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	56	2.7857	1.41054
33	With its pronunciation in the form of transliteration.	56	2.6429	1.39386
34	The word is important in that I realize it is a highly frequent word in English.	56	2.5893	1.38534
35	In a paper English-Arabic Dictionary.	56	2.4464	1.46374
36	Repeat example sentences several times.	56	2.3929	1.30284
37	In a computer file or other electronic device.	56	2.3929	1.34406
38	I associate the new word with a physical action that I do or imagine.	56	2.3571	1.41971
39	Analyzing the word part of speech.	56	2.3393	1.35213
40	I say the word aloud several times.	56	2.3393	1.35213
41	Looking for examples.	56	2.2857	1.31722
42	Its grammatical category.	56	2.2857	1.26080
43	I relate the new word to other English words similar in sound or spelling (e.g. weak & week).	56	2.2857	1.28932
44	Repeat the word and its English definition.	56	2.2857	1.28932
45	I write down their English definition.	56	2.2857	1.44869
46	Its part of speech.	56	2.2500	.99544
47	Its definition in English.	56	2.2321	1.11177
48	An example sentence.	56	2.2321	1.29321
49	By units or lessons of the textbook.	56	2.1964	1.19726
50	T. Only with nothing else.	56	2.1964	.99854
51	I break up the new word according to its syllables or structure.	56	2.1964	1.18198
52	Checking if it is similar to Arabic in sound.	56	2.1786	1.33631
53	I relate new words to words that usually follow each other in speech or writing.	56	2.1786	1.06356
54	T. I relate the new word to synonyms or antonyms in English.	56	2.1607	1.24720
55	I use the keyword method.	56	2.0714	1.39944
56	Its English meaning.	56	2.0357	1.07812
57	I write down synonyms and antonyms beside new words.	56	2.0179	1.15193
58	I write down the grammatical category of the word.	56	2.0179	1.10357
59	I write down example sentences using the new word.	56	2.0000	1.00905
60	Its synonym & antonym.	56	2.0000	1.04447
61	Analyzing the structure of the word.	56	1.9821	1.08697
62	Its stem.	55	1.9455	1.11252
63	Its synonym & antonym in English.	56	1.8929	1.18596
64	Saying the word aloud several times.	56	1.8929	1.00324

65	Write English word down with the other related words of the same family.	56	1.8571	1.01674
66	Organize the words by their meaning groups.	56	1.8214	.99283
67	On separate pieces of paper.	56	1.7857	1.09069
68	According to their difficulty.	56	1.7500	1.06600
69	In a paper English-English dictionary.	56	1.7143	1.12354
70	Write down a note about the source I got it from	56	1.5357	.89370
71	Keep notes on cards.	56	1.5179	.68732
72	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	56	1.5179	.80884
73	Organize the words in alphabetical order.	56	1.5000	.89443
74	I organize words in families with the same stem.	56	1.4643	.76192
75	Organize the words by their grammatical category.	56	1.3750	.70227

Appendix N

Overall Effectiveness of VLSs in Mean Frequency Order by English Major

Rank	VLSs	N	Mean	Std. Deviation
1	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	62	4.5323	1.06691
2	I select a word for note-taking if I see that the word is useful to me.	62	4.4677	.74035
3	I select a word for note-taking if I see that the word is unknown and thus new to me.	62	4.4516	1.00290
4	I use a smartphone dictionary application to check the meaning of unknown words.	62	4.4194	1.09467
5	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	62	4.3548	.87021
6	I select a word for note-taking if I see that the word is important in that the teacher said so.	62	4.3387	.90433
7	I write the word several times.	62	4.3226	.95427
8	I repeat the word silently several times.	62	4.2742	.97794
9	I write down the English word with its Arabic translation.	62	4.2419	1.06641
10	Paying attention to pictures if they accompany the word or text.	62	4.1452	.93820
11	On the margins of my textbooks.	62	4.1129	1.04183
12	I ask teachers and friends about its Arabic equivalent.	62	4.1129	1.16090
13	In my pocket/personal notebook.	62	4.0645	1.08448
14	Only repeat the English word with nothing else.	62	4.0323	1.30532
15	I look for opportunities to encounter new words in English.	62	4.0000	1.18737
16	I listen to the word several times.	62	4.0000	1.17348
17	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	62	3.8548	1.08411
18	I look up the unknown word by using a dictionary and check its Arabic meaning.	62	3.8387	1.16216
19	The word is important in that it is a key word in the text where I met it.	62	3.8226	1.24827
20	Reading the sentence or paragraph containing the unknown word.	62	3.8065	1.19889
21	In a random order.	62	3.7903	1.14716
22	I relate new words to words that usually follow each other in speech or writing.	62	3.7258	1.42770
23	Its spelling or pronunciation.	62	3.7097	1.27250
24	I break up the new word according to its syllables or structure.	62	3.6774	1.49067
25	On the internet.	62	3.6774	1.52331
26	In my (general) English notebook.	62	3.6129	1.44125
27	The word is important in that I realize its Arabic	62	3.5968	1.28624

