



Conceptual Metaphor Teaching: Its Effects on Reading Comprehension and Metaphor Learning and Retention

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DECLARATION

I confirm that this is my own work and that the use of all materials from other sources has been properly and fully acknowledged.

Ghadeer Alghahtani

15/3/2023

DEDICATION

I dedicate this thesis to my pride and joy, and the most important people in my life: my amazing husband: Talal, and my lovely children: Tala, Leen, Abdulelah, and Abdulaziz.

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ABSTRACT

This thesis sought to investigate figurative language teaching in the context of L2 learning in a Saudi Arabian university, through the lens of cognitive linguistics. More specifically, the aim was to explore the ways in which female L2 Saudi university learners' reading comprehension, and their learning and retention of metaphoric expressions, are impacted by conceptual metaphor teaching. A mixed-methods quasi-experimental design was used to explore 210 female students' general understanding of reading texts and the metaphoric expressions embedded within those texts. These students' ability to transfer the newly learned metaphoric knowledge to new untaught metaphors within the reading texts was also investigated. In addition, the learning and 2-week retention of metaphoric expressions was assessed. Moreover, students' perceptions of the different teaching methodologies they were exposed to, as well as their thoughts on the strategies they chose when understanding the reading texts and metaphoric expressions, were investigated through interviews with 16 students.

Students in the intervention group (108) received conceptual metaphor teaching of metaphoric expressions, whereas comparison group participants (102) received teaching of semantic meanings of the same expressions. An analysis of the findings showed a statistically significant improvement for students in the intervention group, both in their comprehension of reading texts and understanding of metaphors, including taught and untaught metaphoric expressions. In fact, in all elements of the analysis, participants who experienced the intervention demonstrated the most progress from pre- to immediate post-tests. Furthermore, these positive results, in relation to both metaphor understanding and reading comprehension, were shown to be longer-term, with the intervention group maintaining progress throughout the study (the 2-week delayed post-test). Importantly, students who received conceptual metaphor teaching were able to transfer the knowledge to new metaphoric expressions outside the learned conceptual metaphors. In contrast, the comparison group showed no statistically significant improvement between any of the three time points. In fact, their scores declined from the immediate to the delayed post-test, illustrating that they were not able to transfer the knowledge of the semantic explanation teaching they received, to new metaphors.

Qualitative analysis of the students' interviews, including their perceptions of the study and their strategy use, showed that the intervention had positive cognitive, affective, and behavioural impacts on them, and led to more use of reading strategies. Students of different proficiency levels in the intervention group reported a more positive perception of the study (e.g., increased motivation and autonomy) than participants who were part of the comparison group. Moreover, students who were exposed to conceptual metaphor teaching (intervention group) experienced an increased and more varied use of reading and metaphor comprehension strategies than the comparison group.

The qualitative and quantitative insights provided by this study suggest the effectiveness of conceptual metaphor teaching in positively influencing both reading comprehension and metaphor learning and retention. The findings of this research have theoretical and practical implications for L2 learning more widely, and the specific role of metaphor awareness raising in informing the teaching practices of L2 reading comprehension and vocabulary learning. It hopefully paves the way for more future research on L2 figurative language teaching.

TABLE OF CONTENTS

DECLARATION	II
DEDICATION	III
ACKNOWLEDGMENTS	IV
ABSTRACT.....	VI
TABLE OF CONTENTS	VIII
CHAPTER ONE: INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 A Brief History of Conceptual Metaphor Theory.....	2
1.3 CMT and Second Language Teaching.....	3
1.4 The Saudi Context.....	7
1.5 Significance and Aims of the Study	10
1.6 Thesis Structure	12
CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL BACKGROUND OF L2 METAPHOR LEARNING AND TEACHING	14
2.1 Introduction.....	14
2.2 Metaphor in Cognitive Linguistics	14
2.2.1 Conceptual Metaphor Theory	15
2.2.2 Contemporary Theory of Metaphor.....	18
2.3 Applied Linguistics Views on Metaphors	20
2.4 L2 Metaphor Learning and Teaching.....	24
2.4.1 Metaphor Awareness and Improved Metaphoric Competence	25
2.4.2 Metaphoric Competence and Vocabulary Knowledge.....	29
2.4.3 Teaching Metaphors Through Metaphor Raising Awareness Activities.....	33
2.4.4 Theories Related to Metaphor Learning and Retention.....	37
2.4.5 Experimental Studies that have Used Metaphor Awareness-Raising Approaches	40
CHAPTER THREE: LITERATURE REVIEW AND THEORETICAL BACKGROUND OF METAPHOR IN L2 READING COMPREHENSION	48
3.1 Introduction.....	48
3.2 L2 Reading Comprehension.....	48

3.2.1 CI Model, Conceptual Metaphor Theory, and the Role of Prior Knowledge	51
3.3 Metaphor and L2 Reading Comprehension	53
3.3.1 L2 Reading Comprehension and Vocabulary Knowledge	53
3.3.2 L2 Reading Comprehension and Metaphor Knowledge	57
3.3.3 Reading Comprehension and Conceptual Metaphor Instruction.....	60
3.4 Learners' Reading and Metaphor Interpretation Strategies.....	64
3.4.1 Learners' Reading Comprehension Strategies	64
3.4.2 Metaphor Interpretation Strategies	68
3.4.3 Inferencing.....	70
3.5 Students' Perceptions	72
3.6 Summary.....	76
3.7 Research Questions.....	77
CHAPTER FOUR: METHODOLOGY.....	79
4.1 Introduction.....	79
4.2 Research Questions (RQs).....	79
4.3 Research Paradigm.....	80
4.4 Design of the Study	82
4.4.1 Mixed-Methods Design	83
4.4.2 Quasi-Experimental Design.....	85
4.5 Research Methodology	87
4.5.1 Participants	87
4.5.2 Data Collection Procedure.....	88
4.5.3 Research Instruments	91
4.5.3.1 Metaphor Understanding Tests.....	91
4.5.3.2 Reading Comprehension Tests	95
4.5.3.3 Stimulated Recall Interviews.....	101
4.5.3.4 Teaching Materials and Sessions.....	103
4.6 The Pilot Phase	109
4.6.1 Data Analysis for the Pilot Study	110
4.6.2 Implications for the Main Study.....	110
4.7 Data analysis of the Main Study	112

4.7.1 Quantitative Data Analysis	112
4.7.2 Qualitative Data Analysis	112
4.8 Reliability and Validity	122
4.9 Ethical Issues	123
CHAPTER FIVE: ANALYSIS OF QUANTITATIVE DATA	125
5.1 Introduction	125
5.2 Restating the Research Questions (RQs)	125
5.3 Assessing the Reliability of the Tests	126
5.4 Normality of Distribution	128
5.5 Homogeneity of Variance	131
5.6 Selection of Tests	132
5.7 Results Related to the Research Questions	134
5.7.1 RQ1: What Is the Impact of Conceptual Metaphor Teaching on Saudi L2 Learners' Reading Comprehension Compared to Traditional Teaching (Semantic Explanations, Comparison Group)?	134
5.7.2 RQ2: To What Extent Can Learners Transfer Their Knowledge to Untaught Metaphoric Expressions that They Encounter during Reading Comprehension (i) Within the Taught Conceptual Metaphors, and (ii) Within New Conceptual Metaphors?	145
5.7.3 RQ3: To What Extent Does Teaching Metaphoric Expressions through Conceptual Metaphors Allow Learners Firstly to Learn, and Secondly to Retain such Metaphoric Expressions?	149
5.7.4 Summary	153
CHAPTER SIX: ANALYSIS OF QUALITATIVE DATA	154
6.1 Students' Perceptions and Strategies Use	154
6.1.1 Quantification of Students' Perceptions	155
6.1.2 Intervention Group	161
6.1.3 Comparison Group	189
6.1.4 Summary	199
6.1.5 Analysis of Strategies Use	201
CHAPTER SEVEN: DISCUSSION	208
7.1 Introduction	208
7.2 Reading Comprehension Gains	211

7.2.1 Improvement in Overall Understanding of Reading Texts	214
7.2.2 Improvement in Understanding Metaphoric Expressions within the Reading Texts	220
7.3 Learning and Retention of Metaphor as a Specific Type of Vocabulary	226
7.4 Affective and Behavioural Impacts	232
7.5 Summary	238
CHAPTER EIGHT: CONCLUSION	240
8.1 Introduction	240
8.2 Substantive Findings	240
8.3 Main Contributions of the Study	243
8.3.1 Methodological Contributions	245
8.4 Recommendations and Limitations	246
8.5 Pedagogical Implications	247
REFERENCES	251
APPENDICES	274
Appendix A: Metaphor Understanding Test	274
Appendix B: Reading Comprehension Tests	301
Appendix C: Teaching Procedure	319
Appendix D: Teaching Materials	325
Appendix E: Interview Questions	386
Appendix F: Pilot Study	389
Appendix G: Ethical Approval Documents	403
Appendix H: Themes, Subthemes, and Codes of Thematic Analysis of Students’ Perceptions	421
Appendix I: Taxonomy of Reading Comprehension and Metaphor comprehension Strategies	425
Appendix J: Normality and Homogeneity Tests	433

CHAPTER ONE: INTRODUCTION

1.1 Introduction

As a class of vocabulary, metaphors have been shown to cause difficulties for language learners in relation to comprehension, learning, and retention in second language (L2). This thesis is based on the cognitive linguistics approach to teaching metaphoric language, specifically in L2 context. In this approach, which seeks to understand how learners make sense of the metaphoric language they encounter, researchers have tried to connect the theory of conceptual metaphor with the practice of teaching how metaphorical expressions operate in L2. The word ‘metaphor’ is derived from the Greek ‘*metapherein*,’ that means ‘transference,’ and is used to refer to “a figure of speech in which a word or phrase is used to describe something it does not literally denote” (McGlone, 2007, p. 109). This meaning conveys the current use of the word ‘metaphor’ and its etymological meaning. For centuries, metaphor had been considered as a purely literary or rhetorical device. However, a seminal publication by Lakoff and Johnson (1980) brought the study of metaphor as an issue of cognitive science into prominence, which consequently began to attract research attention.

In the late 1970s and early 1980s, prominent scholars such as Lakoff and Johnson (1980) and Langacker (1986, 1990) initiated the ‘cognitive revolution;’ a movement which posited that language should not, indeed cannot, be separated from cognition. This approach argued that linguistic behaviour patterns are motivated by cognitive processes, which were seen to be grounded in human experience (Gibbs, 2006a). This initial body of research acted as a catalyst that consequently sparked a tremendous amount of scholarly interest in the relationship between language, particularly metaphor, and the ways in which human beings understand and represent the world around them. As time has progressed, this focus on metaphor has caught the attention of researchers in fields related to L2 acquisition, which is the primary interest of this thesis.

An overview of conceptual metaphor research and its applications to L2 instruction will be presented in this introductory chapter in order to identify the main research problem. Second,

teaching English in the context of Saudi Arabia will be discussed, which will be followed by a presentation of the research aims. Finally, an outline of the overall thesis structure is provided.

1.2 A Brief History of Conceptual Metaphor Theory

Following on from the above discussion, the landmark publication by Lakoff and Johnson (1980), *Metaphors We Live By*, led to a cognitive revolution where it was established that language - including metaphoric language - and cognition, cannot be separated. According to this view, the study of language primarily explores the ways in which people think and interpret their social, cultural, and physical worlds. One of the most important interpretive resources in this respect is metaphor. This approach suggests that metaphor functions by establishing a lens through which primary experience, including issues such as bodily sensations, or social interactions with others, are seen to organise many abstract concepts and make them easier to think about and communicate (Lakoff & Johnson, 1980).

According to Lakoff and Johnson (1980), humans' everyday mental systems are essentially metaphorically structured, making it impossible for us to live or function without metaphor. In their publication, Lakoff and Johnson (1980) established the Conceptual Metaphor Theory (CMT), which argued that metaphor is a feature of mind as much as of language. It includes thinking of an abstract concept, a target domain, as if it is a more concrete or tangible entity, a source domain, such as IDEAS are FOOD, and TIME is MONEY (Steen, 2015). These metaphorical mappings use concrete ideas from common experiences, such as journeys, food, or money to form part of our understanding of more abstract notions about ideas and time. Thus, ideas can be *half-baked* or *digested* and time can be *spent*, *saved*, or *invested* (Steen, 2015).

Conceptual metaphors include mapping between two domains, target and source domains, which forms the basis of individual metaphoric expressions; that is, the linguistic lexical items which result from this mapping. Take the following as an example from the British National Corpus (BNC): 'we have gone ahead with the investment to make the *company grow*'. *Grow* in this example refers to the development and increase in income and profit and the evolution of the organisation over a period rather than the physical increase in size that a living thing undergoes. Such use of the word *grow* is a common metaphoric expression that is not rhetorically motivated, and thus may be overlooked by native speakers as not having any

metaphorical meaning. In this respect, the linguistic metaphor *company growth* is motivated by the conceptual metaphor ORGANIZATIONS ARE PLANTS. Sections 2.1 and 2.2 in Chapter 2 discuss CMT in more detail.

A thorough examination of common metaphoric expressions in several languages provided the initial inspiration for the CMT (Gibbs, 2011; Kövecses, 2006). According to Yu (2003, p. 162), “the fact that distinct languages show metaphors in a systematic way supports the cognitive status of these metaphors as primarily conceptual, rooted in common human experiences”. Additionally, cognitive approaches have attempted to delineate the characteristics of conceptual metaphors by identifying the processes that occur in the mind during the comprehension of metaphors. To illustrate, Gibbs (2011) explained how studies have shown that people actually employ conceptual metaphors in their *thinking* about abstract topics, rather than merely using them in speech. Applied approaches, in addition, have investigated the systematicity and behaviour of metaphors and have explored multimodal and linguistic usages of metaphors in real life and authentic settings, including educational contexts and political dialogues (Cameron, 2003). Applied linguistic views on metaphors will be discussed in more detail in Section 2.3.

1.3 CMT and Second Language Teaching

Several studies (e.g., Littlemore et al., 2011; Zibin, 2016) have highlighted that metaphoric language can cause substantial difficulties for L2 learners and they may often struggle to grasp the intended meaning of expressions when used metaphorically. This is particularly related to the fact that metaphoric expressions do not have transparent meanings, as they are more likely to be composed of figurative meanings. The author of this thesis is a language teacher, and in her experience, L2 students have the tendency to understand a metaphorical expression literally. This is especially true if the expression comprises multiple words whose individual literal meaning the learner knows but struggles with when they occur in combination as multi-word expressions. Furthermore, cultural variations between metaphors in L1 and L2 can also lead to comprehension difficulties for L2 learners (Charteris-Black, 2002; Littlemore, 2009).

The difficulties faced by L2 learners in comprehending metaphor are particularly pronounced in educational discourse, where metaphor is used in lectures serving different discourse roles in the language of instruction. As learners move to higher-level linguistic environments (e.g., university), metaphor becomes more common, more assumed, and thus more problematic. The challenge faced by students to properly understand metaphor is an issue requiring the attention of scholars and educators alike, as metaphors are pervasive in different contexts in academic and educational reading texts (Steen et al., 2010). The existence of L2 metaphors can be a particular stumbling block to learners' understanding of reading texts (Li & Lewis, 2019) and their comprehension decreases significantly when metaphoric multiword expressions are used in these texts. This has an obvious cumulative impact on their overall educational experience. Indeed, it is a requirement for L2 university learners studying different majors to read a lot of English texts, and the ability to learn from the texts decreases if the full understanding is not achieved. Raising students' awareness of conceptual metaphor and employing teaching of metaphoric expressions is expected to lead to better metaphor learning and reading comprehension, and more successful educational outcomes overall.

In addition to the above, one of the main reasons why L2 learners face difficulties in learning and understanding metaphoric expressions is that metaphor is not well covered in L2 classrooms, as well as in L2 textbooks which have long been criticised for neglecting metaphor in language instruction (Roche, 2015). For example, in an examination of 21 L2 textbooks used in Spanish educational institutes, Amaya-Chávez (2010) found that metaphoric expressions, such as the polysemous words *hand*, *cool*, and *run* were poorly and ineffectively covered. In L2 textbooks, vocabulary is frequently provided in broad semantic groupings or semantic clusters. That is, vocabulary in an L2 context has been typically taught in semantic groups that include words grouped together based on their semantic domain or the word class they fall under (Perez-Serrano et al., 2022; Tinkham, 1993). For instance, words such as *hand*, *arm*, *shoulder* and *leg* fall under the concept 'parts of the body'. This semantic teaching approach focuses on meanings of lexical items that share the same semantic field or fit within one concept, lacking indication of the contextual uses or cognitive motivations (Perez-Serrano et al., 2022; Saaty, 2016). Indeed, in textbooks used in Saudi Arabia, the context of the current thesis, new vocabulary items are usually presented in semantic groups or clusters, such as 'nature,' 'vocabulary for employment,' or 'skills'.

Teaching metaphoric expressions through such semantic explanations involves a sole focus on the metaphoric meaning of each expression (Boers & Lindstromberg, 2008). This approach causes a number of problems. Firstly, it would become challenging for learners to distinguish between the different meanings of the lexical items which causes “interference between similar meanings of related words and creates competing memory traces” (Perez-Serrano et al., 2022, p.2). Secondly, they would not be able to learn the contextual meanings of expressions, which depend heavily on the context they occur in. Thirdly, learners may not have the ability to remember these lexical items on the longer term, or to use them in different forms of production (Perez-Serrano et al., 2022). Some researchers, such as Nation (2000, 2013) and Wilcox and Medina (2013) have even argued that semantic teaching could potentially make learning words more difficult (for alternative views, see Hoshino, 2010). Indeed, when this semantic approach is used in the teaching of metaphoric expressions, it may pose particular problems for learners who cannot distinguish the individual meanings of a metaphoric expression. For example, learners would not understand the meaning of ‘to *explode*,’ ‘to *erupt*,’ or ‘to *let off steam*,’ without knowing the conceptual metaphor ANGER IS HEAT, which also facilitates the learner’s understanding of how each expression was formed. The present study was interested in investigating the differences in how semantic teaching and conceptual metaphor teaching influence Saudi students’ understanding of reading texts. As such, to function as an important point of comparison against which conceptual metaphor teaching could be assessed, semantic teaching was used in the experimental study as a control measure.

An alternative approach to organising vocabulary instruction by semantic cluster draws on key findings from cognitive linguistics. Proponents of this new approach argue that teaching figurative language should include explicit instructional methods of teaching conceptual metaphors and the original meanings of metaphoric expressions. Conceptual metaphor teaching includes raising students’ awareness to recognise how common metaphor actually is in language and thought, and towards the systematicity of the linguistic metaphoric expressions. This can be done through introducing conceptual mapping between the two domains; tracing a set of metaphoric expressions back to a conceptual metaphor; linking a metaphoric expression to its original meaning; and enhancing the use of mental imagery. Many empirical studies have applied such an approach and have used conceptual metaphor theories to raise students’ awareness of metaphoric expressions (Boers, 2011, 2013). This is the topic of the discussion in Section 2.6.

In a review of a number of experimental studies employing conceptual metaphor teaching approaches, Boers (2013) clarified the positive effects of these approaches, particularly in their ability to facilitate metaphor comprehension and short-term retention. These teaching methodologies have helped learners to improve their analytic abilities so that they are then able to understand why certain lexical items form collocations, how the meanings of metaphoric expressions are linked to the original use, and how the varied uses of a lexical item are interrelated (Boers, 2013). In response to the criticism that presenting vocabulary in lists based on conceptual metaphor can cause confusion, Boers (2013) argued that the presentation of metaphoric expressions in lists centred around conceptual metaphors, effectively groups vocabulary items that seem arbitrary (Saaty, 2016). Such groupings help learners understand how lists of lexical expressions that seem unrelated are actually tied back to one conceptual metaphor. To illustrate, expressions such as ‘he made an *inflammatory* remark,’ ‘she was *under the collar*,’ ‘he *exploded*,’ ‘she was *breathing fire*,’ are all related to one conceptual metaphor: ANGER IS FIRE (Chen & Lai, 2013, p.15). Such a teaching approach also facilitates a deeper understanding of language, has a positive, longer lasting effect on memory (Boers, 2013).

The influence and importance of metaphor in L2 pedagogy are recognised by a growing body of research and supported by empirical evidence of the positive implications of cognitive approaches on figurative language teaching (discussed in Section 2.6). As such, scholars have begun to recommend explicit instructional methods in teaching L2 metaphors based on tasks that raise language learners’ awareness of both the metaphor’s conceptual and linguistic aspects to enhance learners’ metaphoric competence. Metaphoric competence is the group of skills that enable learners to identify, understand and produce metaphors in L2. Although research has illustrated the positive impacts of raising awareness of conceptual metaphors on L2 learning (e.g., Altakhaineh & Shahzad, 2020), it has often disregarded the limitations of conceptual metaphor instructional methods and experimental research employing such methodologies. It has been argued that activities using conceptual metaphors help in understanding the relationship between a group of lexical items and the conceptual metaphor from which they are derived (Boers, 2004). While this may be true, it is also important to note that these activities do not assure the learners’ ability to understand the meanings of these expressions when embedded in reading texts; remember them after a period of time; or have the ability to transfer the learned knowledge to new conceptual metaphors. Moreover, concerning the experimental studies,

shortcomings in their methodological approaches have been highlighted (Boers, 2013). These include, for instance, the lack of a pre-test and a delayed post-testing (e.g., Boers, 2000a) and small sample sizes (e.g., Hung, 2019). As a result of these drawbacks, Boers (2013) has recommended that future studies employ careful methodological design, administration, and conceptual analysis to avoid the limitations of the earlier experimental research (this will be reviewed in Chapter 2, Section 2.4.5).

Taking into consideration the empirical studies conducted, research on L2 teaching has done little to investigate the impact of metaphor teaching methodologies on aspects that go broader than only learning vocabulary items (see Section 2.4). According to Littlemore (2001), raising metaphoric competence results in a number of positive effects on learners that include an ability to engage in critical thought and an improved comprehension of L2 reading texts. In addition, in one of the few experimental studies in the field, Boers (2000b) found that conceptual metaphor teaching helped improve L2 learners' reading comprehension of a business text. Yet, despite these important insights, research employing cognitive linguistics approaches to the study of reading comprehension remain limited. The present thesis tries to address these issues, and to answer the question of whether or not conceptual metaphor teaching has the potential to impact learners' comprehension of reading texts, including figurative language. Indeed, this study is driven by an urgent need, in real educational contexts, to investigate the effectiveness of raising metaphor awareness, and to push the boundaries of current research to begin exploring its efficiency on units larger than lexical items.

1.4 The Saudi Context

The context of the present study is the kingdom of Saudi Arabia (SA), located in Western Asia. The discovery of oil in the 1960s, and the subsequent wealth that SA experienced in its wake, resulted in significant domestic changes in both the educational and social domains. This led to a substantial investment into the higher education system, helping to establish some of the leading universities in the Arab region, with facilities that are second to none (Moskovsky & Picard, 2019). In line with the new Saudi Vision 2030 framework, the country is aiming to minimise its reliance on the oil industry, and to maximise developing a knowledge-based economy, to which English is essential (Mahboob & Elyas, 2014). Vision 2030 is a strategic

national framework that aims to encourage increased investment and business activity and to expand non-oil commerce internationally. As such, Saudi's Ministry of Education (MoE) has established various scholarship programmes which have enabled Saudi students to study at graduate and undergraduate levels abroad in English-speaking countries, namely the UK, Canada, the USA, and Australia. The chance to gain a scholarship is dependent on social justice, meaning these funding opportunities are available for all Saudi students from different backgrounds, regardless of whether they studied in public or private schools and universities. The main pre-requisite for a scholarship is gaining acceptance from one of the top-ranking global universities, which will require proof of an advanced level of English language proficiency.

While the official language of SA is Arabic, English has come to claim a unique position for a number of economic, historical, and social reasons. Nowadays, it is the primary and, in some situations, the only language of communication used in a variety of contexts, such as academic, educational, administrative, and professional (Moskovsky & Picard, 2019). In particular, all public universities in SA use English as their primary language of instruction (Elyas & Picard, 2019). Therefore, English is now a major focus in SA, becoming an essential requirement for academic and career progression. As such, a sophisticated command of English and a high competence in the language has essentially become a necessary element of the majority of enterprises characterising different professions. In acknowledgment of the necessity of English, the MoE has implemented a number of measures in recent years, collectively named *Tatweer* in Arabic, which literally translates to 'development'.

Tatweer has aimed to improve Saudi students' level of English proficiency and their communicative competence from an earlier stage in school. This has involved the introduction of Communicative Language Teaching, instead of the use of traditional or classic methods of instruction, such as the Audio-Lingual and the Grammar-Translation Methods. Unfortunately, classrooms in SA have not yet made the transition to being learner-centred, and are still text- and teacher-centred, where students have little chance to communicate interactively or practise using English (Moskovsky & Picard, 2019). Thus, students tend to depend on rote repetition (Al-Qarni, 2003) where they are more likely to memorise vocabulary lists, grammatical rules, and texts. This problem is compounded by the nationwide reliance on a school textbook which has been

found to be an inadequate resource for the needs of Saudi students, while the learning materials are delivered in a way that is predominantly grammar-oriented (Moskovsky & Picard, 2019).

A combination of the above-mentioned factors has resulted, in many cases, in lower proficiency levels of English for Saudi students graduating from public schools. The gap in English learning increases significantly once students enter university, as English becomes the Medium of Instruction (EMI) for teaching specialised subjects, such as business, engineering, science, and medicine (Al-Seghayer, 2014). The social and natural sciences also started to be included in the EMI system. As a result of their inefficient proficiency of English, these Saudi students face challenges in EMI, and encounter difficulties while studying for their degree (Oraif & Alrashed, 2022). Moreover, according to Saudi learners, rather than functioning as an educational advantage, English often serves as a barrier that makes the learning process more difficult (Al-Kahtany et al., 2016). Saudi universities have attempted to address these challenges through the addition of a foundation year, and by providing intensive English programmes for first year undergraduate students, designed to improve communicative competence. Furthermore, in the Saudi higher education system, problems exist not only with how teachers navigate the task of vocabulary presentation, but also with how students themselves approach the task of learning. For example, Alkubaidi (2014) discovered that, due to their constant reliance on their instructors as the primary source of information, Saudi university students play a passive role in the learning process. Therefore, it can be concluded that many students are not using the kind of effective vocabulary learning needed for adequate language development.

In the context of university learning, the ineffective teaching of metaphors should be recognised as an issue of significance, due to the ubiquity of different types of metaphoric expressions in the language used in lectures (Littlemore, 2011) and in academic texts (Steen et al., 2010). Language used in many disciplines, such as business, economics, physics, and chemistry includes metaphors that students must be able to decipher in order to successfully complete their learning (Steen et al., 2010). Low proficiency and poor metaphoric understanding have a negative impact on learning outcomes and prevent students from both learning sufficiently and from successfully engaging with English reading texts. Indeed, reading authentic English texts, specifically ones that vary in structure (e.g., narrative, expository, argumentative), is often a requirement for Saudi students. Additionally, to satisfy their course requirements,

students must complete a number of tasks in English, such as testing reading comprehension, discussing topics in classrooms, and writing papers or essays (Alkhaleefah, 2017).

In addition, for Saudi students to be accepted to study abroad, they need to pass formal tests such as IELTS and TOFEL. In reality, recent statistics published by IELTS (2021) have illustrated that Saudi test takers' least proficient subject is reading, in comparison to other skills. In this context, learning metaphoric expressions would help students improve their language and facilitate their reading comprehension and vocabulary learning. Thus, it is imperative that Saudi students be taught metaphors effectively so that they may be able to better understand and remember metaphoric expressions, and therefore enhance their understanding of the language they hear and read. This thesis argues that metaphor teaching is not a bonus or add-on to language curricula but should be an integral component of standard L2 teaching approaches. This is particularly significant in the Saudi context, where a proper mastery of the English language is key to a successful manifestation of the Saudi 2030 Vision.

To conclude, research on conceptual metaphor teaching is urgently needed in SA. Previous studies that have been conducted were based on contexts where more interactive, communicative teaching was the norm. It is not clear from this research whether conceptual metaphor teaching would work in a context such as SA where students are used to being passive recipients of knowledge, and thus an investigation into this issue is needed. Based on the discussion above, both the learning and teaching aspects of the educational process in SA, specifically figurative language teaching require attention. Hence, bringing all the elements of the above discussion together, the explicit teaching of metaphoric expressions in SA English classes is much needed. The main aim of this thesis, which will be the focus of the next section, is to probe and investigate this empirically unexplored area.

1.5 Significance and Aims of the Study

This thesis aims to address the issue of how Saudi L2 learners can be taught metaphors, and whether this has the potential to improve their reading comprehension and metaphor learning and retention (defined below). Research has shown that conceptual metaphor instruction can be beneficial in this regard, although, as will be explained in Chapters Two and Three, a number of questions remain unanswered. While research has investigated conceptual metaphor teaching,

few studies have identified its specific impact on learners' reading comprehension, particularly among L2 adult/university learners. Furthermore, very few studies have explored the impact of conceptual metaphor teaching on students' ability to transfer the learned knowledge to new metaphors. In addition, while earlier empirical and experimental studies investigated learning metaphoric expressions, little research has touched upon the retention of metaphoric expressions. In the vocabulary learning field, scholars have identified the difference between knowledge that is 'receptive,' such as passive reading and listening skills, in contrast to 'productive' knowledge that involves the active skills of writing and speaking (e.g., Schmitt, 2010). Nation (2013) also provided a broader perspective on the different aspects of vocabulary knowledge, including *meaning, form, and use* where receptive and productive knowledge are involved in each aspect. In the present thesis, in line with Nation (2013), learning is used in relation to the receptive understanding of metaphoric expressions, assessed through immediate post-tests. Retention refers to whether the learners will still remember the meaning of the metaphoric expressions after a two-week delay.

Very few studies have investigated how learners themselves perceive conceptual metaphor teaching, their views on the intervention and how it affects their use of reading comprehension and metaphor interpretation strategies. Students' perceptions offer an important and very useful insight into why and how conceptual metaphor teaching might be helpful. As an English teacher, the researcher has observed first-hand and listened directly to the narratives of her students in relation to their struggles with metaphoric expressions and the difficulties they face in engaging with reading texts that include metaphoric language. Therefore, the present thesis attempts to address these gaps and to expand on the current ways in which conceptual metaphors are approached in research, by giving an opportunity for students themselves to discuss how they perceive and experience the different metaphor teaching strategies they are exposed to.

Using both quantitative and qualitative methods, this quasi-experimental study compares two instructional methods, namely semantic explanation (the traditional method) and conceptual metaphor teaching, to determine the extent to which they improve: learners' reading comprehension; ability to transfer knowledge to new metaphors; learning and retention of metaphors; and the impact on students' affective and behavioural responses. This thesis aims to

bring the application of conceptual metaphors into a wider context and anticipates moving the focus from learning lexical items (metaphorical expressions) to understanding texts (reading comprehension) and provides recommendations for future research. This study has four primary aims:

1. To determine whether conceptual metaphor teaching or semantic explanations teaching is more beneficial for reading comprehension, by evaluating learners' performance on reading comprehension tests;
2. To investigate the extent to which L2 learners transfer their knowledge of conceptual metaphors to understand untaught metaphoric expressions. This applies both to metaphoric expressions that fit within the taught conceptual metaphor, and to new conceptual metaphors;
3. To investigate the extent to which L2 students learn and remember the metaphoric expressions they have been taught (retention); and
4. To gain insights into how learners perceive and respond to the different types of metaphor instruction in a Saudi L2 context.

1.6 Thesis Structure

There are eight chapters in the present thesis. Chapter One, Introduction, offers background knowledge of the research problem, including the rationale for the study and the research gaps it seeks to fill. Furthermore, there is a discussion of why this study is needed in a Saudi L2 context as well as presenting the study aims and research questions.

Chapter Two, the first of two Literature Review chapters, Literature Review and Theoretical background of L2 Metaphor Learning and Teaching, introduces Conceptual Metaphor Theory, while reviewing metaphor in L2 pedagogy and existing research conducted on teaching L2 metaphors. Chapter Three, the second Literature Review chapter, Literature Review and Theoretical background of Metaphor in L2 Reading Comprehension, discusses L2 reading comprehension and metaphor learning and teaching. It also introduces the Construction Integration (CI) model by Kintsch (1998), which will be the primary reading comprehension model used in this thesis. Furthermore, research relating to students' reading and metaphor

comprehension strategies, as well as students' perceptions of metaphor teaching, are also presented.

Chapter Four, Methodology, discusses the methodological framework adopted in the current study, which is a mixed methods approach with a quasi-experimental design. It also discusses paradigmatic choices, data collection tools, context, participants, the data analysis procedure, the piloting of the research instruments, and ethical issues. Chapter Five, Analysis of Quantitative Data, presents the quantitative analysis of tests completed by the participants. It also discusses the reliability of the research instruments and the appropriateness of the tests used to analyse the quantitative data collected. For each of the first three research questions, the quantitative analysis is presented.

Chapter Six, Analysis of Qualitative Data, reviews the qualitative analysis of the interviews with the students, to answer research question four. It presents the main themes extracted from the interviews, and the students' reading comprehension and metaphor understanding strategies used during the tests they completed. Chapter Seven, Discussion, considers the findings in light of every research question and interprets both qualitative and quantitative findings in relation to the theoretical background. Points of comparison and contrast between existing literature and the present study are also discussed.

Chapter Eight, Conclusion, finalises the thesis. It summarises the main findings and the contributions offered by the study, as well as the limitations. Following future research suggestions, pedagogical implications of the present study are presented.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL BACKGROUND OF L2 METAPHOR LEARNING AND TEACHING

2.1 Introduction

The objective of this chapter is to highlight and examine three key concepts that form the theoretical framework underpinning this research: 1) metaphor in cognitive linguistics; 2) applied linguistic views on metaphors; 3) L2 metaphor learning and teaching. In relation to the first concept, the discussion below will examine the way in which cognitive linguistics conceives metaphor, as well as Conceptual Metaphor Theory, and Contemporary Theory of Metaphor. The second point covers how the field of applied linguistics has viewed metaphors and studied their functions, and what insights for L2 pedagogy it has provided. The third section discusses metaphoric competence in general, metaphoric competence in relation to vocabulary knowledge, metaphor teaching through awareness-raising exercises, theories related to metaphor learning and retention, and also reviews empirical studies on the teaching of metaphor within an L2 classroom context.

2.2 Metaphor in Cognitive Linguistics

Cognitive linguistics argues that language reflects human conceptualisation (Lakoff & Johnson, 1980; Langacker, 1986), and thus attempts to clarify the mental processes of acquiring, producing, and comprehending a language. Within cognitive linguistics, several interrelated yet varied theories are presented. All of these theories share similar basic assumptions: language is not a self-determined cognitive ability; knowledge of the language is acquired through the practical application of language in daily life; and language emerges from physical interaction with the world (Littlemore & Juchem-Grundmann, 2010). The following subsections will discuss Conceptual Metaphor Theory and Contemporary Theory of Metaphor.

2.2.1 Conceptual Metaphor Theory

Prior to the 1970s, metaphor was traditionally classified in terms of the following criteria: a) a linguistic expression; b) something used for rhetorical and artistic effect; c) based on a similarity between two entities. Generally, according to this older perspective, it was deemed necessary that the speaker or writer would possess some knowledge of language structuring in order to use metaphor (Kövecses, 2010). This conventional understanding was challenged by Lakoff and Johnson's (1980, 2003) seminal research that helped develop a new cognitive linguistic view of metaphor, the Conceptual Metaphor Theory (CMT), to which the following aspects apply:

- a) A metaphor is not a matter of lexical units but of concepts;
- b) The role of metaphor is to help people more accurately comprehend certain concepts, rather than only creating rhetorical effect;
- c) Metaphor rarely results from mere resemblance;
- d) Metaphor is employed by first language (L1) speakers effortlessly in everyday language; and
- e) Metaphor is not a bonus feature of language that can be avoided, but an essential process of human thought.

Lakoff and Johnson have long argued for metaphor's pervasiveness in everyday language, communication, and thought, demonstrating how metaphors are routinely and frequently used in everyday communication. Since the publication of the book by Lakoff and Johnson (1980), metaphor has become a key concept addressed by cognitive linguists, applied linguists, and dictionary preparers. The Collins Co-build English Dictionary includes the following examples of metaphor:

1. A local *branch* of this organization;
2. Some scientists *have taken a big step* in understanding Alzheimer's disease; and
3. How could a man ever understand the *workings* of a woman's mind?

Previous understanding of how metaphor operated in language resulted in the division of metaphors into two categories: dynamic versus dead metaphors. For instance, while some people

consider the above examples (1-3) to be obvious metaphors, others may find them to be less obvious as they have simply become a routine and unconscious part of their everyday understanding of the language. These types of metaphor have come to be known as dead metaphors, i.e., metaphors that were dynamic and alive for a period of time but have since transformed into conventional metaphors. Frequent use has led these metaphors' imagistic, concrete source to have faded, meaning that the average speaker no longer intentionally processes them. Instead, the figurative meaning of these phrases is initiated. However, Lakoff and Turner (1989) challenged this commonly held assumption and classification of conventional metaphors, arguing that the supposedly dead, conventional metaphors are vital and alive. One example is the understanding of the mind as a machine. Lakoff and Johnson (1980) used THE MIND IS A MACHINE metaphor to motivate many linguistic expressions in English, such as the one presented in example (3) above.

For Lakoff and Johnson (1980, 2003), metaphor involves understanding and discussing a conceptual domain as if it is another conceptual domain. Examples include when we understand, think, and talk about love in terms of a journey, or ideas in terms of food, amongst others. The understanding of metaphor, namely CONCEPTUAL DOMAIN A IS CONCEPTUAL DOMAIN B, is referred to as a conceptual metaphor. A conceptual domain is "any coherent organisation of experiences" (Kövecses, 2010, p.4). For instance, as language speakers, we possess clearly organised knowledge about journeys on which we rely to make sense of life. Conceptual metaphors are distinct from linguistic metaphoric expressions, which are vocabulary or lexical items that originate from the lexicon of a more tangible conceptual domain (i.e., domain B) and are systematically allowed by this mapping (Lakoff, 1993). As such, it is worth noting that one conceptual metaphor can give rise to multiple different linguistic metaphoric expressions which draw on its underlying imagery. For example, phrases such as *without direction in life*, *to get a good start*, *to get over something*, *a long-life span*, and *to reach the end of the road*, which come from the domain of JOURNEY, are all derived from LIFE IS A JOURNEY conceptual metaphor, in which elements such as vehicle, travellers, and distance from the domain JOURNEY are mapped onto LIFE. The two domains which underpin conceptual metaphors have certain names. The *source domain* is the name given to the conceptual domain that provides the basis for the formation of the metaphorical expressions (as JOURNEY) to approach understanding of the other conceptual domain. On the other hand, the *target domain* refers to the conceptual metaphor

which we attempt to understand (as LIFE). Thus, IDEAS and LIFE are target domains, whereas FOOD and JOURNEYS are examples of source domains. In this context, the conceptual metaphor is a cognitive entity, i.e., the mapping between the source and target domains, whereas metaphoric expressions are the individual linguistic entities allowed by this mapping (Lakoff, 1993). It is conventional within metaphor research to use capital letters when referring to conceptual metaphors, such as A IS B. That convention will be followed in this thesis.

It is also worth mentioning that the present thesis draws on Low's (1988) classification of metaphors, which argues that it is hard to erect solid boundaries between metaphors and other forms of figurative language, such as metonymy, idioms, polysemy, proverbs, phrasal verbs, lexical phrases, multiword expressions, and collocations. Nevertheless, Low has provided a working definition of metaphor which has guided how the expressions and data in this thesis have been approached. This definition of metaphor involves: "treating X as if it were, in some ways, Y." (Low, 1988, p.126). This loose overarching definition enables metaphor to be used as an umbrella term to refer to different forms of figurative language where there are no clear-cut boundaries distinguishing these different types. It also provides room for variation and the possibility that some expressions could be metonymy, metaphoric, or idiomatic. This reflects the reality that, in some cases, it is hard to differentiate between different language classifications. For instance, for an expression to be idiomatic or metaphoric, there are no mutually exclusive categories or rigid classifications. Idioms can be metaphoric, whereas metaphors can become conventionalised and idiomatic. It is also worth mentioning that the current thesis is in line with past metaphor research (discussed in Section 2.4.5) which did not exclude idioms and metonymies when studying metaphors, nor vice versa.

In light of the above, taking the broader approach in defining and using metaphor as an umbrella term in this thesis offers a greater opportunity to employ and test CL instructional methodologies in teaching English metaphors to L2 learners (the criteria followed will be explained in detail in Section 4.5.3.4.1). In other words, metaphors, idioms, metonymies, polysemous words, phrasal verbs, and collocations related to targeted conceptual metaphors are included in the present thesis (see Section 4.5.3.4.1). The criteria followed included selecting L2 metaphoric expressions based on frequency, usefulness, coverage, relevance to learners, and relatedness to the conceptual metaphor. The main exclusion criterion was the figurative meaning

of the expression not being included in one of the main dictionaries. Indeed, if the Collins Online dictionary or the Macmillan dictionary did not include an expression's figurative definition, then it was not part of the study.

2.2.2 Contemporary Theory of Metaphor

Lakoff (1993) established a more updated and developed form of Conceptual Metaphor Theory (CMT), namely the Contemporary Theory of Metaphor (CTM). While both theories share the same basic tenets, as CMT developed into the CTM, greater attention was gradually given to the embodied nature of conceptual metaphors, inspired by Grady's (1997) insightful theory. Grady emphasised that conceptual metaphors represent more elaborate versions of embodied primary metaphors and that they inherit their mappings from primary metaphors, which are experientially grounded in bodily actions and sensorimotor experiences. Embodiment, as defined by Gibbs (2006b), is appreciating the role of everyday bodily experiences, as the body links the mind to the world through actions and experiences. Sensorimotor experiences offer a basis for thought, language, and communication with the world, and affect higher-order cognition and self-conception (Gibbs, 2006b). Examples of embodiment are given below.

Grady's (1997) theory presented CMT with the theoretical underpinning it required, as it had long been criticised for its heavy dependence on linguistic elements. Gibbs (2004, 2006b) highlighted a number of primary CMT claims which have been criticised. Firstly, not all conceptual metaphors have obvious experiential grounding. As an illustration, the MORE IS UP metaphor has more grounding in bodily experiences than the THEORIES ARE BUILDINGS metaphor. Secondly, CMT does not account for the absence of similar associations between specific conceptual metaphors. To illustrate, it does not justify why certain metaphors, such as journey metaphors, are the source domain for several target domains (LIFE IS A JOURNEY, LOVE IS A JOURNEY, CAREER IS A JOURNEY), whereas other metaphors are not. That is, a single domain (as journey) could be a source domain that characterises a number of target domains, while other metaphors apply as a source domain for one target domain only.

To address these issues, Grady (1997) provided a more comprehensive description of the origin of conceptual metaphors, namely as systems of primary metaphors that are more

embodied. Grady's (1997) primary metaphor theory offers a detailed and comprehensive description of the way primary metaphors advance into complex conceptual metaphors. According to Grady, primary metaphors include the conceptual interrelation between the target and the primary source domains resulting from our sensorimotor practices and cognitive reactions to those practices. He described them as primary scenes with correlated events or states, such as INTENSITY IS HEAT, MORE IS UP, STATES ARE CONTAINERS, and CAUSES ARE FORCES. Such primary metaphors based on embodied experiences lead to the formation of different conceptual metaphors. Consequently, conceptual metaphors should be regarded as more elaborate, or compound metaphors, comprising a medley of primary metaphors fused together. For instance, the conceptual metaphor "LIFE IS A JOURNEY" is a complex metaphor composed of mappings from the more primary metaphors "PURPOSES ARE DESTINATIONS", "CONTROL IS UP", "CIRCUMSTANCES ARE SURROUNDINGS", "MEANS ARE PATHS", and "ALTERNATIVES ARE DIFFERENT AVAILABLE PATHS" (Grady, 1997, pp. 112-115).

The main strength of Grady's unique perspective is that all primary metaphors can be connected directly to personal experience, which is not always the case with complex metaphors (Steen, 2015). Importantly, the relationship between target and source domains in the lives of speakers is significant for the experiential motivation of metaphors in CMT (Lakoff & Johnson, 1980). Grady (1997) found that primary metaphors result not from similarity or analogy, but instead, from co-occurrence, which explains why they are more universal across various cultures, compared to complex metaphors. Primary metaphors are based on common bodily experiences, arising from early individual experiences and become neurally entrenched as relationships between distinct conceptual domains. For example, many cultures primarily experience feeling warm while being held affectionately as young children, usually by the mother, which leads to the emergence of the primary metaphor AFFECTION IS WARMTH (Kövecses, 2008, 2010). Universality means that common bodily experiences result in the existence of conceptual metaphors across various languages and, consequently, parallel linguistic realisations. Kövecses (2005, 2010) hypothesised that conceptual metaphors centred on emotion, such as HAPPY IS UP and SAD IS DOWN, are semi-universal because they have a basic operational understanding. Additionally, Kövecses (2010) declared that almost all languages have an anger metaphor to the effect that an ANGRY PERSON IS A PRESSURISED CONTAINER.

In relation to the specific impact of Grady's (1997) theory on the L2 teaching context, primary metaphors being universal may be an extra advantage for conceptual metaphor teaching, as L2 learners experience the same physical interactions with the world. It has been argued that conceptual metaphors are indeed embedded in people's minds and, consequently, are embodied. Gibbs (2008) reviewed a number of psycholinguistic studies that illustrated how conceptual metaphors shape the way people understand and produce verbal language. Consequently, Gibbs and Colston (1995) suggested that conceptual metaphors are pre-existing, and so are part of the learners' world knowledge, saved in their long-term memory. Thus, once learners study conceptual metaphors, they have a feeling of being already familiar with them, at least subconsciously (Gibbs & Colston, 1995). This is because the meanings of the metaphors are embodied in their personal lives and memories, which result in better understanding and learning of the language. This invites the question that if a student's cultural background is different from that of the L2 they are learning, would teaching embodied conceptual metaphors help them to learn and remember L2 metaphoric expressions? More importantly, will students find it easier to comprehend reading texts that include metaphoric language?

2.3 Applied Linguistics Views on Metaphors

Applied linguistics research has made an active effort to engage with some of the theoretical claims made by cognitive linguistics in relation to metaphor in L2 pedagogy. As explained in the previous section, cognitive linguistics offers a solid and useful theoretical framework through which to study metaphorical language and thought across various disciplines. As such, driven by a range of different methodologies, a body of research dedicated to empirically testing theoretical claims by cognitive linguists about metaphor has flourished. This research comprises corpus studies; the examination of authentic written, spoken, and multimodal discourse; as well as neuro-linguistic and experimental/psycholinguistic research (Cameron, 2003; Gibbs, 2008, Littlemore et al., 2013; Steen et al., 2010). Gibbs (2011) declared that studies have shown that conceptual metaphors are used as a tool for reasoning across diverse fields and topics, such as science (Larson et al., 2006), mathematics (Lakoff & Núñez, 2002), emotions (Kövecses, 2000), economics (Boers & Littlemore, 2000), the self (Lakoff & Johnson, 1999), and political issues (Lakoff, 1996). Metaphor has also been approached as a tool through which

to explore how people feel about language learning and about themselves as language learners (e.g., Fisher, 2013).

Corpus linguists and applied linguistic researchers have explored the function of metaphor in real language and natural contexts, studying passages of authentic spoken and written discourse and corpora (Cameron, 2003; Steen et al., 2010). A study by Steen et al. (2010), for example, explored figurative language published in the British National Corpus (BNC) with a conclusion that almost all of the metaphors that are commonly used (99%) are conventional (see Section 2.2.1), while 98% exist as conceptual metaphors whose meanings can only be inferred indirectly through the utilisation of the word use in a particular context. Individuals, moreover, use metaphors for a variety of purposes in a daily context, both consciously and unconsciously, including discussing intangible things, influencing others' thoughts, shifting blame, negotiating, outlining medical diagnoses, joking, interacting in relationships, amongst others (O'Reilly & Marsden, 2021). Therefore, as metaphoric expressions have also been found to fulfil a crucial evaluative function at important points in everyday discourse, L2 learners will need learning them in order to interact confidently in a variety of contexts.

Applied linguists have also highlighted the pervasiveness of linguistic metaphoric expressions in educational discourse. Steen et al. (2010) analysed the dissemination of metaphorical expressions in different educational indexes, concluding that figuratively used words comprise 18.5% of academic discourse, in contrast to 11.7% of fiction texts and 7.7% of conversational discourse. In addition, studies by Cameron (2003) and Littlemore et al. (2013) have demonstrated how metaphor is essential in lectures and classroom discussions, which are vital components of the education process. For instance, Cameron (2003) found that metaphor was integrated into most classroom-management language in British schools, including presenting scientific concepts, offering examples, and providing feedback, in addition to playing an important role in communication among learners. Specifically in relation to university lectures, Littlemore et al. (2013) found that linguistic metaphors are used for meta-discursive purposes such as summarising, restating, and evaluating taught content, as well as assisting in the delivery of the lectures and logically connecting various elements of the lectures. An example of this is how lecturers routinely use expressions like *run through a text*, *pass over a topic*, and

skate over an exercise which relate to the domains of travel or journey. Furthermore, Low et al. (2008), who examined three university lectures, found that metaphor comprised 10-13% of the language used. It appears, therefore, in comparison to other genres, that educational discourse is rampant with figurative expressions, perhaps even more than collocations (Boers et al., 2007). Such results are particularly relevant to the present study which is based on L2 university learners where English is the main EMI used in their university courses.

The call to explore metaphors in L2 teaching research began three decades ago (Danesi, 1986; Low, 1988). Low's (1988) early pioneering contribution asserted that metaphor should receive a greater role in language instruction due to its centrality in wider language use, and the ways in which "it pervades large parts of the language system" (p. 125). Low also suggested that metaphoric competence (discussed in Section 2.3.1) should comprise a significant part of communicative curriculums and proposed practical ways in which teaching materials can be designed to achieve this. Applied linguists, in response to Low's (1988) publication, have been actively investigating the function of metaphor in the learning and teaching of foreign language, particularly in teaching English (Littlemore & Low, 2006). They investigated the effects of metaphor awareness teaching methodologies that raise language learners' awareness of metaphors and link metaphoric vocabulary to conceptual metaphors in figurative language teaching (discussed in Section 2.4.3). As more and more applied linguists and language researchers began to demonstrate an active interest in metaphor, compelling evidence began to emerge about the power of metaphor in different aspects of L2 pedagogy.

There have been two main factors driving this increased focus on metaphor in L2 pedagogy. Firstly, as research in cognitive linguistics has advanced, it has demonstrated the importance and the pervasiveness of metaphor in language, while highlighting the extent to which the frequency of metaphoric expression has been previously underestimated (Boers & Lindstromberg, 2009), as discussed above. The significance of exposing students to figurative meanings has been identified in learning English as an L2 (Cameron & Low, 1999; Littlemore & Low, 2006b). In fact, it has been recognised that it is impossible for L2 learners to avoid dealing with non-literal meanings, starting from the preliminary stages of the L2 learning process (Castellano-Risco & Piquer-Piriz, 2020). Furthermore, it has been stated that among the reasons L2 speakers can often be considered as outsiders in social interactions is their incorrect use and lack

of understanding of figurative language (Castellao-Risco & Piquer-Piriz, 2020). Indeed, collocations (e.g., *commit suicide*), fixed phrases (e.g., *by and large*), semi-fixed phrases (e.g., *kick the bucket*), and metaphoric expressions (e.g., *to take a step forward*) help to characterise discourse as native-like (Boers, 2004). Similarly, according to Schmitt (2000), mastering figurative expressions, such as idioms and metaphors is necessary for effective language learning and native-like proficiency in the target language.

The second factor driving the increased focus on metaphor in L2 pedagogy is related to the difficulties L2 learners face in understanding and deciphering metaphors, as identified by research. Low (1988), for instance, argued that L2 learners struggle to grasp the transfer between the source and target domains, i.e., what is being used to talk about a concept. This is a difficulty that learners face, regardless of their language level, due to the absence of native speaker competence (Littlemore & Low, 2006a, 2006b), discussed in Section 2.4.1. More specifically, Littlemore (2001) pointed out that there are two issues with the comprehension of metaphor: non-understanding and misunderstanding. Indeed, 90% of the difficulties participants in her study faced were related to the confusion they felt towards the English-delivered lectures because of misunderstanding metaphoric language. Participants either misunderstood or simply did not understand 145 out of 180 of the metaphoric items.

In a more recent study, Littlemore et al. (2011) investigated the difficulties that foreign students had in understanding metaphors in foundation year lectures at UK universities. Forty-two percent of the difficult lexical items students struggled to understand expressions that were used metaphorically. Even though the lexical items which composed the metaphoric expressions were familiar to the participants, they failed to understand almost half of them. The most alarming result was that students thought that they were familiar with more than 25% of the metaphors, while in fact, they misunderstood them. To measure the extent to which participants were unaware of the difficulty they actually faced in understanding metaphoric expressions, Littlemore et al. (2011) compared each metaphor a participant identified as a difficult item, against each metaphor the participant was actually able to understand. Results showed that learners identified that they faced difficulty understanding only 4% of metaphors, even though the actual number was much higher. Furthermore, as discussed in Section 2.2.2, linguistic realisations might vary in culture-specific ways. Boers (2003), for instance, highlighted that,

although the conceptual metaphor exists in both L1 and L2, differences in the target and source domains that result from dissimilar value judgments can lead to difficulties in comprehension for L2 learners. This may lead to misinterpretation or undesirable transfer by L2 learners. These results support the call to teach metaphors to L2 learners and that interventions should be designed to enhance teaching L2 metaphoric expressions in a systematic way, namely through conceptual metaphor teaching (discussed in Section 2.4.3).