	equivalent is a highly frequent word in Arabic.			
28	I use as many new words as possible in speaking or in writing.	62	3.5968	1.41953
29	Its English meaning.	62	3.5968	1.37256
30	I relate the new word to synonyms or antonyms in English.	62	3.5484	1.39880
31	I write down their English definition.	62	3.5323	1.36367
32	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	62	3.5000	1.38789
33	The word is difficult for me.	62	3.4839	1.35189
34	Its spelling.	62	3.4677	1.49005
35	I write down synonyms and antonyms beside new words.	62	3.4194	1.42056
36	Analyzing the word part of speech.	62	3.4194	1.30004
37	Its definition in English.	62	3.4032	1.32392
38	The word is important in that I realize it is a highly frequent word in English.	62	3.3871	1.47498
39	I relate the new word to other English words similar in sound or spelling.	62	3.3710	1.45122
40	Its synonym & antonym.	62	3.3548	1.44967
41	Analyzing the structure of the word.	62	3.3387	1.49253
42	Say the word and its Arabic translation.	62	3.3226	1.19801
43	An example sentence.	62	3.2097	1.17539
44	Its part of speech.	62	3.1935	1.41234
45	I practise saying things in English by myself.	62	3.1774	1.31229
46	I write down the grammatical category of the word.	62	3.0000	1.36706
47	Its synonym & antonym in English.	62	2.9355	1.46959
48	Write English word down with the other related words of the same family.	62	2.9355	1.64836
49	Looking for examples.	62	2.8710	1.24774
50	Its grammatical category.	62	2.8065	1.50233
51	Repeat the word and its English definition.	62	2.7581	1.37526
52	Organize the words by their meaning groups.	62	2.7258	1.43914
53	Repeat example sentences several times.	62	2.6774	1.03661
54	Its stem.	62	2.6774	1.49067
55	With its pronunciation in the form of transliteration.	62	2.6129	1.50796
56	In a computer file or other electronic device.	62	2.4839	1.38779
57	I associate the new word with a word in Arabic similar in sound.	62	2.3710	1.34571
58	Organize the words by their grammatical category.	62	2.3387	1.24062
59	In a paper English-English dictionary.	62	2.3065	1.39776
60	I use the keyword method.	62	2.3065	1.35003
61	I associate the new word with a physical action that I do or imagine.	62	2.2742	1.36909
62	I say the word aloud several times.	62	2.2097	1.47256
63	I write down example sentences using the new word.	62	2.2097	1.30745
64	By units or lessons of the textbook.	62	2.1935	1.05331

65	Checking if it is similar to Arabic in sound.	62	2.1774	1.36134
66	In a paper English-Arabic Dictionary.	62	2.1290	1.36086
67	I organize words in families with the same stem.	62	2.0323	1.27996
68	Only with nothing else.	62	1.8871	1.17494
69	Saying the word aloud several times.	62	1.7903	1.13278
70	On separate pieces of paper.	62	1.7097	.68681
71	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	62	1.6613	.80863
72	According to their difficulty.	62	1.6452	.97673
73	Organize the words in alphabetical order.	62	1.5968	.85813
74	Write down a note about the source I got it from.	62	1.5000	.78406
75	Keep notes on cards.	62	1.3710	.79412

Appendix O

Overall Effectiveness of VLSs in Mean Frequency Order by Computer Science Major

Rank	VLSs	N	Mean	Std. Deviation
1	I select a word for note-taking if I see that the word is unknown and thus new to me.	56	4.6429	.81861
2	I use a smartphone dictionary application to check the meaning of unknown words.	56	4.5536	1.02549
3	I write down the English word with its Arabic translation.	56	4.5179	.73833
4	I select a word for note-taking if I see that the word is useful to me.	56	4.4286	.75936
5	I use an electronic dictionary such as Atlas to check the meaning of unknown words.	56	4.4107	.91008
6	I ask teachers and friends about its Arabic equivalent.	56	4.3750	.94508
7	Paying attention to pictures if they accompany the word or text.	56	4.2679	.86321
8	I select a word for note-taking if I see that the word is important in that it recurs frequently in the text where I encountered it.	56	4.2321	.99070
9	I look up the unknown word by using a dictionary and check its Arabic meaning.	56	4.1607	.98676
10	On the margins of my textbooks.	56	4.1071	1.07329
11	I write the word several times.	56	4.0536	1.21236
12	E. I select a word for note-taking if I see that the word is important in that the teacher said so.	56	4.0536	1.01658
13	I repeat the word silently several times.	56	4.0000	1.14416
14	In my pocket/personal notebook.	56	3.9107	1.23989
15	On the internet.	56	3.8929	1.34406
16	Only repeat the English word with nothing else.	56	3.8571	1.55422
17	I select a word for note-taking if I see that the word is important in that it is needed when speaking or writing.	56	3.7679	.91435
18	The word is difficult for me.	56	3.7679	1.17537
19	Reading the sentence or paragraph containing the unknown word.	56	3.7143	1.42337
20	Say the word and its Arabic translation.	56	3.6964	1.42599
21	I look for opportunities to encounter new words in English.	56	3.6607	1.21021
22	I listen to the word several times.	56	3.6429	1.29935
23	In a random order.	56	3.5714	1.30533
24	The word is important in that it is a key word in the text where I met it.	56	3.5179	1.11177
25	The word is important in that I realize its Arabic equivalent is a highly frequent word in	56	3.4643	.99021

	Arabic.			
26	Its spelling or pronunciation.	56	3.4286	1.24838
27	In my (general) English notebook.	56	3.3036	1.41318
28	I quiz myself or ask other to quiz me on new words (answering vocabulary tests).	56	3.2143	1.34454
29	Its spelling.	56	3.1964	1.39375
30	I use as many new words as possible in speaking or in writing.	56	3.1964	1.28516
31	With its pronunciation in the form of transliteration.	56	3.0893	1.71916
32	I practise saying things in English by myself.	56	2.9464	1.24199
33	The word is important in that I realize it is a highly frequent word in English.	56	2.9464	1.56577
34	I associate the new word with a word in Arabic similar in sound.	56	2.8036	1.48225
35	I write down their English definition.	56	2.7857	1.59219
36	In a computer file or other electronic device.	56	2.7500	1.36515
37	I relate the new word to synonyms or antonyms in English.	56	2.6964	1.50054
38	Its definition in English.	56	2.6071	1.27463
39	Repeat the word and its English definition.	56	2.5893	1.46196
40	I write down the grammatical category of the word.	56	2.5714	1.48761
41	An example sentence.	56	2.5536	1.43868
42	In a paper English-Arabic Dictionary.	56	2.5179	1.45216
43	Its synonym & antonym.	56	2.5179	1.23570
44	I break up the new word according to its syllables or structure.	56	2.5000	1.36182
45	I write down synonyms and antonyms beside new words.	56	2.5000	1.37510
46	Repeat example sentences several times.	56	2.4821	1.27908
47	By units or lessons of the textbook.	56	2.4821	1.41410
48	Looking for examples.	56	2.4643	1.43925
49	Its grammatical category.	56	2.4643	1.36134
50	Its part of speech.	56	2.4286	1.27717
51	Organize the words by their meaning groups.	56	2.4286	1.10958
52	Its English meaning.	56	2.3750	1.16872
53	I relate new words to words that usually follow each other in speech or writing.	56	2.3571	1.32704
54	Write English word down with the other related words of the same family.	56	2.3214	1.37652
55	Its stem.	56	2.2321	1.40118
56	Its synonym & antonym in English.	56	2.2143	1.38452
57	I relate the new word to other English words similar in sound or spelling.	56	2.1964	1.36741
58	Analyzing the word part of speech.	56	2.1429	1.28528
59	Analyzing the structure of the word.	56	2.1429	1.15095
60	I associate the new word with a physical action that I do or imagine.	56	2.1071	1.44824
61	Checking if it is similar to Arabic in sound.	56	2.0000	1.27920
62	I say the word aloud several times.	56	1.9821	1.48313