Although metaphor research has proven its importance in L2 teaching and learning, education-focused research in applied linguistics has accepted these insights at a surprisingly slow rate (Boers et al., 2006). Of significant relevance to the current study is the fact that metaphor, in areas as reading comprehension, is still vastly underexplored. Moreover, although there is sufficient empirical evidence to support the inclusion of figurative language in L2 instruction, an informal review of existing L2 textbooks (e.g., *English Unlimited, Evolve*) carried out for this present study reveals little practical application of metaphor teaching in L2 textbooks or curricula. Wright's (2002) *Idiom Organiser* and Lazar's (2003) *Meanings and Metaphors* are arguably the first L2 practice books to place a significant emphasis on increasing metaphor awareness. In the book by Wright (2002), idiomatic expressions were introduced in relation to the conceptual metaphors that underly them. In a broader approach, Lazar (2003) proposed exercises for teaching metaphoric expressions, idioms, and proverbs according to conceptual metaphor themes, such as TIME IS MONEY, CAREER IS A JOURNEY, with each chapter covering one conceptual metaphor theme (in Boers & Lindstromberg, 2006). However, this appealing alternative to approaching L2 lexis is yet to be more widely reflected in L2 materials (Roche, 2015; Veliz, 2017). The present study attempts to provide insights that can help further and develop metaphor in L2 teaching and learning.

2.4 L2 Metaphor Learning and Teaching

This section focuses on L2 metaphor teaching and learning. The notion of metaphoric competence will be discussed first, followed by the relationship between vocabulary knowledge and metaphoric competence. Subsequently, a discussion about the importance of teaching metaphors through raising awareness activities will be presented, as well as a review of the

theories about metaphor learning and retention. Lastly, experimental studies that have been conducted to explore metaphor-raising awareness will be reviewed.

2.4.1 Metaphor Awareness and Improved Metaphoric Competence

As outlined in the previous section, scholars including Danesi (2008) and Littlemore and Low (2006a) first introduced the idea that L2 learners need to develop what they identified as ‘metaphoric competence’. The notion of metaphoric competence has been studied since the earliest research on figurative language use and first language acquisition in children and adults has been published. Metaphoric competence (L1, L2, etc.) is broadly characterised as involving awareness, comprehension, retention, and production of metaphor in listening, speaking, writing, and reading (O’Reilly & Marsden, 2020).

In the context of L2, the first important debate on the value of metaphoric competence for L2 students was introduced by Low (1988), who perceived it to be a set of metaphor-related skills that enable learners to identify, comprehend, and use metaphors in L2. For L2 learners to be as proficient as L1 users, they must master these metaphorical skills. Danesi (1992, 2008, 2016) agreed with this argument, adding that L2 learners’ command of metaphorical language must be solidified. He acknowledged an overlap between metaphoric competence and conceptual fluency in L2 acquisition, which he identified as a language learners’ ability to employ figurative language systematically. Danesi (1994, p. 454), moreover, elaborated that in order to acquire conceptual fluency in L2, learners must understand the way that L2 “reflects or encodes concepts on the basis of metaphorical reasoning”. Danesi argued that it is the systematicity of figurative language that makes it teachable like other L2 elements.

Littlemore (2001, p.461) took the debate one step further by outlining the specific elements of metaphoric competence as the “ability to find meaning in metaphor, fluency of metaphor interpretation, speed in finding meaning in metaphor, and originality of metaphor production”. In a later discussion, Littlemore (2002) differentiated between two aspects of metaphoric competence. Firstly, she coined the term ‘fluid metaphoric competence’ to define the *fluid* aspects related to our understanding and production of metaphor, taking inspiration from the notion of ‘fluid intelligence’, where one has the ability to develop new skills and process new data. In this same vein, ‘fluid metaphoric competence’ connotes the ability to comprehend and produce new and previously unused metaphors. This can be contrasted to

‘crystallized intelligence’ where information is already acquired and skills already learned. Thus, in the context of L2, in addition to the importance of ‘crystallized intelligence’, ‘fluid metaphoric competence’ is an important skill to acquire as it can help the learner to develop an adaptive approach to language learning. This can be better understood in light of what Bachman (1990) referred to as ‘strategic competence’ (Littlemore, 2002). As defined by Bachman (1990), ‘strategic competence’ is the learner’s ability to effectively apply the language competence elements, linking them to the wider context of the language usage and to prior extralinguistic knowledge to successfully communicate the desired message. This is based on earlier definitions of strategic competence (e.g., Canal & Swain, 1980) with the more contemporary interpretations regarding it as “speakers’ ability to use strategies to compensate for gaps in their knowledge of the target language” (Littlemore & Low, 2006a, p. 286).

In later studies, Littlemore and Low (2006a, 2006b) asserted that metaphoric competence is not limited to one particular aspect of competence, but is central to grammatical, textual, strategic, and sociolinguistic competence, and learners must address aspects of metaphor in lexis or discourse in all these four areas of communicative competence. Accordingly, L2 learners must develop the skills to tackle metaphors at different proficiency levels (Littlemore & Low, 2006a). More particularly, as metaphors are culturally specific, and as metaphoric competence, according to Littlemore (2001), includes a repertoire of metaphorical language knowledge, cultural norms and meanings, teaching conceptual metaphors increases students’ socio-cultural knowledge of L2. In addition, Littlemore and Low (2006a) pointed out the important relationship between a speaker’s ‘associative fluency’- the skill to forge a variety of links - and metaphoric competence. Additionally, Littlemore (2001) related metaphoric competence to the more general ability to partake in analogy reasoning, which increases critical thinking skills. Once a language learner possesses metaphor competence, they can then enhance their general reasoning and critical thinking skills in which one thing can be understood in multiple ways, and in light of a variety of concepts. Consequently, in different situations or when facing difficulties interpreting meaning, learners can promptly conjure up various ideas and consider numerous source domains, and multiple interpretations that can potentially fit a particular metaphorical item. Therefore, it can be claimed that an important consequence of raised awareness of metaphors is that L2 learners can experience increased metaphoric competence, and, in turn, improve their ability to think critically. To more adequately assess whether raising metaphor comprehension can help learners

build strategic competence, Littlemore (2002, 2004) conducted two experimental studies (discusses in Section 3.4.2). She found that it is beneficial to enhance students' strategic competence through explicit training and working on the metaphoric extension processes of analogical reasoning, associative fluency, and image formation, so they have the capacity to understand novel metaphors.

A more recent perspective by Castellano-Risco and Piquer-Piriz (2020) has explored metaphor as a specific instance of lexical knowledge. They defined metaphoric competence as the capacity to interpret abstract ideas through an understanding of more tangible concepts. They argue this is a naturally inherent conceptual ability that is not limited to our L1, but also applies to our other spoken languages. Castellano-Risco and Piquer-Piriz (2020) concentrated on one aspect: the comprehension/recognition of metaphor, which overlaps with one of Littlemore's (2001) components of metaphoric competence. As discussed in Section 2.2.2, although human beings seem to have an inherent ability to decode the implicit essence of non-literal meanings from an early age, directly applying this strategy to vocabulary in an L2 context should not be considered a given, as figurative meanings can be variously encoded in different languages. That is, Castellano-Risco and Piquer-Piriz (2020) considered L2 learners' comprehension of metaphoric meanings to be part of lexical competence, which can be understood as the propensity to recognise and utilise L2 words in the manner of a native speaker. Moreover, to Castellano-Risco and Piquer-Piriz (2020), metaphorical competence can be viewed as a strategy used by L2 learners in addition to other strategies in order to decipher new L2 lexical items they are exposed to.

Over thirty years of investigation and research into metaphorical competence has exposed the complex and interrelated nature of this construct. This research has made significant gains in furthering the way we understand metaphor, especially theoretically, and in relation to its application in L2 teaching. These research approaches bring to the fore the difficulty applied linguists find in the practical application of metaphorical competence in the process of L2 learning and teaching. Yet, these theoretical insights have simultaneously provided the inspiration for empirical efforts to examine the impacts of raising metaphor awareness on L2 learners' metaphorical competence. For instance, Boers (2000a) and MacArthur (2010) reviewed and evaluated these theoretical insights in relation to their implementation in L2 classrooms and

thus concluded that it is essential to enhance metaphorical awareness for L2 learners (see Section 2.4.3).

In accordance with this emphasis and general agreement on needing to advance the teaching of metaphor, several studies have revealed that L2 learners usually have low metaphoric competence despite the ubiquity of metaphors (e.g., Zhao et al., 2014). They concluded that the ability to understand and use metaphors is a skill with which L2 students often struggle. Danesi (1995, p.453), for instance, referred to a phenomenon known as “textbook literalness,” which occurs when learners, particularly lower proficiency students, interpret unfamiliar metaphoric expressions literally. This is similar to results found by Beynen (2020) where L2 students tended to interpret metaphoric expressions literally, unable to grasp the intended implicit meaning. This was also discovered in the context of Arabic speakers learning English (Zibin, 2016), where 100 Arabic EFL university students showed low metaphoric competence. However, results by Zibin (2016) showed that it is possible for L2 learners to gain a general ability to conceptualise metaphor comprehension regardless of their L1. This may hint at the potential universality of metaphor when these students’ knowledge of the distinctions between L1 and L2 is increased, as discussed earlier.

Importantly, most of the research in relation to L2 metaphoric competence has employed corpus analysis, which focuses more on learners’ metaphor uses in their written production, drawing on Littlemore’s (2001) element of the originality of metaphor production, rather than on the receptive understanding of metaphors. For instance, studies that have investigated how learners use metaphor in writing, such as those by Littlemore et al. (2013) and Turner (2014), offer interesting explanations of this aspect of students’ metaphoric competence. A criticism of this approach, however, is that the receptive domain of learners’ metaphoric competence has not received enough attention in L2 contexts. Littlemore and Low (2006a) have claimed that “foreign language learners probably need to understand metaphor more than they need to produce it” (p.46). Indeed, it is vital that L2 learners comprehend metaphorical meanings more than simply having the skill to produce them in speaking or writing. This fact is particularly relevant in relation to the elemental levels of L2 proficiency (A1- B1), which are the most widely studied levels for the majority of students of the English language worldwide (Castellano-Risco & Piquer-Piriz, 2020). In this sense, Boers (2000a, p. 564) also argued that instead of urging L2

learners to create metaphors, it could be more effective to encourage “metaphor awareness’ in learners to organize the steady stream of figurative language they are exposed to”. Metaphor-raising awareness activities are discussed in Section 2.3.2.

Consequently, in light of the above theoretical insights, it was decided that this study would investigate the receptive dimension of L2 learners’ metaphoric competence, drawing on the definition provided by Castellano-Risco and Piquer-Piriz (2020). The objective of the present study is to employ conceptual metaphor teaching to improve Saudi L2 learners’ metaphoric competence and learning of metaphoric expressions. Retention of the meaning of the words after two-weeks is also investigated.

2.4.2 Metaphoric Competence and Vocabulary Knowledge

In this section, a discussion is undertaken about the relationship between students’ metaphoric understanding and their vocabulary knowledge. To begin with, vocabulary knowledge has been assessed and measured in various ways (e.g., Nation, 2013; Schmitt, 2010). There has been a focus on both productive and receptive vocabulary knowledge. Scholars in the field of vocabulary learning have also identified a second aspect, pertaining to the ‘breadth’ and ‘depth’ of vocabulary knowledge. These two concepts can be better understood by making a distinction between “how many words are known (i.e., vocabulary breadth) and how well the meanings are known (i.e., depth of vocabulary knowledge)” (Ouellette, 2006, p. 555). According to Nation (2001), truly knowing a word includes understanding the wider contextual applications of that word, including: its possible different meanings, associations, concepts, and referents, and knowing the proper uses of the words, as well as the form of the word.

As discussed in Section 2.4.1, scholars have argued that L2 learners need to develop their metaphoric competence at various phases of their target language acquisition process. To achieve this, it is important to comprehend that the notion of metaphoric competence is not limited to one dimension. Instead, learners need metaphor in lexicon or language in the four aspects of communicative competence, i.e., discourse, linguistic, strategic, and sociolinguistic aspects (Littlemore & Low, 2006a, 2006b). As such, the overall lexical proficiency/knowledge of L2 learners must include their knowledge of metaphorical meanings (Castellano-Risco & Piquer-Piriz, 2020). As Lazar (1996, p. 43) stated, “the ability to identify and use the metaphorical extension of words is a critical skill for English learners to enlarge their vocabulary”.

However, reviewing literature on L2 vocabulary learning that was published over the last century, it is clear that research tackling lexical competence - particularly at the beginning of the 20th century - did not explicitly identify metaphoric competence when identifying the various types of knowledge that comprise vocabulary development. For example, in his definition of vocabulary knowledge dimensions, Cronbach (1942) identified breadth of meaning as referring to words that hold multiple meanings. This can be related directly to the understanding of polysemous and figurative words. Also, Anderson and Freebody (1976) defined depth of vocabulary knowledge as the full understanding of a lexical item in the sense that if a term is able to transmit all the nuances that a typical adult would comprehend in a particular situation, then that individual has a sufficiently thorough comprehension of that word. Although metaphor was not explicitly referred to in this early study, links can be made to how metaphoric knowledge is core to understanding the distinctive meanings of vocabulary.

In a later study, Meara (1996) identified the significance of the interaction between breadth and depth dimensions, which he termed ‘size’ and ‘organization’. More recently, Aizawa (2018) claimed that research is still unsure as to whether an understanding of words with various meanings can be considered as having a wider or deeper knowledge of vocabulary. However, based on the results of the experimental study conducted, Aizawa (2018) agreed with Meara that depth of knowledge holds more importance for those who have advanced levels of language proficiency, whereas breadth of knowledge is more significant for learners with lower levels of proficiency. Aizawa found that, among the three vocabulary tests used in a study with 59 L2 lower-intermediate engineering Japanese students studying English, the scores on breadth of knowledge correlated most strongly with students’ proficiency level. The vocabulary test used was the Vocabulary Levels Test developed by Aizawa (2006), which measured students’ receptive knowledge by estimating the size of the entire lexicon, up to the 4000-frequency band.

Furthermore, Nation (2001) divided lexical competence into three overarching groupings of vocabulary knowledge, which included: ‘form’, ‘meaning’, and ‘use’. In relation to meaning, he made a further distinction between three classifications of knowledge: *form and meaning*; *concepts* and *references*; and the *numerous associations* that people potentially make when first presented with a word. It is specifically in the last two categories that we can locate metaphorical competence (Castellano-Risco & Piquer-Piriz, 2020). For Schmitt (2008), vocabulary knowledge

goes beyond simply understanding the meaning of a single or multiple lexical items, as it also involves learning about the items' networks, which relates to vocabulary depth. In addition, Nation (2001) included another important classification that he simultaneously developed alongside those already mentioned: the contrast between receptive and productive knowledge. This division helps illustrate how our *understanding* of a phrase can often be distinct from our *production* skills in relation to the same phrase. For instance, even if it is confirmed that a learner is able to fully comprehend a word, it must be recognised that they may struggle to recall or produce this very word. This distinction is of particular importance to the current study which has focused on L2 learners' understanding and retention of metaphoric expressions, and not their production. More specifically, this study was concerned with the short and long-term learning (i.e., retention) of metaphoric expressions in terms of receptive vocabulary knowledge, covering knowledge of the meaning, form, and uses of such expressions. The researcher predominantly drew on Nation's (2013) description of what constitutes vocabulary knowledge.

Compared with the extensive literature on vocabulary knowledge and learning in general, metaphoric competence has received little attention in vocabulary studies. To bridge this gap, Castellano-Risco and Piquer-Piriz (2020) undertook an exploratory study in which well-established and widely-used vocabulary tests were completed by secondary-school learners to assess their overall lexical competence, and to measure their understanding/recognition of figurative word meanings. The sample consisted of 77 secondary school participants whose L1 was Spanish, and were learning English as an L2. Participants completed the 2K and academic bands of the Vocabulary Levels Test (VLT) (Schmitt et al., 2001) to investigate their receptive vocabulary knowledge, i.e., recognition where students were asked to match the words with their definitions. To measure the recalling capacity, participants completed the 2K and academic bands of the Productive Vocabulary Levels Test (PVLТ) (Laufer & Nation, 1999) which measured recall knowledge where students completed sentences with missing words. To measure the students' understanding of metaphoric meanings, Castellano-Risco and Piquer-Piriz (2020) employed a Metaphor-Identification Procedure (Steen et al., 2010) to identify figuratively used words in both the VLT and PVLТ tests. Following the identification of metaphorical uses of the words in the two tests, students' results in those items were correlated with their overall lexical competence. Moreover, the results of these metaphorical words were compared with non-metaphorical words belonging to the same part of speech.

Results showed that students recognised only a third of the metaphorical meanings, while they recognised more than half of the non-metaphorical meanings. The results also revealed a positive correlation between the comprehension and production of metaphoric phrases and the total score of each test. This confirms the fact that the ability to recognise metaphorical terms is strongly connected to the skill of understanding general vocabulary items. These results confirm the relationship between learners' linguistic knowledge and recognition of metaphors. Importantly, however, in relation to the recall tests, scores pertaining to the metaphorical terms were significantly lower than non-metaphorical items. These results corroborate the findings of past research (e.g., Littlemore et al., 2014) that metaphorical terms, in comparison to literal ones, are more challenging for intermediate L2 learners to understand and produce. On this basis, Castellano-Risco and Piquer-Piriz (2020) concluded that metaphorical competence by L2 learners should be viewed as a crucial component of the strategies these students have to draw on when faced with new lexical items in their L2. The authors also proposed that strategies students use in understanding metaphoric expressions should be added to learner strategy taxonomies, as Schmitt (1997) and Nation (2001) have argued previously.

The abovementioned studies point to the relationship between students' metaphoric understanding and their general language proficiency and vocabulary knowledge (Castellano-Risco & Piquer-Piriz, 2020). Nevertheless, our knowledge of metaphoric competence as a component of L2 students' general lexical competence needs to be strengthened by further research that draws conclusions and methodologies from both domains. The metaphor research that has been carried out has made important headway in empirically exploring the impact of metaphor on vocabulary learning (e.g., Boers, 2000a; Lazar, 1996), although there is still capacity for further exploration. Experimental studies will be discussed in more depth in Section 2.4.5. Research employing interventions has demonstrated that metaphoric competence and metaphor learning play a significant role in vocabulary development, e.g., understanding different meanings of vocabulary (e.g., Low et al., 2008) and enhancing the use of different varieties of vocabulary in L2 writing (Littlemore et al., 2013). Experimental studies like Boers (2000b) also concluded that through the teaching of figurative language, students develop a better understanding of meaning-making processes and, consequently, experience a more effective way of learning.

2.4.3 Teaching Metaphors Through Metaphor Raising Awareness Activities

This section discusses metaphor-raising awareness teaching methodologies and their relation to the learning and retention of metaphoric expressions, which is one of the main aims of this thesis. Boers (2004) proposed specific classroom activities that may raise learners' metaphor awareness and help vocabulary learning. Such activities, which promote awareness of conceptual metaphors, comprise two forms of elaboration: structural and semantic elaboration. Elaboration can be defined as: "the more elaborate and effortful mental work that is done with the information learned" (Boers & Lindstromberg, 2008, p.12). More specifically, structural elaboration involves more mental processes associated with focusing on form of phrases or words and their lexical or phonological features. Semantic elaboration, which is of interest to the present study, refers to mental processes involving the interpretation of meaning of words or phrases. In relation to raising conceptual metaphor awareness, semantic elaboration involves making mental connections between a set of metaphoric expressions and a conceptual metaphor, while also associating a figuratively used expression with a mental image or its original meaning. Boers (2004) has proposed the need for metaphor raising awareness teaching methodologies based on the positive effects of elaboration on expanding vocabulary learning (Section 2.4.5).

More specifically, Boers (2004) outlines four essential components needed to increase language learners' knowledge of conceptual metaphors. The first element is to encourage students to appreciate just how common metaphor actually is in the context of daily language use, and in our conceptual system. Raising students' awareness of the vast existence of metaphors in language and thought may result in improving their metalinguistic knowledge and metaphoric competence. In addition to metaphoric competence explained in Section 2.4.1, metalinguistic knowledge here can be defined as the knowledge of the nature of language, and its ability to be metaphorical as well as literal, thus having the capacity to be expressive beyond surface meanings. According to Gibbs (1994), awareness-raising techniques are typically successful in drawing learners' attention to the figurative aspect of language. Existing research also indicates that learners gain metalinguistic knowledge when they undertake awareness-raising activities, such as in the empirical study by Yasuda (2010) that focused on L2 metaphoric phrasal verbs. Moreover, Roehr (2007) indicated that metalinguistic knowledge enhanced L2 learners' performance and thus drew attention to their analytic ability and their capacity to

identify the rules of language. Chen and Lai (2013) and Chen (2019) claimed that while language learners usually have either conscious or subconscious knowledge of the metaphoric nature of the language, they require explicit (meta-cognitive) teaching of the metaphoricisation of language to activate that knowledge. That is, raising awareness enables students to activate pre-existing knowledge of metaphors in that language which consequently leads to a deeper understanding and thus more effective learning.

The second component identified by Boers (2004) is the need for metaphoric raising-awareness activities to make students conscious of the systematicity of linguistic metaphoric expressions. To illustrate, students should be taught that expressions such as *to speak from the heart* and *from the bottom of my heart* are linguistic metaphoric expressions belonging to the conceptual metaphor THE HEART IS SINCERITY (Pérez, 2016, p.8). Further empirical evidence is drawn from studies such as that by Doiz and Elizari (2013) who investigated the effects of teaching figurative language in L2 classrooms by fostering conceptual metaphor awareness. Forty first-year university Spanish students learning English as an L2 were evenly divided into two groups. Students in the control and intervention groups read two English reading passages that included metaphoric expressions related to Anger metaphors and a list of the English words students found difficult. After that, students in the control group were taught the Spanish translation of the words, which according to Doiz and Elizari is usually the traditional teaching method in their context. Students in the intervention group were taught what a conceptual metaphor is and the conceptual metaphors ANGER IS A HOT LIQUID IN A CONTAINER and ANGER IS FIRE which underly these metaphoric expressions. Students took a pre-test and immediate post-test to measure their learning, and also a two-week delayed post-test to measure their retention of the metaphoric expressions. The results suggested that systematic presentation of the target figurative expressions in lists related to conceptual metaphors and raising the students' awareness of this systematicity increased comprehension and retention of the target vocabulary. This contrasted with the control group who received metaphoric expressions presented in a translation-based approach.

Thirdly, according to Boers (2004), it is important that these activities present and explain conceptual metaphors (especially the source domain), with the outcome of 'motivated' metaphoric expressions. Fortunately, for L2 learners, a large amount of metaphoric language can

be motivated, which means figurative expressions can be ascribed systematically to their source domains or metaphoric themes. This could be achieved by explaining to language students how groups of expressions relate to general metaphor themes, share a domain of origin, or represent the literal meaning of a word that is used in its more figurative sense (Boers, 2000a; Li, 2009). Thematic lesson planning can represent a better overall structure that allows the assimilation of metaphoric expressions into broader conceptual metaphor themes. This provides a more adequate framework compared to generalised vocabulary lists, thus facilitating a smoother learning process, as figurative expressions can often seem arbitrary and intangible (Boers, 2000a). In this sense, new items are easier to recall from memory when they are successfully incorporated into broader networks. Boers (2015) also added that metaphors symbolise common and familiar worldly experiences, such as life or death, cold or heat, and light or darkness. In this respect, metaphors in the target language must be pertinent to the learner in order for teaching to be efficient, similar to other subject matters. Consequently, it is more effective to employ a more grounded usage-based approach to common concepts and structures, as opposed to providing a very generic and context-free index of the semantic aspects of metaphors.

Teaching students about the underlying conceptual metaphors of metaphoric expressions can be achieved through the explicit teaching of the conceptual metaphor mapping between the two domains and/or image schemas. Conceptual metaphors' ability to be visually represented through diagrams is a positive factor that should be taken advantage of in teaching. It has been argued that the potential positive effects of mapping are that it allows learners to gain knowledge of how the English language forms metaphors; facilitates comprehension of the similarities or co-occurrence between two domains; and stimulates mental imagery which consequently leads to a deeper processing of the concepts (Kövecses, 2001). Chen (2019) also conducted a study with 91 Taiwanese learners of English. Students in the comparison group received metaphoric mapping teaching, whereas students in the control group received no teaching. Results of pre-tests and post-tests showed that conceptual metaphoric mapping teaching increased students' recognition and retention of metaphoric expressions. Results also revealed the positive effects of these mappings, which included facilitating students' knowledge of the meaning-making process and helping them to develop conceptual associations of the distinctive linguistic expressions.

Another way to encourage learning and retention of metaphoric expressions is by activating the metaphoric expressions' meanings in the mind of the learners. This can happen by associating the expressions with a more concrete or vivid scene of the literal original meaning. The imagery behind these expressions should be made explicit by referring to the literal (or original) meaning. This strategy has the advantage of giving metaphorical expressions some concreteness. Meanings in the concrete domain can help to form images easily, that is, concreteness evokes imagery and promotes memory, and can lead to a higher retention rate of vocabulary (Boers, 2000a, 2001). The Dual Coding Theory can be used to explain this effect (e.g., Clark & Paivio, 1991), asserting that concrete objects are stored as verbal and non-verbal entities (e.g., images). Studies by Gibbs et al. (2006) and Wilson and Gibbs (2007) have shown how peoples' ability to form mental images of metaphorical expressions speeded comprehension of these phrases when they imagined themselves acting out the metaphors. They even found that asking participants to merely imagine themselves performing the physical actions resulted in the same comprehension as when the participants actually physically performed the actions of the metaphors.

The fourth element of awareness-raising tasks that can help vocabulary learning according to Boers (2004) is related to deepening learners' consciousness of the potential for conceptual metaphors to demonstrate metaphors' universality across cultures and/or linguistic variations across cultures and languages. The transference discrepancy that results when source or target domains of metaphors vary between the learner's L1 and L2 can end up being particularly advantageous because the difference might be just what the learner needs to attract their curiosity (Roche, 2015). It has been argued that unusual cultural equivalencies of metaphors between languages tend to produce an especially high level of salience for the learner (Roche, 2015). That is, although conceptual metaphors are universal and exist in different languages, the cultural differences between languages can result in different realisations of metaphors between L1 and L2. For instance, in the case of the different metaphors relating to time in Arabic and English, when an Arabic speaking student is confronted with the juxtaposition of the known conceptual metaphor TIME IS A SWORD and the new conceptual metaphor TIME IS MONEY, the distinctly different phrasing and imagery is likely to make the new metaphor more salient to them, thereby enhancing learning.

To lessen the chance of a negative transfer, students should also be made aware of the variations in conceptual metaphor expressions between L1 and L2. Zibin (2016) found that to help students understand L2 conceptual metaphors, it was helpful to make them aware of the contrast between L2 and L1 conceptual metaphors. Indeed, this could be explained by drawing on the ‘Noticing Hypothesis’ (Schmidt, 1999, 2001), which highlights the importance of noticing and attention for language learning. The Noticing Hypothesis asserts that input for language learners can only be considered intake once it is noticed and consciously registered (Schmidt, 1999, 2001). In light of the above, learning about the formation of conceptual metaphors is central to helping L2 students pay attention to figuratively used language which ultimately leads to better understanding (Boers, 2011). In this sense, to attract and maintain the learner’s interest, metaphors must be as salient as possible (Roche, 2015).

To sum up, for language learners, introducing lexical items as motivated by conceptual metaphors is useful since it promotes understanding, memory, cultural awareness, and positive affect (Boers, 2015). A number of empirical studies (discussed in Section 2.4.5) have demonstrated how raising learners’ awareness of metaphoric motivation results in comprehension and retention benefits across diverse areas of the English vocabulary, such as phrasal verbs (Kövecses, 2001), idioms (Boers, 2001), and single lexical items (MacArthur & Littlemore, 2008). Boers (2000a) has importantly asserted that these approaches are not meant to substitute established vocabulary learning methods (e.g., Schmitt & McCarthy, 1997), but rather are intended to be complementary approaches to teaching these types of lexical items. The metaphor awareness-raising approach fits in the broader pedagogical movement of Language Awareness (James & Garrett, 1991) in which L2 learners are encouraged to reflect on L2 use and characteristics and not only perform in the L2 (Boers, 2000a). As a great bulk of metaphoric language consists of multi-word expressions, metaphor awareness studies give due attention to chunk-based language (Lewis, 1993), while acknowledging the significance of formulaic language learning (Skehan, 1998). The next section will review some of the most important theories that have are related to metaphor learning and retention.

2.4.4 Theories Related to Metaphor Learning and Retention

The Dual Coding Theory (Clark & Paivio, 1991), Levels-of-Processing Theory (Craik & Lockhart, 1972), and Involvement Load Hypothesis (Hulstijn & Laufer, 2001) have

been identified as highly relevant to shaping our understanding of how conceptual metaphors and metaphoric expressions are learned and retained. This is particularly true in relation to L2 metaphor understanding and retention, where different mental processes can occur, thus making it important to consider these cognitive processing theories.

In relation to Dual Coding Theory (DCT), “cognition involves the cooperative activity of two functionally independent but interconnected systems, a nonverbal system specialised for dealing with non-linguistic objects and events, and a verbal system specialised for dealing directly with language” (Paivio, 2007, p. 33). Both systems are activated when we process or retrieve information in both verbal and visual forms. Paivio’s (2007) main argument is that the verbal system never operates alone but is always facilitated by the nonverbal imagery system. Clark and Paivio (1991) and Paivio (1986) claimed that the linking of mental images with lexical items, such as metaphoric expressions, enhances the recollection of these expressions. The association happens as a result of a mechanism by which verbal and visual information is separately retained in the mind. According to DCT, words and phrases are stored in the mind in sequences, which makes it more difficult for them to be recollected compared to visual images, since parallel methods are used to store visual images (Paivio, 1986). However, although they are stored separately in the brain, visual and linguistic data are connected. Thus, if a learner links new vocabulary with mental images, this strengthens their connection and assists the recall of these items. The suggestion here is that vocabulary items must be backed with mental images to facilitate their retention. Teaching metaphoric expressions through a combination of visual and verbal modalities, therefore, rather than solely linguistic explanations, can facilitate their learning and retention.

The Levels-of-Processing Theory, presented by Craik and Lockhart (1972) and Cermick and Craik (1979), argues that a learner must perform deep cognitive processing to be able to add vocabulary to long-term memory. What is significant to vocabulary learning and retention is the depth of the encoding of learning materials, rather than just determining whether semantic encoding is present or not (Craik & Tulving, 1975). In conceptual metaphor teaching, deeper processing can be accomplished through teaching semantic elaborations (see Section 2.4.3) of metaphoric expressions in which “the learner actively performs a relatively complex mental operation with regard to the lexical information” (Boers & Lindstromberg, 2008, p. 12). Boers

and Lindstromberg (2008) contend that elaboration aids students in learning metaphors much more when compared to rote learning or only learning the meanings of a vocabulary list, which do not boost the learner's memory. Whereas elaboration allows a learner to fuse the new information with previously acquired information in order to create a new memory structure, rote learning lacks this kind of associative element. In addition, to make sense of conceptual metaphors, students would have to increase co-activation of related items and/or mental images, and thus increase progressive effort, which would impact the cognitive system (Roche, 2015). The result is likely to be an improvement in meaning-making and form retention. Furthermore, metaphor learning and inferring metaphoric expressions enhance learners' problem-solving skills which includes deep cognitive processing and better memory storage (Boers, 2013).

Another important related hypothesis, the Involvement Load Hypothesis (Hulstijn & Laufer, 2001), proposes that the degree of involvement in the processing of unknown vocabulary items typically determines how well they are retained. Specifically, the learning and retention of vocabulary are higher when there is a higher involvement load. Hulstijn and Laufer (2001) mentioned that three factors determine involvement load: 'need', 'search', and 'evaluate'. *Need* occurs when a learner requires a linguistic item or feature to carry out a desired task, such as the need to know a specific vocabulary item to comprehend a paragraph. *Search* refers to an effort to uncover the needed information, such as looking up a word's definition in a resource. *Evaluation* is the process of comparing a word or word-related information with the context of use to see if it fits.

Boers (2013) reviewed experimental studies that were concerned with raising metaphor awareness when teaching metaphoric expressions and found that learners who experienced more involvement with the metaphoric expressions had better learning results. In those studies, learners were encouraged to: exert more effort in finding similarities between domains in the L2; relate metaphoric expressions to conceptual metaphors; relate them to literal meanings; and infer meanings of new expressions. Learning expressions through conceptual metaphor teaching methodologies thus maximises the amount of interaction with the expressions, and the time spent engaging with them. In this respect, Schmitt (2008) also used the word 'engagement' to refer to involvement possibilities that lead to more and better vocabulary learning. Schmitt recommended the use of certain activities to expand the ways in which students engage with target lexical

items, which represents a core foundation of vocabulary learning. In his review of L2 vocabulary instruction, Schmitt (2008) highlighted the importance of introducing the conceptual metaphors that underly lexical items as one of the proposed engagement methods.

2.4.5 Experimental Studies that have Used Metaphor Awareness-Raising Approaches

With an aim to facilitate learners' comprehension, retention and cultural awareness, experimental studies within cognitive linguistics have attempted to measure the effectiveness of metaphor awareness-raising instructional methods on teaching figurative language. This section sheds light on some of the most influential experimental studies conducted within cognitive linguistics, which have highlighted the important learning and retention benefits of teaching conceptual metaphor.

Kövecses and Szabó (1996, revisited by Kövecses, 2001) investigated the influence of cognitive linguistics inspired presentations on learners' knowledge of the form and meaning of English phrasal verbs including the words *down* and *up*. Fifteen Hungarian learners were in the experimental group and studied ten phrasal verbs accompanied by descriptions of conceptual metaphors underlying the phrasal verbs, which are MORE IS UP and HAPPY IS UP. Another fifteen students were in the control group and studied the same verbs, except they were accompanied by translations from L1. The students in the experimental group performed better than the control students in the post-test, by a rate of 9%. The post-test also included ten untaught phrasal verbs. The experimental students outperformed their control counterparts by 25% on those verbs, indicating that experimental students were able to transfer the newly learned knowledge of the conceptual metaphors to their understanding of phrasal verbs not already learned. Even more so, the experimental group learned nine conceptual metaphors exemplified by several phrasal verbs which the control group did not learn. Importantly, the experimental group received more instructional hours, which may have led to the difference in performance between the two groups.

In a larger experiment by Boers (2000a), 39 students of English - whose L1 was French - were requested to learn 26 phrasal verbs arranged in groups of conceptual metaphors and were presented with a synonym for each metaphoric expression. The control group's students learned the same phrasal verbs, but the verbs were ordered alphabetically in lists, while those in the experimental group were provided with several synonyms and more elaborate explanations. The

students in both groups completed a text-based gap-filling exercise targeting ten of the phrasal verbs, as an immediate post-test. The experimental students significantly outperformed their equivalents in the control group. Ten further phrasal verbs which were not part of the list the participants studied, were also included in the test. Contrasting Kövecses and Szabó's (1996) study, the extra items were derived from different conceptual metaphors unrelated to the conceptual metaphors of the learned phrasal verbs. Post-test scores on these phrases indicated no difference between the groups and no sign of any transfer strategy outside the conceptual metaphors the students learned. This result shows that teaching specific conceptual metaphors did not lead to knowledge transfer on the part of the learners to understand new untaught conceptual metaphors. This is an area that needs to be explored through further studies. Indeed, comparing results from Kövecses and Szabó (1996) and Boers (2000a), research in this area has showed some conflicting results, which calls for more investigation of this issue.

Another study, which was conducted with a bigger sample and included more target expressions compared to those previously mentioned, was carried out by Li (2002). Li conducted five studies with 400 Chinese students learning English. In studies 3, 4, and 5 (which are of interest to the present thesis), Li compared between the effectiveness of explicit conceptual metaphor teaching (experimental group 1); image-based instruction through diagrams and images (experimental group 2); and grouping the expressions under semantic topics (control group) on learning and retention of meaning and form of metaphoric expressions, idioms, and proverbs. Each experimental study included a pre-test, a teaching session, a post-test, an evaluation questionnaire, and a 1-week delayed post-test. In general, results showed that students in the experimental groups who participated in teacher-led explanations of conceptual metaphors, which were accompanied by pictorials of the conceptual metaphor mappings and meanings of metaphoric expressions scored significantly better in the immediate and 1-week delayed post-tests (filling-in-the-blanks with keywords that measure the retention of figurative expressions) than students in the control groups.

More specifically, students who were encouraged to create mental images through using diagrams and visual images scored better in post-tests than students who learned the conceptual metaphors only. This is indicative of the power of teaching conceptual metaphors, and simultaneously encouraging students to create mental images, as this led to better retention of

idioms and proverbs compared to learning the expressions grouped under conceptual metaphors only. However, when contemplating these results, a number of issues should be taken into consideration. Firstly, the experimental students were given more time when being taught the expressions and therefore received more input compared to the control group which led to inequivalent input and engagement on the part of the learners. Therefore, the positive results found by Li (2002) pertaining to learning and retention could have been due to incomparable input between the groups, and not necessarily the mnemonic effects of conceptual metaphor teaching. Furthermore, no details were provided about how the tests were marked when students were asked to describe the figurative meaning of the expressions. As such, there is an urgent need for studies that measure the effects of conceptual metaphor teaching, while ensuring that the intervention and comparison groups receive equal input.

Inspired by Boers' (2000) insightful findings, Boers et al. (2007) performed an experimental study on a much larger scale, using an online programme designed to aid Dutch-speaking students in understanding and recalling 400 English idioms. Each idiom was delivered to the learner via three exercises, namely a multiple-choice exercise (an origin exercise); another multiple-choice exercise (a meaning exercise); and a gap-filling exercise. The students were given feedback following each exercise. In the experimental group, students completed the origin exercise before the meaning exercise, whereas in the control group, this was switched around, and students completed the meaning exercise before the origin exercise. Results showed that, in relation to the gap-filling exercise, students who did the origin exercises first were significantly more able to produce idioms, compared to those who did the meaning exercises first. This positive effect depended on the order of the exercises, increasing when students did the origin exercise first. This could be due to the fact that the problem-solving exercise (the origin exercise) encouraged deeper thinking, allowing students to transfer the newly learned knowledge of the origin of the idiom to the meaning exercise. These results support the Dual Coding Theory in the sense that presenting the original, historical meaning, as well as the pictorial elucidation, encouraged learners to create mental images, which consequently enhanced learning. However, no pre-tests were taken in this study, which may affect the validity of the results.

While most of the experimental studies mentioned above are purely quantitative, a study that included qualitative data was conducted by Juchem-Grundmann (2009) to obtain a more

insightful understanding of metaphor-awareness activities. Juchem-Grundmann (2009) conducted a classroom intervention with 32 German Business students studying English to explore how they perceived and engaged with metaphor-awareness activities integrated in an existing English Business course unit. It included interviews with the students in addition to observations of their behaviours in the classroom. Prior to the intervention, students participated in an oral class survey and a questionnaire which revealed that they were not (intrinsically) motivated to learn Business English and were unfamiliar with effective strategies to learn the language. In the intervention, students in the experimental and control groups were taught an English Business chapter. The researcher asked learners in the control group to firstly write down every item of vocabulary they knew in the context of business competition, and a mind map was drawn on the board based on their ideas. They then followed the regular schedule and worked through the business competition unit. In contrast, learners in the experimental group were asked to firstly imagine a sports arena (source domain) and to then write down everything that came to mind regarding this mental image. Students were then taught to make connections (mappings) between the source (sports competition) and the target domain (business competition). In their post-test writing task, it was found that students in the experimental group wrote examples such as *gave the ball to*, *captured the flag*, *hit the ball again*, and *lost the leadership* to compare two competing products (Juchem-Grundmann, 2009). Interestingly, these metaphoric expressions were not taught during the intervention, and they were creative expansions of the taught conceptual metaphors BUSINESS IS WAR and BUSINESS IS SPORTS COMPETITION. These results reveal that semantic elaboration based on teaching conceptual metaphors encourages students to develop more mappings between the learned domains to produce novel linguistic expressions.

In a second stage of the study by Juchem-Grundmann (2009), students in the experimental group were introduced to a new source domain (war) through a worksheet. They were then asked to complete a gap-filling exercise with sentences from natural business discourse that contained heavily war-based vocabulary. Interestingly, observations showed that those in the experimental group did not face difficulty in decoding the meanings and linking the newly acquired vocabulary with the new domain. Conversely, students in the control group struggled to fill in the gaps. Some of the students even refused to continue the exercise. According to the author, this could be due to the fact that they did not complete conceptual

metaphor awareness exercises with competition and war contexts. Moreover, students in both groups were given a reading activity, and experimental students were asked to underline what would fit in the discussed source domains and what could be grouped together with the vocabulary they had already learned. Results indicated that students in the experimental group started to pay more attention to figurative expressions in reading texts. Although this study was one of the few qualitative cognitive linguistic studies conducted, it should be noted that it was small-scale. As such, more qualitative studies with more participants employing conceptual metaphor raising awareness are needed.

The positive results of conceptual metaphor teaching were also confirmed in a more recent investigation by Hung (2019). In a quasi-experimental study, 12 English metaphoric expressions about finance were taught to 50 Vietnamese first-year university students learning English. There were two experimental groups: one had conceptual metaphor teaching and the second one received rote-learning treatment while students in the control group received no treatment. Results illustrated that students in the cognitive conceptual metaphor teaching group significantly outperformed the rote-learning group in both immediate and 2-week delayed post-tests for receptive and productive knowledge of the target expressions (through translation and speaking tasks). The interesting finding about this study is the positive effects on metaphoric expression production. However, the number of expressions included in the study was limited and there is a need to conduct experimental studies with more metaphoric expressions.

Chen (2019) conducted an experimental study with 91 Taiwanese learners of English. Inspired by the positive results of Kövecses' (2001) intervention, Chen aimed to examine the impacts of cognitive-inspired metaphoric mapping teaching on figurative expressions at different levels of English proficiency. Students were divided into a control group receiving no intervention, and two experimental groups including high- and low-intermediate participants who received metaphorical mapping teaching. The study results showed that progress was made by both high-intermediate and low-intermediate learners receiving metaphoric mapping instruction, as they witnessed a significant improvement in their recognition and retention of metaphoric language. High-intermediate learners also improved in their ability to notice words and phrases with more abstract mapping relationships. Another interesting finding was that for lower proficiency learners, metaphoric mapping instruction assisted them in acquiring more

advanced language skills that went beyond their current level. Teaching conceptual metaphor mappings facilitated those learners' metaphoric awareness and they were able to recognise metaphoric words more effectively and easily in comparison to students in the control group. Chen elaborated on the potential positive effects of these mappings, which facilitated students' knowledge of the meaning-making process and helped them to develop conceptual associations of the distinctive linguistic expressions. In this regard, the results of this study are in line with the argument made by Andrews (2007) that explicit teaching of conceptual metaphors is specifically helpful for learners at a low proficiency level, as it enables them to make significant progress in their learning. This finding, in relation to lower proficiency students, has the potential to lead to some very interesting insights and to inspire further research, yet needs to be more adequately explored in different contexts and with a larger number of participants.

A limited number of experimental studies have been conducted in the Arab context. For instance, Altakhaineh and Shahzad (2020) conducted a pre- and post-test experimental study with 50 Emirati university students learning English. Twenty-five students in Group A received teaching for 23 English metaphoric expressions in relation to conceptual metaphors accompanied by pictures shown in overhead projector slides. The twenty-five students in Group B were exposed to the same metaphoric expressions yet were handed an online dictionary to look for the meanings of the metaphoric expressions and were subsequently asked to complete a matching exercise. After the intervention, students took a comprehension test where they had to provide meanings for the target expressions. An analysis of pre- and post-tests showed that Group A statistically outperformed Group B, confirming the effectiveness of using visuals in teaching figurative language and hence supporting Dual Coding Theory. However, it must be recognised that this study was based on a small number of students, and the teaching methodology focused exclusively on pictures. Studies that adopt a more explicit method of teaching conceptual metaphors and include a larger number of participants are needed.

The only classroom experimental study implementing conceptual metaphor teaching with L2 Saudi university students was conducted by Saaty (2016). Although she conducted three experimental studies, only study two will be covered in this discussion. Study two was a quasi-experimental study with 67 Saudi learners of English and examined the effectiveness of conceptual metaphor awareness in teaching metaphors in a task-based setting. The experimental

group included 37 students who learned 17 metaphoric expressions related to one conceptual metaphor. They learned about the conceptual metaphor through a paragraph explaining that one concept in English is described as another, and then given the opportunity to learn the metaphoric expressions through task-based activities such as filling in a time-log talking about problems with time management. This was followed by a problem-solving task where they were required to look for management solutions in an article. They later received explicit teaching of the literal senses of metaphoric expressions in relation to the conceptual metaphor.

The comparison group received the same input but were asked to learn the metaphoric expressions without any reference to the conceptual metaphor - only as it relates to the theme of time. Students took metaphor tests as pre-, immediate, and two-week delayed post-tests and they were cloze exercises where participants had to fill in the blanks with the correct expressions. Results indicated that teaching conceptual metaphor helped students in the experimental group to learn and produce the taught metaphoric expressions in the immediate post-test. However, results also illustrated a rapid drop in the two-week delayed post-test results showing that the intervention did not aid retention of these expressions. As mentioned earlier, students learned about conceptual metaphors briefly and the intervention did not include mapping of similarities, or images with literal and figurative meanings. Therefore, an intervention with more focus on conceptual metaphors and enhancing mental imagery amongst Saudi university learners of English would be a more accurate measure of the effectiveness of this instructional method.

To conclude this section, although these experimental studies are small-scale and are driven by a narrow theoretical focus, they nevertheless form a key body of research supporting cognitive linguistics inspired language pedagogy. There is an obvious insight that can be gleaned from all of the studies reviewed here, namely that cognitive linguistics informed presentation of L2 figurative language is more effective than the conventional approach. Experimental studies drawing on the unique features of conceptual metaphors have confirmed that L2 learners' vocabulary knowledge benefitted from metaphor teaching approaches whilst also supporting better longer-term retention. However, it should also be noted that these studies bear methodological limitations including: a lack of pre-testing (e.g., Boers et al., 2007), focusing mainly on phrasal verbs (e.g., Kövecses & Szabó, 1996, revisited by Kövecses, 2001) or idioms and proverbs (e.g., Hung, 2019), restricting the study to a single subject domain, not leaving

enough time before the delayed post-tests to measure retention (e.g., Li, 2002), small sample sizes (e.g., Altakhaineh & Shahzad, 2020; Hung, 2019), a lack of similar input between the intervention and the comparison groups (e.g., Li, 2002; Kövecses, 2001) and not including details of tests or analyses.

All of these limitations raise questions about the accuracy and reliability of the findings of the abovementioned studies. Therefore, the effectiveness of teaching conceptual metaphors in raising L2 students' metaphor awareness, learning and retention of metaphoric expressions, is an important area that still requires further exploration. In this respect, the current study aims to shed further light on the theoretical insights discussed by addressing some of these limitations. As will be discussed in the coming sections, there is a lack of studies employing conceptual metaphor teaching to measure metaphor's effectiveness on reading comprehension and the learners' ability to transfer their knowledge to new metaphors. This thesis aims to explore the impact of metaphoric teaching on Saudi university students' English metaphor learning and retention, and on their reading comprehension. By focusing on these areas of figurative language learning that have been neglected in cognitive linguistics research, it is hoped that this study will be a useful addition to the body of literature supporting the inclusion of metaphoric teaching in L2 curricula and classrooms.

CHAPTER THREE: LITERATURE REVIEW AND THEORETICAL BACKGROUND OF METAPHOR IN L2 READING COMPREHENSION

3.1 Introduction

The present chapter reviews the theoretical background and literature review in relation to one of the main aims of the present study which is measuring the impact of teaching conceptual metaphor on reading comprehension. It starts with a brief review of L2 reading comprehension. It is then followed by L2 reading comprehension in relation to vocabulary knowledge, metaphor knowledge, and conceptual metaphor instruction. The next section discusses learners' strategies including reading comprehension, metaphor interpretation, and inferencing strategies. Lastly, the chapter ends with a review of students' perceptions in metaphor studies, including affective and behavioural impacts.

3.2 L2 Reading Comprehension

The value of reading as a critical life skill is undeniable and, as such, it has been the topic of much academic research, particularly in relation to reading in L2 (Grabe, 2009). Early research on L2 reading, however, was heavily influenced by work done by L1 reading researchers, to such an extent that these studies were seen as merely extensions of research developments in L1 reading (Bernhardt, 1991). Consequently, the main theoretical frameworks that have dominated research related to L1 reading, such as that developed by Goodman (1967) and Smith (1971) have had a significant impact on L2 reading. This was particularly true during the 1970s and 1980s, as teachers of English as an L2 began to stress the importance of developing the skills of reading and writing. This was due to the increasing need to adequately train the rising percentage of non-native students studying at English university campuses in order to successfully complete academic assignments. The main argument of this early research was that reading was not a linear process, but a more nuanced operation in which readers continuously made and tested predictions and assumptions and utilised their language and knowledge to construct meanings. To illustrate, according to psycholinguistic models, such as

those proposed by Clarke and Silberstein (1977) and Coady (1979), reading was seen as a process that required readers to actively comprehend the text by their use of past information and effective reading techniques, such as employing a preview of the text, inferences, and contextual cues.

As previous models focused on the behaviour of continuously making hypotheses and then attempting to confirm those hypotheses while reading, later research moved to more interactive models (cf. Stanovich, 1980). These interactive models emphasised the interplay between linguistic knowledge (e.g., vocabulary, phonology, grammar) and non-linguistic knowledge. Later models that were L2 focused have emphasised the participatory nature of reading as a cognitive process in which the reader is an active participant who relates new information in the text to their general background knowledge (Bernhardt, 1986, 1991; Carrell, 1985, 1988) and their more specific cultural knowledge (Pritchard, 1990) to build a mental representation. Within this view, the meaning communicated in a text depends mainly on the interpretations made by the readers, based on their understanding in light of previous knowledge, attitudes and experiences. In this sense, they are not passive receivers as reading includes an interaction of multiple sources of knowledge (schemata), part of which stems from personal experience. Moreover, according to Mokhtari and Reichard (2001), reading is a cognitive enterprise and involves an interplay between the text, the reader, all of which have an important impact on the overall reading process.

As a result of its key role in language learning over the past forty years, L2 reading education has consequently come to constitute an essential component of English language learners' practice and education (Slavin & Cheung, 2005). This led to the establishment of several widely applied models of reading comprehension. These range from psycholinguistic models developed in the context of L1 reading, including examples such as the Landscape Model (Van den Brock et al., 1996) and the Structure Building Framework (Gernsbacher, 1997) to models aimed at conceptualising L2 reading from the point of view of proficiency testing (Khalifa & Weir, 2009). However, as this thesis investigates the effects of explicit conceptual metaphor instruction on learners' reading comprehension of texts, Kintsch's (1988) Construction Integration Model (CI) is the most relevant theoretical paradigm. As will be discussed further in Section 3.2.1, the CI model provides an *explicit* account of how the language of a text interacts

with the reader's prior knowledge and experience, thereby reflecting the relationship between underlying conceptual metaphors and their linguistic realisation as specific metaphoric expressions.

Kintsch (1988) viewed the process behind reading comprehension as encompassing more than just connections between explicitly stated elements in the text. He recognised the importance of the implied ideas, i.e., inferences, behind the textual material that is printed; that is, ideas that trigger one's subconscious thoughts. Inferences are made when relevant background knowledge shapes the mental representations of readers as they engage with a text, helping to construct meaning. One of the main tenets of the CI model is that when we read sentences or texts, our mind processes them at three levels. The first level relates to the words of the text and their grammatical relationship. For example, identifying the elements that are noun or verb phrases, making up the *linguistic surface structure*. Once the reader has identified the grammatical units in the sentence and the individual words become coherent, they are able to integrate the subject and predicate in order to establish the sentence's propositional meaning.

The next level is the *text base level*, described by Kintsch (1988) as the basic unit of text processing, which involves a higher order discourse level representation of the meaning of a text. The text base is established as the reader identifies either logico-semantic relationships (e.g., cause-effect; contradiction) between adjacent or near adjacent sentences, or instances of argument overlap (e.g., direct or indirect repetition). This text base leads the reader to start building up a multi-sentential, discourse level representation of the text, allowing them to establish a unified, holistic representation of the meanings encoded in successive sentences, and to comprehend the relationships between those meanings.

The *situation model* forms the next level, where the reader integrates meanings derived directly from the text base and integrates them with personal experiences and background knowledge to facilitate comprehension during reading. That is, the information from the text is fused with information available in long-term memory. Importantly, the situation model is constantly changing as a person reads new information in the text, while the type of situation model a reader builds at any moment depends on the amount of relevant background knowledge they carry. Prior knowledge includes lexical, semantic, contextual, emotional, and personal knowledge.

In relation to the process of meaning construction of unknown expressions, Kintsch (1988) described the process as starting with a bottom-up activation of a vague and nonspecific potential meaning, which then gradually transforms into a specific meaning in the process of integrating the word into larger sentence and text units. This process is heavily dependent on context. In the case of a word encountered for the first time in a discourse context, information linked to the word in long-term memory, semantic as well as personal-episodic, is instantiated in working memory and participates in the integration process. The result is a coherent structure into which the word meaning becomes embedded, with prior knowledge of information in the text playing a central role in the meaning construction process. Various interpretations take place in parallel, with the one that fits most into the discourse context eventually winning out in the integration process.

3.2.1 CI Model, Conceptual Metaphor Theory, and the Role of Prior Knowledge

In relation to the current thesis, it is worth noting that Kintsch's (1998) model overlaps with Conceptual Metaphor Theory (CMT). This lies in the way a reader deciphers metaphor in text as a combination of understanding the underlying conceptual metaphor and the multiple possible linguistic metaphoric expressions of that conceptual metaphor. At the cognitive level, we recognise how conceptual metaphors structure our understanding of the world beyond the text, while on the text level, we also interact with metaphors linguistically. Thus, we interact with conceptual metaphors initially as linguistic metaphoric expressions, before using the imagery of the metaphor to establish a relationship between the language in the text and our higher-order, conceptual relationships to the world.

As discussed in the previous section, a key component of Kintsch's (1998) CI model is the situation model which emphasises the role of knowledge- also central to the cognitive linguistics approach. It is assumed in cognitive linguistics research that metaphoric competence (See Section 2.4.1) plays an essential role in helping L2 learners to better analyse and understand figurative language (Littlemore, 2002, 2004). As shared knowledge is a key factor in metaphor comprehension (Littlemore, 2001), it is also a key component in understanding texts including metaphoric language. Metaphoric competence also constitutes learners' wider communicative and lexical competencies needed to help comprehension. Metaphor studies have also demonstrated the importance of metaphor - being embodied and pre-existing in human minds - in

raising students' awareness of the sociocultural facets of language in context and leading to more personal relatedness (Gibbs, 2008; Littlemore, 2002; MacArthur & Littlemore, 2008).

Socio-cultural background and personal experiences, according to Kintsch (1998), are key factors that aid the reader in making appropriate inferences about the text. It is assumed that L2 readers have significantly less socio-culturally relevant background information compared to L1 writers and readers (Bernhardt, 2011). Therefore, L2 readers may be at a disadvantage when reading texts, and specifically texts including metaphoric language. Of similar importance, Kintsch's (1998) model and cognitive linguistic theories, such as CMT and Dual Coding Theory draw heavily on the idea of mental imagery. Applied linguists employing conceptual metaphor teaching have asserted the importance of people's image formation for their understanding of metaphors (see Section 2.4). This combined understanding of reading comprehension through the situation model, on the one hand, with conceptual metaphors and image formation on the other may lead to better overall learning and reading outcomes.

Therefore, Kintsch's (1988) CI model is relevant to the present study in the way it accounts for the formation of different levels of meaning representations and in the inferences generated while reading. This is particularly true where the reader is required to draw on prior knowledge in order to overcome a knowledge gap in the text. The first level of processing, in which the reader decodes an individual metaphoric expression in a text must be followed by a degree of inferential processing, in which the reader integrates those expressions in the light of the metalinguistic knowledge that language can be both literal and figurative (Section 2.4.3). Once an expression has been identified as metaphorical, the reader must activate relevant sociocultural knowledge in long term memory to establish a situation model representation of the portion of the text containing the metaphor they are processing. In this way, they are able to better comprehend and make inferences about the writer's meaning beyond the literal meaning of the expression and thus establish a discourse level representation of the meaning of the text. When the reader is presented with an unknown metaphoric expression, they are required to make an inference, in which they draw upon their background knowledge, concerning either the situation described in the text, the underlying conceptual metaphor, or both, in order to understand the text. If a reader is able to use prior metalinguistic knowledge as well as knowledge of a relevant underlying conceptual metaphor (i.e., prior knowledge), they are more likely to make a strategic inference of the meaning of the unknown expression. This combination

of prior knowledge and strategic behaviour allows for metaphoric competence to function as a comprehension strategy. However, when L2 readers are unable to make inferences of unknown metaphoric expressions, either due to insufficient metalinguistic knowledge regarding the nature of the language, or specific knowledge of the relevant underlying conceptual metaphor, they may only form text base literal representations, and thus be unable to grasp the intended meaning of the text. Therefore, in the present study, it can be claimed that Kintsch's (1988) CI model provides an account of reading comprehension which is well placed both to explain how L2 students understand metaphoric expressions they encounter in a text, as well as the potential difficulties which they may experience.

3.3 Metaphor and L2 Reading Comprehension

3.3.1 L2 Reading Comprehension and Vocabulary Knowledge

The meaning of individual words is what makes up the overall meaning of a text, suggesting that the more words a reader knows, the more likely they understand a reading text (Kan & Murphy, 2020). Indeed, while learning new words is essential for improving literacy in general, as a parallel correlate, vocabulary knowledge is linked specifically to reading comprehension (Nation, 2001). Research focused on L2 learners has explored the association between reading and vocabulary knowledge by evaluating both the breadth and size of the vocabulary needed for sufficient comprehension. For instance, Laufer (1992) proposed that comprehension can be accomplished if the reader is familiar with approximately 3000-word families. Lexical coverage - a measure of how many terms in a text are known - can be used to determine how broad a vocabulary is required for sufficient understanding. According to Hu and Nation (2000), a range of between 95% and 98% known words is required for sufficient text comprehension.

In actual language use, a lot of common lexical items appear in combination with other lexical items to create multiword expressions that can have a variety of figurative meanings (Martinez & Murphy, 2011). Hence, if the vocabulary size measurements solely test single word items, equating vocabulary size with overall lexical knowledge may be inaccurate. Little L2 research has been done on the relationship between reading comprehension and vocabulary depth, compared to vocabulary breadth/size (Grabe, 2009; Jeon & Yamashita, 2014), although

some data have been collected on this issue by L1 reading researchers (e.g., Ouellette, 2006). Among the few L2 studies conducted, Qian (1999) focused on learners studying English in Canadian universities. The sample consisted of 217 university students representing 19 different L1 backgrounds, including Korean, Spanish, Chinese, Italian, and Arabic. Findings showed that size and depth are two independent components of vocabulary knowledge according to their distinct prognostic impacts. Qian found that reading comprehension was more strongly predicted by vocabulary depth (i.e., morphological, polysemous words, and collocations knowledge) compared to vocabulary size. Moreover, a later study by Qian (2002) found that both vocabulary depth and size together were important for reading comprehension in L2. In line with the earlier study by Qian (1999), Binder et al.'s (2017) study of 107 female college students learning English concluded that depth of vocabulary knowledge is a more significant factor in enhanced reading comprehension. In other words, understanding a text needs more than just comprehending its fundamental vocabulary, but also making connections between those lexical items.

Whereas Qian (1999) and Binder et al. (2017) have argued for the importance of vocabulary depth, Zhang and Yang's (2017) research on Russian, English, and Korean learners of Chinese contends that the nature of the reading task dictates whether vocabulary depth or size is more important. Overall results of the study indicated that vocabulary depth as a discrete component of vocabulary knowledge significantly contributed to the learners' overall reading comprehension. However, among the two reading comprehension tasks used in the study, there were differences in the proportional contributions of vocabulary depth and size. A significant predictor of reading comprehension was vocabulary depth in relation to short passages, whereas in contrast, size was the better predictor for long passage comprehension tasks. The findings of the different important predictors of both tasks could be explained by the different textual characteristics and the questions in both tasks. Questions on the short text were solely concerned with students' inferencing abilities, which necessitated more in-depth consideration of the links between words and their meanings. The long passage, however, was much more complex lexically, including low frequency words, while the majority of the comprehension questions required students to focus on literal information. It is logical to assume that this required more of the students' interpretation of the meanings of the words in the stories, and as a result, vocabulary size was found to be a more significant predictor for long passages.

These empirical findings relating to vocabulary depth and breadth have inspired further studies to examine the impacts of vocabulary teaching on reading comprehension. Wright and Cervetti's (2016) systematic review explored the effects of various forms of vocabulary instruction on L1 reading comprehension. The review included 36 journal articles published between 1965 and 2015. The selection criteria for articles were based on the vocabulary intervention method used; only articles that involved directly teaching vocabulary or teaching strategies of word-learning were included in the review. The review also chose articles that included general reading comprehension or general comprehension in addition to the target vocabulary. Results showed that explicit instruction of word meanings positively improves reading comprehension of texts, including the target vocabulary. However, there was no proof that interventions comprising one or two word-learning techniques facilitate the improvement of the general comprehension of texts that excluded the taught vocabulary. Furthermore, there was no indication in Wright and Cervetti's (2016) study that the explicit teaching of word meanings (irrespective of the amount of vocabulary knowledge taught and the time the intervention took) has an impact on general reading comprehension. Results of the study, however, did back the idea that more 'passive' methods of teaching (e.g., giving dictionary definitions) made less of an impact than direct teaching methods that require cognitive effort by the learners. Wright and Cervetti (2016) concluded that for the vocabulary studies to improve reading comprehension, they need to be longitudinal and teach a larger amount of vocabulary, and to develop depth of vocabulary knowledge. Importantly, as the review focused on L1 reading comprehension only, L2 reading comprehension is in urgent need of further investigation. These results are related to the current study as they encourage teaching methods that develop learners' depth of vocabulary knowledge to measure its effectiveness on improving reading comprehension of texts, including and excluding target vocabulary.

In an L2 context, a meta-review was conducted by Rosado and Caro (2018) of studies that were conducted between 2000 and 2017 to examine the connection between reading comprehension and vocabulary. Studies in the review predominantly examined L2 reading comprehension in relation to incidental learning, lexical knowledge, and direct instruction. Among the important aims of these studies was measuring the impact of vocabulary instruction on reading comprehension. Methods used in direct teaching of vocabulary prior to reading included teaching forms of vocabulary, phonological aspects, roots and affixes, vocabulary in

context, and semantic relations between lexical items. Results of the studies showed that direct instruction seemed to induce positive results, especially in relation to students with low lexical and reading comprehension levels. In addition, as it emerged from the review, a particular effective element in enhancing reading was exposure to the taught lexical items in context. The authors suggested that teaching lexical units should provide language learners with a profound knowledge of the items used in context, to help reading comprehension. Moreover, studies where vocabulary instruction included more focus on semantic meanings of words enhanced reading comprehension, in comparison to a focus on spelling or phonological features of vocabulary. Furthermore, studies which incorporated word-meaning instructional activities that enhanced deeper processing (e.g., Manyak et al., 2014) showed the most positive reading comprehension results. In light of this meta-review, Rosado and Caro (2018) proposed specific stages through which to teach lexical items in order to improve reading comprehension. This mainly involved teaching semantically related vocabulary (where lexical items are related to each other) and not teaching a list of unrelated words. This conclusion implies that teaching conceptual metaphors as themes grouping the list of lexical items together may improve reading comprehension.

The practical and pedagogical implications of these studies for L2 research and teaching suggest that although it is crucial for students to comprehend the basic meanings of a wide repertoire of words, it is also significant for learners to create a network of connections between the meanings of words and how they are organised in their mental lexicon. In other words, understanding the fundamental meanings of the words in a text, a matter relating to lexical coverage, cannot alone improve comprehension if learners are unsure about the relationship between words. As such, knowledge about vocabulary should expand beyond a sole focus on meaning and spelling. In relation to the significance of depth of vocabulary knowledge to creating a deeper understanding of texts, such as textual inference, it would be ideal for teaching to include cultural connotations of target vocabulary (for example, connotation and metaphoric meanings), in addition to their basic meanings (Mabhoot & Zeraatipshe, 2016). The thematic groupings of words might also be a helpful technique to aid students in creating schemata and to enhance their understanding of texts that contain those words. Therefore, metaphor knowledge may provide learners with the information they need to properly decipher reading texts, as metaphors can explain the semantic relations between different English lexical items (see Section 2.4.3). Importantly, however, many of the studies mentioned above have addressed the issue of

depth of vocabulary knowledge in terms of collocations, but very few have addressed the specific issue of whether or not the reader is able to determine if the meaning of a word or phrase is literal or figurative. Furthermore, how this knowledge impacts students' ability to comprehend metaphors in texts is yet to be explored.

3.3.2 L2 Reading Comprehension and Metaphor Knowledge

While metaphor is significant to several different dimensions of language learning, as discussed in Section 2.3, it is especially important to reading comprehension (Low, 1988). Over 50% of everyday text is metaphoric in a phraseological, broad sense (Erman & Warren, 2000). Steen et al. (2010), examining a sample from the BNC, also noted that a lexical item was used metaphorically every seven to eight units. They investigated the variations in the use of metaphoric language in the four BNC genres: fiction, news, conversation, and academic. Although it may be natural to assume that the biggest concentration of metaphors would be in fiction, the academic genre actually had the highest percentage, at a little under 20% (Steen et al., 2010). Furthermore, Dorst (2015) conducted research on metaphors, comparing British novels, face-to-face conversations, academic discourse, and news articles, with the expectation that the literary genre would contain the most metaphors. Yet, surprisingly, she found that while the literary genre came in third place, it was in fact academic texts that contained the most metaphors, and metaphoric content was found to exist across all academic disciplines. The pervasiveness of metaphoric expressions and frequency by which they appear regularly in different texts and domains is evidence of metaphor's power to influence general text comprehension.

Embarking from the premise that metaphor affects the comprehension of texts, Gibbs (2011) found that conceptual metaphors have an impact on the online processing of texts. Specifically, it was found that if the metaphoric expressions in a text were derived from a range of conceptual metaphors, they were processed in a slower manner than if they were derived from the same conceptual metaphor. While the impact of metaphoric knowledge on the understanding of texts has been well established in relation to L1 (Martinez & Murphy, 2011), metaphoric knowledge has also been found to constitute an important part of students' comprehension of L2 reading texts (Zhao et al., 2014).

The relationship between reading proficiency and learners' metaphoric competence has been investigated by a number of studies, such as that by Zhao et al. (2014). The study followed Azuma's proposal (2005) which argued that receptive metaphoric competence - understanding the idea behind English metaphors and metaphorical terms - makes up the majority of metaphoric competence. By contrast, productive metaphoric competence refers to learners' practical usage of English metaphorical items in appropriate contexts (Azuma, 2005). In Zhao et al.'s (2014) study, 80 Chinese speakers learning English as an L2 who scored over 120 (out of a total score of 150) in an English proficiency test completed a receptive and productive metaphoric competence test, and a reading proficiency test. Results showed that reading proficiency was significantly correlated with receptive metaphoric knowledge. However, reading proficiency was not significantly associated with productive metaphoric competence. This points to the importance of designing curricula to include tasks that enhance learners' understanding of metaphors and, consequently, lead to an overall improvement in their L2 reading comprehension.

The correlation between metaphor competence and reading comprehension identified by Zhao et al. (2014) has also been supported in a more recent study by Beynen (2020). Beynen conducted a two-phase mixed methods study using diagnostic assessment to investigate how well 42 Canadian first-year engineering students could understand metaphoric language in reading materials. Some of these students had English as their L1, while some did not, with Arabic or Chinese being their L1. First, the corpus of the reading texts in the textbook that the students used was investigated qualitatively to explore the amount of metaphor used in each of the corpus subtopics, in addition to the metaphorical language style (i.e., the types of metaphors found). According to the corpus analysis, every subtopic area of the corpus had metaphoric content, though in varying relative proportions (mechanics texts had the smallest amount, while physics and chemistry texts had the highest). This supports the pervasiveness of metaphoric language in the corpus of academic materials.

Utilising material from the corpus, a metaphor comprehension exam was then created and administered as a reading assignment for the learners. The abundance of literal interpretations was revealed from the analysis of students' answers to the metaphor exam items. Moreover, quantitative findings showed a significant correlation between reading comprehension and metaphor understanding. Students who performed badly on the reading evaluation frequently had

trouble understanding the metaphors. Furthermore, students who scored poorly on the metaphor test typically did poorly on the remaining parts of the diagnostic tests, especially the writing task. Interestingly, although the study included students whose first language was English, the impact of not being able to understand metaphoric language was higher for learners whose L1 was a language other than English. Indeed, the majority of English L2 students failed the metaphor test, but almost all participants whose L1 was English received passing marks. A limitation of this study is that it did not include an intervention of teaching metaphors. The insights garnered from the above studies suggest, however, a need to improve metaphor awareness and metaphoric understanding in educational contexts to improve reading comprehension.

It can be concluded from the studies reviewed thus far that L2 readers' lower metaphoric competence is a crucial obstacle to reading improvement. Unfortunately, L2 students often struggle with L2 metaphoric competence, and as such, they face difficulties in understanding L2 reading texts. According to Larson (1998), these adversities arise because the image, i.e., the imagery of the conceptual metaphors underlying the metaphoric expressions, used in L2 texts could be unknown or absent in the students' L1. Furthermore, Roessingh and Kover (2003) discovered that while L2 learners were academically and linguistically competent, their performance on reading tests did not always accurately represent their skills. They indicated that this might be because of the "demands of the dominant culture" or the "internalized ways of knowing and understanding the world that are represented by the way of metaphor not being accessible" (Roessingh & Kover, 2003, p. 17). Therefore, for L2 learners not exposed to the explicit teaching of metaphors, metaphors may remain a stumbling block in their L2 reading. Often, when L2 learners encounter unknown vocabulary, they may have the tendency to interpret words literally (Danesi, 1995), thus missing the opportunity to engage with the implicit metaphoric meaning.

In addition, L2 students may often find it difficult to understand multi-word metaphoric expressions in reading texts as these expressions contain many words that seem familiar to readers, yet, in fact, may have more than one meaning. For example, in their study of Arabic learners of English as an L2, Zibin (2016) found that learners tended to understand familiar words used within metaphoric expressions quite literally, thus leading to a misunderstanding of the intended meaning. For instance, many learners had difficulty understanding the phrase *break*

a leg! when it was used within the sentence: “*break a leg!*” The other actors called out when she walked down the corridor onto the stage’. Participants in the study tended to define it as falling on stage or forbidding someone from going to a certain place. This was because they interpreted the phrase *break a leg!* as the literal meaning of a person breaking their leg, rather than being used figuratively to wish someone good luck. More concerning is the fact that L2 learners not only fail to make the correct interpretations, but they also tend to have a false confidence in their own metaphor interpretations as well as sentence comprehension (Li & Lewis, 2019; Littlemore et al., 2011). This leads to the conclusion that more attention should be given to enhancing metaphor knowledge to aid in the comprehension of L2 reading.

3.3.3 Reading Comprehension and Conceptual Metaphor Instruction

Cognitive theories, such as the Conceptual Metaphor Theory (CMT) (Lakoff & Johnson, 2003) can be applied directly to reading comprehension as it offers important insights into improving reading comprehension, particularly through the explicit teaching of metaphors. At its essence, CMT assumes that rather than being abstract, cognition is embodied and concrete, while imagined, situational contexts are also necessary to foster meaning and interpretation. As such, efforts to improve reading comprehension may benefit from an embodied approach to meaning and understanding (Sadoski, 2018). Nowadays, a large body of empirical evidence demonstrates the universality of conceptual metaphors and that all languages include metaphor that is rooted in embodied imagery and simulated action (Gibbs, 2008; Lakoff, 2012; Sadoski & Paivio, 2013). As such, research has documented that once metaphoric knowledge and the embodied nature of metaphors were introduced to learners, their comprehension of texts became deeper and was approached with more focus (Sadoski, 2018). Key to the perspective of embodiment is the notion that meaning is based on the multimodal experience, which includes imaginative encounters. This is connected to the important role mental imagery plays in improving the understanding of texts (e.g., Paivio, 1986), which is one of the most popular and widely studied type of simulation in cognitive theories.

Language concreteness or abstractness are two additional key factors identified by cognitive theories as having a notable impact on reading comprehension. Numerous studies conducted over the years have shown that at the lexical item, sentence, and at the text levels, concrete, tangible language, e.g., glass of water, is more easily understood and remembered than

abstract language, e.g., theoretical ideas (Sadoski & Paivio, 2013). Therefore, explicitly teaching metaphor would lead to concreteness, which evokes imagery and better understanding. Providing sufficiently rich learning contexts to encourage simulations of actual/concrete experiences, even when teaching abstract concepts, is a major component of applying embodied theories to reading comprehension teaching. Hence, developing an educational method based on the above ideas has the potential to result in better reading comprehension.

Generally, although a considerable amount of theoretical and empirical work has been conducted on CMT, very little of this has made its way into the L2 classroom to advance reading comprehension (Sadoski, 2018). Chapters Two and Three generally, and this section more specifically, present and review some of the few studies within the domain of CMT that have important implications for L2 reading comprehension. As Boers (2013) has demonstrated, the explicit teaching of conceptual metaphors encourages learners to explore the connection between input, form and meaning, which fosters deep processing and boosts learning gains. Most studies on metaphor in relation to reading comprehension that were mentioned earlier in Section 2.6.3.4 have been correlational in nature. However, at least two experimental classroom-based studies have been conducted which are of relevance to the current thesis. Firstly, an instructional study by Li and Lewis (2019) was conducted with eighty L2 Chinese university learners of English. It attempted to assess their reading comprehension of sentences in two articles, looking specifically at their understanding of the metaphoric expressions in those sentences. Students attended a training session about literal and metaphorical meanings of Chinese and English examples embedded in a story adapted from Lakoff and Johnson (2003).

For the post-test, students were given two texts from *The Economist*, each including ten sentences in which five metaphorical expressions were underlined. Literal meanings of unfamiliar words were given. The students were asked to translate all the sentences into Chinese first and then to specify if they considered the underlined metaphors difficult to understand. Also, they outlined their understanding of sentences by giving each sentence a scaled rating from 1 (non-comprehension) to 5 (full comprehension). The results, on average, indicated that learners correctly interpreted only 26.3% of metaphors. Thus, the authors concluded that L2 learners, like those in their study, are unlikely to understand most metaphors they encounter while reading international magazines.

Moreover, results showed that students who understood more metaphors translated the texts more accurately and had better comprehension of the sentences. By contrast, students who had difficulty in understanding the metaphors tended to have a lower level of sentence and text comprehension. Another key finding is that what learners believed they understood was often different from what they actually understood, and there was a low correlation between the students' perception and actual comprehension. This supports the study by Littlemore et al. (2011, p. 426) that learners "have been largely unaware of the problems with their metaphor interpretations". Indeed, the results by Li and Lewis (2019) showed that the confidence that most learners (50 out of 80) displayed in their metaphor comprehension did not always correspond to the actual assessment of their understanding. By analysing 800 samples of the students' translations, Li and Lewis developed general categories of metaphor comprehension, among them: using another metaphor to interpret a metaphor; translating the literal meanings of familiar words in the metaphoric phrase; and the influence of L1 culture. The latter category was in line with Boers and Demecheleer's (2001) claim that L1 transfer leads to misunderstanding of L2 metaphors. Such miscomprehension examples add to the need to raise learners' awareness of L2 conceptual metaphors and linguistic realisations.

Additionally, Li and Lewis (2019) found that because learners were taught about metaphors as a feature of language in general, rather than being taught a list of specific metaphors, they may have partially benefited from this and made connections with metaphors in their L1. This was concluded based on the analysis of the translations where the learners managed to understand the metaphors they encountered by making connections with metaphors in their own language. However, it should be noted that there were a number of limitations of the study by Li and Lewis (2019) which need to be taken into consideration. Firstly, reading comprehension was assessed by measuring students' translation, which may potentially be influenced by factors other than comprehension, e.g., writing skills of the students, or a focus on translating accurately more than showing understanding. Moreover, there was not enough information about how the students were taught about metaphors. In addition, the study was conducted with one group and did not include a comparison group. Therefore, instructional studies implementing conceptual metaphor teaching and measuring students' comprehension of texts, as opposed to translation, and including comparison as well as intervention groups are urgently needed.

The only study that looked at explicit training to improve metaphor awareness and measured its impact on learners' reading comprehension is Boers' (2000b). Eighty-five French-speaking university students learning English were given a business and economics text in English constructed for the purpose of the intervention that centred around five metaphoric expressions, accompanied by a glossary providing explanations about the meanings of these expressions. The 46 students in the experimental group received the glossary containing the literal, original use of the five metaphoric items in relation to the source domain. For instance, *bailing out* was described as 'trying to keep a sinking boat afloat by throwing out water with a bucket,' while *weaning off* was explained as 'gradually stopping breastfeeding a baby'. The glossary given to the 39 students in the control group provided synonyms related to the text's context and included an explanation of the figurative meaning in the context of economics, without any reference to the literal meanings of the expressions. For instance, *bailing out* was explained as 'giving state subsidies,' and *weaning off* was explained as 'making independent'. Students were given 15 minutes to learn the meanings and then to read and study the text to prepare for the comprehension test.

During the post-test exercise, students were given a set of statements about the text and asked if they considered the statements to match the meanings of the text. For each statement, they were asked to choose between yes, no and don't know. Most questions in the test measured general comprehension. These questions were not problematic for both groups, as students in both groups performed well in answering general comprehension questions in the reading post-test. The other set of questions targeted the metaphoric expressions in the reading text. In answering these questions, students were asked to evaluate the author's opinion (answering either: with, against, or undecided) regarding their support for companies identified in the text as being in trouble. Students in the experimental group were significantly better at being able to correctly determine the author's view. For instance, these students were more inclined to believe that the author had a negative opinion because they considered *bailing out a boat* and *breastfeeding* to be impermanent solutions. There were significant differences between the two groups' performance, and students in the control group generally found it more difficult to discern the views of the author.

According to the above findings, metaphor comprehension is strongly related to the skill of inferencing, and students were able to extend a metaphor from its original domain by using the inference patterns and value judgments associated with it. This made it easier for students to understand the author's perspective. Thus, it can be argued that conceptual metaphor inspired tasks, revealing the literal meanings of figurative items, can be effective for reading comprehension. Importantly, however, a criticism of Boers' (2000b) is that the post-test mainly included general comprehension questions, and only a few questions measured the students' comprehension of the metaphoric expressions learned during the intervention. In addition, Boers (2000b) conducted a small-scale intervention including one text centred around five metaphoric expressions. Therefore, a larger intervention employing the explicit teaching of conceptual metaphor strategies with more metaphoric expressions and more participants is still needed. Moreover, interventions that include the assessment of comprehension of reading texts - assessing comprehension of both taught and untaught metaphors - are needed to explore the effectiveness of conceptual metaphor teaching in helping students transfer the knowledge they learn to new metaphors embedded in new reading texts.

3.4 Learners' Reading and Metaphor Interpretation Strategies

In the present study, the aim is to examine different strategies used by learners to understand reading texts and the metaphoric expressions included in those texts. There is no pre-determined focus on a certain strategy, but an exploratory approach is adopted that investigates the reading and metaphor interpretation strategies used by Saudi students in the intervention and comparison groups. Both higher and lower proficiency students are included in order to assess the different ways they comprehend reading texts and metaphoric expressions. A brief review of reading strategy research is presented below.

3.4.1 Learners' Reading Comprehension Strategies

L1 and L2 researchers have developed an interest in studying various aspects related to the reading process. This involves the role that readers' strategies play in the process of meaning making during reading and how they interact with what they read (Alderson, 2000; Alkhaleefah, 2017). Importantly, there is much controversy as to the exact definition of a reading comprehension strategy (Grabe, 2009). Some researchers (e.g., Bialystok, 1990) believe that

strategies are used by people unconsciously, while others (e.g., Cohen, 1998; Pritchard, 1990) believe that the term strategy ought to apply only when the reader is engaging in a behaviour consciously. Researchers such as Barnett (1989) and Davies (1995) believe that strategy may be simultaneously applied to both conscious and unconscious strategies. Moreover, while a limited group of researchers consider that strategies are only used when solving comprehension problems, most researchers believe they are used to both facilitate comprehension and/or work out comprehension problems (e.g., Block, 1986). For this study, Mushait's (2003) definition of a comprehension strategy was used which described it as "a mental plus physical, or action used consciously or unconsciously by the L2 reader in an attempt to enhance reading comprehension and/or solve a reading difficulty" (Mushait, 2003, p. 22). This broad definition draws on definitions established by Anderson (1991), Block (1986, 1992), and other reading researchers. Furthermore, this overarching definition accounts for all reading strategies- both mental (e.g., monitoring, questioning), and physical (e.g., marking the text, taking notes), and the strategies readers use consciously or unconsciously to either enhance comprehension and/or solve comprehension problems. Differentiating between these elements is not within the scope of this study.

Different types of reading strategies have been established through reading research: metacognitive, cognitive, and socio-affective strategies (O'Malley & Chamot, 1990). Metacognitive strategies are deliberate, well-thought-out techniques that help readers manage or monitor their reading activity (Mokhtari & Sheorey, 2002). Cognitive strategies are related to the procedures and actions learners employ when trying to make meaning of the text (Mokhtari & Sheorey, 2002). Socio-affective strategies relate to strategies employed to control learners' emotional state in order to promote learning as a self-motivational strategy (Dörnyei, 2003).

L2 reading comprehension strategies have received much academic attention, which consequently led to the formation of various reading comprehension taxonomies (Alkhaleefah, 2011). One of the first reading taxonomies was developed by Olashavsky (1977) who divided the strategic thinking of participants in her study into three general categories: word-related strategies, clause-related strategies, and story-related strategies. Importantly, this taxonomy has been criticised for failing to include many of the strategies that were subsequently mentioned in later taxonomies. A decade later, Block (1986, 1992) introduced two main classifications

employed by L2 learners of English: general comprehension strategies and local linguistic strategies, which included 15 sub-strategies. A similar taxonomy to Block was proposed by Sarig (1987) who offered a taxonomy that defined 35 reading moves employed by L2 readers and categorised them into four main groups: clarification moves, technical moves, monitoring moves, and coherence-detecting moves. Sarig's monitoring moves were found to be helpful in identifying more metacognitive strategies that were not included in earlier reading taxonomies. Pritchard (1990), who conducted a study three years later, found that L1 and L2 readers used 22 different processing strategies to interpret two texts. Pritchard (1990) applied five broad categories to group these strategies: accepting ambiguity, developing awareness, using background knowledge, establishing intrasentential ties, and intersentential ties. Similarly, Anderson (1991) introduced a taxonomy with similar strategies to those by Pritchard (1990), which consisted of 47 reading and test-taking strategies. Anderson applied five broad categories for these strategies: strategies for establishing coherence in text, support strategies, supervising strategies, paraphrase strategies, and test-taking strategies.

Mokhtari and Sheorey (2002) also developed a well-known inventory, Survey of Reading Strategies (SORS) drawing on the Metacognitive Awareness of Reading Strategies Inventory (MARSIS) by Mokhtari and Reichard (2002). MARSIS has been widely used as a tool through which to assess native English language learners' knowledge and uses of reading strategies. SORS focused predominantly on L2 learners, examining frequency and types of reading strategies employed by L2 adult students when reading English articles. Furthermore, the SORS includes 30 elements that measure three categories of reading strategies, which include: problem-solving strategies, global reading strategies, and support strategies. Global strategies relate to planning the reading process and comprehension monitoring. Problem-solving strategies are strategies employed when facing difficult parts of a text. Lastly, support strategies refer to applying techniques and devices to support the comprehension of reading texts.

Mushait (2003) provided a broader classification of 31 reading strategies that was based on previous taxonomies, such as those by Olashavsky (1977) and Block (1986, 1992), and included word-related strategies, text-related strategies, and metacognitive strategies. Word-related strategies were similar to the discovery strategies introduced by Schmitt (1997) and used by learners to work out vocabulary comprehension. Text-related strategies refer to processing of

units bigger than words, which go beyond the text in order to facilitate comprehension. Metacognitive strategies include planning, monitoring, and evaluating comprehension.

The abovementioned taxonomies have been criticised for a number of reasons. Firstly, it has been argued that no unified or standardised classification of reading strategies has been developed, and that research in reading strategies use has revealed an inconsistency and overlap between the classifications of reading comprehension strategies utilised (Alkhaleefah, 2011). Secondly, it has been argued that the differences and boundaries between the strategies are not clearcut and there is a lack of empirical evidence specifying which strategies are more effective than others in enhancing reading comprehension (Mushait, 2003). Consequently, it has been difficult for these academic insights to be practically applied by language researchers and teachers and for them to select the most effective taxonomy to help enhance their learners' reading comprehension. To overcome these limitations, the present study has used two taxonomies that included a variety of approaches, specifically those by Mokhtari and Sheorey (2002) and Mushait (2003), discussed in Section 4.7.2.2. Both taxonomies covered strategies used across a wide range of activities involved in reading comprehension; a mixture of bottom-up, top-down, and metacognitive strategies; as well as word-related and text-related strategies. This has allowed the present study to undertake an analysis of multiple facets of the students' use of reading strategies in understanding texts that include metaphoric language.

Research on taxonomies of reading strategies have explored the effectiveness of L2 learners' practical application of these strategies in relation to different variables. First, studies found a correlation between the use of cognitive and metacognitive reading strategies and students' effective understanding of reading texts (e.g., Yoshida, 2007; Zarrabi, 2015). In contrast, Sarig (1987) found that combinations of different strategies were not necessarily effective to enhance reading comprehension. Another finding discovered in the research on reading taxonomies was related to the relationship between learners' L2 proficiency level and their use of reading comprehension strategies (Anderson, 1991; Sarig, 1987). For instance, it was found that higher proficiency readers made use of metacognitive strategies to reflect on and verify their reading comprehension (Pressley et al., 2006). It was also found that lower proficiency students depended more on text-based strategies as opposed to metacognitive strategies (e.g., Tang, 1997).

Other researchers have looked at the impact of strategies training on strategies' use and reading comprehension (Grabe & Stoller, 2011). Studies have shown that reading instruction which encourages more strategic reading can lead to significant gains in L2 reading comprehension (Duffy, 2002), with particular efficacy for lower proficiency readers (Koda, 2007). In a meta-analysis comprising 46 L2 reading strategy studies, Yapp et. al (2021) found that a significant factor in relation to reading comprehension was the use of reading strategies that required intentional cognitive action, such as semantic mapping, which connects new information with what is already known, thus activating background knowledge. Although studies have shown reading comprehension strategies to be very helpful (e.g., Yoshida, 2007; Zarrabi, 2015), very few have examined the specific issue of metaphoric competence. Regarding the Saudi context, there has been a fair amount of research that has examined L2 Saudi students' reading strategies (e.g., Alhaqbani & Riazi, 2012; Alkhaleefah, 2017; Mushait, 2003). Most of this research has examined how different factors have affected the ways in which Saudi readers strategically process texts. However, there is still a limited amount of research that offers an overview of Saudi students' use of reading strategies to comprehend reading texts that include metaphoric language.

3.4.2 Metaphor Interpretation Strategies

One of the aims of the current study is to explore the metaphor interpretation strategies used by Saudi L2 students to understand both taught and untaught metaphoric expressions embedded in reading texts. Previous research on figurative language theories (Carston, 2010; Gibbs, 2001; Littlemore, 2002) showed that there are generally two different views on metaphor understanding. The first view indicates that for people to understand metaphors, they need to first resort to the literal meaning, analyse it, and reject it (Littlemore, 2002). However, the more recent view, "direct access view", indicated that people do not need to access the full literal meaning before understanding the metaphoric meaning in context (Gibbs, 2001, p.318). Adopting a third position, Peleg et al. (2001) claimed that the two processes can work concurrently. Although the current thesis makes no claims about the process of understanding metaphors, it follows Peleg et al. (2001) and Littlemore (2002) in assuming that metaphor understanding requires inferencing, which may or may not include literal meaning activation, and necessitates a number of problem-solving strategies on the part of the learner. Research has

attempted to explore the metaphor interpretation strategies L2 learners use to understand metaphoric expressions (e.g., Cameron, 2003; Ifantidou & Hatzidaki, 2019; Khoshhal & Hassasskhah, 2017; Littlemore, 2002, 2004).

According to Oxford (1989), metaphor interpretation strategies should be viewed as cognitive because they involve “direct application of mental processes to the task at hand” as well as compensatory because they involve “dealing with missing knowledge” (cited in Littlemore, 2002, p.43). According to Kintsch and Bowles (2002), understanding metaphors involves some degree of problem solving for their interpretation and intentional reasoning. Littlemore (2001, 2002, 2004) studied metaphor interpretation strategies that L2 learners used when encountering metaphoric expressions. These strategies were based on a number of metaphor interpretation theories and experimental findings. The strategies included noticing that the expression is metaphoric, comparing it with the context of the text, searching the context, visualising the text, referring to L1 metaphors, using literal meaning, guessing from context, rejecting implausible interpretations, and trying to think of metaphorical meanings (for example, questioning if there is a target domain and a source domain, and figuring out what they could be).

To Littlemore (2002, 2004), being able to use metaphor understanding strategies enhances a students’ metaphoric competence. She added that the strategies students need to understand novel metaphoric expressions rely heavily on the mental processes of analogy reasoning and associative thinking. When students are faced with novel metaphoric expressions, they must attempt to discover as many interpretations of the basic idea as they can (associative thinking) and to think of all potential connections between this idea and the surrounding context (analogy reasoning). A student’s ability to engage in both mental processes can be aided by the use of mental imagery. Contextual cues are also an important part of Littlemore’s (2002, 2004) strategies, which have been determined as one of the essential methods for dealing with new vocabulary (Nation, 1990). When language learners encounter novel metaphors, they are only exposed to the source domain, whereas the target domain needs to be inferred from the surrounding context. Noticing the metaphoric meaning is a strategy that students need to enhance through their learning, and is linked to the Noticing Hypothesis (Schmidt, 1990).

Littlemore (2002) conducted a qualitative study with a single L2 Spanish learner through ninety-minute classes over 12 weeks to expand the learner's vocabulary knowledge through teaching metaphoric language in the context of academic articles. Littlemore trained the student to use metaphor interpretation strategies, such as accessing the source domain, understanding the mapping between the two domains, imagery formation, and contextual use to work out meanings of metaphoric expressions. During the early sessions, the student benefited from the training and used metaphor interpretation strategies to understand new vocabulary under supervision and with help from the researcher. However, when the student was encouraged to autonomously answer a computer-based activity including 25 new expressions, she did not use the strategies taught to decipher some of the expressions. Despite the limited application of the strategies, Littlemore concluded that overall, the training improved the student's confidence to try to determine the meanings of new metaphors, compared to how the student was at the beginning of the intervention. The student also gave positive feedback on the training she received and felt that imagery helped her retention of the expressions.

Although Littlemore's (2002) study involved only one student, she found the results to be promising and conducted another study (2004) with 43 university students. Littlemore trained the students to use metaphor interpretation strategies and explored whether raising the students' awareness of how these metaphoric expressions were formed would facilitate students' use of metaphor interpretation strategies when encountering new expressions. After the training, students were given ten new vocabulary items embedded in short texts and asked to infer their meanings. They were asked about the meaning of each word and to choose which strategy they used to understand the word. Results indicated that although a variety of different factors (e.g., presence of contextual clues, students' cognitive styles) affected the results, Littlemore (2004) concluded that it remains worthwhile to train students in using these strategies.

3.4.3 Inferencing

Inferencing is particularly relevant to the present study, in relation to two points. First, inferencing, as defined in Kintsch's model (1988), is important to the comprehension of reading texts and is one of the primary mental processes involved in reading comprehension (Anderson & Pearson, 1984; Nassaji, 2003). As explained in Section 3.2, readers make connections when attempting to understand texts and at every stage of the process of reading comprehension,

inferences are made. This varies from lexical inferencing of unknown expressions (Kintsch, 1988), to linking the text with prior knowledge (Kintsch, 1988), to connecting various textual elements (Kintsch, 1988), to linking both unknown and known textual elements to produce a coherent informational structure of the text (Graesser & Zwaan, 1995). Theories of cognitive psychology consider these to be crucial mechanisms, as they approach reading as a process of actively constructing meaning and forming mental representations of the text (Kintsch, 1998). Harvey and Goudvis (2007) found that inferencing was an effective strategy frequently used to support better reading comprehension. When students used inferencing strategies to understand the implied meaning, rather than the meanings explicitly mentioned in the text, they were better able to understand the text as a whole. Lexical inferencing also has been determined to be the word-learning technique that L2 learners employ most frequently (Haastrup, 1991). According to Schmitt (2008) inferencing is important as rather than just guessing the meanings of words, learners are able to infer meaning effectively to help reading comprehension. It has also been noted that learners who attempt to infer and learn figurative meanings in reading texts mostly use inferencing as a processing approach (Cooper, 1999).

For these reasons, researchers have attempted to investigate the effects of teaching lexical inferencing strategies on reading comprehension. For instance, Hamouda (2021) conducted a mixed methods study on 60 Saudi students learning English who were divided into two groups. Students in the control group received regular vocabulary teaching whereas students in the experimental group were taught lexical inferencing. Both groups received pre- and post- reading tests and think aloud protocols. Results showed that students in the experimental group significantly outperformed the control group. Results of the think aloud protocols showed that participants in the experimental group used 1011 lexical inferencing strategies while those in the control group used 802. The correlational analysis of the results also showed a significant correlation between lexical inferencing and reading comprehension. This finding confirms results from previous studies (e.g., Buslon & Alieto, 2018; Sadeghi et al., 2018). Given that this inferencing predominates in L2 reading and vocabulary learning, more research on its effectiveness is needed. Whether teaching conceptual metaphors will facilitate inferencing of reading texts as well as inferencing of metaphorical expressions, is yet to be explored.

To conclude this section, in addition to broader reading comprehension strategies, strategies students use to interpret metaphoric expressions and to infer new untaught metaphoric expressions were also examined in the present study. With regards to metaphoric expressions, this study looked at students' strategies including both more general word-related strategies such as skipping, translating, paraphrasing, deliberately remembering the meaning of the word, and lexical inferencing strategies, based on the idea that metaphoric expressions are a special case of vocabulary. The present study employed conceptual metaphor teaching to aid learners in building strategic competence and in gaining a stronger ability to use reading comprehension and inferencing strategies to understand reading texts that include metaphoric language.

3.5 Students' Perceptions

The study reported in this thesis conducted a pedagogical intervention in which L2 university students were given metaphor awareness-raising training designed to help them increase their metaphoric competence. This was intended to improve their overall reading comprehension and metaphor learning and retention. One important issue which is directly related to the success of pedagogical interventions is the perceptions students have of the intervention itself and the content it seeks to teach (Juchem-Grundmann & Krenmayr, 2010). In this vein, this section provides a brief review of some of the most important studies that have explored the role of affective and behavioural factors in metaphor studies.

Even though there has been an emphasis on the cognitive elements of learning thus far in the thesis, learning is in fact a multi-dimensional process comprising three domains: cognitive, behavioural and affective. As each person's psychology has some influence on learning and teaching processes, the affective and behavioural aspects of learning, particularly in an L2 context have garnered much attention in educational research. Motivation especially has been the subject of much research conducted over the past ten years, along with variables including attitudes, anxiety, and self-efficacy (Dörnyei & Ryan, 2015). Motivation is of particular interest to the present study. Indeed, numerous investigations have identified motivation as the primary factor influencing the acquisition of L2 (Dörnyei, 1998), and thus it has been explored by several scholars from a range of different disciplines. There is a general agreement that motivation is the

driving factor that propels people to act and compels them to persevere to attain their objectives (e.g., Gardner & Lambert, 1972).

Self-Determination Theory (SDT) established by Deci and Ryan (1985) has identified intrinsic and extrinsic impulses as the two types of human motivation. People act out of enjoyment or self-satisfaction, which is an example of intrinsic motivation, while extrinsic motivation involves taking certain actions to meet/achieve external goals. Furthermore, Deci et al (2001) have argued that people's intrinsic motivation is driven by their psychological needs, i.e., *relatedness*, *autonomy*, and *competence*. Relatedness is when a person has a feeling of connectedness to something. Autonomy is the need a person has to feel in control of their own behaviour. Lastly, competence is the need to be effective in dealing with the environment and thus having adequate knowledge, achievements, and skills. These elements of motivation are particularly important in language learning and teaching where activities and tasks that respond to learners' psychological needs will facilitate their intrinsic motivation and willingness to persist in a task.

Although there are several elements in cognitive theories/L2 metaphor learning that can be related directly to motivational theories, as far as could be ascertained during the preparation for this thesis, few conceptual metaphor instructional methodologies inspired by motivational theories have been conducted (reviewed in Sections 2.4.5 in Chapter 2 and Section 3.3.3 in the present chapter). According to metaphor research, increased metaphoric knowledge results in significantly more personal relatedness, as conceptual metaphors are embodied and pre-existing in human minds (Gibbs, 2008). As discussed in Section 2.2.2, embodiment is appreciating the role of everyday bodily experiences and sensorimotor experiences that affect higher-order cognition and self-conception (Gibbs, 2006). Therefore, once students study conceptual metaphors, it prompts a feeling of familiarity and connection (Gibbs & Colston, 1995) as the meanings of the metaphors are embodied in learners' personal lives. This enhanced sense of relatedness to metaphors is linked to SDT (Deci & Ryan, 1985), which asserts that people's motivation is driven by their psychological needs, among which is relatedness.

A non-linguistic component of metaphor understanding which has recently attracted attention within neurolinguistics and cognitive linguistics concerns emotions and mental images. Studies have concluded that metaphors are richer in affective connotations (Ifantidou &

Hatzidaki, 2019) and evoking imagery (Boers et al., 2007; Chen, 2016) compared to other lexical counterparts. These two characteristics of metaphors can induce more emotional arousal and lead to more engagement on the part of L2 learners (Citron & Goldberg, 2014). When the emotional aspect of the metaphoric expression is appreciated by the student, it encourages relatedness, increased motivation, and more engagement, which eventually leads to better learning.

As universality and embodiment of conceptual metaphors lead to relatedness and connection, cultural dissimilarities of linguistic metaphoric expressions between languages make metaphors salient to second language learners (Littlemore, 2009). Saliency of concepts in language learning has the potential to trigger students' interest. Renandya (2014) argued that L2 teachers should provide students with cognitively demanding tasks to help them engage with the tasks and to increase their motivation and interest. That is, activities in classrooms should target expanding students' cognitive and linguistic knowledge to a more advanced level of learning. Likewise, Deci et al. (2001) invited teachers to provide more engaging learning activities and more options, and to make sure that tasks are sufficiently challenging to boost students' intrinsic motivation to promote (Deci et al., 2001, p. 15). Harackiewicz et al. (2016) also argued that paying attention to and stimulating students' interests could therefore motivate them and make them learn more actively.

Focusing on reading in particular, research suggests that it is strongly related to motivation and engagement. For instance, Ghavamnia and Kashkuli (2022) found a significant association between reading motivation, reading engagement, and L2 reading comprehension. L2 readers who were motivated showed more engagement and better performance in reading comprehension, whereas students with lower motivation did not perform well in reading. Therefore, students' motivation, enjoyment, and engagement contributed to their enthusiasm, eliciting their willingness to persist in the activity of learning and reading. There is also a mutual relationship between reading and students' self-competence. In Naseri and Zaferanieh (2012), L2 students with high self-confidence did well in reading, whereas students who had low self-confidence had lower reading skills, as they lacked the confidence to take risks or persist in their reading. That is, low proficiency itself can lead to low confidence and thus negatively impact motivation, and vice versa.

Instructional approaches that are implemented in classrooms can affect students' motivation, interests, and learning outcomes. In this respect, the affective and behavioural impacts of L2 teaching should also be explored as they influence the cognitive aspects of the learning process. Most of the studies investigating conceptual metaphor teaching, however, have not explored students' perceptions of the interventions, except for a small number of studies. Juchem-Grundmann and Krennmayr (2010) stressed that one of the elements that determines the success or failure of metaphor teaching approaches is how learners judge them. In this respect, conceptual metaphor awareness needs to have been validated through the perceptions of the students to succeed in classroom language teaching. More specifically, Juchem-Grundmann and Krennmayr (2010) identified two problems that could make it difficult for conceptual metaphor awareness-raising tasks to function as intended in language classrooms. The first is that students can doubt the usefulness of learning about conceptual metaphors by thinking it is a misuse of valuable time of class. The second is that the students may not be able to understand how studying linguistic metaphors can aid in their L2 acquisition and how this knowledge will benefit them in actual communicative circumstances. Therefore, it is important for studies investigating conceptual metaphor intervention to explore students' perceptions of, and thoughts towards, the teaching methodology in more depth.

Among the few metaphor studies conducted, Juchem-Grundmann (2009) explored students' perceptions about the teaching approach through an oral opinion survey. Students in the experimental group were given the opportunity to be creative in order to come up with vocabulary of source domains and were enthusiastic about the idea of decoding original meanings of words before mapping them onto the target domain. Students displayed positive attitudes towards conceptual metaphor teaching and felt it was a new way of thinking and hoped the next unit would be taught in the same way. Although this study was one of the few qualitative studies that examined students' opinions, no information about the oral survey questions, coding, or analysis of the data, was provided. Thus, more interventions with full description of coding and analysis of qualitative data would be needed to confirm the impressions reported in this study.

In addition to the above, by using evaluation questionnaires, Li (2002) and Saaty (2016) explored how students perceived conceptual metaphor teaching. They found that students

reported enjoyment of learning new material, such as conceptual metaphors, and that, in fact, were satisfied with and favoured conceptual metaphor teaching approaches. Therefore, more in-depth methodologies are needed to gain a deeper and more detailed insight about students' perceptions towards the instructional methods used. In an Arab context, a study by Altakhaineh and Shahzad (2020) used semi-structured focus-group discussions to collect perceptions of Arabic students learning English metaphors. They found that students in the intervention group were more enthusiastic to participate in the study and felt more engaged than the comparison group. However, there were not enough details describing exactly how students in the intervention were more engaged in the learning process.

One of the few studies that explored students' autonomy in response to metaphor awareness-raising was Sacristán (2004). In that study, the metaphor awareness tasks students received required them to work by themselves translating metaphors between English and Spanish. Students displayed a desire to learn about metaphors autonomously, and these results were in line with Deci and Ryan's (1985) SDT which indicated that there is a positive relationship between motivation and autonomy. However, the study was purely qualitative, and students' perceptions were garnered by the teacher through informal discussions, which raises important questions about the reliability of the findings. It must be noted that none of the studies reviewed above conducted in-depth investigations of the students' perceptions of metaphor instructional studies, or they relied on very small samples. Moreover, none of the studies reported students' perceptions in relation to their proficiency levels, nor related them to the motivational effects of teaching metaphors, or motivation theories. Of particular relevance to this study, the potential impact of and the relationship between teaching conceptual metaphor and students' motivation has not yet been explored in relation to L2 reading and metaphor learning. This is another important area that is lacking in research, which the present study attempts to address.

3.6 Summary

This chapter has reviewed the theoretical cognitive background and pedagogical implications of teaching conceptual metaphor, while identifying the main research gaps in L2 metaphor teaching in relation to reading comprehension. Therefore, the current thesis attempts to

bridge the gap between metaphor intervention studies and reading comprehension research by addressing the following gaps:

1. Very few studies on L2 classrooms have investigated the pedagogical impact of conceptual metaphor teaching on reading comprehension.
2. Little research has explored the ability of learners to transfer acquired knowledge of conceptual metaphors to their understanding of metaphoric expressions, and conceptual metaphors not previously learned.
3. There is a need for larger-scale experiments to determine exactly what benefits can be expected from conceptual metaphor teaching on metaphor comprehension and retention, as well as reading comprehension.
4. Previous L2 metaphor studies have been purely quantitative, and thus insights into why and how the different types of instruction help learners' understanding are incomplete. More specifically, in the very few studies that have studied the effects of metaphor instruction on reading comprehension, no interviews were conducted to gain qualitative insights of what is going through the learners' minds during the reading comprehension tests, and what perceptions students have toward the intervention.

3.7 Research Questions

In light of the above gaps, the study explored the following questions:

1. What is the impact of conceptual metaphor teaching on Saudi L2 learners' reading comprehension compared to traditional teaching (semantic explanations, comparison group)?
2. To what extent can learners transfer their knowledge to untaught metaphoric expressions that they encounter during reading comprehension (i) within the taught conceptual metaphors, and (ii) within new conceptual metaphors?
3. To what extent does teaching metaphoric expressions through conceptual metaphors allow learners firstly to learn, and secondly to retain such metaphoric expressions?

4. What are the learners' perceptions of the teaching method they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

CHAPTER FOUR: METHODOLOGY

4.1 Introduction

This chapter discusses the main research design employed in this study, as well as the methodological tools used to address the research questions. Moreover, the study procedure is explained while the pilot study results and their implications are reviewed. The data analysis techniques used for the quantitative and qualitative methods are also presented. This chapter then ends with a discussion of the reliability and validity of the research instruments used, as well as an overview of the main ethical considerations.

4.2 Research Questions (RQs)

1. What is the impact of conceptual metaphor teaching on Saudi L2 learners' reading comprehension compared to traditional teaching (semantic explanations, comparison group)?
2. To what extent can learners transfer their knowledge to untaught metaphoric expressions that they encounter during reading comprehension (i) within the taught conceptual metaphors, and (ii) within new conceptual metaphors?
3. To what extent does teaching metaphoric expressions through conceptual metaphors allow learners firstly to learn, and secondly to retain such metaphoric expressions?
4. What are the learners' perceptions of the teaching method they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

4.3 Research Paradigm

Although multiple definitions of the term ‘research paradigm’ have been offered, they all generally refer to a similar underlying concept. A paradigm conveys a certain world view assumption, or method of looking at the world (Coe, 2017; Creswell, 2013). In general, a research paradigm is defined as a critical set of logically related beliefs or assumptions that guide the direction and thinking of research (Creswell, 2007). There are a number of key paradigms that inform the investigations of researchers into educational questions, although the division between practice and theory, and the complexity of educational settings, are problematic issues across the board (Waring, 2017).

Within educational research, the chosen paradigm is a key factor that drives a study’s scope of inquiry and provides a framework through which the researcher engages with four key research concepts. First, *ontology* is a way of understanding the nature of the educational reality and world and specifying whether that reality is internal or external to the knower. *Epistemology* is a related perspective that refers to the kinds of knowledge that may be produced, and the criteria for justifying it. *Methodology* is the systematic process employed for producing that knowledge. Lastly, research *methods* refer to the actual instruments and research tools utilised to acquire the data (Taylor & Medina, 2011; Waring, 2017). These concepts are considered and approached differently according to the paradigm followed (Guba, 1990). As a result, it is imperative that a researcher properly identify and develop a full and deep awareness of their chosen research paradigm, which is a key factor that influences the selection of appropriate research techniques for data collection. Identifying an appropriate paradigmatic framework also results in a better guided and more pertinent interpretation of the data acquired, in relation to the specific research objectives. For the current study, the four concepts mentioned above have provided an important structure that, in combination with the overall research paradigm, have assisted the researcher in selecting the most appropriate research tools to investigate the research questions (will be discussed in Section 4.5.3).

The social sciences have come to view the two traditional paradigms - qualitative and quantitative - as focusing too heavily on data and too little on the underlying views and assumptions (Willis, 2007). Instead, social science literature has proposed an alternative classification of paradigms that captures the true complexity of research inquiry. For instance,

Creswell (2013) grouped paradigms into four categories: constructivism, transformative, post-positivism, and pragmatism. Post-positivism draws more heavily on quantitative research, whereas constructivism tends to include qualitative research. However, in the case of mixed methods research which integrates qualitative and quantitative approaches, transformative and pragmatism paradigms are both relevant (Teddlie & Tashakkori, 2009). Pragmatism supports the worldview that there are singular and multiple realities, which can be empirically investigated, and that knowledge arises from real world practices (Feilzer, 2010). According to pragmatism, theories and beliefs are evaluated through the success of their practical application. When working within the pragmatism approach, a researcher employs any method necessary, or indeed a combination of methods, to acquire the knowledge needed, and thus to obtain a comprehensive understanding of the topic under study (Creswell, 2013). As such, pragmatism very often incorporates a mixed methods approach, as it acknowledges that the world cannot be grouped into clear-cut categories of qualitative or quantitative, but in fact is most often a combination of both (Cohen, et al., 2011).