63	Only with nothing else.	56	1.9643	.97168
64	I use the keyword method.	56	1.9464	1.39375
65	I write down example sentences using the new word.	56	1.9464	1.13490
66	Saying the word aloud several times.	56	1.9286	1.20389
67	Organize the words by their grammatical category.	56	1.8929	1.23109
68	In a paper English-English dictionary.	56	1.8750	1.45305
69	According to their difficulty (e.g. from easiest to most difficult).	56	1.8214	1.04633
70	On separate pieces of paper.	56	1.8214	.97435
71	I organize words in families with the same stem.	56	1.7143	1.13961
72	Write down a note about the source I got it from (e.g. unit, film, where I encountered it).	56	1.6071	.92792
73	Keep notes on wall charts, posters or small pieces of paper that I stick somewhere at home.	56	1.4821	.71328
74	Keep notes on cards.	56	1.4643	.65959
75	Organize the words in alphabetical order.	56	1.4643	.85204

Appendix P

English Major Curriculum

<table>
<tr><td colspan="8" align="center">YEAR ONE</td></tr>
<tr><td colspan="4" align="center">LEVEL ONE</td><td colspan="4" align="center">LEVEL TWO</td></tr>
<tr><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td></tr>
<tr><td>1</td><td>سلم111</td><td>Introduction to Islamic Culture-1</td><td>2</td><td>1</td><td>سلم112</td><td>Islamic Culture-2</td><td>2</td></tr>
<tr><td>2</td><td>Eng111</td><td>English Grammar-1</td><td>3</td><td>2</td><td>Eng121</td><td>English Grammar-2</td><td>3</td></tr>
<tr><td>3</td><td>Eng112</td><td>Listening & Speaking-1</td><td>3</td><td>3</td><td>Eng122</td><td>Listening and Speaking-2</td><td>3</td></tr>
<tr><td>4</td><td>ترب113</td><td>Foundations of Education</td><td>2</td><td>4</td><td>Eng123</td><td>Writing-2 essay</td><td>3</td></tr>
<tr><td>5</td><td>Eng113</td><td>Writing-1 essay</td><td>3</td><td>5</td><td>Eng124</td><td>Reading-2</td><td>3</td></tr>
<tr><td>6</td><td>Eng114</td><td>Reading-1</td><td>3</td><td>6</td><td>وسل 143</td><td>Computer in Education</td><td>2</td></tr>
<tr><td>7</td><td>عرب201</td><td>Language Skills</td><td>2</td><td>7</td><td>عرب202</td><td>Arabic Composition</td><td>2</td></tr>
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<tr><td colspan="8" align="center">YEAR TWO</td></tr>
<tr><td colspan="4" align="center">LEVEL THREE</td><td colspan="4" align="center">LEVEL FOUR</td></tr>
<tr><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td></tr>
<tr><td>1</td><td>سلم113</td><td>Islamic Culture-3</td><td>2</td><td>1</td><td>سلم114</td><td>English Grammar-4</td><td>2</td></tr>
<tr><td>2</td><td>Eng211</td><td>English Grammar-3</td><td>3</td><td>2</td><td>Eng221</td><td>Pronunciation of English</td><td>3</td></tr>
<tr><td>3</td><td>Eng212</td><td>Listening & Speaking-3</td><td>3</td><td>3</td><td>Eng222</td><td>Listening & Speaking-4</td><td>3</td></tr>
<tr><td>4</td><td>Eng213</td><td>Writing-3</td><td>3</td><td>4</td><td>Eng223</td><td>Writing-4</td><td>3</td></tr>
<tr><td>5</td><td>Eng214</td><td>Reading-3</td><td>3</td><td>5</td><td>Eng224</td><td>Reading-4</td><td>3</td></tr>
<tr><td>6</td><td>Eng215</td><td>Vocabulary-1</td><td>3</td><td>6</td><td>Eng225</td><td>Vocabulary-2</td><td>3</td></tr>
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<tr><td colspan="8" align="center">YEAR THREE</td></tr>
<tr><td colspan="4" align="center">LEVEL FIVE</td><td colspan="4" align="center">LEVEL SIX</td></tr>
<tr><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td><td>S.N</td><td>Code</td><td>Course Name</td><td>Hours</td></tr>
<tr><td>1</td><td>Eng311</td><td>Introduction to Linguistics</td><td>3</td><td>1</td><td>ترب 312</td><td>Administration & Educational Supervision</td><td>2</td></tr>
<tr><td>2</td><td>Eng314</td><td>Phonetics & Phonology</td><td>3</td><td>2</td><td>Eng321</td><td>Applied Linguistics</td><td>3</td></tr>
<tr><td>3</td><td>Eng315</td><td>Introduction to Translation</td><td>3</td><td>3</td><td>Eng323</td><td>Language Testing</td><td>3</td></tr>
<tr><td>4</td><td>نفس321</td><td>Developmental Psychology & Educational Applications</td><td>2</td><td>4</td><td>نفس 323</td><td>Thinking & Communication Skills</td><td>3</td></tr>
<tr><td>5</td><td>نقس 322</td><td>Educational Psychology &</td><td>3</td><td>5</td><td>Eng325</td><td>Translation-2</td><td>3</td></tr>
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		Applications					
6		Morphology and Syntax1	2	6	نهج 334	Curriculum Principles & Foundations	2
Total Credit Hours			**16**	**Total Credit Hours**			**16**