Despite the individual benefits of quantitative and qualitative research, there are strong merits to incorporating elements from both when conducting social research (Creswell, 2014). Mixed methods research employs qualitative and quantitative views, collection procedures, methods of data analysis (the use of numbers or words), inference practices, and other research aspects, for instance, “the perspective of the researcher” (Richards et al., 2012, p. 304). In addition, compared to either approach alone, mixed methods research provides a more comprehensive understanding of research; integrates the advantages of the two methods; and overcomes shortcomings that may be neglected if a single approach is chosen (Creswell, 2014). Taking all these positive elements into consideration, this thesis has implemented the pragmatism paradigm which best reflects the objectives and methodological framework of this study. Indeed, in relation to the research questions mentioned above, a mixed methods approach has enabled the incorporation of both tests and stimulated recall interviews, to compensate for the shortcomings of each method alone and to increase the reliability of the data being collected. This is discussed in more detail in Section 4.4.1.

4.4 Design of the Study

Research design refers to the general study plan which identifies the specific instruments and procedures to be used to answer the research questions (Punch, 2013). It also involves the paradigmatic approach followed, participant recruitment techniques, and tools of data analysis and collection (Punch, 2013). In the current study, a quasi-experimental study was employed to address the research questions. The present study included a total number of 210 female participants: 108 students in the intervention group and 102 students in the comparison group. The study was divided into two phases that took place at two different times. In the first phase, from August 2020 to the end of October 2020, two classes were assigned randomly to the intervention group, and two classes were assigned to the comparison group. In the second phase, from November 2020 till the end of December 2020, two further classes were also randomly assigned to the experimental group, and two further classes to the control group. The overall data collection phase that covered all the preparation and implementation procedures is broken down in Table 4.1 below.

Table 4.1

The Study Plan Summary

Process	Time	Participants	Tasks
Preparation	56 days		-selection and preparation of: metaphoric expressions, materials, images, reading texts and tests
Pre-tests	17 days	210 students	-reading comprehension test -metaphor understanding test
Teaching sessions	29 days	108 students	-introductory activities -raising students' awareness of conceptual metaphors -teaching conceptual metaphor mapping -teaching metaphoric expressions with literal and figurative meanings and images -practice exercises
		102 students	-introductory activities -teaching metaphoric expressions with figurative meanings and images -practice exercises

Post-tests	29 days	210 students	-reading comprehension post-test 1 -reading comprehension post-test 2 -metaphor understanding post-test 1 -metaphor understanding post-test 2
2-week delayed post-tests	15 days	210 students	-reading comprehension delayed post-test -metaphor understanding delayed post-test
Interviews		16 students	-stimulated recall interviews

4.4.1 Mixed-Methods Design

A mixed-methods design refers to the application of a mix of qualitative and quantitative methods in a particular study to achieve a more thorough and precise understanding of a social phenomenon, compared to employing just one methodology (Arthur et al., 2012; Cohen et al., 2018). Data, design, methodology, and research objectives comprise the various aspects of a research study that are influenced by the different approach adopted (Arthur et al., 2012). Social science research often uses both quantitative and qualitative approaches as, in combination, they have the potential to provide a more holistic understanding of how individuals think and behave. Quantitative approaches appear to be ineffective in addressing the meaning of behaviour whereas qualitative approaches methods are less likely to directly measure behaviour (Bryman, 2016). Considering that all research techniques inherently have flaws, by combining qualitative and quantitative techniques, the bias and constraints inherent in each type of data are reduced and mitigated (Creswell, 2013).

In this thesis, both types of research methods - qualitative and quantitative - are used in combination to investigate the effectiveness of teaching conceptual metaphors on L2 students’ reading comprehension and metaphor learning and retention, as well as students’ perceptions. This mixed-methods design has provided a more extensive and thorough comprehension of the research topic, drawing on two different - yet complementary - methodological angles (Cohen, et al., 2018). For instance, the students’ reading comprehension and metaphor learning and retention results derived from the quantitative data were interpreted in the light of the qualitative data drawn from the stimulated recall interviews, which provided a much-needed understanding of students’ perceptions and use of strategies. As such, a mixed-methods approach provides both

an opportunity for generalisation (quantitative) and for gathering in-depth experiences reflected in individual perspectives (qualitative). If one method alone had been used, this would have resulted in a partial, almost one-sided understanding of the significance of conceptual metaphor teaching in an L2 context.

Different types of mixed methods design that vary in their length of time, integration points, and aim of their utilisation, have been identified by researchers in the social sciences and education (Creswell & Plano Clark, 2011). Creswell and Creswell (2018) have grouped mixed methods designs into three main categories: convergent, exploratory sequential, and explanatory sequential. In convergent design, the researcher collects and analyses quantitative and qualitative data independently. After that, results are compared to determine whether the findings of each tool complement or contradict one another. Exploratory sequential design entails sequential data collection where the researcher first collects a small sample of qualitative data and then gathers quantitative data from a wider sample size in order to generalise the results. In contrast, explanatory sequential design starts with gathering a large sample of quantitative data and then collects qualitative data through purposive sampling to cross-check the numerical findings. Importantly, Cohen et al. (2018) have argued that mixed methods research does not follow a single or standard technique; rather, each study pursues its own unique strategy based on its specific research objectives.

The present study has adopted an explanatory sequential basic design. First, using reading comprehension and metaphor understanding tests, quantitative data were gathered from the students who participated in the study. After that, a purposive sampling technique was applied to choose students for the stimulated recall interviews (qualitative). The criteria employed to choose students for the interviews were based on their general proficiency level, results from an Oxford Placement Test they completed upon their acceptance into the university and their scores on pre-tests. The recruitment procedure is discussed in Section 4.5.3.3. Sixteen students out of the whole sample of 210 students representing different proficiency and reading comprehension and metaphor understanding performance levels were chosen to take part in the interviews, with eight students from the intervention group, and eight from the comparison group.

4.4.2 Quasi-Experimental Design

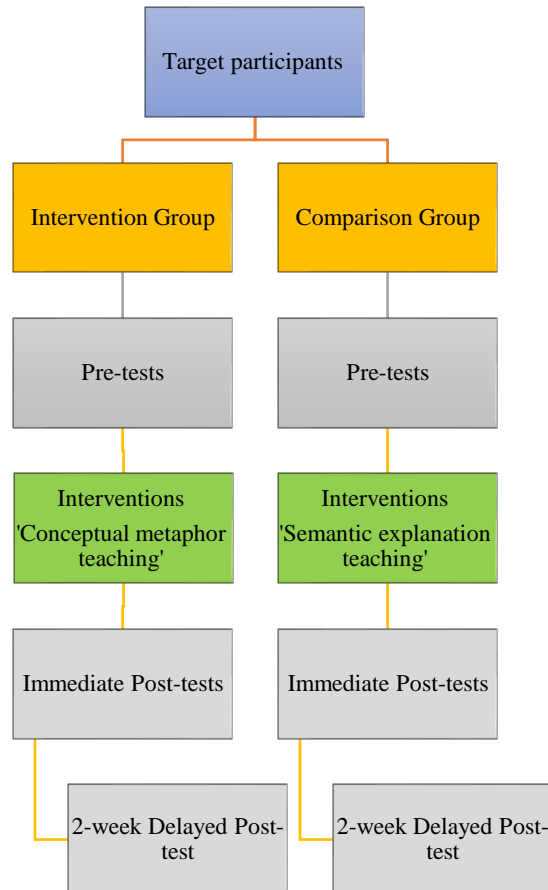
To answer the first three RQs related to the quantitative portion of this study, a quasi-experimental study was adopted. Mackey and Gass (2005) claimed that a quasi-experimental study uses comparison groups (without random assignments) to investigate RQs. A comparison is made between two groups, comparison and intervention groups, in order to evaluate the differences in the outcomes of the two different treatments (the independent variable). In this study, the researcher gained access to L2 university classes and collected data from one single institution. A pre-test/post-test design study was employed with intact L2 classes: four as intervention groups, and four as comparison groups. Through a pre-test/post-test design, both groups' results (within and between groups) were compared to answer the RQs. The intervention group received conceptual metaphor teaching and the comparison group received semantic explanation teaching. A review of the literature suggested that the traditional teaching methods employed in comparison groups is usually a semantic explanation of those expressions, which was also used in the present study. The intervention was carefully designed to ensure that the cognitive efforts in both conditions (intervention and comparison) were kept as consistent as possible. Therefore, any differences in learning outcomes could be attributed to the explicit teaching of conceptual metaphor in the intervention group.

The pre-test collected data on participants' levels of performance prior to the actual intervention period. After the intervention, the post-test obtained similar data. By analysing the differences between the data collected from the pre-test and post-test, this study was able to examine the effectiveness of the intervention. In addition to comparing within-participant results before and after the intervention, this study compared between groups to investigate whether conceptual metaphor teaching enhances L2 reading comprehension and yields metaphor learning and retention gains more effectively than semantic explanation teaching.

As the present study also aimed to investigate whether any effectiveness of the different teaching methods on reading comprehension and retention of metaphoric expressions was durable, it employed two two-week delayed post-tests. The study design is presented in Figure 4.1.

Figure 4.1

Study Design of Pre-, Post-, and Delayed Post-Tests for Intervention and Comparison Groups



A key drawback of the design of a quasi-experimental study is the lack of randomisation of participants. According to Mackey and Gass (2005), randomisation enhances a study's experimental validity, and a true experimental design should support the random assignment of participants to the comparison and intervention groups. Steiner et al. (2009) argued that this is the most reliable arrangement, producing more valid results compared to quasi or non-experimental designs.

However, Mackey and Gass (2005) pointed out that the randomisation of individuals may not be practical in L2 research and is in fact rare in a control-group pre-post design (Steiner et

al., 2009). In L2 classroom-based research, keeping students in their classes may lessen the experimental design's potential inconvenience by reducing time requirements and the strain on human resources, thus increasing the study's external validity (Mackey & Gass, 2005). Embarking from this premise, the randomisation of participants in this study was inconvenient because the study was conducted on a university campus where students had busy and often conflicting schedules, and thus could not always attend the intervention sessions or take tests outside of class times. Furthermore, another issue was that one class may by chance have been better than another because of allocating classes rather than individuals to an intervention group. The potential impact of a variation between the groups was mitigated by employing pre-testing measures.

4.5 Research Methodology

4.5.1 Participants

The total sample in this study comprised 210 female university learners in Saudi Arabia drawn from eight parallel intact L2 classes. Participants had recently graduated from high school and their age was between 18-21. They were first year undergraduate students who studied on a compulsory General English Course for their Bachelor of Arts majors. The course is provided by the English Language Institute for foundation year students who receive three hours of English sessions, three days a week, including listening, speaking, reading, and writing. As mentioned in Section 1.4, Saudi universities employ English as the medium of instruction, i.e., students in the present study had received English-only instruction. They had also studied English as an L2 for at least nine years (three in each of elementary, middle, and high schools).

Each of the eight classes consisted of approximately 30 students. The researcher randomly assigned four classes as intervention groups and four classes as comparison groups. The total of the participants was 108 in the intervention group and 102 in the comparison group. Students who missed one of the teaching sessions that formed part of the intervention or did not take the pre-tests were excluded. Moreover, two participants were excluded as after they attended the sessions and took all the tests, they completed a certificate equation and dropped the course. Hence, there was no access to their results as they were deleted from the blackboard before the researcher had a chance to download them. As a faculty member and teacher at the

university where the study was conducted, the researcher administered the experimental study and coordinated with the main teachers of each group to spend time with the participants each teaching week to carry out the study. Moreover, upon a student's acceptance into the university in which this study was conducted, they are obliged to sit the Oxford Online Placement Test (OOPT). Results of the placement test were used to select students for the interviews (see Section 4.5.3.3).

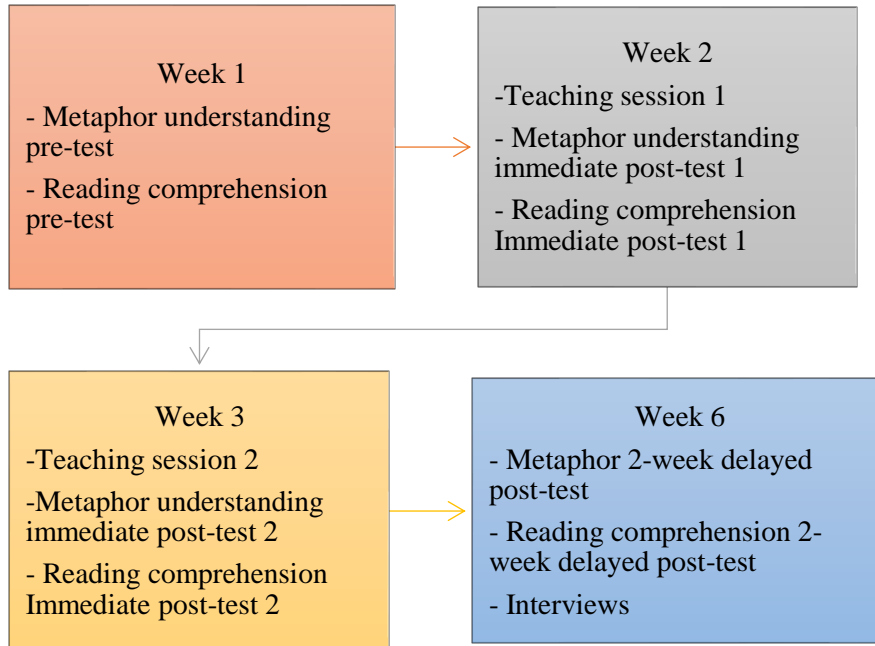
4.5.2 Data Collection Procedure

Two pre-tests were administered, followed by two interventional teaching sessions, after each teaching session, one immediate post-test was administered, and two two-week delayed post-tests. As a final phase, stimulated recall interviews took place. As the English course was seven weeks long, the experimental study could only practically last for six weeks. In week 1, a metaphor understanding pre-test was administered to investigate learners' prior understanding of the target metaphoric expressions (see Appendix A). A reading comprehension pre-test was also administered to measure their comprehension of texts that included metaphoric expressions which were not taught in the intervention (see Appendix B). Each group received one weekly intervention session for two weeks. There was an immediate metaphor understanding post-test at the end of each teaching session to investigate students' understanding of the metaphoric expressions. There was also an immediate reading comprehension post-test to assess students' understanding of texts containing both taught and untaught metaphoric expressions that fit within the taught conceptual metaphors.

There was a 2-week delayed metaphor comprehension post-test in Week 6 to examine retention of the meaning of metaphoric expressions taught in the two intervention sessions. Furthermore, a delayed reading comprehension post-test was administered to assess comprehension of a text that included metaphoric expressions related to a new untaught conceptual metaphor. After the delayed post-tests, the stimulated recall interviews were conducted. Details of these tests and the interview are discussed in the following subsections, and all the test templates and the interview questions are provided in Appendices A, B, and E. Figure 4.2 outlines the different stages involved in the data collection phase.

Figure 4.2

Data Collection Procedures



4.5.2.1 Online Study

As a result of Covid 19, universities and schools in Saudi Arabia switched to online teaching. Fortunately, the university where the study was conducted had a solid online system in place with a Blackboard site, which had been used for years by the university for distance learning and external students. As the study was conducted in the midst of the pandemic at a time of great uncertainty and there was no clear plan as to when normal classes would resume, it was decided to conduct the experimental study online. Importantly, the researcher was familiar with and had experience of teaching online courses using Blackboard in the university. Furthermore, a factor that was very advantageous to the researcher and helped the study to proceed smoothly was that a pilot had already been conducted, and thus the researcher already knew that the different elements of the study were feasible and appropriate for the target group. Moreover, workshops about online experiments were attended by the researcher to ensure that necessary and adequate training had been undertaken about the procedures involved in online experiments.

In light of this change of plan due to Covid, a number of important steps were taken to ensure that the quality of the data collected would be maintained. Firstly, online test forms were created using Blackboard test tools. Second, one reading test, one metaphor understanding test, and one teaching session were informally piloted with five students (not involved in the main study) to elicit their feedback and confirm the appropriateness of these tools to be delivered online without complications. Based on insights from the pilot, it was decided to keep the time allocated for each online test the same as the main pilot in-class phase. Following a workshop attended by the researcher and after reviewing some papers (e.g., Bayazit & Askar, 2011; Karay et al., 2015), it was assumed that there was little difference between paper-based tests and online tests, although online tests may take less time than the paper-based versions. It was also important to take into consideration whether the students were used to the types of questions asked, the format of the test, and the technology used. Students in this study were generally familiar with computer-based tests and had already sat around four or five online tests to meet their university requirements. Students were also required to undertake daily/weekly tasks on Blackboard in their university courses.

Based on the above, it was decided that the following times would be allocated for the testing phase: 30 minutes for the reading tests (14 questions), allowing two minutes per question; and 60 minutes for the metaphor understanding tests (40 questions), where the students would have less than two minutes per question. Students had access to the text when answering the reading comprehension questions. Test instructions were made very clear and stand-alone. Moreover, it was decided to increase the number of participants to compensate for an expected drop-out rate, as it was anticipated that a number of students could choose not to attend all sessions. However, only two participants missed one of the interventions or the pre-test, and therefore their data were deleted.

There was a risk that students could potentially cheat, thus affecting the validity of the results. However, the steps outlined above regarding the timing of the tests in addition to the different ordering of questions in the tests for each student were all in place to decrease the possibility of cheating. To make it as difficult as possible for students to consider cheating, they were only allocated a limited amount of time deemed necessary for the completion of each test and they were only allowed to take the test once. Moreover, students were regularly assured that

the grades they gained in the study tests would not affect their course grades and will not be viewed by anyone other than the researcher.

4.5.3 Research Instruments

Within the context of this study, the researcher devised all the tests and the teaching materials used as there were no previous standardised tests for assessing reading comprehension or metaphor understanding that include targeted expressions. It is therefore worth acknowledging the limitations of these tests as outlined in the following sections.

4.5.3.1 Metaphor Understanding Tests

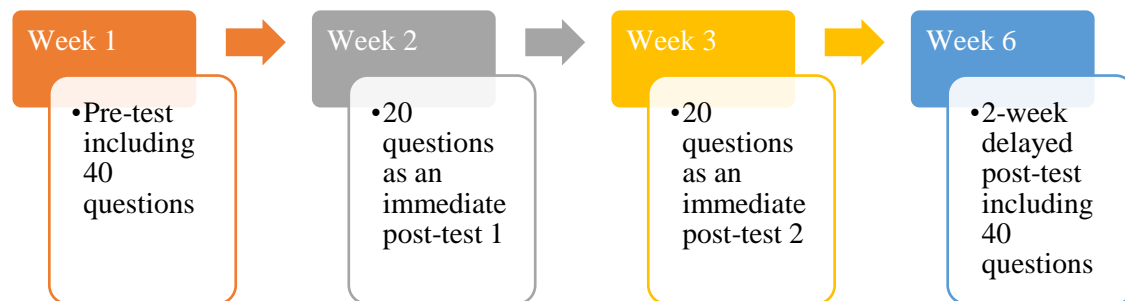
In this study, metaphor understanding tests were administered as a pre-test, an immediate post-test, and a two-week delayed post-test. At the initial stages of the study, an immediate post-test was not part of the research plan, and only two metaphor understanding tests (pre- and delayed-post-test) with 40 questions each were prepared (the first 20 questions targeting 20 expressions that were taught in intervention session 1; and the second set of 20 questions targeting 20 expressions taught in intervention session 2). These two tests presented in Appendix A were similar in form, although differed in content.

At a later stage, the researcher added a third test, an immediate post-test, that included 20 questions from pre-test and 20 questions from delayed post-test, which is also presented in Appendix A. Questions were chosen randomly from the pre- and delayed post-tests and included the target 40 metaphoric expressions. The decision to include this test was taken after the pilot phase, as the researcher deemed it necessary to include a further aim of testing the students' immediate learning of the metaphoric expressions and not only the retention of these metaphoric expressions after two weeks. The immediate post-test included 40 questions in total that were split across the two intervention sessions. The first half of the test, which included the 20 questions targeting the metaphoric expressions taught in Intervention session 1, was administered immediately after that session. The second half of the test, comprising 20 questions that targeted the metaphoric expressions taught during Intervention session 2, was given to students after that session (presented in Appendix A).

As the immediate post-test included questions extracted from the two other tests, this may raise questions about the pros and cons of repeating questions in tests. One advantage to having the same questions is that the level of difficulty is maintained across the tests and direct comparisons can be made across testing times. A notable disadvantage that must be taken into consideration is the possibility of a practice effect due to the reoccurrence of the questions. However, as the metaphor tests were relatively long tests that included 40 questions, it was unlikely that participants would remember all of them – particularly as a number of days passed between the administering of tests. Moreover, based on the researcher’s experience as a teacher in the same institution, and an awareness of these students’ level, she argues that incidental learning of meaning is very unlikely from just one single exposure and that students would remember the wording of the questions. Indeed, just because learners were previously exposed to the lexical items, it does not guarantee that they answered questions about them in the first test correctly, or indeed, that they even understood their metaphorical sense. Figure 4.3 presents a visual outline of how the metaphor understanding tests were administered chronologically.

Figure 4.3

Metaphor Understanding Tests



Each metaphor understanding test comprised multiple-choice questions that assessed comprehension of various meanings of the targeted expressions. Every question included a statement that targeted one expression used in its metaphoric (example 1) or literal sense (example 2):

- 1- You have to finish your university degree first, leaving university and getting a job now is a *shortcut* to nowhere.

2- When we were small, we used to take a *shortcut* by going through the fields to school, but now they've built a housing estate on the farmland.

As exemplified in Table 4.2 below, each question presented a word or a phrase and gave the student four choices as potential answers, namely: the figurative meaning; the literal meaning; a wrong answer (a foil or near miss); and 'I do not know'. In writing the metaphor understanding tests, the idea was based on the metaphor test presented in Saaty (2016), however, the questions/items used in this study were rewritten to include the specific target metaphors used for this thesis. The test statements were chosen using the BNC to ensure authenticity. The language used in the multiple-choice questions were kept as simple as possible, by using the Macmillan Online Dictionary and Cambridge Online Dictionary. To ensure naturalness, four native speakers were asked to cross-check all the statements, and modifications were made accordingly. Additionally, five L2 learners studying the same course at the university as the main study participants completed the metaphor tests. Using their feedback, the researcher modified any statements the L2 learners identified as unclear. The tests were then piloted with 32 L2 learners.

Table 4.2

Metaphor Understanding Test Question Example

- | |
|--|
| <p>1. The poor have no money because they are out of work; they <u>pass</u> their time watching game shows on television.</p> <p>A. To spend, consume, or use spare time doing something</p> <p>B. To move something in a particular direction or to a particular place or position</p> <p>C. To wait to find work</p> <p>D. I do not know</p> |
|--|

The complete pre-tests, immediate post-tests and the delayed post-test are provided in Appendix A.

It is important to note that by exposing students to both the literal and metaphoric meanings of expressions in the teaching intervention, students in the intervention group could

have formed a mental association between the teaching and test materials, thus putting them at an advantage when it came to testing. This contrasted to students in the comparison group who were only taught the figurative meanings of the expressions. However, there are several reasons why the teaching and testing were structured in this way, which outweigh any potential disadvantages. First and foremost, it was decided to include both the literal and metaphoric meanings of the expressions following Nation's (2003) definition of the *word knowledge*, which involves knowing its different meanings and uses. Indeed, it is considered to be part of vocabulary knowledge to know the two meanings; the basic literal meaning, and the figurative meaning. Also, L2 learners generally have sufficient exposure to the literal core meanings of words, and thus it is the metaphoric meaning that usually requires instruction (which both intervention and comparison groups learned).

In relation to the tests, it was decided to include the literal meanings in addition to the metaphoric meanings in the pre-tests to avoid students predicting what the study could be about. The inclusion was also subsequently followed in the post-tests to measure the improvement in the students' understanding and retention of the meanings of the expressions from a pre- to a post-test context. It is also important to acknowledge that as the researcher is a teacher in the institute where the study was conducted, the types of tests students take usually include the materials already taught during classes, which also increases the face validity of the tests used in the study.

Finally, one would argue that the comparison group could have been at a disadvantage because of not learning the literal meanings in the sessions. However, findings show that even when literal meanings were not tested or targeted in the reading tests, they still did not perform well, i.e., they did not guess the figurative meaning of the expressions. Conversely, it could be expected that because those in the comparison group learned the metaphoric meaning only, they would perform better than the intervention group in the reading tests which included metaphoric uses of the expressions and would correctly choose the metaphoric meaning. Nevertheless, this was not the case.

4.5.3.2 Reading Comprehension Tests

Four reading comprehension tests were administered, namely one pre-test, one immediate post-test after each intervention session (two in total), and one two-week delayed post-test. The comprehension tests were based on four reading texts related to different conceptual metaphors. Text 1 in the pre-test was related to LOVE IS A PLANT and HUMAN BEINGS ARE PLANTS. Texts 2 and 3 were used in the two immediate post-tests, Text 2 was related to LIFE IS A JOURNEY, and Text 3 was related to TIME IS MOTION and TIME IS MONEY. Text 4 in the delayed post-test was related to HAPPINESS IS LIGHT AND UP, and SADNESS IS DARK AND DOWN. Table 4.3 below illustrates the resources used in preparing all the reading texts. The two-week delayed post-test measured students' comprehension of a text that included new conceptual metaphors to investigate if they were able to transfer the learned knowledge to new, untaught conceptual metaphors. Due to a lack of standardised L2 metaphor reading tests, the reading texts and tests used in this study were developed by the researcher, as will be discussed in the below subsections.

Table 4.3

Resources used in Writing the Texts

The reading text	Metaphoric expression resources	Lessons in Lazar (2003)	Online resources
Text 1: Love story	Deignan (1995) Lazar (2003)	Branching out: plants (pp. 40-41)	Blogs on love stories, such as https://www.telegraph.co.uk/family/relationships/moment-met-love-life-three-writers-tell/
Text 2: Life stories		Taking steps: Life is a journey (p. 24)	People's life stories from discussion blogs, such as https://www.rd.com/true-stories/inspiring/the-best-life-stories/

Text 3: Time managem ent	Time to spare: Time and money (p. 16)	The Entrepreneur Online articles and blogs on managing time: https://www.entrepreneur.com/article/242855
Text 4: Ups and downs	Ups and downs: Describing feelings (p. 32)	People's answers to the question "What is the best as well as the worst thing that happened in your life?" taken from discussion blogs, such as https://www.quora.com/What-is-the-best-as-well-as-the-worst-thing-that-happened-in-your-life

4.5.3.2.1 Preparing Reading Texts for Reading Comprehension Tests

The system involved in the preparation of Text 1 will be outlined here to serve as an example of how the reading texts were generally composed in this study. First, the researcher composed a list of figurative expressions extracted from Lazar's (2003) metaphor teaching textbook, *Meanings and Metaphors*, and from Deignan's (1995) *Collins Co-build English Guide to Metaphor* was composed. Section 4.5.3.3.1 provides a detailed explanation of the choice of metaphoric expressions used. The reading text in a lesson titled *Branching Out: Plants* in Lazar (2003, p. 40-41) was referred to. Moreover, authentic love stories from online blogs were referenced to explore the authentic uses of the figurative items on the list. Metaphoric expressions from this composed list were then gradually integrated into the reading text. Next, to ensure the authenticity of the reading texts, four British native English speakers were asked to review the text, language used, and the accuracy of the contextual uses of the metaphoric expressions. Accordingly, modifications were carried out on the passages several times based on their feedback. The same procedure was followed in preparing all four reading texts (illustrated in Table 4.3 above).

To ensure all the reading texts were comparable and consistent in the difficulty of the content they presented, this was measured in two stages. In stage one, the texts' difficulty was assessed by entering them into computer readable formats on www.readabilityformulas.com. For each of the four texts, the *Gunning Fog* reading index was calculated. Gunning Fog's rating (Gunning, 1952) was specifically chosen to predict the text difficulty as it provides a numerical

result, whereas other indexes are mainly linked to US school grade level estimates. This reading index formula is one of the most frequently applied in linguistics (Świeczkowski & Kułacz, 2021) and is designed to give a score from 0 to 20. A lower score indicates a more difficult text, with the average score being 8. More specifically, the Gunning Fog formula (Gunning, 1952) predicts the estimated readability and difficulty of the reading texts and calculates paragraphs, sentences, word size, and word type (adjective, noun, and adverb). Table 4.4 presents the related information to each of the texts in this study, as measured by the index. The results indicate that all of this study's reading texts were fairly easy for L2 students to engage with.

Table 4.4

Reading Texts' Counts and Gunning Fog Formula Score

Text	Word count	Sentence count	Gunning Formula score	Level
Text 1	749	51	8.9	fairly easy to read
Text 2	778	54	7.8	fairly easy to read
Text 3	879	65	8.2	fairly easy to read
Text 4	882	70	9.3	fairly easy to read

Table 4.4 shows that all the four texts fall within a range between 7.8 and 9.30 implying that their level is fairly easy to read and that they are comparable in easiness. Moreover, the reading texts were also analysed using *Complete Web English Vocabulary Profiler*. This profiler automatically classifies each word in the reading text according to 26 frequency bands: from K1 words to K25 words and Off-List words. To ensure that the four reading texts were of a comparable level of difficulty, each reading text was matched to a vocabulary frequency level. Table 4.5 presents details of the cumulative tokens of words in the texts within the first three frequency bands - K1 words (1-1000), K2 words (1001-2000), and K3 words (2001-3000).

Table 4.5

Reading Texts' Vocabulary Frequency Level

Text	Vocabulary frequency level (Cumulative token%)		
	K1	K2	K3
Text 1	87.7	94.4	96.7
Text 2	92.3	97.5	97.4

Text 3	89.0	95.5	98.2
Text 4	88.4	94.6	98.0

Table 4.5 shows that the four texts were comparable in the word frequency profile. However, these factors were not the only ones that determine the difficulty of the text. According to Harrison (1980), predictors such as the reading formula must correlate with other measures of text difficulty or teacher judgment for a particular group of students. Indeed, the researcher relied on her judgement as a teacher to conclude that the difficulty of the texts used in this study was suitable for the students.

Stage two of assessing the reading texts involved a group of native speakers and L2 learners being given the texts and asked to rate their difficulty. The rating question was as follows:

Figure 4.4

Scale Rating

On a scale of 1 to 7, how difficult do you think this reading text is?

1	2	3	4	5	6	7
Very confusing	Difficult	Fairly difficult	Standard	Fairly easy	Easy	Very easy

The ratings of the five native speakers indicated that the four reading texts were comparable in terms of difficulty, as presented by the median and mean of the ratings in table 4.5.

Table 4.6

Native Speakers' Ratings of Reading Texts

Text	Native 1	Native 2	Native 3	Native 4	Native 5	Mean	Md
Text 1	4	3	4	3	4	3.6	4
Text 2	4	2	4	4	5	3.8	4
Text 3	4	2	4	4	5	3.8	4

Text 4	4	3	4	4	4	3.8	4
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The texts were then given to ten L2 learners not involved in the main study: five intermediate and five low. This categorisation was based on students' Oxford Placement Test results. First, the five L2 intermediate learners were asked to rate the difficulty of the reading texts. As shown in Table 4.7, the rating mean across intermediate L2 learners is 6, indicating that the learners found the texts to be easy. One could question the reason why native speakers mostly rated the texts as fairly difficult and standard, while intermediate L2 learners found them to be easy. The reasoning for this could be that it was explained to native speakers that the texts would be used in reading tests given to L2 learners, although the level of the learners was not clarified. Native speaker 2, who rated the texts as difficult, explained to the researcher that she did not consider them difficult, but anticipated that they would be for L2 learners compared to other everyday reading materials. Native speaker 4 felt that the texts were clear and fairly standard in terms of the language, length, and flow of ideas. Five low-level learners were then asked to rate the texts (Table 4.7). Lower proficiency learners regarded the texts as difficult, and their rating mean was between 1.8 and 2. Therefore, taking into consideration the ratings provided by a diverse range of raters from different backgrounds, it can be said that the texts were at an appropriate level.

Table 4.7

Learners' Ratings of Reading Texts

Text	Intermediate learners							Lower learners						
	1	2	3	4	5	Mean	Md	6	7	8	9	10	Mean	Md
1	7	5	5	6	7	6	6	1	1	2	2	2	1.6	2
2	7	6	5	7	6	6.2	6	2	1	2	2	2	1.8	2
3	7	6	6	6	6	6.2	6	2	2	2	2	2	2	2
4	6	6	7	6	6	6.2	6	1	1	3	2	2	1.8	2

To conclude, the researcher was reassured that the four texts were comparable in difficulty, as measured by the Gunning Fog reading index; word frequency level; as well as ratings from native speakers, intermediate learners, and low-level learners.

4.5.3.2.2 Reading Comprehension Test Questions

A number of models of L2 reading (Bernhardt, 1991; Cohen, 1994) have highlighted the need to consider the interplay between macro- and micro-reading skills when testing reading comprehension. Both skill types enable readers to infer the writer's main idea, locate specific details, understand unfamiliar words, and make use of contextual clues. In light of this, each reading comprehension test included four general comprehension questions targeting both general ideas and specific details, as well as ten questions assessing understanding the metaphoric expressions in the text. Questions in each of the immediate post-tests were equally divided between the taught and untaught metaphoric expressions that fit within the taught conceptual metaphor (five questions each). The inclusion of taught and untaught metaphoric expressions was partly motivated by Boers' (2000b) study, which tested the impact of raising awareness of conceptual metaphors on students' reading comprehension. Boers found that general comprehension questions that measured students' understanding of the broad ideas in the texts did not pose a problem for either the control or the experimental groups (metaphor teaching group). However, the experimental participants outperformed their control counterparts in interpreting the figurative usage of the expressions in the text.

As the reading tests in this thesis were devised by the researcher, there will inevitably be some limitations, as no test can be perfect in capturing the phenomenon it intends to measure. The reading comprehension measure consists of four items: two questions about the general topic and two questions that cover more specific details, in addition to ten questions on the metaphoric expressions embedded in the reading texts. As mentioned above, it is important when measuring reading comprehension to include both macro- and micro-reading skills that allow an assessment of learners' ability to infer the writer's main idea, locate specific details, and understand vocabulary. Although four questions in the first section of the test might seem a limited number compared to ten vocabulary questions in the second section, this did not pose a problem as no direct comparisons were made between the two sections in the quantitative analysis. Additionally, the way the reading comprehension test was structured, enabled it to address two of the study's main aims. The first was to investigate students' comprehension of reading texts that include metaphoric language. The second was to explore students' ability to understand the taught expressions when embedded in longer contexts (i.e., paragraphs and texts)

and their ability to transfer their new metaphor knowledge to understand new untaught metaphors.

In the present study, each question included four multiple choice answers; one correct answer and three distracting choices, which were foil or near-miss answers. The researcher consulted the Macmillan Online Dictionary and Cambridge Online Dictionary to both define the meanings of the metaphoric expressions used and to formulate relevant answers. As asserted by Alderson et al. (2015), the phrasing of a test rubric is key and instructions should be understandable for the learners whose reading skills we aim to investigate (Alderson, et. al., 2015). Therefore, the researcher asked four L2 learners from the same course as this study's participants and two L2 teachers of the same course to complete the tests. Based on their feedback and comments, some modifications were made and a few of the items were simplified. The tests then were piloted by 32 L2 learners, and the questions re-adjusted accordingly. The reading comprehension tests are presented in Appendix B.

4.5.3.3 Stimulated Recall Interviews

In this study, two groups of learners, the intervention and comparison groups, were exposed to two different types of vocabulary instruction. As previous research has shown, the ways in which learners make sense of the teaching input they receive and their engagement with the tasks affect the extent to which they both comprehend and remember the presented language (Schmitt, 2008). As such, to explore how L2 learners perceived the instruction they received and to understand what was going through their minds when trying to comprehend the texts and the metaphoric expressions, a qualitative method was employed in an attempt to support the interpretation of the results of the quantitative data. Stimulated Recall Interviews (SRI) were conducted after the quasi-experimental study to collect qualitative data that would provide more in-depth insights regarding the findings of the interventions.

The SRI is a research method that has been commonly employed in language learning research (Gass & Mackey, 2000). SRI methodology is widely used in combination with other data collection methods in the form of triangulation, in order to explore findings more deeply (Gass & Mackey, 2000). Using a visual prompt, SRI encourages participants to remember their unique thought processes during an event. Gass and Mackey (2000) argued that SRI can be an effective instrument to explore cognitive processes and learning strategies, which may not be

uncovered solely through the use of quantitative methods. Post-experiment interviews also help to identify any other experimental factors that may have impacted learner responses or behaviours (Mackey & Gass, 2005). However, Mackey and Gass (2005) suggested that to avoid potential limitations, the interviews should be conducted as soon as possible after the experimental phase. Additionally, the researcher can address validity issues by ensuring that “questions/prompts do not alter the cognitive process being employed at the time of the event” (Lyle, 2003, p.865). In the present study, efforts were made to conduct the interviews as soon as possible after the delayed post-tests were administered, either immediately or within one day.

The SRIs were conducted with eight students from the intervention group and eight students from the comparison groups. The selection was based on students’ proficiency level and the metaphor and reading comprehension pre-tests score (four high, four low) and on their gain scores from the metaphor and reading comprehension pre- to post-tests (big gain, small gain). Firstly, for higher and lower proficiency levels in each of the intervention and comparison groups, students' proficiency levels were identified through their marks on the Oxford Placement Test and reading comprehension and metaphor understanding pre-tests. The proficiency score and the pre-tests score for the participants were calculated and then divided into two group: high and low. Secondly, to determine large and small gains within each proficiency group, pre- to post-tests gain scores were calculated and placed in order from the biggest to the smallest gain score. After that, two students within the highest and lowest twenty percent of the group were selected. This resulted in the following students being selected: two higher proficiency big gain, two higher proficiency small gain, two lower proficiency big gain, and two lower proficiency small gain, from each of the intervention and comparison groups. Each interviewee was given a unique pseudonym, that included group, proficiency level, and big or small gain (see Section 6.1).

Based on the results of the pilot study, students were given the option to speak in their L1 to ensure they felt comfortable expressing their ideas and feelings. Most of the time, students did indeed speak in Arabic; however, they switched to English a number of times. As the researcher was fluent in both languages, the students were able to communicate with her easily. The interviews were audio-recorded and lasted for thirty to forty-five minutes. The SRIs were divided into two parts: questions in the first part addressed the students’ perceptions of the intervention,

while in the second part, questions addressed the students' use of strategies. Furthermore, in relation to the second part, prototypical SRIs were conducted, where students were shown their reading comprehension tests and then asked about the strategies they used. They were asked what they were thinking when answering the reading comprehension questions, whether the teaching methodology affected the way they understood the texts, and how they understood the metaphoric expressions embedded in the reading texts. The first part of the interview, which was related to perceptions, still depended on stimulated recall, although in a slightly modified way. Students were shown the teaching materials used during the intervention to encourage them to talk about what they found most or least beneficial and how they felt about the intervention. The interview questions for the main study are presented in Appendix E.

4.5.3.4 Teaching Materials and Sessions

4.5.3.4.1 Selection of Metaphoric Expressions for Teaching

Linguistic metaphors include a wide variety of metaphoric expressions, such as phrasal verbs, idioms, collocations, polysemous words, and lexical phrases. This means that it is impractical to target all types of expressions simultaneously. In addition, expressions that are lexical chunks can also be used metaphorically which Boers et al. (2010, pp. 239-240) gave the following examples of these types of expressions:

Strong collocations (e.g., commit a crime), discourse markers (e.g., on the other hand), proverbs (e.g., when the cat is away...), compounds (e.g., peer pressure), social-routine formulae (e.g., have a nice day), idioms (e.g., take a backseat), standardized similes (e.g., clear as crystal), genre-typical clichés (e.g., publish or perish), exclamations (e.g., you must be kidding!), and more.

Due to the large range of metaphoric expressions available, the selection of items for language teaching must be based on a set criterion (Saaty, 2016). As much of metaphor research has already focused on teaching idioms (e.g., Boers et al., 2004), proverbs (e.g., Li, 2002), and phrasal verbs (e.g., Yasuda, 2010), the researcher believed it is useful to broaden the investigation (as in Saaty, 2016), and to include lexical phrases, collocations, and polysemous words as targeted vocabulary. In the present study, the targeted vocabulary lists consisted of 20 metaphoric expressions comprising verbs, phrasal verbs, idioms, lexical phrases, multiword

expressions, and collocations related to the conceptual metaphor LIFE IS A JOURNEY, as well as 20 metaphoric expressions related to TIME IS MOTION and TIME IS MONEY. First, a justification is provided below for the need to teach idioms, polysemous words, lexical phrases, and collocations, followed by a discussion that describes the criterion proposed by Boers et al. (2010) and Boers and Lindstromberg (2008) and followed by Saaty (2016) which the researcher of the present thesis used to select the metaphoric expressions for this study.

Exposing learners to fixed phrases as metaphoric expressions is an important factor in language and language learning (Boers, 2011; Schmitt, 2004). There is growing evidence that fixed phrases and collocations play a significant role in L2 fluency (Boers, 2011). Indeed, it has been shown that many expressions L1 speakers use are multi-word expressions and that they do not learn and produce language as individual units, but more so, as collocations or chunks (Saaty, 2016). Sinclair (1991) has established two principles for L1 speakers' use of language, namely the idiom principle and the open-choice principle. The latter proposes that language consists of a sequence of slots that can be filled by individual words, whereas the former principle, as stated by Sinclair (1991), indicates that every language speaker possesses a large amount of "semi-preconstructed phrases that constitute single choices, even though they might appear to be analysable into segments" (p. 110). A large number of the formulaic sequences are metaphoric (Sinclair, 1991). Although these sequences are formed of more than one lexical item, they are often stored in the memory as individual words (Willis, 2003) which added to the need to target these sequences in the language classroom. Idioms are also an important class of pre-constructed phrases and are pervasive in language, with many having a high frequency of use (Sinclair, 1991). Cognitive linguistics corpus data have revealed the ubiquity of Sinclair's (1991) idiom principle in natural discourse. However, figurative idioms are still considered low-utility and low-frequency items, and therefore have no priority to be taught in L2 classrooms (Boers, 2011). Thus, L2 students often lack an understanding of the concept. This can have larger effects on text comprehension than one might originally anticipate given the higher than assumed frequency of figurative idiom and phrases use, which has provided an important motivation for teaching idiomatic words and phrases to L2 learners in this thesis.

In addition, since many metaphorically used words are polysemous by nature, they have the potential to occur frequently in a variety of contexts. Depending on the context, polysemous

words might have different meanings, either metaphoric or literal (Schmitt, 2014). Accordingly, Schmitt (2014) argued for the significance of learning polysemous words' figurative and literal meanings for L2 learners, which enhances learners' depth of vocabulary knowledge. Students learning English as an L2 might struggle, for example, grasping the meaning of *direction*, *goal*, and *destination* in the context of LIFE, which acted as an impetus for the current study to target polysemous words. Additionally, the lack of emphasis on polysemous words in past research (exception to the few studies: Piquer-Píriz, 2008; Verspoor & Lowie, 2003; Saaty, 2016) also encouraged targeting polysemous words in the current study.

Boers and Lindstromberg (2008) suggested selecting L2 metaphoric expressions based on frequency, usefulness, coverage, and relevance to learners. Boers et al. (2010) advised first selecting chunks characterised by medium frequency, as opposed to high frequency, as higher-frequency chunks are more likely to be acquired through incidental learning. In terms of relevance and usefulness, the researchers recommend choosing metaphoric expressions that are of interest to learners. In terms of coverage, Boers et al. (2010) suggested teaching lexical items with more general meanings. For instance, learning should begin with the meaning of the word *see* before words with specific meanings as *watch*, *look at*, *view*, and *observe* are defined. Thus, it is imperative to consider and weigh up these variables when selecting the most appropriate metaphoric expressions for language learners. Importantly, however, such criteria must be approached as flexible guidelines systemising the choice of metaphoric expressions for instruction, and not as solid rules set in stone.

Based on these criteria, the researcher selected metaphoric expressions in terms of their coverage, usefulness, and relevance. In addition, collocations of various frequencies were also chosen to expose students to different levels of frequencies of lexical items, as illustrated in Table 4.6. Metaphors of LIFE and TIME were selected as they are semi-universal metaphors related to units that students come across in their textbooks, life, study, and employment. Furthermore, as the participants were first-year university students, it was assumed that they would no doubt be making some key life decisions, and thus time management would also be a key concept related to their daily lives.

The researcher devised the list of metaphoric expressions based on the system that was discussed in Section 4.5.3.2.1. To then determine the frequency of this list, the researcher

referred to the T-score measure of frequency on the BNC. Metaphoric expressions with different levels of frequency were selected, to expose learners to both more and less common expressions. The researcher followed Walker’s (2008) method in selecting metaphoric expressions. Walker (2008, p. 293) claimed that the use of frequencies that are raw to measure collocations makes it “difficult to attach a precise degree of significance” in relation to their occurrence within a given word. According to Walker, if the T-score of the collocate is 2.00 or above, this means the grouping of words did not take place haphazardly and is statistically significant. Turner (2014) and Saaty (2016) also used the T-score technique in the identification of relevant metaphoric expressions used for analysing L2 learners’ writings and intervention materials. Therefore, in this study, the researcher excluded lexical items with a T-score frequency of less than 2.00. As shown in Table 4.8, the frequency of the selected expressions varied from low frequency to high frequency. In Table 4.8, the minimum frequency T-score is 2.43 for ‘short-cut to,’ which is considered sufficiently high to be a statistically important collocate, yet not as high as the T-score of 34.57 for ‘on one’s way’. Table 4.8 illustrates the frequency of the expressions taught in intervention sessions 1 and 2.

Table 4.8

T-scores for Metaphoric Expressions for Intervention Sessions

Metaphoric expressions	T-score	Metaphoric expressions	T-score
Head start	4.07	To get over something	10.57
On the/one's way	34.57	On track	23.25
The end of the line	11.95	Short-cut to	2.43
Take direction	2.60	Turning point	18.20
Go places	7.29	Achieve my goal	8.18
Hit/run into a wall	7.65	Push ahead	5.57
Heading to	3.42	Get in someone's way	15.62
To overcome an obstacle	3.43	Cross the bridge	7.70
No turning back	15.92	Over the hill	8.59
A destination	3.89	A direction	5.20
Time goes by	37.69	Coming up on	32.92
Looking ahead to	8.40	Divide your time	2.17
Ahead of time	8.75	behind schedule/work	8.10
Pass the time	7.36	Afford time	2.23
How far	37.87	Approaching	2.61

Save time	16.27	Count days/hours/minutes	2.87
Spend	44.73	Accounted for	35.03
Waste	29.82	Run out of time	6.78
Invest	6.22	Pressed for time	8.97
Buy (extra) time	3.19	To be short of	34.49

The researcher then checked the extent to which the literal and metaphoric interpretations of the expressions used in relation to the conceptual metaphors could be considered conventional. To ensure that the metaphoric senses of the expressions were included in the listed meanings for each lexical item, The Collins Online dictionary at www.collinsdictionary.com and the Macmillan dictionary at www.macmillandictionary.com were consulted. This step was important as both the figurative and literal interpretations of the expressions formed the basis of the teaching sessions and test materials. As such, the researcher excluded metaphoric expressions not present in both dictionaries. The tables provided in the teaching materials in Appendix D offer both the literal and figurative meanings of the targeted expressions.

4.5.3.4.2 Teaching Sessions

During weeks two and three, teaching sessions were held. The instruction for the intervention group consisted of teaching the metaphoric expressions in relation to their literal meanings and their underlying conceptual metaphors. The positive impacts of conceptual metaphors and pictorial elucidation in facilitating the learning of metaphoric expressions have been shown empirically (Boers, 2000, 2011, 2013). As discussed in Section 2.6, conceptual metaphors teaching, mapping, and images offer an opportunity to organise and present a number of metaphoric expressions in tandem. Conceptual metaphors also provide a chance for learners to investigate the source and target domains, which has been shown to help them better comprehend metaphoric expressions (Boers, 2000a, 2011, 2013).

Embarking from these positive empirical insights, the researcher proceeded to design the interventional teaching sessions for the metaphor teaching (intervention) group. The intervention delivered aimed to teach the linguistic metaphoric expressions within the framework of conceptual metaphor awareness, and to make learners in this group cognizant of the conceptual metaphor and target and source domains. The methodology, inspired by Cognitive Linguistics

(CL) approaches, integrated pictorial elucidation and conceptual metaphor awareness (all the teaching materials and tasks are provided in Appendix D).

For the comparison group, the teaching methodology consisted of teaching the metaphoric expressions based on semantic explanations without explicitly referencing the source domains or conceptual metaphors. As discussed in Section 1.3, semantic teaching is the teaching methodology for comparison groups in metaphor research and is the traditional methodology in the context of the present study. It included no reference to the conceptual metaphor or the source domains and included pictorial support in the form of images matched with targeted lexical items.

Steps were taken to design teaching sessions that maintained consistency and ensure that both groups received the same quantity and quality of teaching. The only factor that varied between the groups were the variables that the researcher aimed to test. The two groups were given identical core teaching materials, and received the same amount of intervention time, which totalled two three-hour sessions. More specifically, both groups received the same introduction to the lesson; answered identical discussion questions; were taught the same set of targeted words and phrases; were exposed to the same visuals; and carried out the same practice exercises using the expressions. The groups differed in that each one received a different type of treatment during certain points when being taught the vocabulary items. For the intervention group, the treatment included: 1. teaching the conceptual metaphor and its mapping; 2. teaching both the literal and metaphoric meanings of each metaphoric expression; and 3. presenting visuals that referred to the literal meaning of each expression. In contrast, teaching the comparison group included: 1. not teaching the conceptual metaphor or making any explicit reference to the source domain; 2. only teaching the metaphoric meaning of each expression; and 3. presenting visuals that referred to the metaphoric meaning only with no indication of the literal meaning. These differences between the two groups were carefully maintained to directly measure the impact of conceptual metaphor teaching on learners' reading comprehension and learning and retention of the metaphoric expressions. For full details of each teaching approach, see Appendix C.

To ensure comparability between the groups, there was a need to control the material and task-based variables and cognitive load. As such, the general textual layout of tasks was the same

for the two groups, and the comparison group was also invited to work with visuals. These visuals were extracted from online resources, and all the visuals used, along with their copyright notice and sources are presented in Appendix D. The images were rated by two L2 teachers (on a 1-4 scale) in relation to how expressive they were, and how well they conveyed the literal or the metaphoric meaning of the expression. Modifications to the images were then made accordingly. Lesson plans and teaching materials were designed and developed using tasks from *Meanings and Metaphor* (Lazaar, 2003), the work of Li (2002) and Saaty (2016), and the website (www.onestopenglish.com) which provides materials for teaching L2 students. Some of the sentences in the tasks were adapted from BNC and Macmillan Dictionary, while the latter was also used to extract the figurative and literal meanings of the metaphoric expressions. Importantly, however, these dictionary definitions were modified for the specific level of the students in this study. The subsections below outline the teaching plan and materials used for each group.

4.6 The Pilot Phase

The purpose of the pilot study was to determine whether the intervention was successful and to explore and be aware of the possible limitations of the main study. The pilot also aimed to assess the reliability and validity of the research instruments. Therefore, two groups of first year L2 university learners, 17 in Group 1 and 15 in Group 2, from the same university and studying the same course as the main study were asked to take part in the pilot study. Therefore, their performance in the pilot could be considered a reliable indicator of what was to be expected in the main study.

Due to the constraints of time and that the teaching module was about to come to an end, the researcher decided to pilot the two interventional sessions for the conceptual metaphor teaching, rather than the teaching for the comparison group. Therefore, participants from each class were assigned to the same teaching session, i.e., the first class was assigned to Group 1, receiving teaching session 1, and the second class was assigned to Group 2, receiving teaching session 2. Students completed pre-, post-, and delayed post-tests. As a final stage of the pilot phase, one student from each group was asked to take part in a stimulated recall interview. For full details of the procedure of the pilot study, please see Appendix F.

4.6.1 Data Analysis for the Pilot Study

A number of statistical tests were used to analyse the pilot study quantitative data. Results suggested an improvement in learners' reading comprehension and metaphor understanding and retention in response to the intervention. However, participants did not perform as well in answering untaught metaphoric expressions compared to the taught expressions. For full analysis of the pilot results, see Appendix F.

Stimulated recall interviews were conducted with two students after the post-tests, using one reading passage. Although the interviews were in the students' L1, students were hesitant in verbalising their thoughts. Therefore, based on the pilot phase experience, two reading tests were included in the interviews of the main study to collect sufficient qualitative data. For full details of the analysis of the pilot study, please see Appendix F.

4.6.2 Implications for the Main Study

The pilot study results indicated that the intervention was effective, which was the most important factor that the researcher sought to explore. Moreover, piloting the study revealed a number of points. Firstly, from the researcher's observations during the teaching sessions of the pilot phase, and from the results of the pre-tests, it was concluded that L2 Saudi students have limited metaphoric knowledge. The learners understood many lexical items as literal and did not grasp their metaphoric meaning. Furthermore, during oral discussions with students after the intervention and from the two interviews conducted, the students revealed that they had not received any metaphor teaching before the intervention. Moreover, the idea of the conceptual mapping was new, and they commented that it organised their thoughts. It was the students' first time conceptualising the source and target domains and their mappings. In their answers to the metaphoric questions in the pre-test, learners tended to choose the literal meaning or one of the distractors, which included contextual clues about the time or the place of the main sentence, more than the metaphorical meaning of the expression.

Another implication of the pilot study related to the research instruments was that the length of the tests was confirmed to be practical, and actually took less time than expected. Learners took a maximum of 20 minutes to finish the metaphor understanding tests (20 questions), and 20-30 minutes to finish the reading tests (14 questions). The expected time for

the teaching session was 1 hour, which was the actual time taken in the pilot study. However, the researcher felt that some discussion questions could be reduced as they were deemed to be repetitive, and thus modifications were made for the main study. Further modifications also were made to two questions in the reading tests. Five students and two L2 teachers were asked to rate the difficulty of all the comprehension questions. Results were then compared to the answers by participants in the pilot study and on that basis, it was decided that the two questions needed to be re-written.

The data gathered from the stimulated recall interview was, to some extent, limited. As a stimulus for the interview, the immediate reading comprehension test was used. Based on the pilot phase experience, two reading tests were included in the interviews of the main study to collect more sufficient qualitative data. In addition, modifications have been done to the plan of the stimulated recall interviews for the main study to include, besides more tests, more students and more stimulated prompts. Furthermore, more probing sub-questions were added to encourage more elaboration and to help students recall what was occurring in their minds during the tests. As such, final interview questions for the main study were modified accordingly by adding more specific probing questions. Although the interview was conducted in the students' L1, the students interviewed were hesitant to talk. This hesitation may be because the researcher was not their teacher and they had met her only once, which made them nervous about their answers. Students' answers were brief and they did not elaborate much. Although it was stated that there are no correct or incorrect answers in the interview prior to the meeting, the students were afraid to mention anything wrong. One student, after explaining why she chose the main idea of the reading text, asked the researcher whether she was right. This dynamic was avoided in the main study as the researcher met the students several times before the interview during the teaching sessions. Appendix E presents the questions used in the pilot study and the modified questions used in the main study. Moreover, before starting the audio-recording, and at frequent intervals during the interview, students were reminded that they should answer all the questions according to what they were thinking during the test, rather than their current thought processes.

4.7 Data analysis of the Main Study

For the main study, quantitative data were collected through a metaphor understanding pre-test, a reading comprehension pre-test, two immediate reading comprehension post-tests, a two-week delayed metaphor understanding test, and a two-week delayed reading comprehension post-test. Stimulated recall interviews provided the qualitative data.

4.7.1 Quantitative Data Analysis

4.7.1.1 Marking Scheme

As previously indicated in Section 4.5.3.1, the pre-, immediate, and delayed post-metaphor understanding tests included 40 metaphoric expressions, with one mark awarded for each answer, leading to a maximum total score of 40. Students had four possible answers to choose from, including: Option A, B, C, and D (I don't know). In the coding and data entry phase, options A, B and C were coded through a binary marking scheme (1 for correct and 0 for incorrect). Option D was coded as a wrong answer (0 points).

For all four reading comprehension tests, the marking scheme was the same since they had the same number of questions and followed the same format (multiple-choice). There were 14 test items in each test. One mark was given for each correct response, while zero was given to each wrong answer. For each reading test, the maximum total score was 14.

4.7.1.2 Preparing Quantitative Data for Analysis

Quantitative data from the metaphor understanding and reading comprehension tests were gathered at four time points: before the intervention, immediately after each intervention session, and two weeks after the intervention. The reliability, normality, the homogeneity of variance, descriptive statistics, and statistical tests of the quantitative data were assessed and are reported in the findings chapter, Chapter 5.

4.7.2 Qualitative Data Analysis

4.7.2.1 Thematic Analysis of Students' Perceptions

Stimulated recall interviews (SRI) were conducted after the quasi-experimental study to collect qualitative data. SRI methodology is widely employed with other methods of data collection to explore more findings and as a triangulation technique (Gass & Mackey, 2000). The interviews were audio-recorded and lasted for thirty minutes.

4.7.2.1.1 Interview Transcription and Coding (Students' Perception)

The researcher conducted sixteen interviews: eight with students from the intervention group and eight with students from the comparison group. The audio recordings allowed the researcher to listen to the interviews multiple times. The researcher transcribed all interview recordings into Arabic using Microsoft Word 2019. The researcher then translated all the interviews into English. A Saudi lecturer (in the English Language Institute in a Saudi University) with the same language background as the researcher and fluency in both languages reviewed six interviews to evaluate the correctness of the translation. This lecturer found no major issues with the translation apart from a few grammatical points regarding verb tenses. To ensure consistency, appropriate changes were made, and these differences were taken into consideration.

The analysis of the first part of the interviews (students' perceptions) started with thematic analysis of the responses. Thematic analysis, which is frequently used for analysing qualitative data, classifies meaning patterns and themes with respect to the research questions (Braun & Clarke, 2013). It is a descriptive method for analysing what was said and not the way of saying it. Additionally, it is convenient in analysis of data where the purpose of the research questions is to examine learners' perceptions (Howitt, 2016). Moreover, this method is not based on a theory; rather, it constitutes a systematic methodology for the identification and analysis of themes in the data (Braun & Clarke, 2013). This characteristic is also one of the criticisms of this method, as it offers no fixed criteria to identify themes (Howitt, 2016). However, for the current thesis, the flexibility of not having pre-existing criteria to follow in analysing data was a positive point as such criteria would have prevented identifying and describing themes that would be particular to the participants in this context.

During the thematic analysis, the researcher formed initial codes and then themes based on the codes and following the procedure for thematic analysis put forth by Braun and Clarke

(2006): (1) familiarisation with the data, (2) deriving initial codes, (3) looking for themes, (4) assessing the themes, (5) defining the themes, and (6) reporting the results based on the previous steps. To avoid the limitations of coding qualitative data and researcher biases (Creswell, 2009) and to increase reliability, a number of steps were also taken during the thematic analysis, discussed below.

First, the researcher created an initial codebook for the data based on coding six transcripts (40% of the total transcripts from the interviews). The researcher read every sentence and gave it a code. For instance, the sentence “I feel now that I have added new vocabularies to my repertoire” was coded as ‘expanding breadth of vocabulary knowledge’. Other similar units (i.e., sentences) in this transcript, then units in the other transcripts, were also coded as ‘expanding breadth of vocabulary knowledge’. This same process was used to generate the other codes, for example, ‘improved metaphor awareness’, ‘enhanced retention of words’, and ‘personal interest’. There were instances where more than one code applied to one sentence. For instance, the sentence “the study helped me think deeper and read slowly to focus and imagine because there is a metaphoric meaning of these words” was coded with more than one code; ‘increase in concentration’, ‘use of imagination’, ‘improved L2 metaphor awareness’, and ‘adding depth of vocabulary knowledge’. This initial codebook guided the coding of the other transcripts. It also served as a database for revisions later. In the review stage, the researcher gave this codebook to the other coder, which further helped in completing the final codebook for analysis of the data and reporting findings.

To ensure that the coding was reliable and trustworthy, during the second round of coding, a colleague researcher from the same institution as the researcher was asked to review the codebook along with the transcripts. In order to revise the codes, the researcher met with the coder to discuss all the codes. Based on the feedback of the other coder, some changes were made to the code label titles and definitions. For instance, the coder suggested changing the label of one code from ‘use in conversations’ to ‘use in spoken production’ as the use mentioned by students during the interviews included more than conversations. The modified version of the codebook was then used to code the remaining interviews.

A third round of coding was conducted by asking a third coder to review the coding of all interview transcripts. The third coder was a researcher at the University of Reading. As part of

that process, inter-coder reliability was checked by calculating the reliability coefficient through comparing the researcher’s codebook to the third coder’s coding. To examine inter-coder reliability, two or more coders should apply codes, and then the findings of the coders should be compared (Mouter & Noordegraaf, 2012). The result of inter-coder reliability was 86.41%, suggesting a moderate agreement level (Lavrakas, 2008). The researcher discussed with the third coder the differences and suggested changing some titles. After this review was done, the codebook was used for the final analysis and reporting of findings.

From the data, three main themes emerged: impacts on cognitive aspects, affective aspects, and behavioural aspects. Table 4.9 presents the main coding of students’ interviews. For a detailed outline of themes and codes, please see Appendix H. Chapter Six discusses the themes and sub-themes that evolved from the codes. Following Sandelowski et al. (2009) and Santos et al. (2008), the number of codes attached to both the comparison and intervention groups, and also the strategies participants used in both groups (Section 4.7.2.2), were quantified. Although the participants’ number in each group was too small to allow for inferential statistics to be conducted, calculating the codes and strategies allowed for an initial judgment to be made as to whether students in these two groups behaved similarly or differently. It is important to mention that quantifying the codes and strategies was not intended to replace an in-depth qualitative analysis, but rather, simply to act as a framing device to guide the subsequent qualitative analysis.

Table 4.9

Coding of Students’ Perceptions

Themes	Codes	
	Intervention group	Comparison group
Cognitive aspects	Metaphor awareness	
	Reading comprehension improvement	Reading comprehension improvement
	Vocabulary learning	Vocabulary learning
	Use of imagination	Use of imagination

	Academic progress	
Affective aspects	Motivation	Motivation
	More engaging content	More engaging content
	Independent learning	
Behavioural aspects	Use in spoken and written production	Use in spoken and written production
Reported difficulties	Similarities of the words	Similarities of the words
		Number of words

4.7.2.2 Analysis of Students' Strategies Use

4.7.2.2.1 Interview Transcription and Coding (Students' Strategies Use)

Concerning the second part of the interview, the interviewees' responses on the use of strategies were first coded by the researcher. There are advantages of applying more than one approach for qualitative data coding (Miles & Humberman, 1994), that is, both inductive (bottom-up) and deductive (top-down). For the current study, the first aim was to explore the strategies use derived from the students' transcripts, employing a bottom-up approach. Nevertheless, coding can also draw on frameworks from related research. It was also felt helpful to keep in mind the research questions of this thesis which were based on a theoretical framework (Gu, 2014). Therefore, the coding employed in the present study for strategies use also drew on the literature which informed those research questions, identifying relevant strategies they identified, thereby combining both top-down and bottom-up data analysis approaches.

It is worth mentioning that it was not very easy to decide on which reading comprehension taxonomy to use in this study. A careful review of research in reading strategies revealed inconsistency and overlap between classifications of reading comprehension strategies (Alkhaleefah, 2011; Anderson, 1991; Block, 1986, 1992; Ghavamnia et al., 2013; Mokhtari & Sheorey, 2002; Mokhtari & Reichard, 2002; Mushait, 2003; Olshavasaky, 1977; Pritchard, 1990; Sarig, 1987; Tsai et al., 2010; Yapp et al., 2021). For instance, Block (1986, 1992) and Olashavsky (1977) applied two to three general categories, Anderson, (1991), and Pritchard

(1990) applied four to five broad categories, and Alkhaleefah (2011) applied more than five categories (see Section 3.4.1). In addition to the broad classifications of strategies, some strategies were classified under different categories across the reading taxonomies. To illustrate, vocabulary problem strategies were classified under *local strategies* in Block's classification, whereas they were categorised under two categories - *technical-aid moves* and *clarification and simplification moves* - in Sarig's. Inconsistency also occurred because of different wording used for the same or similar strategies. For instance, the strategy of *predicting what might happen later in the text* was defined as *predicting* in Anderson (1991), *hypothesising* in Olshavasky (1977), and *anticipating content* in Sarig (1987). As explained below, the researcher decided to amalgamate these strategies when needed to solve such inconsistencies. Reviewing all previous studies was helpful for the current study to prepare the list of different strategies employed by students in the present study.

Therefore, for the current study, a review of previous research in the field was conducted. This review included strategies by Alkhaleefah (2011), Anderson (1991), Block (1986, 1992), Ghavamnia et al. (2013), Mokhtari and Sheorey (2002), Mokhtari and Reichard (2002), Mushait (2003), Olshavasky (1977), Pritchard (1990), Sarig (1987), Tsai et al. (2010), and Yapp et al. (2021). This resulted in a list of strategies mostly based on the work of Mushait (2003) and Mokhtari and Sheorey (2002). These reading taxonomies were found to be suitable for the purposes of the current study, as explained below, to examine the differences between the intervention and comparison groups in their strategies use in comprehending L2 texts, and the differences between proficiency levels within and between groups. Both taxonomies are based on reading models that identify word-related, clause-related and sentence-related strategies, in addition to L2 metacognitive reading strategies.

On the one hand, the first taxonomy, from Mushait (2003), was based on the work of Anderson (1991), Block (1992), and Pritchard, (1990). He classified strategies into three groups: word-solving, text-related, and metacognitive strategies. Word-solving strategies refer to strategies used by the reader to understand meanings of unknown vocabulary in order to help comprehension of the text. Text-related strategies refer to strategies used to understand larger units than words (i.e., sentences, paragraphs). Metacognitive strategies involve purposeful

strategies such as thinking, planning, arranging, self-evaluation, and assessing reading (Oxford, 1990).

On the other hand, Mokhtari and Sheorey (2002) developed a well-known inventory, Survey of Reading Strategies (SORS) to examine frequency and types of reading strategies employed by L2 adult students when reading English articles. Thirty items that probe three categories of reading strategies are used in the SORS inventory, which include: problem-solving, global reading, and support strategies. Global strategies relate to planning the reading process and comprehension monitoring. Problem-solving strategies are mechanisms used when engaging with the more advanced and difficult parts of a text. The devices and techniques used to support the comprehension of reading texts are referred to as support strategies.

In the current study, strategies in Mushait (2003) and Mokhtari and Sheorey (2002) and their classification were followed to code and analyse reading strategies use. This enabled the researcher to firstly investigate whether the proposed methodology for teaching metaphoric expressions affected the types of strategies used by L2 readers, as well as how this may have differed between higher and lower proficiency students. Additionally, this was helpful because both taxonomies looked at strategies from different perspectives. For example, using Mushait's classification allowed the researcher to look at word-related strategies and text-related strategies. Conversely, Mokhtari's taxonomy allowed the researcher to look at problem-solving and support strategies. Consequently, as both taxonomies covered strategies used across a wide range of activities involved in reading comprehension, they allowed for analysis to be made of multiple facets of the participants' use of reading strategies.

In addition, it was also interesting to know how learners in both groups and with different proficiency levels went about understanding metaphoric expressions (taught and untaught). To do so, the researcher surveyed much previous research on figurative language theories (Carston, 2010; Gibbs, 2001; McGlone, 1996) and metaphor interpretation strategies (Cameron, 2003; Ifantidou & Hatzidaki, 2019; Khoshhal & Hassasskhah, 2017; Littlemore, 2002, 2004; Peleg et al., 2001). Metaphor interpretation strategies for the current study were adapted from Littlemore's work (2002, 2004) which were based on a number of metaphor interpretation theories and experimental findings and covered different strategies L2 readers used to understand taught and novel metaphoric expressions.

Therefore, the taxonomy for the current study included 1- reading comprehension strategies, including problem-solving strategies, global reading strategies, and support strategies, and 2- metaphor comprehension strategies, including strategies students used to understand taught and untaught metaphoric expressions and word-related strategies. The metaphor interpretation strategies were based on the word-related strategies (the term used by Mushait (2003)). This was because in vocabulary and metaphor studies, metaphors effectively function as one lexical item and can be considered as multi-word items (Boers et al, 2008). For instance, students in the current study used *paraphrasing*, *translation*, *difficulty identification*, *skip* or *give-up* to comprehend metaphoric expressions.

After preparing the list of strategies from the aforementioned taxonomies, irrelevant strategies and strategies that were not used by the participants in this study were deleted, e.g., *checking how text content fits purpose of reading*, *discussing reading text with others*, *using text features (e.g., tables)*, and *previewing*. Moreover, Mokhtari and Sheorey (2002) had *confirming understanding* where Mushait (2003) had *confirming or correcting previous understanding*. In the current study, these were referred to as *comprehension monitoring* which was used for any instance where the student evaluated or verified their comprehension and corrected any errors in understanding.

Similarly, *guessing the text meaning* was referred to as *guessing* by Mokhtari and Sheorey (2002) and as *hypothesising text meaning* by Mushait (2003). The researcher decided to develop a fuller and more precise definition of *guessing*: used when the student shows no understanding of the meaning of the text, does not draw on any clues or provide evidence for the interpretation. If the student tries to give possible interpretations and answers, this is considered as *hypothesis formation* (i.e., suggests a possible interpretation of meaning). Thus, the *confirming predictions* strategy that appeared in both taxonomies was referred to as *hypothesis monitoring* in the current study, which was defined as “checks whether hypothesis is verified or contradicted by text or subsequent information”.

Additionally, *marking the text*, *underlining*, *circling*, and *taking notes* were all grouped under *support reading* strategies as the latter was used to refer to the strategies used by the reader to help remember the text while reading in Mokhtari and Sheorey’ taxonomy (2002). Moreover, *using prior knowledge* was defined broadly in Mokhtari and Sheorey (2002) as activating and

using prior knowledge to interpret the text. However, Mushait (2003) broke background knowledge down into different strategies including *relating to previous knowledge of content*, *relating to cultural knowledge*, *relating to knowledge of formal schemata*, and *relating to personal experience* strategies. This division was adapted in the current study as it would help understanding if using a certain kind of prior knowledge facilitated students' reading comprehension. However, since there was not enough data which showed the students' use of *prior formal schemata knowledge*, this strategy was excluded. Moreover, a new type of background knowledge strategy arose from the data and was added to the taxonomy, i.e., *metalinguistic knowledge*. In this study, metalinguistic knowledge was defined precisely as the student's knowledge of the nature of languages in the sense that how languages are capable of expressing meaning beyond surface meanings and how words can be metaphorical.

Moreover, Mushait (2003) differentiated between three kinds of *questioning*; *questioning 1* (to express insufficient information), *questioning 2* (to express disagreement), and *questioning 3* (to express lack of understanding). However, not enough data showed the occurrence of the first two in the current study. Instead, in this study, instances of *questioning* were used as part of *comprehension monitoring* as a way to self-question understanding. Thus, the current study included the *self-questioning* strategy proposed by Mokhtari and Sheorey (2002) as a form of *comprehension monitoring and evaluation*.

It is also worth mentioning that there were slightly overlapping strategies in the metaphor interpretation strategies. For instance, *literal interpretation of the metaphoric expression* and *plausible interpretations of metaphoric expression*. The researcher decided which code to use depending on what the student explained in their statements. If the student interpreted the metaphoric expression literally and did not suggest or think of other possible meanings, then it was considered as *literal interpretation of the expression*. For instance, CS2LSG said "It (*at a crossroad*) is that he was crossing the street and had to decide where to continue his way". The student chose the literal meaning of the expressions as the meaning she understood. However, if the student showed evidence of rejecting the literal meaning by questioning whether this literal meaning fitted the given context, this was considered as part of her *plausible interpretations*. An example of this is shown in the following quotation by IS2HBG: "first, I understood that she was climbing up a ladder, then I said there is no ladder here, I said there must be another meaning".

Moreover, to differentiate between *source domain inferencing* and *analogy exploring between domains*, the following application of codes was followed. If the student tried to think of the features and associations of the source domain, the instance was counted as *source domain inferencing*, regardless of subsequent analogy and similarities searching between domains. For instance, IS2HSG said “climbing means you are trying and want to keep trying to go up and reach you goal, and you do not give up”. In this sentence, the student tried to think of the salient features of the activity of climbing which usually needs trying and making efforts to ascend a hill or a staircase. By contrast, if the student started to apply associated words to the context of the text to encode the meaning of the metaphoric expression and try to find similarities between them, this was coded as *analogy exploring*. For instance, IS1HBG mentioned “climbing means you try to go up and reach there, the sentence says job, I thought it meant that she wants to develop in her job and became something”. In this quote, the student thought of how the concept of climbing a ladder could be similar to a career and applied the idea of going up to reach something to the idea of attaining progressively higher positions in one’s working career to reach success.

After that, the researcher identified initial codes using the comment function in Microsoft Word 2017, using codes both from the data and from the list prepared based on previous studies and in relation to six randomly chosen transcripts (40% of the total transcripts from the interviews). Those transcripts were explored in detail and each meaningful instance relating to a strategy was highlighted. These were then labeled using codes from previous research in the field (Littlemore, 2002; Mokhtari & Sheorey, 2002; Mushait, 2003). The instances which were not previously coded were labeled as a new code and these were then given names and definitions. Subsequently, an initial code book included names, definitions, and an example for each strategy was created. The validity and reliability of the analysis of the second part of the interviews were checked following the same procedures as those followed for the first part of the interviews (Section 4.7.2.1.1). First, to strengthen validity, the code book was given to an expert to evaluate the codes and definitions’ correctness. This coding was then applied to each of the 16 interviews, and the frequencies of each strategy were calculated. To confirm reliability, a colleague researcher who is fluent in both Arabic and English reviewed them. Then, inter-coder reliability was calculated, and the result was 92.34%. Whenever there were differences in the coding, the

researcher and the coder met to discuss and resolve the differences. The final code book including names, definitions, and an example for each strategy is given in Appendix I.

4.8 Reliability and Validity

It is important to ensure that research instruments are valid and reliable in order to minimize measurement error (Field, 2013). Thomas (2017) argued that construct validity is “the degree to which the instrument measures what it is supposed to be measuring” (p. 146). Within the context of qualitative research, validity is the appropriateness and accuracy of the procedures, instruments, and data (Leung, 2015), and is recognised as clearly and accurately presenting participants’ perspectives. For quantitative research, validity means how accurately the findings reflect the data. Reliability, on the other hand, implies consistency of research measurements. Reliability ensures the research is repeatable; if a different researcher conducts the same study in a different setting, the outcomes should be the same (Drost, 2011). Three forms of consistency can be considered in relation to reliability: reliability of the assessor; measuring instruments; and test-retest (Brown & Knight, 1994). In the context of quantitative research, reliability determines the replicability of the results and processes (Leung, 2015). In qualitative research, the essence of reliability is consistency (Leung, 2015), which implies consistency of measurement or stability of measurement in a variety of conditions (Drost, 2011).

Validity and reliability are closely interlinked. Thus, it was imperative to closely examine the present study’s research design and to carefully eliminate potential threats to internal validity in order to ensure reliability. A range of procedures were taken throughout the preparation phase of the study to ensure that validity and reliability were maintained. First, all pre- and post-tests were similar in the number and types of questions included to ensure internal consistency, and the equivalence of test forms. Moreover, all the sentences and reading passages used in the metaphor understanding and reading comprehension tests were carefully selected and checked for authenticity using BNC and were reviewed by four native speakers and modified accordingly (discussed in Sections 4.5.3.1 and 4.5.3.2).

A pilot study was also done to assess all the research instruments and to make any modifications accordingly. To achieve content validity, the present study drew on varied types of metaphoric expressions (verbs, phrases, lexical phrases, idioms) that fit within different

conceptual metaphors (Section 4.5.3.4.1). Also, the researcher, a teacher at the same institution, ensured that the interventional teaching materials and tests were similar to what the learners used in their L2 classrooms. This increased content and face validity as the learners were able to perceive a connection between the research instruments and their educational language activities, and thus were more likely to take the intervention seriously (Mackey & Gass, 2005). Also, the teaching sessions and tests were administered in the participants' original classrooms to minimise disruption, and participants were informed that the test results would be used for research purposes only.

Finally, special steps were taken to ensure validity and reliability of the qualitative data obtained from the stimulated recall interviews. The interviews were conducted as a final stage after all interventional teaching sessions and tests were complete (at the end of the data collection phase). The participants had already met the researcher several times during previous stages of the research, which was an important factor in helping to build rapport for the interviews. The students were given the opportunity at the beginning of the interview to go through their tests with the researcher in order to aid their memory. The interview started immediately after the prompt.

4.9 Ethical Issues

In research projects that involve human participants, the researcher is expected to conform to general ethical guidelines in order to protect the welfare of these subjects (Creswell, 2013). First and foremost, it is important to respect the rights of those participating in the study and to ensure that their safety is not in any way jeopardised by the study (Cohen et al., 2011). Therefore, this project conforms to the ethical procedures and requirements of: University of Reading (UoR) and the Saudi University where the study was conducted. As a first step, prior to the study, formal processes had to be followed and a request for study ethics permission was made to the Institute of Education Research Ethics Committee, UoR. Ethical approval was received, and a copy is presented in Appendix G. The Head of the Department in the Saudi University was asked for her approval, and it was granted.

Strict anonymity was maintained throughout this study, with no identifying details being used. Prior to the main study, information sheets and consent forms in Arabic and English were

given to the Head of Department and students (see Appendix G). The participants were fully informed of the purpose of this research, asked to read the information sheets, and to sign the consent forms before the intervention began. Students were informed that, by taking part, they were consenting to participate in the research. Furthermore, students and the Head of Department were reassured that participation in the study would not affect students' grades. This was stated explicitly in the information sheets and consent forms and discussed with the students, as there could be concern how their performance in the study would affect their grades. It was also confirmed consistently that participation in the study was completely voluntary, and that they had the right to withdraw from the study at any time without repercussions. Students were told they could choose to withdraw at any stage, either during the research or after data collection has ended, and that their data would be discarded.

As some participants were invited to participate in an audio-recorded interview, they were requested to check a box in the consent form to show their agreement after reading and understanding the information sheet. Participant confidentiality and all relevant research data were well protected throughout the entire process. These participants were informed that the recording would be stored on a password-protected computer and destroyed at the end of the project. The recordings were transcribed by the researcher and students' personal details were anonymised in all transcripts.

Finally, it is worth commenting on the risks associated with the researcher also being the teacher, which was mitigated by each student remaining anonymous, being identified only through a number (coded). It is also important to mention that the position of the researcher as a teacher within the university was not in any way used to coerce students to take part in the study or to manipulate their responses. Moreover, one issue could be related to the Hawthorne effect, where students might have felt obliged to be positive about the intervention, as the researcher was a teacher in the same institute. However, to minimise this effect, the researcher assured the students several times that their honesty is what matters most, and will be the biggest help to the research, and that their responses will remain confidential, and will not in any way be viewed by, or discussed with, their main teachers, or anyone else.

CHAPTER FIVE: ANALYSIS OF QUANTITATIVE DATA

5.1 Introduction

The data collection phase of the present study lasted three months. Before, during, and after the intervention, quantitative data from 210 students across eight L2 classes in a Saudi university were collected. Prior to the intervention, the students took English placement tests upon their acceptance to the university. In the experimental study, the students were asked to take six metaphor understanding tests: two metaphor understanding pre-tests, two metaphor understanding immediate post-tests, and two metaphor understanding 2-week delayed post-tests. In addition, they took four reading comprehension tests: a reading comprehension pre-test, two reading comprehension immediate post-tests, and a reading comprehension 2-week delayed post-test. All immediate post-tests were taken straight after each of the two teaching sessions. This chapter presents the quantitative data from the experimental study while the primary insights extracted from the analysis of this quantitative data are examined in relation to the main RQs.

5.2 Restating the Research Questions (RQs)

RQ1: What is the impact of conceptual metaphor teaching on Saudi L2 learners' reading comprehension compared to traditional teaching (semantic explanations, comparison group)?

RQ2: To what extent can learners transfer their knowledge to untaught metaphoric expressions that they encounter during reading comprehension (i) within the taught conceptual metaphors, and (ii) within new conceptual metaphors?

RQ3: To what extent does teaching metaphoric expressions through conceptual metaphors allow learners firstly to learn, and secondly to retain such metaphoric expressions?

RQ4: What are the learners' perceptions of the teaching method they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

5.3 Assessing the Reliability of the Tests

Verifying that each quantitative test employed in the present study is reliable was an essential step. The goal was to ensure that all components employed in a particular instrument were consistent and measuring the same aspects (George & Mallery, 2012), and to ensure that comparable results are obtained when the test is repeated under similar conditions and by similar participants (Bordens & Abbott, 2014). One method of testing reliability is to see if all items in a test are internally consistent, which can be determined by employing Cronbach's alpha (Cronbach, 1951) which analyses the correlations between items in a research instrument (Taber, 2018). Cronbach's alpha is often regarded to be "one of the most important and pervasive statistics in research involving test construction and use" (Cortina, 1993, p. 98). As such, the role of Cronbach's alpha within measurements involving many items is now regarded as "routine" (Schmitt, 1996, p. 350).

For the tests employed in this study, Cronbach's alpha was determined by calculating all the variable-related items of every test in SPSS. The internal consistency of the metaphor understanding and the reading comprehension tests was determined at each of the three different time points: pre-, immediate post-, and 2-week delayed post-tests. Tables 5.1. and 5.2 present the internal reliability findings of the metaphor and reading tests at these three different time points.

Each reading comprehension test included 14 multiple-choice questions: four general comprehension questions and ten metaphor comprehension questions. Therefore, the whole test's internal reliability, in addition to that of each section, was calculated. As shown in Table 5.2, the lowest values of Cronbach's alpha were .567 and .521 for the reading immediate post-tests for the comparison group. However, this was not considered problematic as the results for the same tests were acceptable and good, .712 and .803 for the experimental group, and they were acceptable, .706 and .768 for the experimental and comparison groups combined. The remaining tests had acceptable to good levels of internal consistency, ranging from .706 to .893 (Rovai et al., 2012).

Table 5.1*Reading Comprehension Tests' Cronbach's Alpha for Intervention and Comparison Groups*

Test	Section	No. of questions	Group	Pre-test	Immediate post-test	Delayed post-test
Reading comprehension	All	14	Intervention	.671	.712 (A) .803 (B)	.781
			Comparison	.696	.567 (A) .521 (B)	.827
			All	.688	.706(A) .768(B)	.858
	General comprehension questions	4	Intervention	.632	.598 (A) .612 (B)	.587
			Comparison	.618	.764 (A) .608 (B)	.607
			All	.731	.886 (A) .892 (B)	.832
	Metaphor comprehension questions	10	Intervention	.672	.740 (A) .742(B)	.746
			Comparison	.678	.732 (A) .631 (B)	.763
			All	.764	.889 (A) .893 (B)	.856

In relation to the three metaphor understanding tests consisted of 40 multiple-choice questions, the test score for each question was calculated for each participant in the main study. To test the reliability, each question was treated as an individual test item and the participants' scores were entered into SPSS as 40 separate variables (Table 5.2).

Table 5.2*Metaphor Understanding Tests' Cronbach's Alpha for Intervention and Comparison Groups*

Test	Intervention group	Comparison group	All groups
Pre-test	.700	.727	.704
Immediate post-test	.883	.690	.807
Delayed post-test	.826	.717	.858

As shown in Table 5.2, Cronbach's alpha values were generally acceptable and good (>0.70), ranging from .700 to .858 for the metaphor tests in the two groups (separate and combined) at the three time periods. However, the alpha level for the comparison group at the immediate post-test was relatively low .690 compared to the other tests. This was not considered problematic as the results were very close to the acceptable value of .70 while all other values were over the arbitrary cut-off of .7. Furthermore, several authors in educational research (Dörnyei & Taguchi, 2010) have supported the notion of accepting a Cronbach's alpha score that is less than .7 in certain circumstances. Nevertheless, it is imperative that the lower alphas be considered when interpreting the findings.

5.4 Normality of Distribution

Normality of distribution should be used as a measure to determine the suitability of the statistical test for quantitative analysis. The normality of distribution assumption posits that points of data for all variables must spread around the centre of all marks in a symmetrical or bell-shaped curve. Normality of distribution can be checked through the Kurtosis and Skewness values; tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk); and graphical measures, such as histograms and Q-Q plots (Pallant, 2016). It is worth mentioning that data do not have to be normally distributed in a perfect manner but should not deviate considerably from a normal distribution (Field, 2018).

Tests of normality, including Kolmogorov-Smirnov and Shapiro-Wilk, are commonly used to check the data distribution of whose means and standard deviations are the same (Field,

2018). The p -value of the normality test needs to be greater than .05 to indicate the normality of the data. The acceptable values for Kurtosis are within the range of -2 and +2 to show that the distribution of univariate is normal, whereas Skewness should be between -0.5 and +0.5 (George & Mallery, 2010). However, the use of these tests is not always accurate because, as claimed by Field (2018) “in large samples they can be significant even for small and unimportant effects, and in small samples they will lack power to detect violations of assumptions” (p. 248). Thus, in addition to these tests, it is beneficial to conduct other measurements as histograms for determining the data distribution more accurately.

In this study, the Kolmogorov-Smirnov test of normality reached significance ($p < .05$), indicating that the data were not normally distributed (given in Appendix J). However, Kurtosis and Skewness were within the acceptable threshold while histograms and Q-Q plots illustrated that there was a reasonable symmetry to the data. Additionally, the Central Limit Theorem claims that when the sample size increases, the likelihood that the data will be distributed normally increases (Field, 2013). In this respect, the size of the sample can have an effect on the data distribution, and in some cases, it may be the reason for a data distribution pattern that is not normal (Field, 2013). In this study, the number of participants was 210, and although this is not a small sample, it is extracted from a much larger target group. Therefore, it is assumed that the sample represents a wider population and that more participants would result in a more normally distributed set of data (Woods et al., 1986). Because of all the reasons discussed, the decision was taken to use parametric tests.

Boxplots were generated to evaluate the outliers (Figures 5.1-5.5). Although there were outliers in most tests, it was decided not to delete them for several reasons. First, outliers are not invalid data. Hence, they cannot be removed from the data just because they do not meet a statistical test assumption (Faraway, 2015). Most importantly, the experimental study of the present thesis was conducted in a real context and therefore individual variations between participants were reflective of the differences between students in real classrooms.

Figure 5.1

All Reading Test Scores Boxplots for Intervention and Comparison groups at Pre, Immediate Post-, and Delayed Post-test)

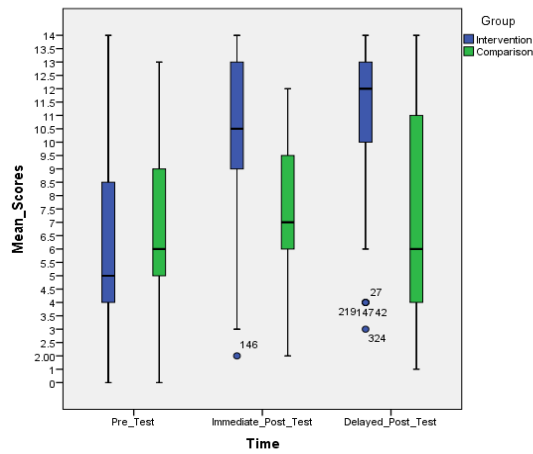


Figure 5.2

General Comprehension Scores Boxplots for Comparison and Intervention Groups at Pre, Immediate Post-, and Delayed Post-tests

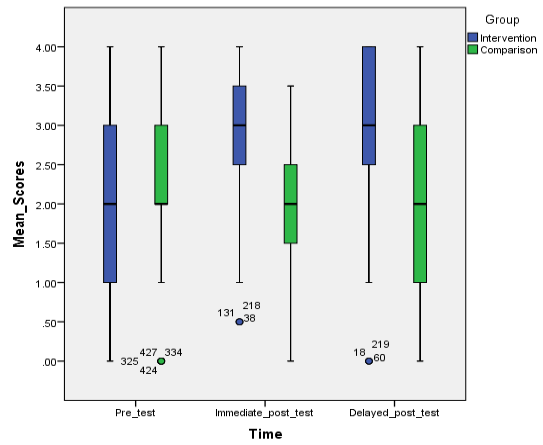


Figure 5.3

Metaphor comprehension Scores Boxplots for Comparison and Intervention Groups at Pre-, Immediate Post-, and Delayed Post-tests

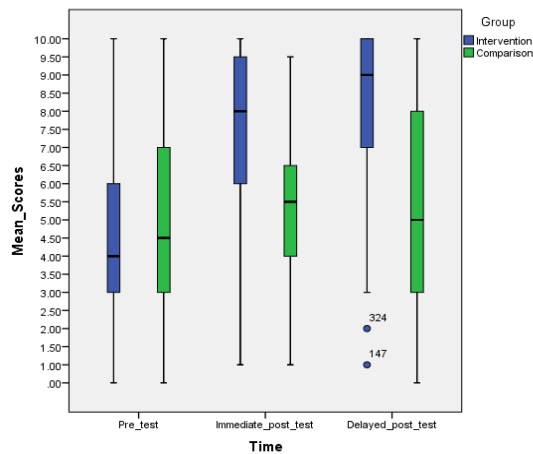


Figure 5.4

Taught and Untaught Scores Boxplots for Intervention and Comparison Groups (Immediate Post-tests)

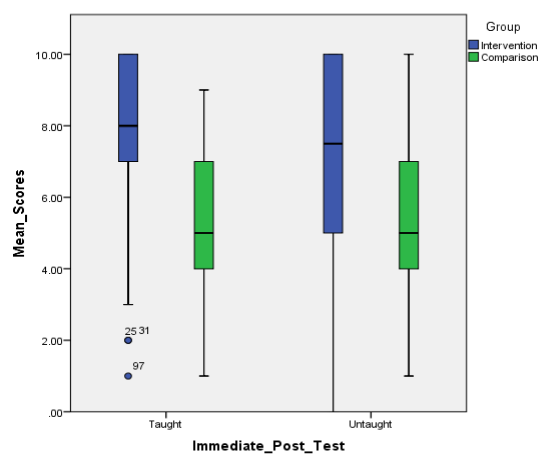
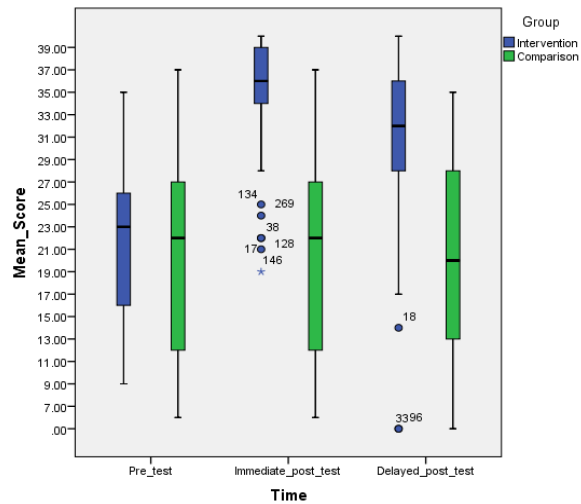


Figure 5.5

Metaphor Understanding Scores Boxplots for Intervention and Comparison groups (Pre-, Immediate Post-, Delayed Post-tests)



5.5 Homogeneity of Variance

Homogeneity of variance assumes that the variance should be the same for all comparison groups. Therefore, the dependent variable variance and covariance should be homogeneous for the between-participants factor between the groups (Pallant, 2016). It is important that each group's data are distributed in rounds roughly in the same manner around the mean. Using SPSS, Levene's test can be used to assess a dataset's homogeneity of variance. Significant results ($p < .05$) indicate that the groups did not have equal variance. SPSS also calculates Box's M test to reveal if there were variations between groups in the covariance matrices for the dependent variables. The covariance matrices are equal if the result is not significant.

The homogeneity of variance test results for both the comparison and intervention groups are presented, including the variables assessed in the present study (given in Appendix J). For most of the tests, e.g., metaphor understanding pre-test, reading pre-test, reading immediate post-test, and parts of the tests, e.g., general comprehension in reading immediate post-test, metaphor

comprehension in reading delayed post-test, taught expressions in reading immediate post-test, and untaught in reading immediate post-test, the homogeneity assumption was satisfied. Therefore, the equality of that the variance between the comparison and intervention groups was demonstrated. However, some of the other tests and parts of tests violated the assumption ($p < .05$), indicating that intervention and comparison groups had unequal variance on these tests. Additionally, Box's M test was significant ($p < .05$) in all tests. The assumptions of homogeneity of variance and of covariance are partially violated in this study which needs to be taken into consideration when interpreting the findings that follow.

5.6 Selection of Tests

The selection of tests to statistically analyse the quantitative data is based on both the nature of the research questions (structure, differences between groups, and relationships) and collected data type (Pallant, 2016). Since the present study explored differences between two groups: comparison and intervention groups at three tests time points: pre-, immediate post-, and 2-week delayed post-tests for the dependent variables of students' reading comprehension, general comprehension of the reading texts, comprehension of metaphoric expressions in the reading texts, metaphor learning, and metaphor retention, mixed ANOVA tests were employed with *post hoc* comparisons using SPSS syntax. Mixed ANOVA tests involve repeated measures of ANOVA which examine mean differences between groups on two independent variables: 1) a within-participants factor (related groups, such as time), and 2) a between-participants factor (dependent groups) (Field, 2013). To employ mixed ANOVA, a number of assumptions should be met. These include if the data are normally distributed with no significant outliers and if the dependent variables are assessed on a continuous level. The assumptions also include that the between-participants factor's variance and covariance of the dependent variable are homogeneous across the groups (Pallant, 2016). For this study, the assumption of normality and the existence of outliers were assumed and justified in Section 5.4. The study design and measurements met the second assumption. Section 5.5 also discussed the homogeneity of variance.

Mixed ANOVA tests allow the investigation of two independent variables, single and dual effects, on a dependent variable. In the current study, the two dependent variables time and

group, and the interaction between them regarding every dependent variable identified, were explored. The study also sought to investigate students' ability to transfer their learned knowledge to new, untaught metaphors. Therefore, a two-way mixed ANOVA was performed, determining differences of means between the comparison and the intervention groups on scores for taught and untaught expressions in the two reading immediate post-tests and to compare between taught and untaught metaphoric expressions within each group.

In addition, sphericity, which is a measure of the extent to which the variations between the variances of an individual learner's data are equal should also be checked. Sphericity can be estimated using Mauchly's Test of Sphericity. If the test is significant ($p < .001$), it violates the assumption of sphericity. For mixed ANOVA tests in this study, results of sphericity were significant, and the Epsilon values were greater than 0.75. As such, a Huynh-Feldt correction was employed to declare the violation more robust (Field, 2018) and all mixed ANOVA results were based on Huynh-Feldt estimates.

For further analysis, other mixed ANOVA (ANCOVA) tests were conducted with the proficiency test score as a covariate. The use of a covariate reduces within-group error variance and helps to control for a variable that could be confounding the results of the intervention (Field, 2018). Firstly, one assumption of ANCOVA is that the covariate is independent, and the intervention has no impact on it. For this study, the covariate (the proficiency test) was assessed prior to the implementation of the intervention. Secondly, another assumption is the homogeneity of the regression slopes. That is, for both groups, there should be a comparable relation between the dependent variable and the covariate (Field, 2018). Data in this study met the assumption of the homogeneity of regression slopes ($p < .05$). In addition, the homogeneity of variance and covariance were partially met. It is important to note that both the mixed ANOVA and the ANCOVA showed similar results, with and without the covariate. Therefore, only the results of the mixed ANOVAs without the covariate are presented here.

It is recommended to measure and report the effect size (Field, 2018; Plonsky & Oswald, 2014) to offer deeper insights into the effectiveness of an intervention. For mixed ANOVA results, full eta-squared (η^2), also called the squared correlation ration (r^2), and partial eta-squared (η_p^2) were calculated and reported (Norouzian & Plonsky, 2017). The researcher depended on Plonsky and Oswald's (2014) values as a benchmark. The eta squared (equivalent

to r) values were interpreted as follows: .25 is small, .40 is medium, and .60 is large. Also, the following values were used for Cohen's d : .40 is small, .70 is medium, and 1.00 is large for comparisons between participants, and .60 is small, .70 is medium, 1.40 is large for comparisons within participants (Plonsky & Oswald, 2014). Benchmarks by Plonsky and Oswald (2014) which are based on empirical data are suitable for L2 experimental studies. This benchmark system, used by linguistics researchers, "provides more nuanced guidance in interpreting the effect size in question than Cohen's system" (Wei et al., 2019, p.3). The strength of benchmarks by Plonsky and Oswald (2014), as stated by Wei, et al. (2019) lies in the fact that they are better able to evaluate effect sizes by locating them within a broader relevant context, which includes: the nature of the study, sample size, study design and comparisons of the measurements with those from earlier studies, as well as by assessing results the practical relevance. In the present study, the benchmarks were used for both time comparisons of each participant (within-participants comparisons) and for comparisons between both groups at each time point (between-participants comparisons). Furthermore, for determining the validity of effect sizes, it is encouraged to calculate the 95% confidence interval to determine "the true value" of mean effect sizes (Pallant, 2016, p. 139). In this study, the 95% confidence intervals were presented and the confidence intervals that did not cross zero were considered to be trustworthy indications of a true effect extracted from the data collected (Plonsky & Oswald, 2014). The following sections discuss the findings from the quantitative data analyses that were employed to address the present study research questions.

5.7 Results Related to the Research Questions

5.7.1 RQ1: What Is the Impact of Conceptual Metaphor Teaching on Saudi L2 Learners' Reading Comprehension Compared to Traditional Teaching (Semantic Explanations, Comparison Group)?

Quantitative data collected from the reading comprehension tests (pre-, immediate post-, and 2-week delayed post-tests) from the intervention and comparison groups were submitted to statistical tests in SPSS (Version 25) to answer RQ1. First, descriptive statistics for the reading pre-, immediate post-, and 2-week delayed post-tests were generated for the intervention and comparison groups, which are presented in Table 5.3. A two-way mixed ANOVA was run in

which group was the between-participants factor, time was the within-participants factor, and reading score was the dependent variable. It is worth mentioning that there were two immediate reading post-tests: one test delivered after each teaching session. An average score across these two tests was used since the tests' internal consistency was good. The maximum score a student could gain in the reading tests was 14.

Table 5.3

Reading Comprehension Tests Descriptive Statistics

Group	Pre-test				Immediate Post-test				Delayed Post-test			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Intervention	6.01	2.99	0	14	10.44	2.84	2	14	11.07	2.76	3	14
Comparison	6.80	2.95	0	13	7.34	2.44	2	12	7.07	3.84	1	14
Total	6.40	2.99	0	14	8.94	3.07	2	14	9.13	3.88	1	14

As illustrated in Table 5.3, the mean scores of the comparison and intervention groups were similar at the pre-test. However, at the immediate post-test, the mean of the intervention group increased by 4.43 while the comparison group increased by only 0.54. Similarly, the difference in mean scores between the pre- and delayed post-test for the intervention group was 5.06 while the difference for the comparison group was only 0.27. Concerning the intervention group, the difference between the immediate post- and the delayed post-test was -0.63, while the difference was 0.27 for the comparison group. After combining the mean of all the students, increases of 2.54, 2.73, and 0.19 were found for pre- to immediate post-test, pre- to delayed post-test, and immediate post- to delayed post-test, respectively. From these descriptive statistics, it could be inferred that by the end of the study, there were discrepancies in the performance of the comparison and intervention groups. However, to determine the significance of these differences, and to question the extent to which these differences were attributable to the impact of the metaphor instruction, a two-way mixed ANOVA was used.

Results of the mixed ANOVA indicated the significant main effect of time where post-test scores were higher than pre-test's: $F(1.8, 38) = 107.47, p < .001, \eta_p^2 = .41, \eta^2 = 0.55$, with a

medium effect size. Group also had a statistically significant main effect where the intervention group outperformed the comparison group: $F(1, 208) = 38.05, p < .001, \eta_p^2 = .16, \eta^2 = 0.34$, with a small effect size. Furthermore, the effect of the interaction between group and time was statistically significant: $F(1.8, 38) = 78.76, p < .001, \eta_p^2 = .36, \eta^2 = 0.45$, and the effect size was medium, which indicates that the two groups differed in their progress across the different test time points. To further investigate this interaction, follow-up *post hoc* pairwise comparisons were performed. Results showed that the difference between the two groups at the pre-test was not significant: $p = .056, d = 0.27, 95\% \text{ CI} [-0.014, 1.603]$ and the effect size was small. However, at the immediate post-test, the differences between the groups were significant where the intervention group outperformed the comparison group ($M = 3.09, p < .001, d = 1.20, 95\% \text{ CI} [2.37, 3.81]$), with a large effect size. Furthermore, at the delayed post-test, the difference between the two groups remained significant where the intervention group outperformed the comparison group ($M = 4.00, p < .001, d = 1.20, 95\% \text{ CI} [3.09, 4.91]$), with a large effect size.

In addition to the results reported above, from the pre-test to the immediate post-test, the intervention group presented a significant improvement ($M = 4.43, p < .001, d = 1.52, 95\% \text{ CI} [3.71, 5.14]$), where the effect size was large. Moreover, significant progress was made by the intervention group from the pre-test to the delayed post-test ($M = 5.06, p < .001, d = 1.76, 95\% \text{ CI} [4.31, 5.81]$), with a very large effect size. This improvement made by the intervention group was manifested in the large effect sizes, and in addition, the confidence intervals did not cross zero, thus indicating the reliability of these effects. Additionally, the intervention group made significant progress from the immediate post- to the delayed post-test ($M = .63, p < .001, d = 0.23, 95\% \text{ CI} [.06, 1.20]$), with a small effect size. In contrast, the comparison group did not experience significant progress from the pre- to the immediate post-test ($M = .53, p = .23, d = 0.20, 95\% \text{ CI} [-.19, 1.27]$), where the effect size was small. Additionally, within the comparison group, the difference between the immediate post- and the delayed post-test was not significant ($M = .26, p = 1.00, d = 0.09, 95\% \text{ CI} [-.50, 1.03]$), with a very small effect size. All changes in the comparison group were very small and the 95% confidence interval crossed zero.

Figure 5.6

Mean Reading Test Scores for Intervention and Comparison Groups at Pre-, Immediate Post, and Delayed Post-Test

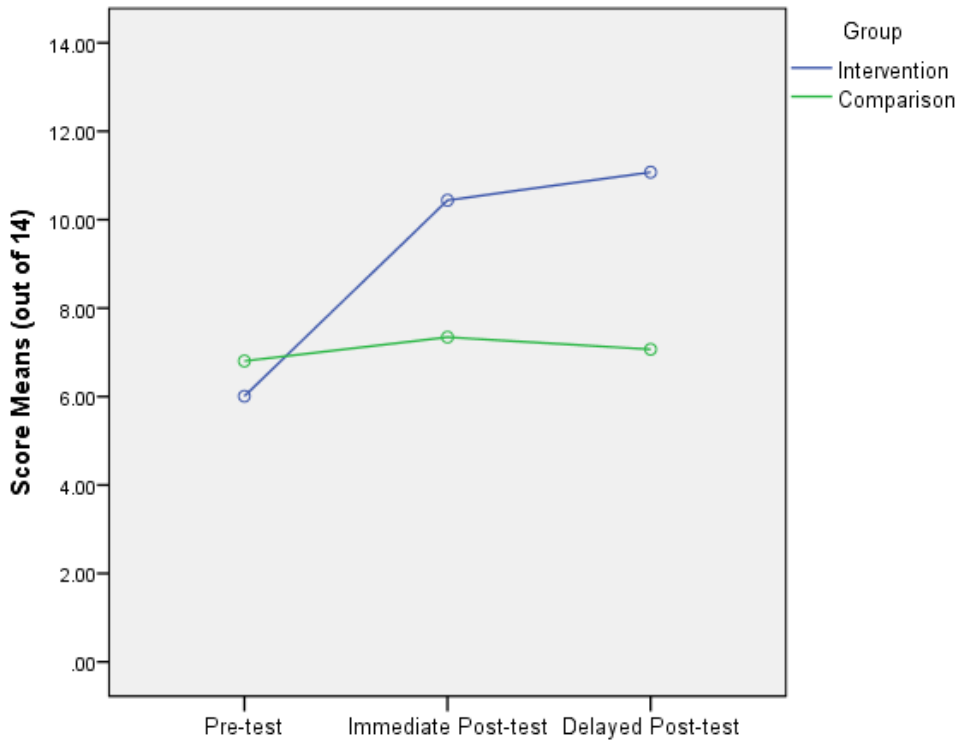


Figure 5.6 presents the differences in the two groups' performance in the reading comprehension test at the pre-, immediate post-, and delayed post-tests. The figure illustrates that while the intervention group's mean scores improved over time and even increased at the delayed post-test, the comparison group's means did not show improvement and even declined at the delayed post-test.

To conclude, there is sufficient empirical evidence to support the notion that conceptual metaphor teaching had a beneficial effect on the students' performance in reading comprehension tests. The improvement in the intervention group was evident in the large effect sizes and that confidence intervals did not cross zero, implying the reliability of the effects. Learners in the comparison group who received the semantic explanation teaching slightly improved in the reading comprehension tests, although the results did not reach significance. The

observed change was very small and the 95% confidence interval crossed zero indicating the insignificance of the change.

5.7.1.1 The Impact of the Intervention on (i) Learners’ General Comprehension of the Reading Texts and on (ii) The Comprehension of Metaphoric Expressions in the Reading Texts

Section 4.5.3.2 explained that the reading test included two sections: four general comprehension questions and ten metaphor comprehension questions. The score of each participant for the two sections were calculated separately for each of the reading tests: pre-, immediate post-, and delayed post-test. The following section presents the results of these two sections in the reading comprehension tests.

5.7.1.1.1 The impact of conceptual metaphor teaching on learners’ general comprehension of reading texts?

As a first step, descriptive statistics of the mean values of the general comprehension scores for the pre-, immediate post-, and delayed post-tests were generated (Table 5.4). It is worth mentioning that the immediate post-test score is an average calculated score based on the responses to the two immediate post-tests. The maximum score is 4.

Table 5.4

Descriptive Statistical Data for General Comprehension Scores in the Reading Tests

Group	Pre-test				Immediate post-test				Delayed post-test			
	Mean	<i>SD</i>	Min	Max	Mean	<i>SD</i>	Min	Max	Mean	<i>SD</i>	Min	Max
Intervention	1.82	1.25	0	4	2.92	.91	0	4	3.12	1.05	0	4
Comparison	2.12	.95	0	4	2.09	.80	0	4	1.84	1.34	0	4
Total	1.97	1.12	0	4	2.52	.95	0	4	2.50	1.35	0	4

As shown in Table 5.4, the descriptive statistics demonstrate that when comparing between groups, the intervention group had a lower mean score at the pre-test than the

comparison group. However, the intervention group's score improved by 1.1 at the immediate post-test, whereas the comparison group's score decreased by 0.03. The intervention group's score continued to increase at the 2-week delayed post-test by 1.3 whereas the comparison group's score decreased by 0.28, compared to the pre-test. When compared to the immediate post-test, the score of the intervention group increased by 0.2 at the delayed post-test. In contrast, the comparison group's score declined slightly by 0.02. When looking at all the participants together, the mean scores also showed small increases from pre- to immediate post-test as well as from pre- to delayed post-test of 0.55 and 0.53, respectively. In addition, a very small immediate post- to delayed post-test decrease of 0.02 was found across all participants. Therefore, it can be inferred from these findings that the performance of the comparison and intervention groups differed as a result of the study. Whether these differences were significant, and whether they were attributable to the impact of the metaphor instruction needed further exploration.

To measure the specific impact of conceptual metaphor teaching on learners' general comprehension of reading texts, a two-way mixed ANOVA was used: the within-participants factor was time while the between-participants factor was group, and the general comprehension questions score was the dependent variable. The results of the two-way mixed ANOVA indicated a significant main effect of time where post-test scores were higher than pre-test's: $F(1, 395) = 21.84, p < .001, \eta_p^2 = 0.11, \eta^2 = 0.09$, with a small effect size. Results also showed that the group had a significant main effect where the intervention group outperformed the comparison group: $F(1, 208) = 33.12, p < .001, \eta_p^2 = .137, \eta^2 = 0.15$, with a small effect size. Furthermore, a statistically significant effect of the interaction of time and group was found: $F(1, 395) = 40.04, p < .001, \eta_p^2 = 0.23, \eta^2 = 0.21$, albeit with a small effect size, indicating that the ability of the two groups to understand the target metaphors changed in different ways in between the three time points.