YEAR FOUR							
LEVEL SEVEN				**LEVEL EIGHT**			
S.N	**Code**	**Course Name**	**Hours**	**S.N**	**Code**	**Course Name**	**Hours**
1	Eng411	Language Acquisition	3	1	نهج431	Teaching Practicum	8
2	Eng414	Morphology and Syntax2	3	2			
3	Eng416	Research Methods	2	3			
4	نفس 421	Educational Measurement & Evaluation	3	4			
5	نهج 432	Learning & teaching Strategies	3	5			
6	وسل443	Teaching Techniques Applications	2	6			
Total Credit Hours			**16**	**Total Credit Hours**			**8**

Appendix Q

Computer Science Curriculum

CS Program Curriculum Requirement (Current Curricula effective since First Semester 2013/2014)		
Level 1		
Course Code	**Course Name**	**Number of Credits**
140TEC-3	Computer Skills	3
140MATH-2	Introduction of Mathematics	2
140SKL-2	Learning, Thinking and Research Skills	2
140ENGG-2	English Language: Reading Skills	2
141ENGG-2	English Language: Writing Skills	2
142ENGG-2	English Language: Listening and Speaking Skills	2
143ENGG-2	English Language: Grammar1	2
Total Number of Credits		**15**
Level 2		
Course Code	**Course Name**	**Number of Credits**
150MAN-1	Occupational Ethics	1
150MATH-4	Algebraic Sciences	4
150SKL-2	Communication Skills	2
150ENGG-3	English Language: Speaking	3
151ENGG-2	English language : Report Writing	2
143ENGG-2	English Language: Grammar2	2
Total Number of Credits		**14**
Level 3		
Course Code	**Course Name**	**Number of Credits**
111ISL-2	Introduction to Islamic Culture	2
104PHYS-4	Fundamentals of Physics	4
111CSS-4	Programming Language 1	4
106MATH-3	Introduction to Integration	3
152MATH-3	Discrete Mathematics	3
Total Number of Credits		**12**
Level 4		
Course Code	**Course Name**	**Number of Credits**
201ARAB-2	Arabic Language Skills	2
342MATH-3	Linear Algebra	3
113CSS-4	Object Oriented Programming	4
324STAT-3	Probabilities and Engineering Statistics	3
203MATH-3	Advanced Calculus	3

	Total Number of Credits	15

Level 5		
Course Code	**Course Name**	**Number of Credits**
112ISL-2	Islamic Culture 2	2
212CSS-3	Data Structures	3
105PHIS-4	Advanced Physics	4
222CSS-4	Computer Organization and Architecture	4
330CSS-3	Programming Paradigms	3
	Total Number of Credits	**16**

Level 6		
Course Code	**Course Name**	**Number of Credits**
227CSS-3	Operating Systems	3
113ISL-2	Islamic Culture 3	2
342CSS-3	Software Engineering	3
101BIOL-4	General Biology	4
235CSS-3	Theory of Computation	3
	Total Number of Credits	**15**

Level 7		
Course Code	**Course Name**	**Number of Credits**
281CSS-3	Computer Graphics	3
361CSS-3	Artificial Intelligence	3
457CSS-3	Internet Technologies	3
380CSS-3	Fundamentals of Database Systems	3
329CSS-3	Data Communication and Computer Networks	3
	Total Number of Credits	**15**

Level 8		
Course Code	**Course Name**	**Number of Credits**
491CSS-4	Graduation Project 1	4
456CSS-3	Parallel and Distributed Systems	3
114ISL-2	Islamic Culture 4	2
328CSS-3	Human and Computer Interaction	3
474CSS-3	Algorithm Design and Analysis	3
	Total Number of Credits	**15**