To determine if there was progress across testing times within each group and if the differences between the two groups at the different time points were significant, follow-up pairwise comparisons were conducted. Pre-test results indicated that there was no significant difference between the groups: $p = .050, d = 0.27, 95\% \text{ CI } [.607, .000]$. However, there was a significant difference between the groups at the immediate post-test where the intervention group outperformed the comparison group ($M = .82, p < .001, d = 0.95, 95\% \text{ CI } [.58, 1.05]$), and the

effect size was medium. The groups also displayed differences that were significant at the delayed post-test, again where the intervention group outperformed the comparison group ($M = 1.27, p < .001, d = 1.06, 95\% \text{ CI } [95, 1.60]$), and the effect size was large. Furthermore, as illustrated in Table 5.5, significant progress was made by the intervention group from the pre-test to the immediate post-test ($M = 1.09$), with a medium effect size. In the delayed post-test, the improvement continued ($M = 1.29$), with an effect size that is medium. However, for the intervention group, there was no difference between the immediate and the delayed post-tests ($M = 1.99$), with a small effect size. In contrast, within the comparison group, neither the results of the pre- and the immediate post-tests ($M = .02$) nor the differences between the pre- and the delayed post-tests ($M = .28$) were statistically significant. The effect sizes of these differences were small, and a 95% confidence interval crossed zero, indicating that over time, the comparison group showed no improvement.

Table 5.5

General Comprehension Questions Comparisons Within Each Group at The Three Tests Times

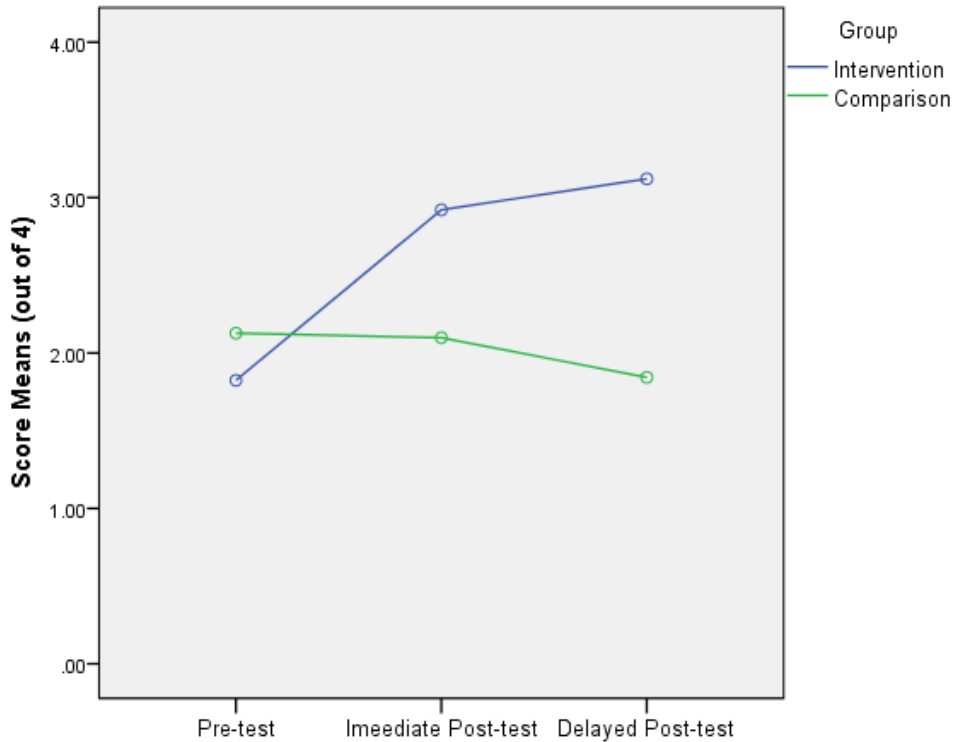
Comparisons	Intervention	Comparison
Pre- to Immediate post-test	$p < .001, d = 1.00, 95\% \text{ CI } [.78, 1.41]$	$p = 1.000, d = 0.03, 95\% \text{ CI } [-.35, .29]$
Pre- to Delayed post-test	$p < .001, d = 1.11, 95\% \text{ CI } [.96, 1.63]$	$p = .142, d = 0.24, 95\% \text{ CI } [-.62, .06]$
Immediate post- to Delayed post-test	$p = .218, d = 0.20, 95\% \text{ CI } [-.46, .70]$	$p = .077, d = 0.23, 95\% \text{ CI } [-.01, .52]$

Figure 5.7 below illustrates the differences in the performance of the two groups in the general comprehension questions at the pre-, immediate post-, and delayed post-tests. Results

demonstrate that while the intervention group's mean scores improved over time and their means increased at the delayed post-test, the reverse was true for the comparison group.

Figure 5.7

Mean General Comprehension Scores for Intervention and Comparison Groups at Pre-, Immediate Post-, And Delayed Post-Test



5.7.1.1.2 The impact of conceptual metaphor teaching on learners' comprehension of metaphoric expressions in the reading texts

Firstly, quantitative data collected from metaphor comprehension questions in the reading comprehension tests were put into SPSS for analysis, and descriptive statistics were generated. Table 5.6 presents the mean values of metaphor comprehension scores for pre-, immediate post-, and delayed post-tests. The immediate post-test score is an average score calculated using the responses to the two immediate post-tests. The maximum score a student can gain is 10.

Table 5.6*Descriptive Statistics for Metaphor Comprehension Scores in the Reading Tests*

Group	Pre-test				Immediate post-test				Delayed post-test			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Intervention	4.30	2.21	0	10	7.44	2.20	0	10	8.06	2.14	0	10
Comparison	5.10	2.50	0	10	5.38	1.89	0	10	5.23	2.79	0	10
Total	4.69	2.38	0	10	6.44	2.30	0	10	6.96	2.85	0	10

As presented in Table 5.6, the descriptive statistics demonstrate that the mean score of the intervention group was lower than the comparison group at the pre-test. However, the intervention group's score improved by 3.14 at the immediate post-test whereas the comparison group improved by only 0.28. The intervention group's score improved by 3.76 at the delayed post-test whereas the comparison group's score increased slightly by only 0.13, compared to the pre-test. Furthermore, the score of the intervention group increased by 0.62 at the delayed post-test, whereas the scores for the comparison group decreased by 0.15. After combining all participants' scores, an increase of 1.75 and 2.27 was found from the pre- to immediate and from pre- to delayed post-test, respectively. Additionally, there was an immediate to delayed post-test increase of 0.52. Mean values indicate that each group had a different score at the end of the study, and to explore whether these differences were significant between groups and within groups, a mixed ANOVA was conducted.

A mixed ANOVA was used to determine the impact of the intervention on metaphor comprehension in the reading tests. The within-participants factor was time (pre-, immediate post-, and delayed post-test) while the between-participants factor was group (intervention and comparison). The dependent variable was the score on the metaphor comprehension questions in the reading tests. Assumptions for this test were discussed in Sections 5.4 and 5.5. Results from the mixed ANOVA tests suggested a significant main effect of time point where post-test scores were higher than pre-test's: $F(1.8, 39) = 78.62, p < .001, \eta_p^2 = .34, \eta^2 = 0.26$, with a small effect size. Group, also, showed a statistically significant main effect where the intervention group

outperformed the comparison group: $F(1,208) = 29.36, p < .001, \eta_p^2 = .124, \eta^2 = 0.16$, with a small effect size. Furthermore, interaction effect between time and group was significant: $F(1.8, 38) = 64.05, p < .001, \eta_p^2 = 0.31, \eta^2 = 0.23$, and the effect size was small, indicating that the groups made varied progress through tests time points.

This interaction was further explored through follow up pairwise comparisons using SPSS Syntax. This step was taken to investigate the extent to which there was any progress within each group and between both groups at various test times. The results demonstrated that the groups differed significantly at the pre-test ($p = .014, d = 0.34, 95\% \text{ CI } [.161, 1.44]$) and the effect size was small. The groups were also significantly different at the immediate post-test ($p < .001, d = 1, 95\% \text{ CI } [1.50, 2.62]$) and the effect size was large and at the delayed post-test ($p < .001, d = 1.14, 95\% \text{ CI } [2.15, 3.50]$) the effect size was large, with the intervention group demonstrating the biggest development. As shown in Table 5.7, significant progress was made by the intervention group from the pre-test to the immediate post-test ($M = 3.13$). The progress continued in the delayed post-test ($M = 3.75$), with a large effect size. However, the difference between immediate post- and delayed post-tests was not significant within the intervention group ($M = .62$), and the effect size was small. Within the comparison group, no significant progress was found between the pre- and immediate post-test ($M = .27$) or between the pre- and the delayed post-tests ($M = .14$) with small effect sizes, indicating that over time, the comparison group did not show any improvement.

Table 5.7

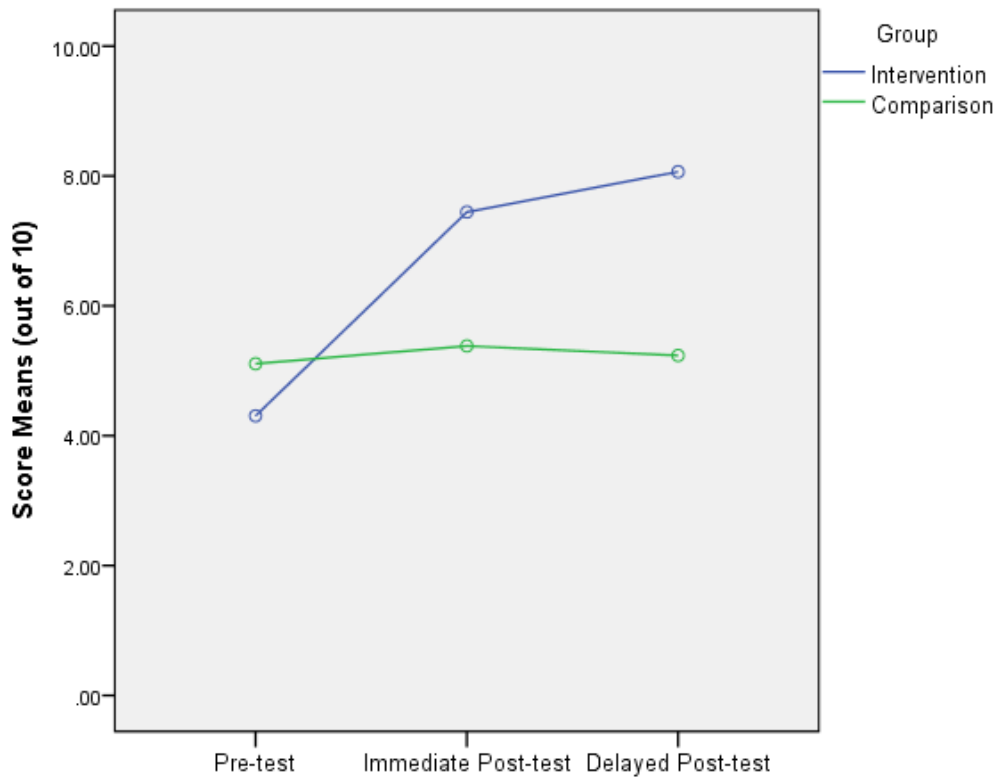
Metaphor Comprehension Questions Comparisons within each group at the three Tests times

Comparisons	Intervention group	Comparison group
Pre- to Immediate post-test	$p < .001, d = 1.42, 95\% \text{ CI } [2.55, 3.72]$	$P = .818, d = 0.12, 95\% \text{ CI } [-.32, .87]$
Pre- to Delayed post-test	$p < .001, d = 1.72, 95\% \text{ CI } [3.12, 4.39]$	$P = 1.000, d = 0.04, 95\% \text{ CI } [-.52, .77]$
Immediate post- to Delayed post-test	$p = .006, d = 0.28, 95\% \text{ CI } [-1.10, -.14]$	$P = 1.00, d = 0.06, 95\% \text{ CI } [-.34, .64]$

Figure 5.8 below presents the variations between both groups' performance in the metaphor comprehension questions at the pre-, immediate post-, and delayed post-test. Results demonstrate that the mean score for the intervention group at the immediate post- and the delayed post-test increased at a higher rate than the comparison group. In contrast, the mean score of the comparison group did not improve significantly, but in fact, their mean declined at the delayed post-test compared to their performance at the immediate post-test.

Figure 5.8

Means of Metaphor Comprehension Scores



To sum up this subsection, the findings presented demonstrate that both students' general comprehension and metaphor comprehension of the reading texts improved significantly after the intervention. This is demonstrated in the large effect sizes as well as the confidence intervals

not crossing zero, indicating the reliability of the effects. In contrast, the results for the comparison group deteriorated for the general comprehension questions, while they slightly improved for the metaphoric comprehension questions but did not reach significance. In relation to the delayed post-tests, the comparison group deteriorated in both sections.

Furthermore, one of the aims of the study was to verify whether the improvements made by the intervention group were larger in one section of the test compared to the other (general comprehension section versus metaphor comprehension section). At the metaphor comprehension section, the effect size of the progress from the pre-test to the immediate post-test was large ($d = 1.42$) while the improvement in the general comprehension section was medium ($d = 1.00$). The effect size of the progress in the metaphor section was also large from the pre-test to the delayed post-test, ($d = 1.72$) and the general section was medium ($d = 1.19$). Regarding the progress from the immediate to the delayed post-test, the effect sizes of both sections were small ($d = 0.20$) and ($d = 0.28$). It can be assumed, therefore, that although the progress in both sections indicated reliable effect sizes, progress in the metaphor comprehension section was larger (reflected in the corresponding larger effect sizes).

5.7.2 RQ2: To What Extent Can Learners Transfer Their Knowledge to Untaught Metaphoric Expressions that They Encounter during Reading Comprehension (i) Within the Taught Conceptual Metaphors, and (ii) Within New Conceptual Metaphors?

5.7.2.1 To What Extent Can Learners Transfer Their Knowledge to Untaught Metaphoric Expressions that They Encounter during Reading Comprehension (I) Within the Taught Conceptual Metaphors?

The second section of the reading immediate post-test included ten metaphor comprehension questions related to five taught and five untaught metaphoric expressions. To address the first part of RQ2, scores (dependent variable) for taught and untaught metaphoric expressions in the two reading comprehension immediate post-tests for each participant were calculated. A two-way mixed ANOVA was run in which group was the between-participants factor and novelty (taught versus untaught metaphoric expressions) was the within-participants factor. Table 5.8 presents the descriptive statistics of the mean scores of taught and untaught

metaphoric expressions at immediate post-tests. The score presented is an accumulated score from students' responses to the two immediate post-tests. The maximum score is 10.

Table 5.8

Descriptive Statistics for Taught and Untaught Metaphoric Questions in the Reading Immediate Post-test

Group	Taught				Untaught			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Intervention	7.80	2.30	1	10	7.10	2.63	0	10
Comparison	5.36	1.90	1	9	5.34	2.02	1	10
Total	6.61	2.44	1	10	6.24	2.50	0	10

Table 5.8 shows that the intervention group's scores were higher than the comparison group's scores in both the taught and untaught metaphoric expressions, by 2.43 and 1.75, respectively. For the intervention group, the mean values for the taught metaphoric expressions were slightly higher than the untaught (0.7). For the comparison group, the mean values for the taught and untaught questions were very similar. When the scores of both groups were combined, taught metaphoric expression scores were higher than the untaught by 0.37, indicating that there were differences between taught and untaught scores in both groups. Therefore, further tests were conducted to explore whether these differences between the intervention and the comparison groups and within each group were significant.

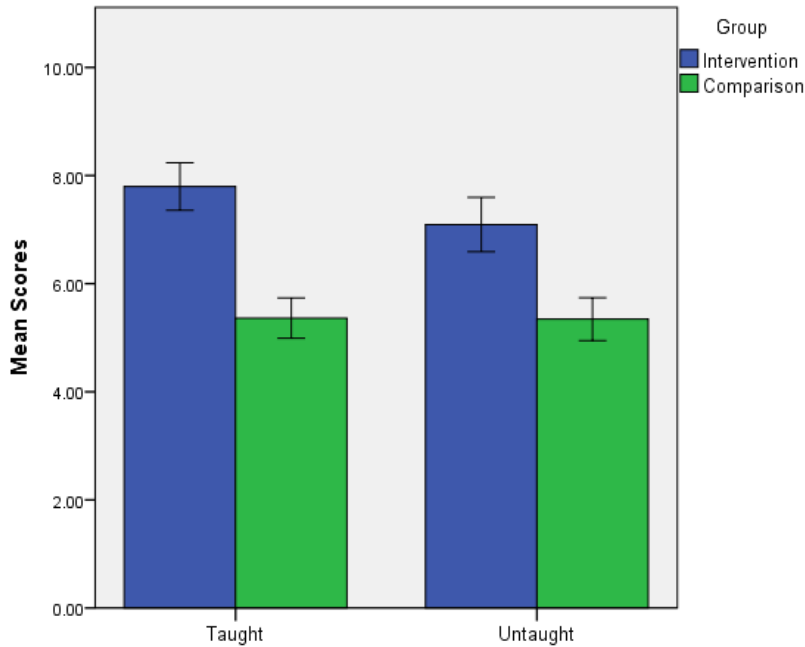
The results of the mixed ANOVA indicated that there was a significant difference between taught and untaught metaphoric expressions, where the students got higher scores for the questions on the taught expressions versus the untaught expressions: $F(1, 208) = 6.382$, $p = .012$, $\eta_p^2 = .030$, $\eta^2 = 0.02$, with a small effect size. The results also indicated that there was a significant difference between groups, where the intervention group outperformed the comparison group: $F(1, 208) = 58.06$, $p < .001$, $\eta_p^2 = .21$, $\eta^2 = 0.49$, with a medium effect size. Furthermore, there was a significant interaction between novelty and group: $F(1, 208) = 5.709$, $p = .018$, $\eta_p^2 = .027$, $\eta^2 = 0.02$, albeit with a small effect size, which indicates that the two groups differed in their performance in the taught and untaught metaphoric expressions.

To further investigate this interaction, follow-up *post hoc* pairwise comparisons were performed. These showed that there was a statistically significant difference between the intervention and the comparison groups in the taught metaphoric expression scores, with the intervention group outperforming the comparison group: $p < .001$, $d = 1.14$, 95% CI [-1.44, -0.856] with a large effect size. In addition, a statistically significant difference was evident between the intervention and the comparison group in the untaught metaphoric expression scores where the intervention group outperformed the comparison group: $p < .001$, $d = 0.74$, 95% CI [-1.022, -0.462], with a large effect size. These results indicated that the intervention had a positive impact and learners in the intervention group outperformed the comparison group in both the taught and untaught metaphoric expression questions.

Moreover, the results of follow-up *post hoc* pairwise comparisons showed differences between the scores for the taught and untaught metaphoric expressions within each group. For the intervention group, a statistically significant difference was evident between scores of taught ($M = 7.80$, $SD = 2.30$) and untaught ($M = 7.10$, $SD = 2.63$) metaphoric expressions: $p < .001$, $d = 0.28$, 95% CI [-0.66, 0.09], with a small effect size. This result suggests that learners in the intervention group performed slightly less well when answering questions about the untaught metaphoric expressions. This would indicate that learners were not in all cases able to transfer their newly learned metaphoric knowledge to new metaphoric expressions that fit within the taught conceptual metaphor. However, the small effect size, and the 95% confidence interval crossing zero, suggest that this significant difference was very small. For the comparison group, there was no significant difference between scores of taught ($M = 5.36$, $SD = 1.90$) and untaught ($M = 5.34$, $SD = 2.02$) metaphoric expressions: $p = .924$, $d = 0.01$, 95% CI [-0.39, 0.37], with a small effect size. These results indicate that the comparison group did not do better in the taught expressions compared to the untaught expressions (in contrast to the intervention group). Figure 5.9 below presents the differences in the performance between and within each group.

Figure 5.9

Means of Taught and Untaught Metaphoric Expressions Scores



5.7.2.2 To What Extent Can Learners Transfer their Knowledge to Untaught Metaphoric Expressions that They Encounter During Reading Comprehension (ii) Within New Conceptual Metaphors?

This second sub-question of RQ2, which was related to learners' ability to transfer their knowledge to new metaphors was addressed through the analysis of the data gathered for RQ1. In Section 5.7.1, results showed that the intervention group benefited from the intervention (conceptual metaphor teaching) and were able to transfer their learned knowledge to understand reading texts that included new conceptual metaphors.

5.7.3 RQ3: To What Extent Does Teaching Metaphoric Expressions through Conceptual Metaphors Allow Learners Firstly to Learn, and Secondly to Retain such Metaphoric Expressions?

Section 4.5.3.1 explained that the metaphor understanding tests (different from reading comprehension tests) consisted of 40 multiple-choice questions that aimed to measure comprehension of different meanings of the targeted metaphoric expressions. Metaphor comprehension tests were given as pre-, immediate post-, and two-week delayed post-test. The metaphor understanding immediate post-test assessed students’ learning and understanding of the metaphoric expressions, whereas the metaphor understanding two-week delayed post-test assessed learners’ retention of the metaphoric expressions.

To answer RQ3, a two-way mixed ANOVA was employed to investigate group differences between comparison and intervention groups throughout the three different time points. Mixed ANOVA was also used to examine the interaction between time and group, as well as their impact on the dependent variable (metaphor understanding score). First, descriptive statistics were generated for the metaphor understanding pre-, immediate post-, and delayed post-tests for all groups, as shown in Table 5.9. Metaphor understanding test scores ranged from 0-40.

Table 5.9
Metaphor Understanding Tests Descriptive Statistics

Group	Pre-test				Immediate post-test				Delayed post-test			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Intervention	21.83	6.07	9	35	35.32	4.37	19	40	31.02	6.95	14	40
Comparison	20.88	7.51	5	37	20.91	8.27	5	37	20.05	8.41	7	35
Total	21.37	6.81	5	37	28.32	9.74	5	37	25.70	9.44	7	35

As illustrated in Table 5.9, when compared to the comparison group, the intervention group had a somewhat higher score at the pre-test. In relation to the immediate post-test, the

score of the intervention group improved by 13.49 more than the comparison group, which increased by only 0.03. Furthermore, compared to the pre-test, the score of the intervention group increased by 9.19 at the delayed post-test, whereas the score of the comparison group declined by 0.83. This shows that for the intervention group, their immediate post-test score decreased by 4.3 at the delayed post-test whereas the comparison group's immediate post-test score decreased by 0.86 at the delayed post-test. Once combining the scores for all the participants across the two groups, a pre- to immediate post-test increase of 6.95 and pre- to delayed post-test increase of 4.33 were found. However, a decrease of 2.62 was found from the immediate post- to delayed post-test. It can be concluded from these descriptive statistics that the comparison and intervention groups performed differently after the intervention. Whether these differences were significant and could be attributable to the impact of the metaphor instruction was explored through a two-way mixed ANOVA.

The two-way mixed ANOVA results showed that the main effect of time was statistically significant where post-test scores were higher than pre-test's: $F(1, 380) = 132.30, p < .001, \eta_p^2 = .27, \eta^2 = 0.19$, with a small effect size. Group, also, had a significant main effect where the intervention group outperformed the comparison group: $F(1, 208) = 108.40, p < .001, \eta_p^2 = .34, \eta^2 = 0.56$, with a medium effect size. Furthermore, the interaction between group and time and was found: $F(1, 380) = 138.95, p < .001, \eta_p^2 = .34, \eta^2 = 0.27$, and the effect size was small, indicating that the two groups developed differently.

Follow-up pairwise comparisons using SPSS syntax were then conducted to investigate the extent to which the differences between the three tests within each group and between groups were significant. The results indicated that the difference between the groups at the pre-test was non-significant ($p = .313, d = 0.14, 95\% \text{ CI } [.90, 2.80]$), and the effect size was small. However, there were significant differences at the immediate post-test where the intervention group outperformed the comparison group ($M = 14.41, 95\% \text{ CI } [12.62, 16.19], p < .001, d = 2.19$), and the effect size was large. The groups, moreover, differed significantly from one another at delayed post-test where the intervention group outperformed the comparison group ($M = 10.96, 95\% \text{ CI } [8.87, 13.06], p < .001, d = 1.42$), with a large effect size. As shown in Table 5.10, within the intervention group, there was a significant progress from the pre-test to the immediate post-test ($M = 13.49$), and the effect size was large. The intervention group continued this

improvement in the delayed post-test ($M = 9.19$), and the effect size was large. When comparing the delayed post- to the immediate post-test ($M = 4.29$), there was a significant difference in the intervention group's performance, indicating a slight decline at the delayed post-test, with a small effect size. For the comparison group, by contrast, there were no significant progress between the pre- and immediate post-tests, ($M = .02$), and between the pre- and the delayed post-test ($M = -.84$) with small effect sizes. This indicates that, as time passed, the comparison group showed no improvement.

Table 5.10

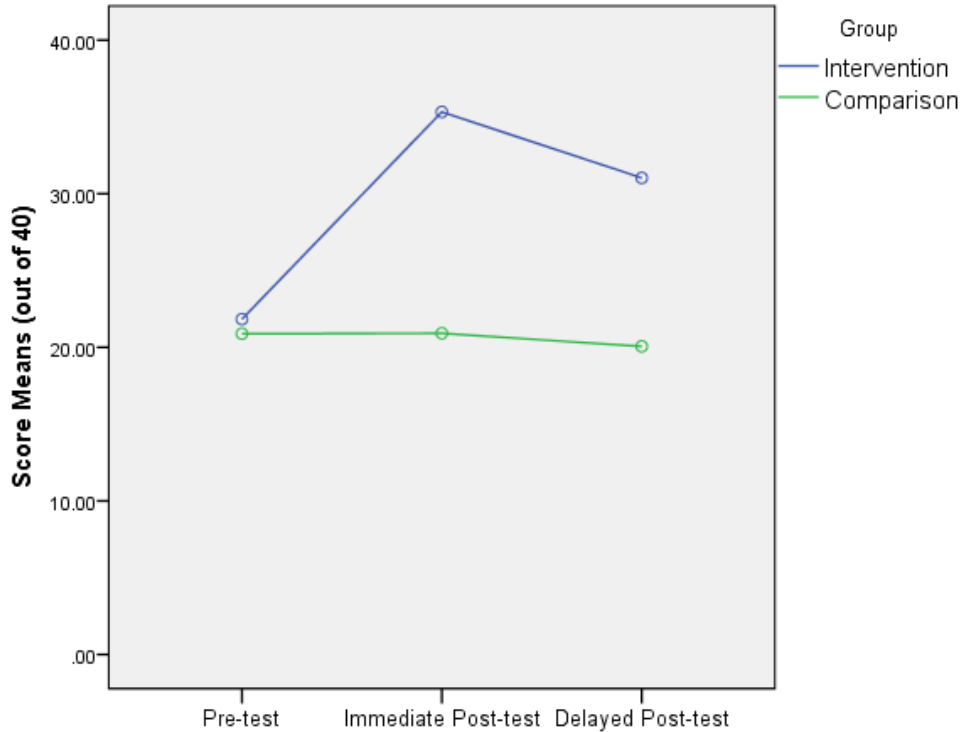
Metaphor Understanding Tests Comparisons within each Group at the three tests

	Intervention	Comparison
Comparison between Pre- and Immediate post-test	$p < .001, d= 2.55, 95\%$ CI [12.21, 14.86]	$p = 1.000 d= 0.04, 95\%$ CI [-1.38, 1.43]
Comparison between Pre- and Delayed post-test	$p < .001, d= 1.40,$ 95% CI [7.58, 10.80]	$p = .698$ $d= 0.10, 95\%$ CI [-2.48, .83]
Comparison between Immediate post- and Delayed post-test	$M = -4.29, p < .001, d=$ 0.74, 95% CI [3.07, 5.51]	$M = -.85, p = .309 d=$ 0.10, 95% CI [-.40, 2.11]

Figure 5.10 below illustrates the two groups' differences in their performance in the metaphor understanding test at the pre-, immediate post-, and delayed post-tests. The results signify that performance of the comparison group was clearly lower than the intervention group at both the immediate and delayed post-tests. The intervention group improved over time and their means significantly increased at both the immediate and delayed post-tests, compared with their performance at the pre-test. However, there was a decrease in the intervention group's performance at the delayed post-test in comparison to the immediate post-test. Conversely, the comparison group did not improve significantly at the immediate post-test, and their mean also deteriorated at the delayed post-test.

Figure 5.10

Means Plot for the Metaphor Understanding Scores for Intervention and Comparison Groups



To sum up, the quantitative results presented in this chapter imply that significant differences existed between the comparison and the intervention groups. The findings support the fact that conceptual metaphor teaching facilitated the understanding and retention of metaphoric expressions. The intervention group demonstrated that they were able to understand metaphoric expressions and retain them at the delayed post-test more than the comparison group. However, although the intervention group showed progress and maintained their progress in the delayed post-test, there was a significant difference between learning (immediate post-test) and retention (delayed post-test) of the metaphoric expressions. This suggests that the intervention group lost some metaphoric knowledge in the longer term (two weeks). For the comparison group, the semantic teaching did not improve their metaphor understanding and retention. In addition, differences between the groups with large effect sizes were found at the immediate and delayed post-tests. Within the intervention group, large effect sizes between time points were found, whereas, within the comparison group, small effect sizes were found between time points.

5.7.4 Summary

The quantitative findings discussed in this chapter showed that conceptual metaphor teaching had a significant impact on learners' reading comprehension, metaphor learning, and metaphor retention. One of the interesting results was that there were no significant differences between the comprehension of reading texts that included taught metaphors (immediate post-test) and new, untaught metaphors (delayed post-test). Moreover, it shows that the students benefited from learning using the conceptual metaphor teaching approach and were able to transfer their learned knowledge. This contradicts the previous literature (for example, Boers, 2000a). When the results of taught and untaught metaphoric expressions in the reading immediate post-tests were analysed, the scores showed some differences, indicating that the learners were less good at the untaught metaphoric expressions and were not able to transfer their metaphor learning to untaught metaphoric expressions that were related to the learned conceptual metaphor. On the contrary, the comparison group showed no improvement in reading comprehension from pre-test to immediate post-test and from immediate post-test to delayed post-test. For the metaphor understanding tests, although the intervention group showed progress and maintained their progress in the delayed post-test, there was still a significant difference between learning (immediate post-test) and retention (delayed post-test) for the metaphoric expressions. This would suggest that the intervention group lost some metaphoric knowledge on the longer term (two weeks).

CHAPTER SIX: ANALYSIS OF QUALITATIVE DATA

6.1 Students' Perceptions and Strategies Use

RQ4: What are the learners' perceptions of the teaching method they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

To answer this question, interviews were conducted with sixteen students, eight students from each group of the intervention and comparison groups. The selection process was conducted based both on students' proficiency level and their score of the pre-tests (four high, four low) and on their gain scores from pre- to post-tests (big gain, small gain). This resulted in two higher proficiency big gain, two higher proficiency small gain, two lower proficiency big gain, and two lower proficiency small gain learners, from each of the intervention and comparison groups (for more details, please see Section 4.5.3.3).

Stimulated recall interviews were conducted after the delayed post-tests. Two sections comprise the analysis of the qualitative data. The first part is related to the students' perceptions and viewpoints of the study. The purpose of this part was to explore the students' perceptions of the teaching methodology for vocabulary instruction and to question whether they found the teaching methodology beneficial for improving their reading comprehension and vocabulary learning. In this part, the teaching material was the stimulus. The second part includes an identification of the strategies the students reported using. The aim of this part was to help gather important insights related to whether the teaching methodology affected the way students understood the texts and their uses of reading comprehension and metaphor interpretation strategies. The reading test was the stimulus for participants in this part. Based on the implications of the pilot study (Section 4.6), it was decided to include one immediate post-test and the delayed post-test to investigate how students tried to understand both taught and untaught metaphors.

The intervention group was labelled I, and the comparison group was labelled C. To ensure anonymity, students were coded using the name of their group, their proficiency level,

and their gain size. Higher proficiency students were labelled H, while lower proficiency level students were labelled L. Moreover, big gain students were titled BG, while small gain students were titled SG. As two students were chosen from each proficiency level and gain size, one student was titled S1 and the second student was titled S2. Therefore, 'IS1HBG' refers to the first high-proficiency big gain student in the intervention group, whereas 'CS2LSG' refers to the second low-proficiency small gain student in the comparison group. As discussed in Section 4.7.2, efforts were made to maximise the reliability and validity of the interviews analysis process. Steps were taken to create a comprehensive codebook while external experts were consulted during the three rounds of checks conducted.

Three main themes emerged from the analysis of the first part of the interviews related to students' perceptions. The themes were: impacts on cognitive, affective, and behavioural aspects. For a full outline of the sub-themes, codes, and definitions of the three main themes found across the two groups, please see Appendix H. A quantification of codes presented in Section 6.1.1. After that, qualitative analysis of each group is given. Analysis of participants' perceptions of the intervention is presented in Section 6.1.2 and that of the comparison group participants is presented in Section 6.1.3. Finally, a qualitative analysis of the students' use of strategies is presented in Section 6.1.4.

6.1.1 Quantification of Students' Perceptions

Table 6.1 below presents an overview of the sub-themes and codes found in each of the comparison and intervention groups. In Sections 6.1.2 and 6.1.3, detailed qualitative analysis of codes, their definitions, and examples are presented for each group. Numbers in the table refer to how often each impact was reported by interviewees. If it was mentioned by the student once or more, it was given 1, and if it was not mentioned by the student at all, it was given 0.

Table 6.1

Number of Instances of Codes Reported by Intervention and Comparison Groups During Stimulated Recall Interviews

Sub-themes	Codes	Intervention	Comparison
Cognitive aspects			
Metaphor awareness	No or limited knowledge	8	0
	Metalinguistic knowledge	6	0
	Improved L2 metaphor awareness	7	0
Reading comprehension improvement	Improved level of text comprehension	6	0
	Increase in concentration and maintaining focus	6	0
	Accessing text meaning through deeper understanding of the words	8	3
	Improved understanding of the relationship between language, text, and meaning behind the text	5	0
	More interaction with the texts	5	0
	Imagining the stories	6	0
	Faster reading	0	2
	No reading improvement	1	6
Vocabulary learning	Expanding breadth of vocabulary knowledge	8	8
	Adding depth of vocabulary knowledge	7	4
	Understanding vocabulary in context	5	0
	Enhanced retention	6	0
	Unsuccessful retention	0	4
Use of imagination	Imagining stories and metaphors	7	0
	Imagining information read and words (other than metaphors)	7	3
Academic Progress	Gradual improvement	6	1
	Enhanced test-taking	5	0
Affective aspects			
Motivation	Extrinsic	3	1
	Intrinsic	7	2
	Personal interest	4	0
	Interesting topics	6	3

More engaging content	Variety of teaching materials	7	
	More authentic learning	6	3
Behavioural aspects			
Independent learning	Engaging in autonomous learning	4	0
	Collaborative active engagement	3	0
Use in spoken and written production	Use in spoken production	4	2
	Use in written production	6	2
Reported difficulties			
Reported difficulties	Similarities of the words	2	3
	Number of words	0	2

Table 6.1 shows that students in both the comparison and intervention groups reported cognitive, affective, and behavioural impacts of the teaching sessions. However, the reported impacts did differ between the groups, and in general, a wider range of impacts were reported by the intervention group. For instance, two sub-themes of cognitive impacts – metaphor awareness and academic progress – were reported in the intervention group and not in the comparison group. Moreover, students in both groups mentioned reading comprehension improvement, vocabulary learning, and use of imagination. However, the intervention group identified six impacts that they felt led to improved reading comprehension: improved level of text comprehension; improvements in maintaining focus/concentration; better access to the meaning of texts through a better understanding of the words; improved understanding of the relationships between language, text, and the meaning behind the text; more interaction with the text; and use of imagination for texts and words. In contrast, in the comparison group, only two students mentioned an improvement in their reading comprehension after the study, and the only factors noted were accessing text meaning through deeper understanding of the words and increased reading speed of texts.

Moreover, vocabulary learning was the most referenced impact in both groups. All students interviewed believed that they had learned new vocabulary during the intervention, both expanding the breadth of their vocabulary knowledge and adding depth to their vocabulary knowledge. However, responses regarding depth of vocabulary differed between the two groups:

almost all students in the intervention group mentioned depth of vocabulary knowledge compared with only half of the students in the comparison group. Moreover, only the intervention group reported enhanced understanding of vocabulary in context and enhanced vocabulary retention. In contrast, the comparison group reported unsuccessful retention of words. Thirdly, use of imagination was an impact found in both groups. However, whilst students in the intervention group showed instances of using their imagination in imagining stories, events, and metaphors and also in imagining the taught words, students in the comparison group only mentioned their use of imagination in imagining words and their meanings.

Impacts on affective aspects that both groups mentioned included motivation and more engaging content with some differences. However, reports of extrinsic, intrinsic, and personal interest occurred more in the intervention group, and only two reports of intrinsic motivation and one report of extrinsic motivation arose in the comparison group. Moreover, references to more engaging content in the comparison group included mention of interesting topics and more authentic learning. The intervention group reported all the previously mentioned factors that the comparison group did, although in addition, they also included the variety of teaching materials.

Behavioural impacts mentioned in the comparison group's interview data were related to the future use of the learned expressions in spoken and written production only. The intervention group reported instances of independent learning where students engaged in autonomous learning and performed collaborative active engagement by making use of other resources outside the classroom. Moreover, students in the intervention group noted current use in addition to their intention to use the learned expressions in their future verbal and written production. Table 6.2 takes these findings a step further by presenting data on how differences occurred between higher and lower proficiency students in each group and between groups. It is worth mentioning, however, that as there were no notable differences between big gain and small gain students in each proficiency level, only figures for higher and lower proficiency students in each group are presented in table 6.2.

Table 6.2

Number of Instances of Impacts Reported by Higher and Lower Proficiency Learners in Intervention and Comparison Groups During Stimulated Recall Interviews

Sub-themes	Codes	Intervention group		Comparison group	
		High	Low	High	Low
Cognitive aspects					
Metaphor awareness	No or limited knowledge	4	4	0	0
	Metalinguistic knowledge	4	2	0	0
	Improved L2 metaphor awareness	4	3	0	0
Reading comprehension improvement	Improved level of text comprehension	4	2	0	0
	Increase in concentration and maintaining focus	3	3	0	0
	Accessing text meaning through deeper understanding of the words	4	4	2	1
	Improved understanding of the relationship between language, text, and meaning behind the text	3	2	0	0
	More interaction with the texts	4	1	0	0
	Imagining the stories	3	3	0	0
	Faster reading	0	0	1	1
	No reading improvement	0	1	3	3
Vocabulary learning	Expanding breadth of vocabulary knowledge	4	4	4	4
	Adding depth of vocabulary knowledge	4	3	4	0
	Understanding vocabulary in context	3	2	0	0
	Enhanced retention	4	2	0	0
	Unsuccessful retention	0	0	1	3
Use of imagination	Imagining stories and metaphors	4	3	0	0
	Imagining words (other than metaphors)	4	3	3	0

Academic Progress	Gradual improvement	4	2	0	0
	Enhanced test-taking	3	2	0	0
Affective aspects					
Motivation	Extrinsic	2	1	1	0
	Intrinsic	4	3	2	0
	Personal interest	2	2	0	0
More engaging content	Interesting topics	3	3	2	1
	Variety of teaching materials	4	3	0	0
	More authentic learning	4	2	2	1
Behavioural aspects					
Independent learning	Engaging in autonomous learning	3	1	0	0
	Collaborative active engagement	2	1	0	0
Use in spoken and written production	Use in spoken production	4	0	1	1
	Use in written production	4	2	1	1
Reported difficulties					
Reported difficulties	Similarities of the words	1	1	1	2
	Number of words	0	0	1	1

As can be seen in Table 6.2, in some cases, students with different proficiency levels reported the impact in both the intervention and comparison groups, for instance, learning vocabulary and adding breadth to vocabulary knowledge. Moreover, students with different proficiency levels mentioned improved metaphor awareness in the intervention group and students with different proficiency levels mentioned their intention to use the learned words in their future spoken and written production in the comparison group. However, there were also some interesting differences between higher proficiency and lower proficiency learners within and between groups. For instance, in the intervention group, four higher proficiency learners reported gaining metalinguistic knowledge while only two lower proficiency students mentioned the same. Moreover, in the intervention group, all higher proficiency learners but only one lower proficiency learner reported using imagination to imagine words they read (other than metaphors). Additionally, lower proficiency learners in the intervention group did not mention

that they planned to use the learned words in their spoken production, though they did mention that they planned to use them in their written production.

Some differences also occurred between groups with regard to proficiency levels. For instance, in addition to the difference between comparison and intervention groups in adding depth to vocabulary knowledge, there was a difference between the lower and higher proficiency learners in the comparison group. By contrast, in the intervention group, both sets of students, higher and lower proficiency, said they were able to develop that depth of knowledge. A second difference occurred in relation to intrinsic motivation. In both groups, high-proficiency learners reported intrinsic motivation; however, it was only in the intervention group that lower-proficiency students also reported intrinsic motivation. These two findings suggest that the intervention supported lower proficiency students to gain deeper understanding of expressions and motivated them to learn more.

Looking at Tables 6.1 and 6.2, there were differences in the number of codes between the intervention and comparison groups. This could be expected as the teaching session students received in the intervention group included more elements, pertaining specifically to metaphor awareness, which resulted in more codes emerging from the data related to the intervention group when compared to the comparison group whose metaphor awareness was not raised. However, students in both groups were given the same time for the interviews and were encouraged to speak in their L1 in order to motivate them to express themselves and their perceptions towards the intervention. Additionally, the researcher followed the same process of using prompting questions and using the same stimuli for students in both groups to assure consistency.

Although a quantification of codes highlighted interesting differences between groups and learners of different proficiency levels, these differences are addressed in more depth in the next section of the qualitative analysis.

6.1.2 *Intervention Group*

6.1.2.1 Impacts on Cognitive Aspects

Students reported the intervention's positive impact on their cognitive learning. Five sub-themes emerged as positive effects: metaphor awareness, reading comprehension improvement, vocabulary learning, use of imagination, and academic progress.

6.1.2.1.1 Metaphor Awareness

The interview data highlighted that metaphor awareness was one of the common aspects of the teaching that participants mentioned as a benefit.

6.1.2.1.1.1 No Prior Knowledge

All students declared that prior to the intervention sessions, they had no knowledge or only a very basic idea of L2 metaphors. As IS2HBG pointed out: *“Generally speaking, this is the first time I had any idea that there are main metaphors behind the language and behind stories”*. IS1HBG agreed with this point: *“I knew the idea that some words have two meanings but did not know how and why. I really liked the idea and liked learning about metaphors with details like this”*.

Students had not been exposed to or taught about metaphors in their English classes in either high school or university. Although some students, as in the previous quote, had a prior idea that words could have two meanings, one literal and one metaphoric, they had only basic awareness and no specific teaching about metaphors in detail. More specifically, most students stated that they did not have any prior knowledge of conceptual metaphors. For instance, IS2HSG found conceptual metaphors new: *“This is a new thing for me, to be honest”*. The existence of conceptual metaphors was a new idea for eight students. The idea that the English language uses one concrete domain to refer to a more abstract domain with all areas of similarities between the two domains in such a systematic way was new to them.

6.1.2.1.1.2 Metalinguistic Knowledge

In their own words, students commented how their metalinguistic knowledge increased after the intervention, as a statement by IS2HBG indicates:

It makes sense, you taught us something people really use in the language. They say something but mean something else by the words. I understand that more now.

The students developed an awareness of the nature of language across all languages (metalinguistic knowledge). That is, language is not only a symbol but has the potential to go beyond the literal meaning. Moreover, words can be used to express meanings beyond their surface meanings. This awareness also includes the idea that words and their referents are quite separate, which is evident in this quote by IS1HSG:

I now know that like Arabic, the word can have an original literal meaning and also a metaphoric semantic meaning. When I took the pre-test, I did not understand that there are differences in the meanings of the words, but in the last tests, I realised that words can be both literal and metaphoric.

This student's understanding of the words' meanings changed from the pre- to the post-tests. She developed an understanding of the distinct meanings words can potentially have. This reflects an improved knowledge that language can include multiple or implied meanings. That is, people can use language to mean something implicit. Students referred to their L1, indicating that they now had the knowledge that, at a higher level, all languages including Arabic and English have both literal and metaphorical meanings, a concept recognised by IS2HBG: *"I understand that like in Arabic, we have things like that."* This quote and the previous quote showed that students could relate English to their knowledge about L1, and they developed a metalinguistic understanding of how languages can be used metaphorically. Indeed, the students came to recognise how meaning is embedded in the speakers' mind and intentions, and not only in the actual words uttered.

6.1.2.1.1.3 Improved L2 Metaphor Awareness

Another dominant positive impact of the intervention was students' improved metaphor awareness. Seven out of eight students, including IS1HBG, mentioned that during the study they understood how metaphors are formed in English:

Words, specifically phrases, when used together give a new meaning. I never knew that there could be any logical reason for the other meaning of words and phrases and that there are original similarities between the two ideas.

She learned about the conceptual metaphors and how these conceptual metaphors are systematic and logical. They are the origin of many metaphoric expressions, including phrases in

English. IS1LBG agreed with IS1HBG: “*We learned that there are conceptual metaphors behind many words and reading texts in English*”. In this quote, and many more, students declared that they realised the pervasive nature of conceptual metaphors in English, and how they are the base for the multiple meanings of many expressions. IS2HBG clearly recognised this: “*That is why different words relate to each other*”. Students’ comments illustrate their raised awareness of how metaphors structure the speakers’ way of thinking and the use of language. IS2HBG stated:

The similarities were what I liked the most. When I thought about it, it is real that we are similar in our life to a journey. Also, time is really important like money. You taught something that is always in people’s thoughts.

This student recognised the relatedness of conceptual metaphors to speakers’ everyday lives. That is, people think of one domain in terms of the other; they think of time in terms of money. More specifically, mapping of the conceptual metaphors was referred to positively in the interviews. Mapping includes the set of similarities between aspects of the two domains or elements, as IS2HBG declared:

Out of the whole study, I loved the mapping of the metaphors. I feel it is true that these things and their different points are similar. We cannot see life, but we can make journeys, that’s why there are metaphors. I loved the idea.

This student perceived the idea of conceptual metaphors as being helpful and highly conducive to language comprehension. Specifically, she believed it to be very prevalent for people to make sense of an abstract concept such as life using a concrete idea such as a journey. Students also felt that the set of similarities between the source and target domains is very logical. For instance, how a traveller in a journey is similar to a person living a life, and how the destination in a journey is similar to the person’s goals in life. Owing to the existence of metaphor, we can use a limited number of expressions to describe the numerous things and abstract concepts in our lives, which IS1LBG realised:

With metaphors, I feel we can say different things easily and talk about things we do not see. I feel it makes understanding English easier.

Metaphor awareness, therefore, improved students' understanding of how the English language forms metaphors, and how words are related. Ultimately, this contributed to more effective understanding and learning of the language. In addition, students mentioned that learning about metaphors increased their knowledge about the culture of English people. Learning about conceptual metaphors made them more aware of that metaphors could be culture specific. For instance, IS2HBG mentioned:

I learned that metaphors also differ in the culture of English. They think of time as something very important and valuable, and they feel it is always better to make use of the time they have. For us (Arabic speakers), we think of time as a tool that if you do not use it well, it will hurt you, different cultures!

Conceptual metaphors teaching helped the student to understand more about the L2 culture. One interesting example is that IS1HBG mentioned that she understood that metaphoric expressions as 'jumping up and down' as a metaphor because she felt that in the English culture, people tend to be explicit in explaining their happiness and feelings and would jump high if they are happy, which, according to her, was something that is not usually done in her L1 culture.

6.1.2.1.2 Reading Comprehension Improvement

Reading comprehension improvement emerged as one of the most important impacts of the teaching sessions. Six aspects that led to improved reading comprehension were identified in the interviews: improved level of text comprehension; increases in maintaining focus/concentration; better access to the meaning of texts through a better understanding of the words; improved understanding of the relationships between language, text, and the meaning behind the text; more interaction with the text; and use of imagination for texts and words. Each one of these will be treated in a sub-section below.

6.1.2.1.2.1 Improved Level of Text Comprehension

The first positive impact mentioned by seven students was the improved level of text comprehension. For instance, IS2LBG stated that she found reading easier after the study:

I feel now it's not very difficult to read. The study made the reading, let's say, clearer. Before, I used to read in a way that made the text vague and felt that there were some

vague things that I didn't understand. But this time, I feel my reading improved, even when I read anything now, I feel I understand more of the idea the writer wants to tell us and the ideas of sentences and paragraphs combined.

This quotation reveals that she was aware that her understanding of texts had changed, as she was now better at comprehending the meanings behind the texts and the ideas the author was attempting to convey. She could now connect ideas within and between sentences to understand the whole text, which is an important component of text comprehension. Moreover, she was more confident when it came to interpreting and finding meaning in everything she read. This feeling was echoed by six out of eight interviewees, one of which was IS1HBG:

My feelings towards reading have changed. Before the study, I was worried and scared of reading in English. I feel when you don't know a lot of things in English, you will feel it's very difficult, and you say to yourself, let me skip and finish quickly. But when I gained new knowledge, new information, and new words, I felt a bit more confident in myself. I felt like I was reading in Arabic.

In this quote, IS1HBG described how her feelings towards reading comprehension had changed. She thought that lacking vocabulary knowledge in L2 was a barrier to reading and understanding. She added that gaining knowledge and information and learning new vocabulary during the teaching sessions allowed her to worry less when reading any text and made reading in English as easy as reading in her L1. The additional information she acquired eased her anxiety, meaning she allowed herself to take more time, and thus reading became a natural process. This is an important factor for improved reading comprehension; the attempt to focus on and properly understand the different parts of the text. This same sentiment was also reflected in the words of five other interviewees, including IS2HBG:

In the reading test we had before the study, I didn't understand the text very well. But your lessons made me focus on things that I didn't use to focus on, like words and sentences and different parts of the text.

That is, this student was able to focus on different elements of the text including words, phrases, sentences, and paragraphs in an attempt to understand the ideas and meanings behind the text.

6.1.2.1.2.2 Increase in Concentration

The increased ability to focus on reading for an extended period of time was another positive impact. In addition to the quotes mentioned previously, this impact was mentioned by six students, including IS1LBG:

Before your study, when I read, I didn't put in my mind that metaphors would be important. I used to read fast and go over the text. Now, I read slowly and try to understand and focus on every sentence and phrase I read. I try to think of all meanings. So, when I start to answer the questions, my answers will be correct.

She mentioned that she began to focus on significant details and patterns in the text to develop a thorough understanding of the text's meaning. She started to appreciate how every sentence and expression contributed to the bigger picture and the overall meaning of the text. Indeed, students in general confirmed that maintaining concentration while reading to interpret and find meaning in everything within the text was one of the positive impacts of the study. This could be due to the new information and new knowledge students gained.

6.1.2.1.2.3 Accessing Text Meaning Through a Deeper Understanding of the Words

Another positive impact frequently mentioned by the students was accessing text meaning through a deeper understanding of the words. All eight participants in the interviews mentioned that one of the main reasons for their reading comprehension improvement was their increased vocabulary knowledge. That is, learning new vocabulary items and new meanings of words, both literal and metaphoric, led to a deeper understanding of words and phrases in the text, and their relationship to one another, which IS1HBG recognised:

When I learned the new vocabulary through your teaching sessions, the ones you displayed on the power-point, they helped me a lot in understanding the reading text. To be honest, now I give the words more time and I focus on them to understand them, not like before.

In this quote, the student clarified that the newly acquired vocabulary was one of the main factors that helped her comprehend the texts. This led to more focus on the words and thus a deeper interpretation of the overall meaning intended in the sentences. She also added that her

awareness of the idea that words can have two meanings, literal and metaphoric, was a prominent factor in improving comprehension:

You really need to focus to figure out the exact correct meaning. What did the writer mean by this word and this sentence or phrase? I used to understand the literal meaning which did not help me. But now I'm starting to understand and try to think of other possible meanings.

As declared in the quote above, prior to the study, the student only considered the literal meaning of words which did not result in a successful understanding of the text. Indeed, comprehending only the literal meaning does not explain the usage of words in the sentences and does not contribute towards building an understanding of the meaning of the phrases and sentences. However, this changed after metaphor awareness was encouraged and students were taught the metaphorical meanings behind the words. All eight students in this study noted the importance of depth of thinking in relation to words and texts; that is, understanding the words and phrases more deeply, which consequently led to a deeper understanding of the texts. This was articulated by IS1HSG:

I can not only understand words as they appear and go over them quickly. I have to think more deeply and assume other meanings; imagine other possibilities. The metaphors and the words made me expand the way I think. I stopped thinking in one dimension, so I expanded my thinking and started looking for other meanings for words I read or hear.

In this quote, IS1HSG elaborated on how the study facilitated a deeper level of processing and thinking when she read or heard words. For this participant, before the intervention, understanding language segments and thinking was on a shallow level of processing; skimming over sentences to understand the text without dwelling on the individual words. However, after the intervention, she expanded her understanding and went beyond the language to guess and imagine the story and all the other possible meanings. It was as if the awareness students gained enlightened the way they thought about words and meanings and led to a better understanding of vocabulary in texts, both literal and metaphoric. They were able to pick up meaning through contextual clues. Deeper thinking allowed students to understand how different words relate to each other in the texts. This clearly illustrates the positive impact of the

study on students' understanding of context, vocabulary, and the interaction of words that has the ultimate benefit of helping them understand the texts as a whole.

6.1.2.1.2.4 Improved Understanding of the Relationship between Language, Text, and the Meaning behind the Text

Another positive impact reported in the interviews was the improved understanding of the relationship between language, text, and the meaning behind the text. Understanding the text is not solely based on comprehension of words; it requires understanding the integration of the basic text, the language of the text, the stories, the context, and the writer's world. In several quotes, students in the interviews claimed to have gained more understanding of the nature of language, how language works, and how they improved their ability to seek different possible meanings beyond the literal meanings. They began to understand how language can be metaphorical and grasped the similarities and differences between domains. Therefore, as a result of the study's intervention, they developed a sense of what the writer really meant in the text beyond what he or she actually said. This resulted in the students learning to carefully read the text to look for authorial intentions and to explore different meanings. As IS1HSG said:

Now, I don't understand it in the literal sense, now I understood the idea of metaphor correctly. I began to feel the writer, and how and why he used certain phrases to convey what he was saying and what he felt. Could these phrases mean something else (the second metaphoric meaning)? I then looked in the text to understand the full meaning.

As this quote illustrates, the metaphor knowledge this participant gained inspired her to question whether the phrases could mean something different from their literal meanings in the text. This allowed her to better appreciate and ponder the intentions of the author at the time of writing. Indeed, she explained how the knowledge she gained from this study helped her to understand what the writer may have possibly meant by the words used in the text, what the writer was thinking when writing, and perhaps, what they were feeling. As soon as this student began to perceive how words worked and what the writer possibly meant, she started searching the text to derive meaning. This important insight confirms how the metaphor awareness training led to an understanding of the relationship between the author's possible writing intentions, the language of a text, and the meaning of a text.

6.1.2.1.2.5 More Interaction with the Texts

More interaction with the texts was also one of the positive impacts revealed in the interviews. Five students mentioned that they were better able to understand and engage with the events presented in the text, which IS1HBG mentioned:

I try to feel what the speaker feels because the texts are based on real stories. I try to feel the events as if they are real. Also, I try to understand the words in a different way, not the one I'm used to. Not only one idea and that's it. I try to understand and think of the other meanings they could have.

Better interaction with the texts included paying more attention to elements that were important, confusing, or caused reactions. It also included more engagement with the incidents in the story and more connection with the writer's feelings. Moreover, there was a deeper processing of vocabulary when the students felt a personal connection with the language, and they began to understand how the language presented could be metaphorical. Once students learned about metaphors, deeper processing ensued and more interaction with the reading texts resulted. Students mentioned they could relate to the events that happened in the stories and that felt they were the writer living the story. They mentioned that while they were reading the stories, they felt sad in places and happy in others, which all revealed a high level of interaction. Additionally, they mentioned their imagination of themselves as being the main character in the stories, discussed in the following section.

6.1.2.1.2.6 Imagining the Stories

Another positive result of the intervention was that the students were better able to picture the story and to recreate the feelings and mental images of the words they were reading. IS1HSG spoke of this after the teaching sessions: *"I could imagine the story in my mind"*. Similarly, IS2LSG mentioned the same thing: *"I can visualise the story, the events, and the characters"*. In the interviews, six students referred to imagining the big picture of the story, the words in the reading texts, events, and the characters in the stories as real people around them. The interview with IS2LBG is an example:

When I read the text in the post-test, I had a mental image of most words.

All the similarities and comparisons were very helpful.

According to IS1HBG, learning the similarities and comparisons between the two domains of the conceptual metaphors facilitated her imagination of the story and the words in the reading texts, and consequently, increased her interaction with the text as well as her comprehension. Use of imagination is also discussed as a sub-theme further below.

However, one student only in the intervention group did not report reading comprehension improvement. She was a low proficiency student, IS1LSG, and when was asked about her reading comprehension, she mentioned that she continued to find the reading texts confusing even after the intervention:

I still feel reading is hard for me. When I came to read the text, I think I did not learn the new words well, that's why I could not answer them.

She was aware that her reading comprehension had not improved as she was not able to recognise the taught expressions in the texts. This meant there was a persistent difficulty in understanding the texts, as understanding metaphoric expressions was a significant factor for comprehension. When asked to elaborate, this student mentioned that she was hesitant in choosing which meaning of words, such as 'destination' was correct in the specified context.

6.1.2.1.3 Vocabulary Learning

Vocabulary learning was another important impact derived from the interviews. This includes expanding breadth of vocabulary knowledge, adding depth to vocabulary knowledge, understanding vocabulary in context, and enhanced vocabulary retention. Each one of these will be discussed in a sub-section below.

6.1.2.1.3.1 Expanding Breadth of Vocabulary Knowledge

All students interviewed believed that they learned new vocabulary during the intervention, as illustrated by IS2LBG's comment: *"I feel now that I have added new vocabulary to my repertoire"*. In addition, IS2HSG agreed: *"The new expressions are the most beneficial thing I learned in this study"*. All students confirmed that they had expanded their vocabulary knowledge and the teaching sessions made it easier for them to learn the expressions. The

students referred positively to the teaching methodology and the information they learned about the expressions. Several elements in the teaching sessions facilitated vocabulary learning, such as images, meanings, and practice exercises.

6.1.2.1.3.2 Adding Depth to Vocabulary Knowledge

Adding depth to vocabulary knowledge was mentioned by seven students as being one of the most beneficial impacts of the study. This refers to learning new metaphoric and literal meanings of previously known words. This is illustrated by the following exchange:

IS2HBG: The most beneficial thing I learned in this study was the metaphoric meanings. Some words I already knew, but I had never thought that they would mean something else. Something related to a metaphor and a similarity between two things.

Researcher: Can you give an example?

IS2HBG: Words, for example, that are used to express the directions. I did not expect that we use them too to express a goal in our life. But I totally believe it fits now, because life is like a journey, indeed.

As demonstrated here, learning about conceptual metaphors was very useful in helping students acquire different meanings of the expressions. More specifically, it was effective in understanding the reasons behind the metaphoric meanings of the expressions learned. To these students, conceptual metaphor explained the extended meanings of the target words and other words not learned during the study. Indeed, the conceptual metaphor was an effective tool to help them differentiate between the distinct meanings of the expressions. IS2HSG declared how her way of understanding vocabulary improved:

Your study has taught me that when a word seems to be metaphoric, it could also have a literal meaning. That means that it has two meanings: either literal or metaphoric, and in the study, I learned to differentiate between them. I now can understand which meaning is the right one.

However, it is important to not only learn the metaphoric meanings of the vocabulary, but also to realise that multiple meanings, literal and metaphoric, co-exist and relate to one another. IS2HSG learned about conceptual metaphors and gained metaphoric knowledge, which led to a

realisation that there is a logic behind phrases and words. Ultimately, this resulted in a better understanding of vocabulary.

6.1.2.1.3.3 Understanding Vocabulary in Context

Having the ability to identify the intended meaning of an expression in a sentence or a text was one of the benefits of the study as identified by participants. IS1HBG said: *“I can now know from the context whether the word is literal or not”*. The study enabled students to make more accurate choices regarding the correct meaning of a word in relation to a particular sentence and context. IS1HBG continued saying:

I knew before that some words would mean something else depending on the context, but now the words you explained in the session, I understood and remembered. For instance, if I read a sentence or I read a story and there are some words that don't make sense in the context of the story, now what I directly imagine and comes to my mind is the metaphoric meaning you explained.

In this respect, metaphor awareness increased the students' abilities to pick up the correct meaning through contextual clues. As IS2LBG said, when taking the vocabulary and reading tests, she could better guess the intended meaning, which she was unable to do prior to the intervention:

Before the study, I relied completely on what I understood from the sentence itself which is the literal meaning and did not try to think of what is actually meant in the sentence. But after you taught us, I knew there were metaphors behind the sentences, and tried to think which meaning of the word was related here and I answer on that basis.

It seems, therefore, that when students read the sentences, they attempted to consider which meaning made sense in that particular context, and to try to figure out whether the meaning was literal or metaphoric. Hence, they became more active readers, which improved sentence comprehension and consequently reading comprehension.

6.1.2.1.3.4 Enhanced Retention

Another positive impact of the teaching sessions mentioned in the interviews was enhanced retention of the vocabulary learned in the study. For instance, IS2LBG said: *“I feel that I easily remembered the words in the tests when I saw them in the reading texts”*. Six students mentioned that during the post-tests, it was easier for them to remember the expressions with their literal and metaphoric meanings. The durability of the trace (immediate and two-week delayed post-tests) was a positive outcome of the depth of processing involved in learning the words during the sessions. Learning the conceptual metaphors behind these expressions and having a deep level of knowledge about the similarities between the two domains led to better learning and retention, as confirmed by IS2HSG:

Learning the ideas of the metaphor, the mapping, and the metaphoric comparisons helped me understand and remember words and meanings.

Students valued and thus paid more attention to understanding the idea of the conceptual metaphors, which ultimately enabled more involvement in the learning process. Knowing the origin behind the meanings of the expressions facilitated better memorisation and consequently better storage in their long-term memory. This made the words easier to recall during the post-tests, as observed by IS2HBG:

During the tests, I remembered the expressions and ideas you taught us. I remembered the way you said them and how you explained each meaning. You explained deeply all possible meanings of the words, gave an example, and then we practised the use of these words.

In light of this quote, it can be seen that certain elements in the teaching sessions clearly assisted retention in the view of the participants. That is, during the teaching sessions, the students reported that they learned the words with a greater degree of semantic involvement. After they learned about the conceptual metaphor, they were taught the two full meanings of each expression, learned an example, and practised using the metaphors. From what students reported, this seemed to have allowed the students to process the words better which facilitated better retrieval from memory.

Moreover, the use of pictures was considered an important factor in vocabulary retention by six students, including IS2LBG:

Pictures combined the metaphoric and literal meanings and made them easier to understand, learn, and also remember.

The pictures linking the literal meaning with the metaphoric meaning facilitated the process of learning and retention of the expressions. The pictures assisted learning the words in the first place, as declared by IS1HSG: *“Pictures helped me understand the meaning”*. Students commented on the fact that the pictures not only connoted the metaphoric meanings, but also the literal meanings of the expressions, which enriched the understanding of the conceptual metaphors. IS1LSG elaborated on this, saying:

I memorised the images with the main thing in the picture I already knew, and I related them to the meaning of the word.

She explained the way she learned the meaning displayed in the picture and how she connected it to the meaning of the word. Students also mentioned that visual aids were sometimes easier and faster to retrieve, such as IS2HSG who said: *“The picture came to my mind once I read the word.”* IS1LBG added the following: *“Sometimes, and for some words, I remember the picture because I feel I sometimes remember the picture more than the linguistic item”*. Moreover, colours and pictures related to the words enhanced retention according to IS2HBG: *“The pictures let me remember the words, they really help me. Especially the coloured pictures”*. Pictures used in the teaching sessions, therefore were perceived to have improved the learning and stimulated retrieval of the linguistic words.

6.1.2.1.4 Use of Imagination to Imagine Stories and Words

Interestingly, seven out of eight students reported their use of imagination during the study. Learning about conceptual metaphors seemed to have facilitated students' creation of mental images. Throughout the interviews, students mentioned that they imagined the stories and the events in the stories, which was pointed out by IS1HBG: *“I imagined the story events like I'm watching a movie”*. While she was reading the story, she saw it as a movie and visualised the characters doing the actions, drawing on her personal memory or images of movies she used to watch. When asked to elaborate, she mentioned that this helped her in understanding the events

in the stories more easily. Moreover, IS2LBG agreed: *“When I read the text in the post-test, I imagined the story, and I had the mental image of most of the events; life is a journey, time is moving”*.

Thus, learning about metaphors allowed students to be able to imagine the metaphors and imagine the physical movements and different elements that comprise the metaphors. As IS1HBG said:

In the delayed post-test, I imagined that happy meant you are up and sad meant someone sitting down in a dark corner of a room. I felt that time also can walk as life, it can walk and stop.

As shown in this quote, being taught the conceptual metaphors facilitated the student’s ability to imagine new conceptual metaphors in the delayed post-test which were not taught: HAPPY IS UP and SADNESS IS DOWN. This could be due to the improved imagination that resulted from students developing metaphor knowledge.

Moreover, students imagined the metaphoric meanings of the words taught during the sessions, as IS2LBG stated:

I imagine multiple times the metaphors you taught us. For instance, if I read a sentence or I read a story and there are some words that don’t make sense in the context, now what I imagine and comes to my mind is the metaphoric meaning you explained.

According to participants, the extensive explanations and elaborations of the words’ meanings offered during the teaching sessions enabled them to create mental images of the words. As mentioned by three students, including IS2HSG, the use of pictures encouraged imagining visual representations of the expressions and the metaphors:

I like the pictures; now I can have the mental image clearer and can imagine words and metaphors in stories.

Pictures used in the intervention connected the metaphoric and literal meanings of the expression. Using these images for educational purposes was effective in promoting students’ envisioning. These findings suggest that learning about conceptual metaphors; receiving extensive explanations of vocabulary; and using pictures, boosted students’ abilities to visualise

stories, events, characters, learned metaphors, and untaught metaphors. Together, these factors improved and enhanced the learning process for these students.

6.1.2.1.5 Academic Progress

One of the positive impacts of the teaching sessions was the extent to which students perceived their academic progress to have improved. In the interviews, students discussed their positive feelings toward their academic improvement: they believed that they had attained both short and long-term educational goals.

6.1.2.1.5.1 Gradual Improvement

Most of the students in the study stated that they progressed in their learning. This included different aspects of learning, comprising vocabulary learning, reading comprehension, metaphor learning, and better use of strategies, the latter being discussed in detail in Section 6.1.4. IS1LBG articulated this well, saying: *“I really benefited from the study. When I saw my reading marks after the study, I felt proud”*. She was aware of her improved reading skill and, consequently, her reading marks on the test, which compared to her marks prior to the study. IS2HBG also echoed this improvement, stating: *“I am really happy, I feel my reading really improved, even when I read a book now, I feel I understand more”*. Her enhanced understanding and marked progress during the study led to these feelings of elation, which could be considered an important motivating factor for additional learning.

Furthermore, a gradual improvement in vocabulary knowledge was another achievement mentioned in the interviews, and was discussed by IS1HBG, who said: *“By the end of the study, I can say I know the words and their different meanings which helps us improve our English”*. According to this participant, gaining vocabulary knowledge throughout the study was a fruitful development that became an important factor in improving her language skills in general. Indeed, she felt she developed her ability to acquire the targeted expressions, which included learning their multiple meanings, both literal and metaphoric. All eight students reiterated this positive outcome. Even more so, six students, including IS2LBG, believed developing metaphor knowledge was a successful outcome of the intervention. She commented again:

I learned a good number of English metaphors, and this also made me connect the idea to other metaphors. I knew about metaphors before the study but did not understand well.

This student, in addition to acquiring new metaphoric expressions, learned about conceptual metaphors, which she did not comprehend well before the intervention. Once she developed metaphor awareness, she tried to transfer this knowledge to understand previously unknown expressions.

6.1.2.1.5.2 Enhanced Test-taking

Another beneficial consequence of the study was finding tests easier and being more likely to answer questions correctly. Four students, including IS2LBG, mentioned this:

When I read the questions, the choices became easier because I remembered how you explained the words; I understood more. I kept what I learned in my mind and sat down to read the questions. I saw if the question was related to what I had learned and resolved my answers on this basis.

According to this quote, it seemed that gradual progress in learning allowed the student to make correct choices when taking the tests. For her, explanations during the teaching sessions were the factor which led to more understanding of the vocabulary tests and the reading texts and hence easier test taking for the students. Moreover, IS2HBG declared that learning words helped in answering the questions and achieving good scores on the tests.

On the first test, I felt I was confused. Which meaning to choose? After we learned the words and then I had the test, I felt it was much easier. I could answer the questions easily. Now, when I glanced at the word, I understood it directly.

When learning the differences between the two meanings for each word, confusion during the tests decreased. Thus, a quicker and more complete understanding of the vocabulary, when exposed to it, was a result of successful learning of the vocabulary.

6.1.2.2 Impacts on Affective Aspects

Students reported the intervention's positive impact from an affective perspective: motivation and more engaging content.

6.1.2.2.1 Motivation

One of the dominant themes in relation to students' perceptions in the study was that the teaching sessions were enjoyable, fun, and a source of motivation. Out of eight students, all but one claimed that the intervention was one of the most enjoyable and motivating learning experiences they had ever encountered. Students identified three factors that promoted motivation: extrinsic motivation, intrinsic motivation, and personal interest.

6.1.2.2.1.1 Extrinsic Motivation

According to three students, motivation was related to extrinsic factors: getting better grades in university courses and the need to improve their English in order to gain their university degree. For instance, IS2LSG stated:

Over time, I knew that it would benefit my English in my university studies. It will help me get better grades in my courses.

For IS2LSG, motivation was related to extrinsic factors, namely, to gaining higher grades in her university studies. In this light, she was aware of the benefits this course would have, which was an important factor in her enjoyment of the sessions and motivated her to pay attention and learn as much as possible. In the students' university, courses were delivered in English and all textbooks and teaching materials were in English, which was in contrast to their high school education, where most courses were delivered in their L1. Therefore, students believed that the intervention would benefit them in their studies at university. Moreover, when three students asserted that this teaching methodology motivated them, they compared it to their usual English language teaching classes in the university, which they believed were mainly focused on teaching grammar rules and did not benefit them a lot. The students expressed their wish to be taught in the same way that was adopted in this study. IS1HSG declared:

Actually, I discovered new things. I told myself that such a kind of study would help my English and help me to succeed in graduating with a high score.

Furthermore, these three students stated that learning about metaphors, learning new vocabulary, learning new meanings for the vocabulary, and practising the vocabulary was more

beneficial and more motivating than the traditional way of teaching, in which they only received explanations for new grammar rules and new vocabulary.

6.1.2.2.1.2 Intrinsic Motivation

For seven interviewees, motivation was also related to intrinsic factors as they were interested in the study for the sake of pure learning, rather than just to pass their degree. According to the students, motivation was related to the following intrinsic factors: their interest in learning English, their wish to easily communicate with other people, and their personal development. IS1HBG stated:

I felt that it really held my attention. I want to know these things because I'm interested in learning English. Also, I like when I watch movies too, I understand more. I enjoyed them [the classes].

According to IS1HBG, she devoted more attention to the topic and expended more effort in learning during the sessions than she usually does in her English classes. Her intrinsic interest in learning the language boosted her motivation and she acknowledged her interest in and appreciation for the materials delivered and learned. Moreover, as another motivating factor, several of the students mentioned their wish to ease their communication with English speakers. As IS2LBG observed:

First, I feel your way of teaching was fun and beneficial. Second, the way we learned English with you, the vocabulary and the metaphors, and the similarities between things are elements that will improve our English, especially that I like to be more confident when speaking with English-speaking people and understand more about them and how they use such expressions. It made me feel happy.

As this quote makes clear, IS2LBG enjoyed the intervention because she was interested in communicating easily with native speakers. In addition, learning about the culture of their L2 encouraged the students to continue participating in the intervention. IS2LBG and the other two students spoke of their interest in personally developing their abilities to communicate with and understand the culture of the language they want to be proficient at. They mentioned that learning about metaphors added to their knowledge of how specifically English people think of different things, for instance how they think of time as money and something very valuable,

therefore English people are usually good at making the best of out of time. They are also motivated and have a desire to understand English movies, ads, songs, and posts of their favourite influencers on social media.

6.1.2.2.1.3 Personal Interest

Personal interest and individual reasons also led to students' enhanced motivation during the sessions. For instance, IS1HSG declared:

I knew before that there are metaphors in English. However, I forgot everything about them. Your study reminded me of them and how I was very excited to learn about them. How they started and why.

She was enthusiastic about understanding how metaphors were formed, the reasons and stories behind these metaphoric expressions, and their meaning. Her curiosity to learn about metaphors then allowed her to engage actively in and enjoy the learning process. Moreover, IS2HBG commented: *"I usually wondered why words could have distinct meanings and where words come from"*. Thus, the student's motivation stemmed from a desire to question how words were created and from a personal interest in learning the reasons behind the existence of diverse meanings. Four students were personally interested in gaining knowledge of metaphors, the stories behind their creation, where words come from, and the reasons why words have different meanings. These students also mentioned that metaphor knowledge was important to learn about and a significant aspect of language learning that many types of curricula do not address.

6.1.2.2.2 More engaging content

More engaging content also emerged as an impact of the intervention, according to the students. Students felt they were engaged in the learning process and had an appreciation for the importance and relevance of the teaching sessions, and the benefits they felt they might gain. Analysis of the data revealed that there were three factors that enhanced and encouraged students' involvement in learning: interesting topics, variety of teaching materials, and more authentic learning.

6.1.2.2.1 Interesting Topics

The nature of the topics selected for the interventions was the reason behind six students' motivated and engaged behaviour during the sessions. IS2HBG stated:

I liked the selection of topics, when you talked about time and achieving goals. Even the topics in the stories we read were really interesting to learn about, not like the ones we have in the curricula. That is why I enjoyed reading them all.

Students thus found the topics of the intervention to be more interesting compared to what they are used to in their standard university curriculum. Paying attention to the students' interests could therefore motivate them and help them to learn more actively. Within the context of this study, the feeling of enjoyment in relation to the selected topics contributed to the students' enthusiasm, eliciting their willingness to continue and persist in the activity of learning throughout the intervention.

6.1.2.2.2 Variety of Materials

In addition to the importance of selecting interesting topics, the variety of materials employed in the teaching sessions made the study engaging and enjoyable according to seven students. These students identified some of the elements in the teaching sessions that created a motivating learning environment. Such engaging elements included the mapping of conceptual metaphor, the tables, the pictures, the examples, and the exercises. Using the mapping of similarities and the idea of linking the metaphoric to the literal meaning of the words was one of the aspects of the study that the students thought was especially interesting, as stated by IS1HSG:

I honestly really like the mapping. The idea of how life is similar to a journey. Although the idea is a bit complicated, the mapping and the discussion made it very interesting and easier to understand.

Mapping, which introduced the conceptual metaphors, activated the students' interest and enhanced language learning. Mapping included how different parts of one domain are similar to parts of another domain. The clarity of the mapping attracted the attention of the students, and they positively interacted with the idea. They raised questions during the sessions to learn more about conceptual metaphors.

Moreover, seven students asserted that the use of pictures that showed the origins of the metaphoric expressions was one of the main aspects of the teaching method that they enjoyed. As articulated by IS2HBG: *“Learning through pictures was really fun. They made me focus more while learning”*. The presence of word-picture associations and meanings increased students’ motivation to learn the words and attracted their attention during the sessions. These tools also provided extra aid that assisted students in understanding different meanings of the words. IS1LSG declared: *“Pictures helped me understand both meanings of the vocabulary”*. Pictures connected the literal original meaning of the vocabulary with the metaphoric meaning, which facilitated learning the metaphoric expressions fully and the relations of different meanings of words. IS1HSG also stated: *“I really liked the pictures the most. I feel they always make me learn the words smoothly and remember them more”*. Pictures as visual tools thus made the perception of different meanings easier and facilitated retrieval.

Students, additionally, mentioned that they favoured the choice of the pictures, including the colours, and what they symbolised. For instance, IS1HSG said:

I really enjoyed the pictures a lot. The colours and everything about the pictures were strong, I mean, you can easily remember them.

For the students, pictures aided memory recall and made remembering the words much easier. In addition, students emphasised that presenting literal meanings, metaphoric meanings, examples, and pictures alongside vocabulary were effective in helping them fully understand the meanings of words. This made the learning of words enjoyable and increased retention. As IS2HBG mentioned:

I really liked the idea that for each vocabulary item, you put a picture. And then literal meaning and then the metaphoric meaning. It made learning and remembering them smoother.

Another interesting element of the teaching materials was the use of tables, as IS2LSG mentioned:

I really enjoyed the organisation of the teaching materials and the flow of ideas, and what I liked the most was the tables. I like everything to be organised, and it was very understandable.

Tables were therefore an effective tool to display the important information and attract students' attention. Tables arranged all the important information students needed to comprehend and learn during the sessions.

6.1.2.2.2.3 More Authentic Content

Another factor that facilitated students' engagement was the authenticity of the material which was predominantly related to real-life content. IS1LBG stated:

I could relate the teaching sessions to my life. It touched me; I could really feel what the author felt. I face difficulties in my college, and I have planned for things that did not work out. I could relate to the metaphors.

This quote shows that the student was more involved in the learning, as she was able to personally relate to the metaphor LIFE IS A JOURNEY. She was able to directly connect what she learned in the teaching sessions to her real-life experiences and problems. This connection encouraged her to think critically and to comprehend the author's emotions embodied in the stories. IS1HBG also elaborated on this feeling:

In the first teaching session you gave us, Life is a Journey, the vocabulary was very nice and enjoyable. In addition to the words, you talked about life, and yes, it is true that life may not go the way you planned (the speaker used an Arabic metaphor: life does not walk the way you planned for). This actually was my life for a period of time, it did not go as I planned. I was planning for something, and something else happened. The session was very fun for me, not only beneficial.

As illustrated in the quote, IS1HBG appreciated the relevance of the topics of the teaching sessions to real events in her life and to her own personal experiences. She was even able to relate the metaphor to a metaphor in her L1. In addition to the selection of metaphors and the topics taught, students commented on the relevance and authenticity of the words. The students had heard these words and read them in different places, and thus they felt the intervention content would be useful and applicable in their real-life contexts. Moreover, three students mentioned the use of authentic examples and exercises in the sessions that stemmed from real-life situations. Using authentic materials was thus another way to engage students'

attention and led to more connection to the teaching materials and hence to better learning outcomes.

6.1.2.3 Impacts on Behavioural Aspects

Students reported the intervention's positive impact on their behavioural aspects: independent learning and intention for future use.

6.1.2.3.1 Independent Learning

Independent learning also emerged from the interviews as an impact of the intervention.

6.1.2.3.1.1 Engaging in Autonomous Learning

Interestingly, the students interviewed described several aspects of their own autonomous learning. For instance, IS2HBG stated:

I acquired new meanings of words and sentences. I really needed and enjoyed this study; you cannot imagine how much. I mean, I do not need just the English taught in the university. After your study, I was inspired, I download an application and started trying to improve my English language.

This quotation showed the student's awareness that she needed to do more than just learn what is in textbooks in order to master the language. This statement also suggested that as a result of her desire and need to improve her language learning, she tried a resource outside the classroom to learn more and practise the language. Moreover, IS2HSG mentioned that the study increased her curiosity about the meanings of new words:

Since you gave us the lecture, I have had a new interest, such that if I see a new word, I search for its original meaning. I felt that this thing (metaphor learning) was very interesting and beneficial.

This statement indicated the student's increased curiosity and interest in learning the original meaning behind the new metaphoric expressions she was exposed to. Without the teacher's guidance, the student took responsibility for independently seeking out new information. IS2LBG also stated:

I really loved your explanation and your way of teaching helped me, really. I enjoyed the course, especially the metaphors and similarities between two big areas. I was just watching about it on YouTube. So, I can learn more about metaphors and can save it in my memory.

She declared that conceptual metaphor teaching sparked enough of an interest for her to use online resources independently in order to improve her knowledge about metaphors. Overall, the intervention seemed to have encouraged students' autonomy to the extent that the students took responsibility and action in seeking extra information about metaphors, meanings of new words, and ways to improve their English learning.

6.1.2.3.1.2 Collaborative Active Engagement

Three students reported instances of collaborative active engagement outside the classroom. Students were involved in group work to develop learning the metaphoric expressions. IS1LBG mentioned the following:

We are helping each other. We write the important words, the ones that have more than one meaning. One of us wrote them on a paper and took a picture of it, so we would not forget the words. Whether they are on the test or not, we know them. We sat together and reviewed them, they're helpful.

This quotation reveals the shared interest among students and their engagement in self-directed and autonomous learning. The students collaborated with each other, took responsibility, and distributed tasks related to the learning of metaphoric expressions. In the quote, the student mentioned an interest in retaining the words outside of test-taking purposes, as the student believed their language proficiency would benefit from such expressions. Another student, IS2LSG, mentioned: *"Yes, we [my other two friends and I] started already from now and practised repeating the metaphors together so we will never forget them"*. This student, along with two classmates, had thus started a learning strategy of repeating the metaphoric expressions several times to retrieve them and make recalling the words easier. The aforementioned group work demonstrates collaborative active engagement among students and the students' willingness to depend on themselves to discover new ways of learning beyond the teacher's resources.

6.1.2.3.2 Use in Spoken and Written Production

Another impact that the intervention had concerned students' current and future use of the learned knowledge. That is, students reported being more able to bring the acquired knowledge into their spoken and written production, which seemed to lead to increased communicative competence.

6.1.2.3.2.1 Use in Spoken Production

Six students believed that the metaphoric words and phrases and the metaphor knowledge they acquired were effective even in verbal communication. IS1HSG stated:

These words are very helpful in our lives; we always need to use them. There is a journey in our life, there are challenges and difficulties. We sometimes go up and sometimes go down; these words are really helpful to use in daily language, especially speaking. We will use them in presentations and talks in English.

This student recognised the relevance of the learned materials, including metaphors and expressions to L2 speaking production. The student found that the conceptual metaphors were an authentic reflection of daily occurrences, and this resulted in her appreciation of their applicability in everyday language. Moreover, the students, through the intervention, found that they needed this device (metaphors and metaphoric expressions) to communicate naturally and effectively in English.

Another student, IS2HSG, confirmed: *"We will use these words a lot. If we travel abroad, they will be very helpful"*. This student thus believed in the efficiency of using metaphors to participate in more authentic conversations and to successfully express ideas in a more meaningful manner. Indeed, metaphors can enhance the delivery of a spoken message and the listener's understanding of the perceived language. Interestingly, IS1HSG mentioned that she had already begun using the learned metaphoric expressions in speaking:

IS1HSG: I already started to use some of the words in speaking I learned during the study.

Researcher: Can you give me examples?

IS1HBG: Unexpected direction, waste of time, and cross that bridge. These are some of the words that I already started to use while I speak.

This excerpt from IS1HBG's interview illustrates how she was able to remember the taught vocabulary and practised using it in different contexts and conversations. When asked about these examples, she stated that she remembered them because they and their meanings were interesting to her as she had not known their origin or uses before the intervention.

6.1.2.3.2.2 Use in Written Production

Four students considered the study to be very beneficial to their writing production. Knowing the words and their different meanings helped the students improve their essay writing. As IS2HSG stated:

I feel it helped me in my writing. It is a significant part of developing writing, especially in descriptive writing if I want to explain things better. Metaphors will make my writing stronger.

This student thus realised that vocabulary is a fundamental part of enhancing writing. Using the learned metaphoric expressions would allow the use of more varied words, better descriptions of ideas, and the formulation of more interesting sentences. This participant, like the other three students, came to believe through the intervention that metaphors would help her to better convey emotions and meanings when writing paragraphs and make the language more interesting and well-formed. IS1HBG added: *"I feel these words will be very suitable and beautiful in writing"*. However, IS1HSG also commented that she would not be able to use all the learned expressions:

The study will help me in writing. I won't remember all the words, but I will remember and use the easier words. Like, over the hill, cross that bridge, and turning point. But I may not be able to recall all words when writing an essay.

Recollection of the learned expressions is a significant factor in whether learners use them in verbal or written production. As IS1HSG noted, easier words tend to be retained and retrieved in writing while more difficult expressions are not recalled. Her prediction of her own

ability to remember some of the learned vocabulary, but not each and every word, is realistic. To sum up, as vocabulary represents one of the most central skills necessary for improving L2 language skills, the importance, authenticity, applicability, and relevance of the learned metaphoric expressions allowed students to improve other areas of communication.

6.1.2.4 Reported Difficulties

6.1.2.4.1 Similarities of Words

The analysis of the interview data revealed a difficulty that two students faced in differentiating between the different meanings of some expressions. As IS1LSG commented:

You feel that some words are mixed together. It was hard for me to tell. In some sentences in the tests, I felt that some metaphors are similar or unknown to me. I could not tell which metaphoric meaning was correct.

This indicated perhaps unsuccessful learning of the expressions in the intervention sessions.

6.1.3 Comparison Group

6.1.3.1 Impacts on Cognitive Aspects

Students in the comparison group reported cognitive impacts of the teaching sessions, and three main sub-themes emerged: reading comprehension improvement, vocabulary learning, and use of imagination.

6.1.3.1.1 Reading Comprehension Improvement

One of the benefits referred to least among the participants in the interviews was reading comprehension improvement. Only three students (two higher proficiency and one lower proficiency) believed that their reading comprehension improved after the study. CS1HBG commented:

Of course, my reading improved. Reading is about also understanding the meanings of words from the text. I understood the reading texts after your study because of the explanations. The teaching certainly had an impact.

CS1HBG thus found that the teaching improved her reading skill due to the vocabulary added to her repertoire. She was more able to access the meanings of the texts in the post-tests based on her knowledge of many words and their meanings in context. CS1LBG additionally stated:

I feel my understanding of the reading really changed. Maybe because I could understand more words and faster. And when there is an academic reading text, I feel I can understand it more.

This suggests she felt more confident being able to read faster than before the study. It is true that the addition of more words to learners' repertoires can lead to faster reading. However, it is worth mentioning that speed of reading does not guarantee or mean better reading comprehension. Still, CS1LBG's scores in the reading tests improved throughout the study.

Other students in the interviews, when asked about their reading comprehension, did not find that understanding reading texts had become easier. CS2LSG declared:

I don't feel that my reading comprehension improved compared to before the study. I feel confused, and when I do not understand, I skip. Maybe I did not practise well after the teaching.

Students still found some difficulty in grasping different meanings and ideas in the reading texts after the study. Such confusion led students to skip difficult or unknown parts. CS2LSG believed if she had the chance to revise what she had learned, this would have enhanced her understanding of the texts.

6.1.3.1.2 Vocabulary Learning

Among the impacts of the teaching sessions, learning new words was the impact that students most frequently mentioned. Participants reported that the teaching sessions helped them to learn new vocabulary. Two main factors emerged in relation to vocabulary learning, which are expanding breadth of vocabulary knowledge and adding depth of vocabulary knowledge.

6.1.3.1.2.1 Expanding Breadth of Vocabulary Knowledge

The participants mentioned that the sessions provided an opportunity for them to learn new expressions. For instance, CS1LBG mentioned:

What I found very effective about the study is that I feel I acquired new vocabulary.

All interviewees also referred to this benefit first when asked about the impact of the study. The vocabulary taught during the teaching sessions was mostly new to students, and the expressions were not usually taught in the students' previous English classes. As CS1HGB said:

I enjoyed the explanation and learned many words from the very beginning. Most words we did not learn in high school or in university.

Students considered the teaching sessions to be an important source of new vocabulary which usually was not the case in their English sessions when in school or in their current classes at university. It is worth mentioning that the teaching classes delivered to the comparison group included semantic explanations of the expressions' meanings in relation to the taught topic.

6.1.3.1.2.2 Adding Depth of Vocabulary Knowledge

Students also declared that they learned new meanings for some words they already knew. CS2HSG claimed:

A new thing I learned is other meanings for words. The explanation and the clarity of meanings were the best.

Learning different meanings of common words allowed the students to understand the words more deeply. Some of these meanings were entirely novel to the students and expanded their vocabulary knowledge. Four students mentioned that they had the chance to learn a lot about the targeted vocabulary and practise the words in depth. For instance, CS1HGB said:

I understood from your teaching that words have different meanings. I acquired new meanings of words from you. You explained every word with its meaning, and you linked it with an example.

This detailed information when introducing each word allowed for better learning of the words. CS1HGB also added: "*we had the opportunity to practise them*". Moreover, she, along

with another student, commented on the importance of the practice questions at the end of the sessions. They found the practice questions to be effective for reinforcing each word's new meaning.

Interestingly, one student, CS2HBG, mentioned that she learned the metaphoric meanings for the first time. She stated:

I understood from your study the metaphoric meanings for the words. I knew the words had different meanings. But what usually comes to my mind is the literal meaning of the words. In your study, I felt it's like Arabic, the word could have one literal meaning and one different (metaphoric) meaning.

This claim is interesting as no mention of metaphor or metaphoric meaning was present in the teaching sessions for the comparison group. This shows that the student was able to relate this to her knowledge about metaphoric meanings in her L1. As she already knew some of the literal meanings of the words, learning the other meanings helped her realise that the other meaning was figurative (the opposite of literal). Also, this could be explained by the metaphoric knowledge being intrinsic to human thinking, as discussed in Chapter Two.

Another positive impact of the comparison group teaching sessions mentioned in the interviews was a deeper understanding of vocabulary and expressions. CS2HBG stated:

For my general information and the things I knew, even the things I already knew, when I learned them with you, I understood them more deeply. Do you understand? I loved your teaching and the information you explained.

According to this participant, the teaching method and the information learned led to a deeper comprehension of the vocabulary. Elements of the teaching method included tables that contained the vocabulary, the meanings, and pictures. CS1LBG mentioned:

I liked the idea that every word has a clear explanation and meaning, and there was also a picture to show the meaning.

In this quote, clarity of the explanations and meaning along with the use of pictures were effective in learning the vocabulary items. CS2HSG mentioned:

The teaching method was fun and simplified. What I liked is that it was clear. I didn't feel confused or distracted. There was the vocabulary and its explanation. I cannot say that I did not understand. It was nice and easy.

Clarity of instruction and simplification of ideas were four students' favourite aspects of the sessions. Clarity helped avoid confusion and attracted the students' attention to focus on learning. Clarity is fundamental in teaching materials which provides better opportunities for language learners to learn and re-learn new things and concepts.

Additionally, students liked the use of pictures along with the vocabulary. For instance, CS1HBG declared:

For me, having both the explanation and the picture helped in learning the words. Because sometimes when I see the meaning, but no picture explaining it, it will not necessarily be difficult. However, the picture could make me imagine more the real meaning and to perceive it well.

Five students found that the explanations of word meanings included in the tables along with the pictures were very effective in learning the vocabulary items. As previous quotes show, using images made the vocabulary material more meaningful, helped the students understand the vocabulary easily, and made the learning more fun. Additionally, use of pictures facilitated deeper understanding of the expressions and could lead to more effective learning experiences. Another participant, CS2HBG, placed more emphasis on the use of pictures:

Honestly, for me, I really enjoyed the pictures, as I told you I have an imagination. So, I loved these pictures. They made the information stick and stay in my memory.

CS2HBG was aware of how effective it was for learning vocabulary to associate the words with pictures that were connected to the meanings of the words. It helped the retention and retrieval of the expressions in her memory. According to this participant, she was a learner who usually used her imagination in learning words, understanding concepts, and comprehending stories. Thus, the use of pictures was very suitable for her individual learning needs.

6.1.3.1.2.3 Unsuccessful Retention

Despite the positive impacts detailed above, students still reported unsuccessful retention of the learned expressions. For example, CS2LSG commented:

When I took the last test, I felt that I forgot many words and their meanings, to be honest.

As affirmed by the quantitative data analysis, students in the comparison group were not able to recall all learned words during post-tests. This was also mentioned by four students in the interviews. They struggled to remember some of the vocabulary when they were put in sentences and reading texts in the post-tests. Additionally, CS1HSG declared that:

I feel I cannot recall all the words I learned in the sessions. I feel if I see them, I will remember some of them, maybe.

This quote, in addition to previous quotes, showed that the teaching method for the comparison group did not result in longer-term memory of the words.

6.1.3.1.3 Use of Imagination

Three higher proficiency students declared that the teaching sessions enhanced their imagination. For example, CS1HSG mentioned:

As I told you, for me and my previous information, the things I knew and learned from you, I understood them now. I got deeper into them and I started to imagine them in a way that is deeper, do you understand? Your way of teaching was nice and helped me imagine. I am a visual person; both the meanings and the pictures helped me imagine.

Although CS1HSG knew some of the words prior to the study, the teaching method facilitated her ability to better imagine those words in addition to the new ones. This increased imagination led to more understanding and learning of the words and stories. As well as the pictures used, the explanation of the meanings supported by the examples encouraged students to visualise the words and phrases. However, no mention of visualising the stories was reported in the interviews with the comparison group students.

6.1.3.2 Impacts on Affective Aspects

The second most common opinion regarding the teaching sessions was that the sessions were enjoyable and included more engaging content.

6.1.3.2.1 Motivation

Three students described the classes as fun and interesting in the interviews.

6.1.3.2.1.1 Extrinsic Motivation

For one higher proficiency student, the enhanced motivation was related to extrinsic factors, as she was interested in learning for the outcome of learning. CS1HBG, for instance, mentioned that:

I liked the study, I feel it will benefit me a lot and my English, That's why I focused on your teaching. I wanted to understand the words' meanings.

She was interested in learning because she felt she would benefit from learning the targeted expressions. These expressions and phrases would be effective for the student's English language development and expanding vocabulary knowledge. This would result in better communication and understanding of the English language. She felt that the expressions would help increase her L2 proficiency level, as these expressions or their taught meanings were new to her.

6.1.3.2.1.2 Intrinsic Motivation

The study enhanced intrinsic motivation for two higher proficiency students. CS2HBG stated:

I liked the study, I feel the words we learned and the sentences were important in English, especially time vocabulary; I enjoyed learning them. Sentences and examples made them seem like usable sentences. I am happy that I participated in the study.

As shown in this quote, the participant appreciated the benefits of the materials she was exposed to during the sessions. In general, the sentences and the words learned were a good resource for the students to illustrate how these words can be used in English. This would also

meet the learners' needs to improve their language. Consequently, they paid attention during the sessions and enjoyed the learning process of these expressions.

6.1.3.2.2 More Engaging Content

More engaging content also emerged as an impact of the teaching sessions. Interviewees identified two factors for more engaging content: interesting topics and more authentic materials.

6.1.3.2.2.1 Interesting Topics

First, the selection of topics was the reason behind three students' engaged behaviour during the sessions. For instance, CS2LBG enjoyed the choice of topics:

I really enjoyed the topics you talked about and the ones in the stories. For me, time is an important topic to learn about now.

She described the topics as very relatable and interesting. The topics of the teaching sessions were about life and time. These topics may resonate with university students who need to make decisions about life and learn how to manage time. This resulted in students' appreciation of lessons, enhanced student learning and, consequently, increased their satisfaction and motivation to learn.

6.1.3.2.2.2 More Authentic Learning

Three students mentioned during the interviews that they felt more engaged in learning due to their access to more authentic learning materials and techniques through the study. For instance, CS2HGB stated: "You gave us examples that we usually hear from English speakers. I liked the study". She mentioned that she felt the vocabulary and sentences were authentic and reflected real-life usage of the English language. Moreover, CS1HSG declared:

I read stories that used what I felt like were real English sentences. I also felt they were real stories told by English people.

In addition to the authenticity of teaching materials (vocabulary, usage, and sentences), students could relate to the real stories that were included in the sessions. They felt characters and events were real and this encouraged their feeling of personal connection with the teaching

materials. This appreciation of the authenticity of materials (sentences, texts, and stories) used in the sessions made the learning experience more engaging and motivating for these students. According to the three students, this is what they needed to improve their English language and learn *real* English. CS2LBG declared:

We had the chance to learn more about English. We liked the words and sentences you explained. We also liked reading real stories. We don't always have this in the curriculum. I feel this is what we need.

As reflected in this quote, this participant felt she had the chance to be exposed to the language and experience learning and improving her English language. In general, unlike their standard university classes, the students in this study had the chance to experience more culturally credible sentences and texts. That is, as three students believed, more authentic expressions and texts are needed in the English curriculum. Indeed, the teaching sessions provided more real-life examples of the language as it is used in everyday situations. The students also declared that they had the opportunity to read texts that they enjoyed and benefited from. Including the various sentences and reading texts in the study met the students' desires to be exposed to different sources of the language, not only restricted to grammar teaching, academic vocabulary lists, and academic texts.

6.1.3.3 Impacts on Behavioural Aspects

Behavioural aspects were also reported in the interviews with the comparison group as an impact of the teaching sessions.

6.1.3.3.1 Use in Speaking and Writing

Another view among interviewees was that they would use the learned materials to improve their speaking and writing. Specifically, two students mentioned that the study benefited them by teaching them language that would help them in the future when speaking in English. To illustrate, CS2LBG mentioned:

When I talk, I will use the learned expressions. I feel they are very helpful to improve my speaking in English.

Students in favour of this view believed that learning new expressions and their meanings would improve their verbal communication with English speakers. They claimed these novel expressions were beneficial and would make communicating ideas and feelings more meaningful and successful. Similarly, two students felt that learning these words would help them in their future writing. For instance, CS2HSG commented:

I feel these words are very convenient to use in writing. I have this feeling that these expressions can be effective when you write.

In this quote, the student appreciated the effectiveness of the targeted expressions and how they help express meanings more appropriately. In this context, learning these words will facilitate better writing and will enrich sentences so that they more adequately describe specific ideas. However, unlike students in the intervention group, there was no mention of using the words by students in the comparison group. That is, the students only discussed how important to know these new words and their potential for improving future reading/writing but they did not discuss actually using them.

6.1.3.4 Reported Difficulties

The analysis of the interview data revealed two difficulties the students faced.

6.1.3.4.1 Similarities of Words

Three students (one higher proficiency and two lower proficiency) mentioned that it was not very easy for them to differentiate between the different meanings of the learned expressions. When answering multiple-choice questions about the targeted meaning of the word in the context (a sentence in the vocabulary test, or a text in the reading test), they felt confused and had trouble identifying the correct meaning that fits the sentence. For instance, CS1HSG said:

There are similarities I could not recognise in the tests and thus could not answer them (some questions) correctly. Which meaning of the word is the target here.

She argued that the phrases and their meanings were similar to some extent, making it difficult to differentiate between them. This could be due to not fully understanding the reasons

behind the existence of different meanings for words, as students in the comparison group were taught the semantic meaning only.

6.1.3.4.2 Number of Words

Another difficulty also reported in the interviews pertained to the number of words learned and was mentioned by two students: one higher and one lower proficiency. CS1LSG said: *“The number of the words was large”* making it hard to remember them during tests. Another student, CS2HSG, identified two reasons behind her forgetting words: *“In the last test, I forgot some words. Maybe the words were many in the classes. Maybe I should practise them more”*. It is worth mentioning that at the end of each session, students had the chance to practise the use of the learned vocabulary through two exercises. The two difficulties faced by students in the comparison group could be explained by the idea that conceptual metaphor teaching helped relate different words and different meanings of these words and facilitates their learning and retention. As such, as students in the comparison group did not receive conceptual metaphor teaching, lack of longer-term retention could be an expected outcome.

6.1.4 Summary

To conclude, students in both intervention and comparison groups reported cognitive, affective, and behavioural impacts of the teaching sessions. With regards to the cognitive aspects, students in both groups mentioned reading comprehension improvement, increased vocabulary learning, and enhanced use of imagination. However, there were differences between students in the two groups. Firstly, the most frequent impact mentioned by students in the intervention group was that their reading comprehension skills improved. Six impacts that led to improved reading comprehension were identified in the interviews: improved level of text comprehension; increases in maintaining focus/concentration; better access to the meaning of texts through a better understanding of the words; improved understanding of the relationships between language, text, and the meaning behind the text; more interaction with the text; and use of imagination for texts and words. In contrast, only two students in the comparison group believed that their reading comprehension improved after the study. They stated two reasons for that: accessing text meaning through deeper understanding of the words, and that the students’ speed in reading texts increased. Secondly, vocabulary learning was the most referenced impact

in both groups. All students interviewed believed that they learned new vocabulary during the intervention including expanding breadth of vocabulary knowledge and adding depth to vocabulary knowledge. However, depth of vocabulary differed between the two groups, as students in the intervention group mentioned learning both metaphoric and literal meanings of words and linking them with metaphor knowledge, whereas students in the comparison group mentioned learning new meanings of already known expressions. Moreover, students in the intervention group reported enhanced vocabulary understanding in context, which was not reported in the comparison group. Also, while students in the intervention group reported enhanced vocabulary retention, students in the comparison group commented on unsuccessful retention of words. Thirdly, use of imagination was also an impact found in both groups. However, whilst students in the intervention group showed instances of using their imagination in imagining stories, events, and metaphors, and also imagining the taught words, students in the comparison group only mentioned their use of imagination in imagining words and their meanings.

However, there were two cognitive impacts reported in the intervention group and not in the comparison group. Firstly, students in the intervention group stated that the intervention improved their metaphor awareness, an impact not mentioned by the comparison group. Students mentioned that prior to the study, they had no or only basic metaphor knowledge. The teaching sessions led to the students' metalinguistic awareness of the nature of language, and to improved metaphor knowledge of the conceptual metaphors and what an English metaphor is. Secondly, interviewees in the intervention group acknowledged that the study led to their academic progress, while there was no mention of this in the comparison group. Academic progress included the students' gradual improvement in their learning and enhanced test-taking, as they seemed to answer the tests more easily than before the intervention.

Impacts on affective aspects that were stated in both groups included motivation/enjoyment, and more engaging content with some differences. To begin with, motivation in the intervention group related to three factors: extrinsic, intrinsic, and personal interest, while motivation in the comparison group related to [extrinsic and](#) intrinsic motivation. Moreover, more engaging content in the comparison group included interesting topics and more

authentic learning. However, the intervention group mentioned a variety of teaching materials in addition to the previously mentioned factors in the comparison group.

Behavioural impacts stated in the interview data of the comparison group related to the future use of the learned expressions in spoken and written production only. By contrast, students in the intervention group stated current use in addition to their intention to use the learned expressions in their verbal and written production. Moreover, participants in the intervention group reported instances of independent learning where students were engaged in autonomous learning and collaborative active engagement and made use of other resources without teachers' direction in order to develop an understanding of metaphors.

6.1.5 Analysis of Strategies Use

In terms of how students perceived the study, it was interesting to explore if the intervention led the students to use strategies in a different way or if different frequencies occurred in different groups and with different proficiency levels. As explained earlier in Section 4.7.2.2, by using a taxonomy based on works by the researchers: Littlemore, (2002, 2004), Mokhtari and Sheorey (2002), and Mushait (2003), in addition to new strategies from the data, strategies were coded. Strategies were divided into two categories: reading comprehension strategies and metaphor comprehension strategies. Appendix I presents a full outline of the final list of the reading and metaphor comprehension strategies, their definitions, and examples. To illustrate, Table 6.4 presents a sample of the table in Appendix I.

Table 6.4

Example of Strategies, Definition, and Examples

Strategy name	Definition	Example quotes from transcripts
<p data-bbox="391 1598 548 1703">Transfer of metaphor knowledge</p> <p data-bbox="391 1745 451 1778">New</p> <p data-bbox="196 1709 350 1812">Use of prior knowledge</p>	<p data-bbox="634 1545 1016 1793">Relates to the (learned) conceptual metaphor knowledge of how metaphors work in English or to a learned metaphoric expression to understand and process new metaphors.</p>	<p data-bbox="1049 1545 1455 1650">I knew it is a metaphor because it is similar to the concept life can walk, time also can walk.</p> <p data-bbox="1049 1692 1455 1759">It is similar to “overcome an obstacle” (a taught metaphor)</p>

Relating to a metaphor in L1 New	Relates the metaphoric expression read to a metaphor in L1	It is like the metaphor in Arabic when you face a problem and cannot think.
Paraphrasing Mokhtari & Sheorey	Paraphrasing metaphors with their own words or produce a new metaphor with a similar meaning	I can see that she is developing in her career as a writer.

Table 6.5 shows the frequency of reading comprehension and metaphor interpretation strategies used by participants in both the intervention and comparison groups.

Table 6.5

Frequency of Reported Strategies used by the Intervention and Comparison Groups During Stimulated Recall Interviews

Strategy name		Intervention			Comparison		
		High	Low	Total	High	Low	Total
Global reading strategies							
Strategy planning and monitoring	Strategy planning	7	7	14	6	1	7
	Strategy monitoring	14	12	26	4	0	4
Hypothesis	Hypothesis formation	18	17	35	12	3	15
	Hypothesis monitoring	7	4	14	2	0	2
Guessing		3	4	7	12	18	30
Inferencing		31	26	57	9	5	14
Comprehension	Comprehension Monitoring and evaluation	11	10	21	4	1	5
	Connecting comprehension across text	15	15	30	4	1	5
	Relating to previous knowledge of content	4	5	9	2	0	2

Relating to previous knowledge	Relating to personal experience	21	10	31	5	2	7
	Relating to cultural knowledge	0	2	2	2	0	2
	Relating to metalinguistic knowledge	6	7	13	1	0	1
Attention	Selective attention	6	4	12	5	0	5
	On-line selective attention	12	11	23	4	2	6
Make affective reaction to the text		11	10	21	3	2	5
Total				315			110
Problem-solving strategies							
Directed attention		8	6	14	5	4	9
Reading slowly and carefully		20	22	42	3	0	0
Adjusting reading rate		13	11	24	14	3	17
Comprehension regulation	Keep on reading	11	9	20	6	2	8
	Paying more attention	9	10	19	5	1	6
	Skipping problematic parts	2	1	3	13	18	31
	Re-reading	23	20	43	25	15	40
Visualising information read (other than metaphors)		23	21	44	8	0	8
Total				209			79
Supporting strategies							
Summarising text information		9	5	14	11	2	13
Paraphrasing		12	7	19	10	0	10
Going back and forth in text		8	9	17	15	11	16
Support reading		1	0	1	6	8	14
Total				51			53
Metaphor understanding strategies							
Identification of the metaphorical meaning		33	31	64	7	0	7
Literal interpretation of metaphoric expressions		0	2	2	12	18	30
Inferencing	Source domain inferencing	14	11	25	5	0	5
	Plausible interpretations of metaphoric expressions	24	19	43	9	5	14

	Making use of contextual clues	15	18	33	17	8	25
Analogy exploring		17	16	33	4	0	4
Metaphor comprehension monitoring		22	23	45	7	3	10
Metaphor comprehension regulation	Difficulty/ Problem in identification	5	7	12	11	18	29
	Skipping	2	1	3	11	14	25
	Give up	0	0	0	3	6	9
Image formation in metaphor understanding		28	26	54	0	0	0
Use of prior knowledge	Transfer of metaphor knowledge	28	24	52	0	0	0
	Relating to a metaphor in L1	5	4	9	1	0	1
Paraphrasing		10	6	16	2	0	2
Translation		15	10	25	10	0	10
Online thinking in both languages		3	1	4	0	0	0
Force to remember learned metaphor		13	19	32	12	10	22
Linguistic contextualisation		2	3	5	0	0	0
Total				475			193

The above table presents a total of 17 reading comprehension strategies and 14 metaphor interpretation strategies used by participants in both comparison and intervention groups. As seen from the table, students in the intervention group implemented a wider range of strategies to monitor and manage the process of reading and metaphor comprehension, compared to students in the comparison group. They also used these strategies more frequently. Consequently, it can be said that they not only used a wider range of strategies but also used strategies from within that range more often.

If we analyse reading comprehension strategies more closely, the most frequently reported strategy was the *re-reading* strategy, followed by *inferencing* and *visualising information read*. However, although some global reading strategies were used in both groups, there were differences in the frequency of the strategy use. *Guessing*, for instance, was used 30

times by the comparison group and only seven times by the intervention group. High usage of *inferencing* was seen in the intervention group, as they used it 57 times compared to only 14 times by the comparison group. Another remarkable variation between the two groups was in *comprehension monitoring* and *connecting comprehension across text*, which were reported 21 and 30 times respectively in the intervention group, but only five times in the comparison group. Additionally, there was clear evidence that while reading, the intervention group activated their *previous knowledge in relating to personal experience* and *to metalinguistic knowledge* four times more than the comparison group did. Interestingly, the participants in the intervention group were also able to use *on-line selective attention* 16 times more than the comparison group and *affective reaction to the reading texts* 17 times more than the comparison group.

Concerning problem-solving strategies, *reading slowly and carefully* was used 42 times by the intervention group while only three times by the comparison group. Interestingly, there were also variations in the use of comprehension regulation strategies between the groups. There was a similarity in the use of *re-reading* strategy in the intervention and comparison groups: 43 and 40 respectively. However, the comparison group used the *skipping problematic parts* strategy to regulate their comprehension while the intervention group tended to *pay more attention* when identifying a comprehension difficulty. Moreover, there was a noticeable variation in the frequency of using the strategy *visualising information read* between the two groups, 45 times versus 8, to the advantage of the intervention group. In addition, a notable difference between the two groups was observed regarding use of the supporting strategies *underlining*, *circling information in the text*, and *going back and forth in the text*. Students in the comparison group tended to use more of these strategies, whereas fewer instances of the use of these strategies were reported by the intervention group.

Comparing the higher proficiency level students across the two groups, they both used some of the strategies with almost similar frequency, in particular: *strategy planning*, *selective attention*, *adjusting reading rate*, and *summarising*. The more interesting difference, however, can be observed between lower proficiency students across the two groups. For instance, lower proficiency intervention students used the *inferencing* strategy 26 times while the comparison group used it five times only. Similarly, *reading slowly and carefully* and *visualising* were used by lower proficiency students in the intervention group 22 and 21 times respectively, while they

were either not used at all or used only twice by lower proficiency students in the comparison group. Moreover, lower proficiency students in the comparison group showed less frequent use of several strategies, almost half as much, compared to lower proficiency students in the intervention group. These included *strategy monitoring*, *hypothesis formation*, *connecting comprehension across text*, *relating to personal experience*, and *on-line selective attention*. This suggests that lower proficiency students in the intervention group processed the texts more deeply than their counterparts in the comparison group.

In addition to the above, metaphor comprehension strategy use differed across the comparison and intervention groups. First, as seen in Table 6.5, the *image formation* strategy was the most widely used strategy by students in both groups, followed by *making use of contextual cues*, and *plausible interpretations of metaphors*. However, there were obvious differences in the frequency and strategies used by the two groups. On the one hand, participants in the intervention group sought to *identify the metaphorical meaning* in 67 instances while the comparison group used the strategy only seven times. The intervention group reported two to three times higher use of *image formation*, *transfer of metaphor knowledge*, *analogy exploring*, and *metaphor comprehension monitoring* than the comparison group. On the other hand, the comparison group reported higher use of *literal interpretation of metaphors*, *difficulty in identification*, *skipping*, and *give-up strategies*, while the intervention group used these strategies either with a low frequency or did not use them at all. Similar frequencies between the groups were reported in the use of *force to remember learned metaphors* strategy.

When comparing higher proficiency participants in the comparison and intervention groups, three strategies were used with similar frequency: *making use of contextual cues*, *translation*, and *force to remember learned metaphors*. However, other interesting differences can be seen between lower proficiency students across the two groups. With regards to six specific strategies (*identification of metaphorical meaning*, *analogy exploring*, *transfer of metaphor knowledge*, *translation*, *image formation*, *metaphor comprehension monitoring*), lower proficiency participants in the comparison group reported no use of these strategies or only three uses of these strategies, while lower proficiency students in the intervention group used the strategies between 12 and 31 times. Similarly, lower proficiency students in the comparison group used the strategies *making use of contextual cues* and *plausible interpretations of*

metaphors half as frequently as the lower proficiency students in the intervention group. In comparison, lower proficiency participants in the comparison group used the strategies *literal interpretation of metaphors*, *difficulty in identification*, *skipping*, and *give-up* much more frequently (six to sixteen times) than the lower proficiency students in the intervention group. These findings indicate that the intervention led to more and wider use of reading comprehension and metaphor interpretation strategies and helped students of different proficiency levels process reading texts and metaphoric expressions better and more deeply. These positive findings have been confirmed by other studies where these strategies have also been associated with better reading comprehension (e.g., Ghavamnia et al., 2013).

To conclude this chapter, qualitative analysis of the students' interviews including their perception of the study and their strategy use shows that the intervention had positive cognitive, affective, and behavioural impacts on the students and led to more use of reading and metaphor comprehension strategies. Students of different proficiency levels in the intervention group reported a more positive perception of the study than students in the comparison group. Moreover, students in the intervention group demonstrated more and wider use of reading and metaphor comprehension strategies than the comparison group. The possible reasons behind the findings presented in this chapter and Chapter four will be considered in Chapter six and discussed in relation to previous research and theories of cognitive linguistics, reading comprehension, and vocabulary learning.

CHAPTER SEVEN: DISCUSSION

7.1 Introduction

The study described in this thesis investigated the extent to which teaching female students in a Saudi university about conceptual metaphors would improve their reading comprehension as well as their learning and retention of metaphoric expressions. Metaphor learning and retention are particularly important in L2 learning and L2 reading comprehension as studies also have showed that L2 learners encounter metaphors in different forms at different stages of their L2 education (Castellano-Risco & Piquer-Piriz, 2020). As research in cognitive linguistics has advanced, it has demonstrated the importance and the pervasiveness of metaphor in language, while highlighting the extent to which the frequency of metaphoric expression has been previously underestimated (Boers & Lindstromberg, 2009). For instance, it was found that metaphorically-used words were frequent in educational registers such as academic texts, fiction texts, and conversational discourse (Steen et al., 2010) and in the language used in university lectures (Low et al., 2008).

Unfortunately, studies of L2 learners (Zhao et al., 2014) and specifically Arabic students learning English as L2 (Altakhaineh & Shahzad, 2020; Zibin, 2016) and L2 Saudi university students (Saaty, 2016) showed that L2 learners typically have low metaphoric competence and limited knowledge of English metaphors. Therefore, L2 learners frequently struggle to understand English metaphors and tend to interpret metaphoric expressions literally (Beynen, 2020). Hence, reading texts which include metaphoric language can be inherently difficult for L2 readers to comprehend (Li & Lewis, 2019; Littlemore et al., 2011). Moreover, learners' comprehension has been shown to decrease significantly when metaphoric multi-word expressions were used in texts and affected learners' performance in reading comprehension tests (Martinez & Murphy, 2011). Consequently, it may be the case that L2 learners have an important disadvantage in learning metaphors and understanding reading texts including metaphors.

In addition to acknowledging the difficulty L2 learners face when encountering metaphoric language in L2 and in reading texts, cognitive linguistic theories such as Conceptual

Metaphor Theory have suggested solutions pertaining to more effective L2 metaphor teaching strategies (Grady, 1997; Lakoff & Johnson, 1980). The fact that conceptual metaphors have been found to be universal across languages, as well as embodied in the personal lives and memories of students, means that it should be relatively possible to teach L2 students about conceptual metaphor (Gibbs, 2008). However, it is also the case that linguistic realisations of underlying conceptual metaphors might vary in culture-specific ways and therefore can potentially result in misinterpretation or undesirable transfer by L2 learners (Boers, 2003). Therefore, explicit teaching of conceptual metaphor may help L2 metaphor learning and reading comprehension because it may enhance learners' mental imagery and prompt a feeling of familiarity and personal emotional connection which in turn may enhance the overall language learning process.

Given the importance of metaphoric language in university education in general and the centrality of reading in English in Saudi universities more particularly, it is important to help L2 students raise their awareness of metaphors, learn metaphoric expressions effectively, retain them, and understand texts including metaphoric language. Therefore, the present thesis aimed to improve students' metaphoric competence by enhancing the learning and remembering of metaphoric expressions taught during the intervention. In addition, the present study attempted to investigate if teaching conceptual metaphors can help students improve their reading comprehension of texts that include metaphoric language. To do this, an intervention was organised in which the experimental group was given explicit instruction on how conceptual metaphors work in terms of source and target domains, as well as how imagery and emotion which draw on these two domains may be used to create linguistic metaphoric expressions. In addition, they were taught both the literal and figurative meanings of metaphoric expressions. In contrast, the comparison group was provided with teaching of the semantic figurative meanings of the metaphoric expressions with no reference to the conceptual metaphors or literal meanings. The study used both quantitative and qualitative research methods. From the quantitative perspective, the participants were given two pre-tests before the intervention; a metaphor understanding test which measured their understanding of metaphoric expressions, and a reading comprehension test which measured their comprehension of texts containing metaphoric language. After the intervention, they also completed metaphor and reading comprehension immediate post-tests, as well as delayed post-tests, which they took two weeks after the intervention. The results from these tests indicated that conceptual metaphor teaching had

positive impacts on the students' learning and retention of metaphoric expressions, as well as on their reading comprehension (see Sections 5.7.1). In addition to these quantitative data, the study also collected qualitative data through interviews which investigated the participants' perceptions of the teaching methodology, what they were thinking about when they were completing the tests, and what, if any, reading and metaphor understanding strategies they used. This was done to further understand why and how the intervention had contributed to the learners' gains in vocabulary knowledge and reading comprehension as captured by the quantitative data. This analysis showed that the intervention had positive cognitive, affective, and behavioural impacts on the students across different proficiency levels. Moreover, students in the intervention showed more and wider use of reading and metaphor comprehension strategies than the comparison group.

The current chapter discusses the possible reasons behind the findings described in Chapters Five and Six, considering them in relation to the previous literature in relating to theories of cognitive linguistics, reading comprehension, and vocabulary learning. The primary aims of the present thesis were firstly the investigation of the effectiveness of teaching conceptual metaphor to L2 Saudi university learners with a focus on reading comprehension. However, in addition to this primary aim, the thesis also sought to investigate to what extent the students would be able to understand new metaphorical expressions which were related to the underlying conceptual metaphors they learned in class on the one hand, and new metaphoric expressions related to previously untaught conceptual metaphors on the other. With this in mind, both the quantitative and qualitative analyses results are discussed in relation to the Construction Integration Reading Model (Kintsch, 1988), as well as Conceptual Metaphor Theory (Lakoff & Johnson, 1980), Dual Coding theory (Clark & Paivio, 1991), and Littlemore's (2002, 2004) ideas on metaphoric competence. Thirdly, the study aimed to investigate the extent to which teaching conceptual metaphors to the students aided metaphor learning and retention two weeks after the intervention. Consequently, results from the study are considered in relation to theories relevant to metaphor learning and vocabulary learning, namely the Involvement Load Hypothesis (Hulstijn & Laufer, 2001), Levels of Processing Theory (Craik & Tulving, 1975), and the Noticing Hypothesis (Schmidt, 1999, 2001). Fourthly, the thesis also explored the students' perceptions of the teaching methodology and use of strategies during the tests, from which issues

relating to motivation emerged. The qualitative findings from the study are discussed in relation to Self-Determination theory (Ryan & Deci, 1985) and conceptual metaphor literature.

The chapter is primarily organised around the four research questions that were posed at the end of Chapter Three:

RQ1: What is the impact of conceptual metaphor teaching on Saudi L2 learners' reading comprehension compared to traditional teaching (semantic explanations, comparison group)?

RQ2: To what extent can learners transfer their knowledge to untaught metaphoric expressions that they encounter during reading comprehension (i) within the taught conceptual metaphors, and (ii) within new conceptual metaphors?

RQ3: To what extent does teaching metaphoric expressions through conceptual metaphors allow learners firstly to learn, and secondly to retain such metaphoric expressions?

RQ4: What are the learners' perceptions of the teaching method they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

As the findings from RQ1 and RQ2 were found to be highly interrelated, they are discussed together in Section 7.2. RQ3 and RQ4 are then discussed in Sections 7.3 and 7.4 respectively.

7.2 Reading Comprehension Gains

RQ1: What is the impact of conceptual metaphor teaching on Saudi L2 learners' reading comprehension compared to traditional teaching (semantic explanations, comparison group)?

RQ2: To what extent can learners transfer their knowledge to untaught metaphoric expressions that they encounter during reading comprehension (i) within the taught conceptual metaphors, and (ii) within new conceptual metaphors?

Firstly, to answer RQ1, the students' reading comprehension was assessed using four reading comprehension tests, each one comprising 14 comprehension questions (four general comprehension questions and ten metaphoric comprehension questions). The comprehension tests were taken as a pre-test, two immediate post-tests, and a 2-week delayed post-test. Descriptive statistics showed that across both groups the participants' reading comprehension mean score was below 50% prior to the intervention. Descriptive statistics from the immediate post-test(s) and the delayed post-tests illustrated, however, that the intervention group improved their scores for reading comprehension and metaphoric competence, but the comparison group did not.

The results of a two-way mixed ANOVA with follow-up *post hoc* pairwise comparison tests demonstrated the utility of providing students with instruction on understanding conceptual metaphors for improving the intervention group's reading comprehension. The two-way mixed ANOVA results indicated that there was a significant main effect of time, and group, but also a significant time and group interaction. The pairwise comparison tests then showed that there were no differences between the intervention and comparison groups in terms of their reading comprehension at pre-test. Following the intervention, however, the intervention group who received instruction on conceptual metaphors significantly outperformed the comparison group, where the effect size was large. On the one hand, there was significant progress from the pre- to the immediate post-test the intervention group with a large effect size and from the pre- to the delayed post-test with a very large effect size. On the other hand, the comparison group did not show a significant change from pre-test to immediate post-test, nor from immediate post-test to delayed post-test. Furthermore, the results were shown to be durable, with the intervention group maintaining progress into the two-week post-test. Overall, then, these results, strengthened by the large effect sizes, demonstrate not only the effectiveness of teaching conceptual metaphor on L2 students' overall reading comprehension but equally that these gains were durable.

To answer RQ2, an analysis was conducted on the section of the reading tests containing questions related to metaphoric expressions. This was done to measure the extent to which the learners would be able to transfer their learned knowledge to new metaphoric expressions inside and outside the conceptual framework of the originally taught metaphors. Concerning the first part of RQ2, descriptive statistics and a two-way mixed ANOVA with follow-up *post hoc*

pairwise comparison tests indicated that the intervention group outperformed the comparison group for both the taught and untaught metaphoric expressions. Within the comparison group, there was no significant difference between taught and untaught expressions indicating no improvement in taught and untaught metaphoric expressions. Within the intervention group, results showed significant differences between taught and untaught metaphoric expressions, with higher mean scores for the former. However, although there was a very small effect size and a 95% confidence interval crossing zero, the intervention group's scores were still significantly better than those of the comparison group for both taught and untaught expressions. Therefore, it can be said that students in the intervention group were able to transfer their newly learned metaphoric knowledge to understand untaught metaphoric expressions which were related to a known conceptual metaphor. Concerning the second part of RQ2, an analysis of the delayed post-tests remarkably showed that students in the intervention group were also able to transfer their knowledge to new metaphoric expressions outside the conceptual metaphors that they learned during the intervention. This was not the case for students in the comparison group.

All these results were supported by findings from the qualitative analysis. Specifically, the findings of the stimulated recall interviews showed that the intervention changed the students' way of reading (See Sections 6.1.1.2 & 6.1.5). Moreover, the intervention also seemed to affect reading comprehension in terms of the reading and metaphor comprehension strategies students used. Specifically, the students in the intervention group used a greater variety of strategies than the comparison group and used them more frequently. Students used these strategies to understand texts including both known and unknown metaphors. Importantly, this enhanced strategy use was observed in both higher and lower-proficiency students in the intervention group. This was shown in the interviews, where students of both proficiency levels reported similar uses of reading and metaphor comprehension strategies and showed motivation and interaction with the intervention. This was in contrast to the comparison group who showed differences between lower and higher proficiency students in the use of strategies and the affective and behavioural impacts of the teaching sessions (Section 6.1.5).

Analysis of both the quantitative and qualitative data, viewed from the perspective of relevant literature on the teaching of conceptual metaphors in the L2 classroom, suggested a

number of points that can help explain why the improvements outlined above occurred, including:

1. Improvement in overall understanding of the reading text; the role of prior knowledge, the role of personal connection, and mental imagery
2. Improvement in understanding metaphoric expressions within reading texts: depth of vocabulary knowledge, and transference of knowledge to new metaphoric expressions.

7.2.1 Improvement in Overall Understanding of Reading Texts

The results from the quantitative data clearly illustrate that students in the intervention group showed improvements in both their level of general reading comprehension, as well as their comprehension of the metaphoric expressions they encountered while reading. Moreover, the qualitative data showed that students in the intervention group became more critical readers as was demonstrated clearly by the fact that they used inferencing strategies four times more than the comparison group (see Section 6.1.5). These results can be compared to Boers' (2000b) study, which is the only empirical examination of the effectiveness of conceptual metaphor teaching on L2 learners' reading comprehension. However, there are both differences and similarities in the results between the current study and Boers (2000b). The difference lies in the fact that in the present study, the intervention group outperformed the comparison group in the general comprehension questions in the reading tests, while for Boers (2000b), the control and intervention groups performed similarly in relation to the general comprehension of the text. This contrast could be due to the difference in the teaching approach implemented in the two studies. In Boers' (2000b) study, the awareness-raising approach was relatively narrow, where students were only provided with a glossary of meanings of metaphoric expressions which they were required to learn and study before taking the immediate post-test. The study also included only one intervention session and also only an immediate post-test with no delayed post-test. However, the current study employed a more complete awareness-raising approach, which included teaching in depth about how conceptual metaphors work in terms of mapping between domains, the potential for both literal and metaphoric meanings of expressions, images, and fill-in-blank questions. It also included two interventions with two immediate post-tests and a delayed post-test.

This difference notwithstanding, the present study and Boers (2000b) were similar in that in both studies, the intervention group outperformed the comparison group in the metaphoric comprehension questions in the reading tests. Furthermore, Boers' (2000b) findings showed that teaching conceptual metaphor was effective in improving students' inferencing skills as well as their ability and willingness to question the author's opinions when reading texts. That is, the students successfully judged if the author supported or opposed an idea through their use of metaphors. This links directly to the results of the present study in which students mentioned that through their understanding of metaphoric expressions, they managed to understand the implied meanings of words used by the author and how authors felt in the stories (see Section 6.1.2.1.2.4, 6.1.2.1.2.5, and 6.1.2.2.2.3). Consequently, the current study findings suggest that the intervention group was better equipped with the knowledge needed to answer both general comprehension and metaphor comprehension questions correctly, as opposed to the comparison group. Possible explanatory factors for this are discussed below.

7.2.1.1 Role of Prior Knowledge

A possible explanation for the intervention group's reading comprehension improvement and the greater use of reading comprehension strategies found in the present study can be found in Kintsch's (1988) Construction Integration model of reading comprehension (CI). Within this model, text comprehension comprises multiple levels of mental representation. Some representations are produced by the learner's analysis of the lower-level lexical content and the linguistic input of the text to form what Kintsch refers to as the text base. Other representations are generated from the more complex integration of aspects of the text with the conceptual and prior knowledge of the reader to form a situation-model. Kintsch (1988) asserted that this ability to generate situation models underpins proficient reading comprehension. Situation model representations are formed as the reader fuses the information extracted from the text with their pre-existing knowledge, emotions, attitudes, and beliefs, thereby joining it to the stock of information encoded into long-term memory, thus making it available for both recall and problem-solving in novel environments (discussed in Section 3.2). Importantly, Kintsch argues that it is only when a reader has established a situation model bearing representations of a text that they can be said to have fully comprehended it. To this extent, the CI model overlaps with Conceptual Metaphor Theory (CMT) (Lakoff & Johnson, 1980) which views metaphor as a

cognitive entity that instantiates linguistic metaphoric expressions, permitting the understanding of metaphors on two levels. With regards to the findings from the current study, if the students were able to understand both cognitive and linguistic metaphors during reading, this would allow them to form situation models and better comprehend the texts (discussed in more detail below). Therefore, it may be that the conceptual metaphor teaching students received helped them gain the prior knowledge that they needed to form situation models of the text they read that included metaphoric language.

Another possible factor that could have helped the students construct situation models (Kintsch, 1988) of the reading texts could be their improved metaphoric competence. Metaphoric competence, as defined by Castellano-Risco and Piquer-Píriz's (2020), refers to receptive metaphoric competence, i.e., the ability to understand and remember the meaning of metaphoric expressions and metaphoric motivations behind words and language. In the current study, it appeared that explicit teaching of the conceptual metaphors and the meaning embedded in metaphoric expressions enhanced the students' ability to engage in metaphoric thinking. This mental engagement with the texts was shown in the range of strategies used by the students (Section 6.1.5) as well as the positive responses to being taught conceptual metaphor that they mentioned when interviewed (Section 6.1.2.1.1). Students in the intervention group gained the knowledge about conceptual metaphors and metalinguistic knowledge that they needed to relate words in the text with other words either within or outside the text. This allowed them to make the necessary connections between the text and the metaphoric knowledge activated and hence to construct coherent meaning from the text. Indeed, students extensively used strategies such as *connecting comprehension across text* and *relating to previous knowledge of metaphors and metaphoric expressions*. This mental engagement and interaction with the text helped them to synthesise the new information it contained with their acquired knowledge about metaphors' multiple meanings to form interpretations (Kintsch, 1988). According to Kintsch, inferencing and integration are accomplished when relevant background knowledge shapes the mental representations of the readers as they engage with a text. Thus, it may be that in the current study, students' improved metaphoric knowledge allowed them to improve their ability for both inferencing and integration processing.

Littlemore (2006) and Low (1988) asserted that raising metaphoric competence is important for L2 language skills, to facilitate learners' cognitive strategy use and thinking about the reading text. As explained in Section 2.4.1, in the view of Littlemore and Low (2006a), metaphoric competence can enhance general reasoning and critical thinking in that one concept can be understood in multiple ways and in light of a variety of other concepts. Moreover, the knowledge and understanding of conceptual metaphors would affect the understanding of the reading text. In his empirical study, Gibbs (2011) found that conceptual metaphors have an impact on the online processing of reading texts. Specifically, the study showed that if the metaphoric expressions in a text were derived from a range of underlying conceptual metaphors, they were processed in a slower manner than if they were derived from the same conceptual metaphor, indicating they were harder to understand. Likewise, in the present study, the improved reading scores seemed to stem from the intervention group's understanding of the conceptual metaphors underlying the metaphoric expressions in the text.

The positive relationship between reading comprehension and metaphoric competence identified in the present study is also in line with other empirical research. For example, Beynen (2020) and Zhao et al. (2014) identified a strong relationship between reading comprehension and metaphoric knowledge. In both studies, students who had low performance faced difficulty in answering metaphor comprehension tests. Good readers, conversely, performed well in metaphoric knowledge tests. It should be noted that both studies differed from the current study as they were correlational studies with no intervention to raise the participants' awareness or understanding of conceptual metaphors. Nevertheless, they provide a further indication that tasks that enhance learners' L2 metaphoric competence may lead to an improvement in their L2 reading comprehension.

In addition, in the present study, metaphoric knowledge may have increased students' knowledge of the socio-cultural background of the text and thus helped them to understand the L2 reading texts. This type of knowledge is central to Kintsch's (1988) reading model. L2 readers generally have significantly less socio-culturally relevant background information than L1 writers and readers do (Bernhardt, 2011). In the current study, learning conceptual metaphors made the students aware of how English speakers form their metaphors and how some elements were culture-specific (see Section 6.1.2.1.2). It could be that, as argued by Littlemore and Low

(2006a, 2006b), metaphoric competence constitutes an important part of learners' sociocultural competence. Accordingly, enhancing students' metaphoric knowledge may improve their understanding of the L2 culture and thus increase the chance of grasping the cultural context assumed in a text they read.

7.2.1.2 Role of Personal Experiences and Emotional Connection

Another explanatory factor behind the results outlined above could be that learning conceptual metaphors raised the students' personal and emotional connection with the text and metaphors they read. These connections, according to Kintsch's (1998) CI model, are important in the process of constructing situation models. Once again, Kintsch's (1998) formation of situation models goes beyond the verbal domain, involving personal real-life experiences and emotions. As was shown in the interviews, students mentioned many instances of relating the stories they read and the metaphors to their actual personal lives (e.g., Section 6.1.2.1.2.5) and they used strategies of relating what they read to their personal experiences (Section 6.1.5). This is in line with the hypothesis that conceptual metaphors are pre-existing and so are part of the learners' world knowledge stored in long-term memory. Thus, when learners study conceptual metaphors, they have a personal connection with them at least subconsciously (Gibbs & Colston, 1995). CMT (Lakoff & Johnson, 1980) also argues that conceptual metaphors are indeed in people's minds and are embodied (Gibbs, 2008). Embodiment, as defined by Gibbs (2006b), involves appreciating the role of everyday bodily experiences, as the body links the mind to the world through actions and experiences. Experimental research using both offline and online approaches offered support for these concepts that explain how embodied metaphors facilitate language understanding and learning (Gibbs, 2006b; Wilson & Gibbs, 2007). It has been found that metaphors evoke embodied and personal connections which influence how people process linguistic metaphors as well as language in general (Gibbs, 2006b; Wilson & Gibbs, 2007). In the present study, students were more likely to understand and analyse reading texts which included metaphors, in relation to their own lives after they received instruction about conceptual metaphors. Such empirical evidence resonates further with Kintsch's (1988) model as he argued that situation models are formed when the language of the text fuses with the personal life of the reader and their attitudes and emotions.

7.2.1.3 Mental Imagery

The improvements in reading comprehension experienced by students in the current study were also related to their use of mental imagery. It seemed that teaching students to understand conceptual metaphors encouraged them to form mental representations of the texts and to use their imaginations to understand the whole text, rather than just the metaphors. This was shown clearly in the qualitative data, where one of the most reported themes and strategies used was imagination; *imagining stories as movies*, *visualising information read*, and *image formation in understanding metaphors*. Students mentioned that they were imagining themselves carrying out the actions, thinking about ways in which the metaphors applied to their own lives, and seeing themselves as the characters in the stories they read.

One possible explanation for students' ability to generate images that were related to their own lives, in terms of concrete embodied experiences, again comes from within Kintsch's (1988) CI model. This model draws heavily on the idea of mental imagery and the importance of forming mental representations to construct the underlying propositional text base and situation models to understand texts. Kintsch suggests that when a reader is able to establish not only a representation of the language in the text, but also to establish a mental image of the events, objects, or other entities or actions depicted in the text, this is likely to aid them in understanding the meaning of the text. Furthermore, they will also be able to make inferences about what a word or phrase is likely to mean in the reading context. Sadoski (2018) also claimed that text comprehension cannot be complete and deep enough without the intense realisation, in imagination, of events and metaphors.

Consequently, it could be the case that the instruction students in the intervention group received allowed them to step back from the words and the text when reading, to think more deeply, and to develop mental images. Although the teaching sessions that students in the comparison group received included imagery showing the figurative meaning of the expression, they did not improve in their reading comprehension. This is important as it suggests that it was not only the use of visual aids in teaching the intervention group that facilitated their comprehension. Rather, it was the elucidation of the literal original sources of the metaphoric expressions in these images along with understanding how these related to the underlying

conceptual metaphor that helped increase their mental imagery of both the metaphoric expressions they encountered, and the texts as a whole.

The evidence of imagery use by intervention group students is also in line with CMT, where situational, bodily, and imaginative contexts are together necessary for understanding and meaning (Lakoff & Johnson, 1980). Research has shown that the creation of multisensory mental representations, either incidentally or as a result of receiving instruction, is an effective pedagogical technique that derives directly from cognitive linguistics theory (Sadoski & Paivio, 2001; 2013), Gibbs et al. (2006) provided examples of how the imagination of a metaphorical expression in people's minds speeded up their comprehension of the phrases when they were asked to imagine themselves performing the action described in the metaphors. Moreover, metaphor studies by Boers et al. (2007) and Lindstromberg and Boers (2005) demonstrated that presenting the original, historical, and pictorial elucidation of metaphors helped learners to create mental imagery and consequently enhanced learning. Therefore, metaphor teaching studies support cognitive theories which suggest that the input of both aural and visual information allows for better learning gains (Paivio, 1986). Thus, the results of the present study would offer a practical application of Dual Coding Theory and CMT to enhance reading comprehension with an emphasis on linking language with multisensory mental imagery.

To conclude this section, it could be that the teaching methodology in the present study encouraged the intervention students to integrate the text they read with the prior metaphoric and socio-cultural knowledge, personal and emotional experience, and also to form mental imagery to successfully retrieve, synthesise, and analyse the information they read. In addition, the intervention also led to enhanced lexical inferencing to understand expressions embedded in the reading texts. Together, these factors may have led to improved reading comprehension outcomes. The following sections discuss how the understanding of individual metaphoric expressions contributed to better reading comprehension in the present study.

7.2.2 Improvement in Understanding Metaphoric Expressions within the Reading Texts

7.2.2.1 Depth of Vocabulary Knowledge

Propositional and text base representations in the CI model (Kintsch, 1998) provide a framework within which the reading comprehension results in the present study can be

interpreted and accounted for. Kintsch (1988) posits that readers' mental representations of a text are composed of multiple elements, most simply described as propositional representations, text base representations, and situation model representations. Of interest to this section are the propositional and text base representations which are composed of information that the reader extracts from what is directly encoded linguistically in the text. To this end, the understanding and processing of metaphoric expressions and phrases are essential in forming text base propositions. It seemed that students in the intervention group were able to construct a clearer text base by activating their lexical knowledge of the expressions in their working memory. They integrated meanings of the words, either literal or metaphorical, by applying what they knew from their prior knowledge about the meanings of the words used in a text during the meaning construction process. They then had a better text base to work with during the integration phase (Kintsch, 1998).

Such a situation could have resulted from the instruction about conceptual metaphors that the students received, as they gained a deeper knowledge of the words and phrases taught, including their multiple meanings, how they can be used, as well as their potential to be used either literally or figuratively. Such a possibility is supported by Nation's (2013) definition of what it means to know a word; namely that receptive vocabulary knowledge includes information concerning meaning, form, and multiple possible uses. Although the participants' depth of knowledge was not specifically measured in the present study, it can be inferred that their depth of vocabulary knowledge was increased as a result of the instruction they received because they were better able to understand the figurative meanings of the metaphorical expression they encountered. Moreover, in the qualitative data, students with both higher and lower proficiency reported the positive impacts of the study on helping them *adding depth to vocabulary knowledge*, and *accessing text meaning through a deeper understanding of the words*, which was not the case in the comparison group (see Section 6.1.1). This is in line with earlier studies on L2 learners of English (e.g., Qian, 2002; Zhang & Yang, 2017) that showed depth of vocabulary knowledge is more important than vocabulary breadth in predicting reading comprehension. It is also in line with Boers (2000b) who found that learning the literal and original meanings of expressions led to students' better understanding of the metaphoric expressions within the texts they read.

7.2.2.2 Transference of Knowledge to New Metaphoric Expressions

The present study also included previously untaught metaphoric expressions embedded in the reading texts as well as those that were explicitly taught as part of the intervention. The results from the immediate post-tests showed that the students were able to transfer their knowledge of previously taught underlying conceptual metaphors to new metaphoric expressions which were related to those conceptual metaphors. These results were similar to Kövecses and Szabo's study (1996; revisited in Kövecses, 2001), in which the post-test included ten untaught phrasal verbs based on the same conceptual metaphor students were taught in the intervention. Within that study, students in the experimental group outperformed their control counterparts and were able to transfer the learned knowledge of the conceptual metaphors to their understanding of phrasal verbs not already learned. These findings indicate successful transfer of metaphoric knowledge when language learners try to work out the meanings of novel phrasal verbs that are related to a known conceptual metaphor. However, it is worth mentioning that the target expressions in that study were only phrasal verbs, and that the intervention group received more instructional hours than the comparison group, which might have led to differences in results between the groups. Nevertheless, the results of the current study confirmed the findings of Kövecses and Szabo (1996), in relation to metaphoric expressions beyond phrasal verbs, and within a research design that ensured that the intervention and comparison group did not differ in the amount of teaching they received.

However, more strikingly still, the delayed post-test results in the current study revealed that readers from the intervention group were also able to comprehend *new* metaphoric expressions which were not related to the previously taught underlying conceptual metaphors. Thus, the intervention group were able to transfer their learned knowledge to understand reading texts that included new conceptual metaphors. This is different from Boers' study (2000a), in which there were no performance differences between the experimental and control groups in solving expressions derived from different conceptual metaphors other than the conceptual metaphors of the learned phrasal verbs. Hence, there was no sign of any transfer strategy outside the conceptual metaphors the students learned. Students in Boers' (2000a) study were however working with phrasal verbs only rather other metaphors, learned only spatial metaphors that motivate some phrasal verbs, and received only a list of multi-word verbs grouped under the

headings of their underlying orientational metaphors. In the current study, a broader, more explicit approach was implemented that may explain the difference in results, including the teaching of metaphorical mappings between the source and target domains, presenting metaphoric expressions with both literal and metaphoric meanings, providing images, and using fill-in-blanks exercises. After receiving such instruction, participants seemed to develop their strategic competence, allowing them to independently deal with novel metaphoric expressions they encountered during the post-test reading. This is a key finding for teachers as it is not feasible to teach all metaphors in classrooms. Therefore, learners need to be empowered to proceed autonomously.

This evidence for the ability to transfer knowledge to new metaphors suggests that the intervention allowed the students to develop their metaphoric competence. That in turn may have enabled them to become more strategic readers in the face of unknown metaphoric expressions to the extent that they were able to comprehend new texts by drawing on their knowledge of how metaphors were used in text. Again, Kintsch's (1998) model offers an explanation for this. The model describes the process of meaning construction as starting with a bottom-up activation of a vague and nonspecific potential meaning attached to a word and the gradual formation of specific meaning in the process of integrating the word into larger sentence and text units. When a content word is encountered for the first time in a discourse context, information linked to the word in long-term memory, semantic as well as personal-episodic, is instantiated in working memory and participates in the integration process. Various interpretations of the words are made in parallel, and the interpretation that fits into the context wins out in the integration process. The model, therefore, acknowledges the role of context. The result of the integration process is the establishment of a coherent structure into which the word meaning becomes embedded, and prior information in the text, as well as prior knowledge the reader has concerning the topic of the text, play a role. Thus, in the present study, when students met novel metaphoric expressions based on new conceptual metaphors, they seemed to draw on the context where the expression occurs, their prior knowledge, and metaphorical thinking to understand the underlying metaphors motivating those expressions. If the students were unable to retrieve the meaning from memory (because they had not learnt the expressions in the first place), they would draw on their knowledge of the possible conceptual metaphors and generalised metaphoric thought used for expressions, as well as using knowledge of how the imagery of that

metaphor related to the world beyond the text, in an attempt to recreate the meaning of the relevant sentence as well as the whole text. Relating the expressions in the text to expressions not mentioned in the texts is also important for effective textual inference and consequently construction of a situation model (Kintsch, 1998).

Indeed, it seemed that students had knowledge of the conceptual metaphors behind the words in the text and understood their relationship with other words not present in the text. As shown in the analysis of the strategies they used (see Section 6.1.5), students were able to relate the novel metaphoric expressions in the texts they read to either underlying conceptual metaphors or specific learned metaphoric expressions they had previously encountered during the intervention. These learned expressions were not included in the reading texts. Students also mentioned their use of contextual cues to determine if the expression was used metaphorically or not. It was found that students, when trying to infer possible meanings of such expressions, did indeed use strategies of *inferencing* (including *source domain inferencing*, *plausible interpretations of metaphoric expressions*, *making use of contextual clues*, *image formation*, *analogy exploring*) much more than the comparison group did. This suggests that students were engaged in strategic comprehension which helped better lexical inferencing. This is in line with Littlemore's (2002; 2004) view of metaphoric competence as enhancing reasoning and use of strategies to work out the possible meanings of new metaphors. According to Littlemore, metaphoric competence helps learners in different situations or when facing difficulties interpreting meaning; they can promptly conjure up various ideas and consider a variety of source domains and possible meanings for a certain metaphoric expression. Importantly, these strategies require students to activate their associative fluency and analogical reasoning to make as many meanings as possible available in order to decipher the word's core meaning, and to build associations between this meaning and the context in which it occurs. The current study found that using the above-mentioned metaphor-related strategies with other reading strategies helped the intervention group students to fill in their knowledge gaps of their L2, in order to understand texts including new metaphoric language.

Thus, it is possibly the case that teaching conceptual metaphors in the present study led to better lexical inferencing in relation to metaphoric expressions. According to Schmitt (2008) inferencing is important, not for randomly guessing the meanings of words but rather for being

able to infer meaning effectively to support reading comprehension. However, inferencing applied to metaphorical expressions differs from general lexical inferencing in that for the former, the learner also needs to have and to activate metalinguistic knowledge and knowledge of the conceptual metaphor. In this way, metaphoric competence becomes strategic competence. In the present study, metalinguistic knowledge is operationalised as a learner's understanding of the nature of language is developed as well as their comprehension that it can be used both literally or figuratively. Indeed, as was shown in the interviews (see Section 6.1.2.1), students in the intervention group made use of their metalinguistic knowledge and did not merely accept the expressions within the text at face value in their literal sense. Rather, they began to look more deeply, questioning what might lie behind the words in the text and how they affected the meaning of sentences and the whole text. Students described this as having developed an enhanced understanding of the relationships between language, text, and the meanings behind the text. Thus, the intervention in the current study was associated with enhanced metalinguistic knowledge and a greater ability for students to infer the meaning of unknown metaphoric expressions. This supports previous research conducted by Boers (2000b) where better lexical inferencing was reported after students' awareness of conceptual metaphors was raised. Results also were in line with Chen and Lai (2012), Gibbs (1994), and Roehr (2007) suggesting that awareness-raising activities may aid in helping students develop their metalinguistic knowledge of the target language.

In contrast, the comparison group, who were not explicitly taught the meanings embedded within the conceptual metaphors, showed less engagement in metaphoric thinking, and consequently did not have the strategic competence needed to identify and understand new metaphoric expressions. That this was the case is shown by the fact that students in the comparison group reported relying on the strategies of *skipping* and *ignoring* in the post-tests and reported to difficulty in understanding untaught expressions. Moreover, this lack of metaphoric thinking may have led to what Danesi (1995) called "textbook literalness" (p. 453). Indeed, instances in the interviews with the comparison group showed that they tended to understand the metaphoric expression literally much more than the intervention group. This is similar to Beynen (2020) in which L2 students also tended to interpret metaphoric expressions literally.

7.3 Learning and Retention of Metaphor as a Specific Type of Vocabulary

RQ3: To what extent does teaching metaphoric expressions through conceptual metaphors allow learners firstly to learn, and secondly to retain such metaphoric expressions?

To assess the effectiveness of employing conceptual metaphor teaching to promote students' learning and retention of metaphoric expressions, three metaphor tests were administered. Firstly, both the comparison and intervention groups took a metaphor pre-test to check for any differences between the two groups. Descriptive statistics revealed low levels of knowledge across both groups. Second, immediate learning was assessed through a post-test, and finally, retention was assessed through a delayed post-test administered two weeks after the end of the study.

To analyse the findings pertaining to students' learning and retention of metaphoric expressions, a two-way mixed ANOVA with follow-up pairwise comparisons was conducted, to explore group differences (comparison and intervention) at the three time points and the interaction between them for the dependent variable (metaphor understanding score). The results indicated a significant main effect of time point and group. Furthermore, a significant interaction effect between time and group was also found indicating that throughout the test time points, the groups developed differently. The results of the follow-up tests showed that the intervention group made highly significant progress, greatly outperforming the comparison group in the immediate and delayed post-tests, with a large effect size. Within the intervention group, there was a significant improvement from the pre-test to the immediate post-test, with a large effect size and this progress was maintained in the delayed post-test, with a large effect size. The comparison group showed no statistically significant improvement between any of the three time points and all effect sizes were small.

However, although the intervention group showed progress and maintained it in the 2-week delayed post-test, there was a significant difference between learning (immediate post-test) and retention (delayed post-test) for the metaphoric expressions, where scores were lower in the delayed post-test. In other words, the intervention group lost some metaphoric knowledge in the longer term (two weeks). However, the means of the immediate post-test ($M = 35.32$), and of the

delayed post-test ($M = 31.02$) differed only slightly and the effect size was small size, suggesting the losses were not large.

Consequently, it can be said that the teaching methodology used with the intervention group was effective for metaphor learning and retention. These results from the present study are in line with most cognitive-linguistics inspired empirical studies that have implemented conceptual metaphor awareness-raising with positive learning results (Altakhaineh & Shahzad, 2020; Boers et. al.,2007; Hung, 2019; Saaty, 2016). What is different in the current study is that it was conducted with more participants (210) and included a more comprehensive approach to teaching the conceptual metaphors behind 40 metaphoric expressions. Furthermore, not all previous studies measured longer-term retention of metaphoric expressions (exceptions being Boers, 2000; Li, 2009; Hung, 2019; and Saaty, 2016). None, according to Boers (2006) has investigated retention for a period of over two weeks, something which the present study was also unable to do and which poses a limitation (see Conclusion, Section 7.4).

The positive findings regarding retention in the present study are in line with those of Li (2002) and Hung (2019). Li (2009) found significant differences in 1-week delayed tests between the conceptual metaphor groups and the comparison groups. In both studies, students receiving conceptual metaphor instruction outperformed groups experiencing other forms of teaching at either one week (Li, 2002) or two weeks (Hung, 2019), albeit for a small number of expressions in the case of the latter study. Therefore, both studies in addition to the present study seem to show that conceptual metaphor teaching leads to retention gains of metaphoric expressions.

It is worth mentioning, however, that the current study's results were unlike Saaty's (2016), who found a significant decline in the 2-week delayed test results. This could be due to a methodological difference, as Saaty (2016) simply gave students an explicit written explanation of what conceptual metaphor is, without exemplifying literal and figurative meanings through imagery and mental images. Furthermore, cloze tests were used rather than tests of metaphor understanding as in the present study. The former may have been more challenging for learners as it assessed productive rather than receptive knowledge.

An important factor in the current study that may have led to improved learning and retention was that the students learned metaphoric expressions that were organised by conceptual metaphors, not in unrelated lists as the researcher's experience suggests often happens in Saudi

L2 classrooms. This systematicity and organisation may have helped learning and retention, leading to better outcomes (for an alternative perspective on unrelated lists, see Gholami & Khezrlou, 2014). This is in line with Doiz and Elizari (2013) who suggested that the systematic presentation of the metaphoric expressions led to students' increase of the comprehension and retention of expressions when compared to those who learned the unknown vocabulary in unrelated lists. This conclusion supports Boers' (2004) argument that since figurative expressions can be traced back systematically to a certain list of source domains or themes, the themes that recur regularly can be used in teaching metaphors. This approach is a powerful alternative type of lexical field teaching as it allows students to perceive the structure of figurative language, that can otherwise seem arbitrary, thereby resulting in better learning. Indeed, students in the present study reported benefiting from grouping words that did not seem very interconnected and linking them to the overall image of time and money and life and journey. This seems to have resulted in deeper understanding and better retention.

One aspect of this systematicity comes from the fact that the relationship between the metaphorical items and their organising conceptual metaphor draws on a reason-result relation. That is, conceptual metaphor explains the meaning of linguistic metaphors. For example, drawing on the conceptual metaphor LIFE IS A JOURNEY, it follows that 'to get in someone's way' means 'to make it difficult for a person to achieve a goal'. During the current study, students in the intervention group did indeed refer to how learning about conceptual metaphors helped them understand logical reasons for the formation of such phrases in English which previously had caused comprehension problems for them. This contrasts with the students in the comparison group who were not taught about such logical relations between the metaphorical items and their semantic meanings, and hence did much less well in the immediate and delayed post-tests.

Better learning by the intervention group may also be explained by their higher levels of involvement. The Involvement Load Hypothesis (Hulstijn & Laufer, 2001) proposes that the degree of involvement in the processing of unknown vocabulary items typically determines how well they are learned and retained. The learning and retention of vocabulary are believed to be greater when there is a higher involvement load. Hulstijn and Laufer (2001) claimed that three factors determine involvement load: *need*, *search*, and *evaluate*. Need occurs when a learner

requires a linguistic item or feature to carry out a desired task, such as the need to know a specific vocabulary to comprehend a paragraph. Search refers to an effort to uncover the needed information, such as looking up a word's definition in a resource. Evaluation is the process of comparing a word or word-related information with the context of use to see if it fits. In the present study, both groups received discussion questions, meanings of the expressions, and a series of vocabulary exercises including underlining and filling in the gap exercises. However, the intervention group that received the teaching of conceptual metaphors was more involved with the learning materials than the comparison group in relation to the elements suggested by Hulstijn and Laufer (2001). With regards to *need*, students were required to look for similarities between two domains of the conceptual metaphor mapping and had to propose the possible meanings of the words. Secondly, the *search* criterion was also met as the students attempted to find words in sentences from one domain and negotiate the use of these words in the target domain context, to talk about another domain. And lastly, *evaluation* was encouraged as students needed to assess whether the literal or figurative meaning of a word or phrase they encountered was more contextually appropriate.

The suggestion that the students may have benefited from a higher involvement load is supported by Schmitt (2008) who demonstrated the importance of engagement in vocabulary learning. He advises employing activities to increase student engagement with the targeted lexical terms, as a crucial component of vocabulary learning. With respect to metaphorical language, one approach is to have the students think about the categories of conceptual metaphors that underly figurative expressions (Schmitt, 2008). This is in line with cognitive linguistic implications for teaching vocabulary items that are used figuratively. Boers and Lindstromberg (2008) argued that focusing on the semantic elaborations of the vocabulary items when teaching them would lead to deep encoding of learning materials, rather than simply the presence or absence of semantic encoding. This in turn would lead to deeper processing and improved gains of vocabulary learning and retention, according to the Levels of Processing Theory (Craik & Tulving, 1975).

In contrast, the comparison group did not improve significantly at the immediate post-test, and their mean scores deteriorated at the delayed post-test. This suggests that semantic teaching of metaphoric expressions' meanings does not help longer-term memory, and in this

sense is similar to Li's (2002) conclusions. The mere listing of meanings according to topics is insufficient as a teaching strategy to have an impact on the long-term memory of L2 learners. Although in the current study students in the comparison group were taught the same vocabulary and saw the same tables and images as the intervention group, they were not exposed to conceptual metaphor teaching. As a consequence, their results did not improve over time. Students in the comparison group also reported that it was hard to learn the expressions they encountered, and they were not able to remember them during the metaphor tests and reading tests. They even mentioned in the interview that the expressions in the sessions were similar to each other, which was confusing. Some of them also mentioned that the number of words to be learned was large. These difficulties were not reported by students in the intervention group. These results also support Boers' (2004) argument that relating figurative expressions to a certain number of source domains or metaphoric themes enhances figurative language learning and retention. Taken together, results from the current study lend support to the suggestion that teaching L2 students about conceptual metaphor results in better learning on the longer-term.

Likewise, another important factor facilitating learning and retention in the intervention group was the use of the diagrams to illustrate the metaphorical mappings. This was different from what occurred in Saaty (2016) but was similar to the approach used in Li's (2002) study where metaphoric expressions were linked to diagrams. According to Dual Coding Theory, "diagrams are worth a thousand words" (Clark & Paivio, 1991, p. 152). Through metaphorical mapping, students learned that words in the abstract target domain can be linked with their concrete meaning in the concrete source domain. Meanings in the concrete domain can help to form images easily, that is, concreteness evokes imagery and promotes memory, and can lead to a higher retention rate of vocabulary (Boers, 2000a; 2001). As most concrete words normally occur at a higher frequency compared to abstract words, it is likely that learners are more familiar with concrete meanings. Therefore, to learn their metaphorical sense is to add new meanings to the already known spelling forms. Studies such as Boers (2001), Kövecses (2003) and Yasuda (2010) found that enhancing conceptual metaphor awareness allowed learners to use the strategy of visualising the expressions and hence involved deeper cognitive processing and increased the probability of memory storage. According to Sadoski (2015), because they can be shown and processed in two codes or modes, imagery and concrete verbal language (i.e., Dual Coding) clearly have an advantage over abstract language. Concrete words can be encoded

through imagery and verbal codes, whereas abstract words can only be encoded verbally. Thus, it may be that the lexical items learned in the comparison group were not made concrete, as only providing the semantic figurative meaning failed to remind learners of the concrete meanings and consequently did not promote learning or retention.

Another reason behind the better learning and retention by the intervention group may be relatedness and personal connection. Students in the intervention group, as reported in the interview, showed personal relatedness and thus affective reactions to the materials taught. This is in line with the hypothesis that conceptual metaphors are pre-existing and part of learners' world knowledge stored in long-term memory. As such, when learners study conceptual metaphors, they may have a feeling of being already familiar with them at least subconsciously (Gibbs & Colston, 1995). Conceptual Metaphor Theory also argues that conceptual metaphors are indeed in people's minds (Gibbs, 2008) and the meanings of the metaphors are embodied in learners' personal lives. That is, common bodily experiences result in the existence of conceptual metaphors in various languages and, consequently, linguistic realisations (Kövecses, 2005; 2010). Thus, it may be that when the students in the current study were made aware of conceptual metaphors, this prompted more understanding, learning, and memorisation of the linguistic metaphoric expressions motivated by conceptual metaphors.

On a similar note, although the embodied nature of conceptual metaphors makes them universal, languages and cultures differ in their forming of metaphors and linguistic realisations. As a result of the differences between the students' L1 Arabic metaphors and their L2 English metaphors, the metaphors may have been made more salient and therefore noticeable (Schmidt, 1990), which in turn may have resulted in them being learned by the students. Indeed, in the present study, the students' L1 Arabic was linguistically and culturally distant from their L2. This resulted in some cultural inequivalence and in salient contrast between metaphors in English and Arabic. Although the differences or similarities between English and Arabic metaphors were not measured in the present study, students in the interviews mentioned examples of different metaphors related to time between the two languages, indicating that this difference had made the metaphoric expression, and its meaning, more salient to them. According to Roche (2015), metaphors ought to be salient to the extent necessary to capture and hold the interest of the learner. The increased progressive effort made to understand a metaphor

produces a larger impact on the cognitive system and therefore strengthens the activation paths of the mental lexicon resulting in improved meaning and form retention, which links back to the Involvement Load Hypothesis (Hulstijn & Laufer, 2001) discussed earlier.

Similarly, salient lexical items would make them more noticeable which is related to the Noticing Hypothesis (Schmidt, 2001). Schmidt (2001) declared that input for language learners becomes intake when it is noticed and consciously registered. In this study, conceptual metaphor teaching seemed to cause students to become aware of language cues, the figurative aim of utterances, and the activation of knowledge which led to explicit noticing (Ellis 2006; Schmidt 2001). Examples of students noticing figurative language were reported in the interviews of the present study. Learners from the intervention group reported being able to notice if a lexical item had a metaphoric or a figurative meaning and started to notice and remember those learned metaphoric expressions. They reported that this in turn led to them noticing new untaught metaphors in different situations outside the classroom. This is in line with Littlemore (2002; 2004), who considers noticing as the first step in the comprehension of metaphoric expressions. Learning about the pervasiveness of metaphors in thought and in languages and learning about the formation of these conceptual metaphors is central to helping L2 students notice figuratively used language which ultimately leads to better understanding (Boers, 2011).

To conclude, it seemed that teaching conceptual metaphors in the present study led to better learning and retention of metaphoric expressions amongst L2 learners. Additionally, a number of affective and behavioural impacts of conceptual metaphor teaching were reported, which will be discussed next.

7.4 Affective and Behavioural Impacts

RQ4: What are the learners' perceptions of the teaching methods they experienced and how do they perceive conceptual metaphor teaching and semantic explanations in teaching?

The previous sections discussed the impact of conceptual metaphor teaching on the students' reading comprehension, on metaphor learning and retention, and on the transference of knowledge to help understand untaught metaphoric expressions encountered during reading. In

addition, this teaching methodology also had a number of unforeseen affective and behavioural impacts on students, which in turn seemed to lead to better cognitive and learning outcomes. One interesting, albeit unexpected finding to come out of the qualitative data was that participants, including both higher and lower proficiency students, reported that learning about conceptual metaphors increased their intrinsic motivation to such an extent that they spontaneously formed a self-study group to engage in undirected autonomous study (see Section 6.1.2.3.1.1). This section focuses on the affective and behavioural findings that came out of the qualitative analysis of the students' interviews in the present study, namely motivation, autonomy, self-belief, and intention for future use.

As stated, one of the key findings was that the intervention not only led to comprehension gains, but also to motivational gains, including enjoyment of reading for its own sake and pleasure in learning metaphors. Indeed, the majority of students in the intervention group, regardless of their level of proficiency, showed a higher sense of both *extrinsic* and *intrinsic* motivation after the intervention. The present study results can be linked to Ryan and Deci's (1985) Self-Determination Theory (SDT). Ryan and Deci argued that *intrinsic* and *extrinsic* motivation are the two most fundamental types of motivation. In contrast to the latter, which is focused on reaching a certain result, intrinsic motivation refers to an innate pleasure and joy in doing something for its own sake. These two types of motivation are important in facilitating the learning process. In the present study, both extrinsic and intrinsic motivation were reported among students. However, most interestingly, lower proficiency students mentioned the impact of the study to increase their intrinsic motivation and self-confidence. Conversely, students in the comparison group generally did not refer to the teaching sessions as motivating and did not show enhanced intrinsic motivation, especially among the lower proficiency students. Therefore, finding of the present study would suggest that including metaphor teaching in reading courses can enhance the motivation of both lower and higher proficiency students, resulting in better overall reading comprehension.

A few studies have related metaphor teaching to increased motivation. For instance, Altakhaineh and Shahzad's (2020) study with Arabic students learning English metaphors used semi-structured focus group discussions and found that students in the intervention group were encouraged to participate in the study and felt more engaged. Moreover, for Juchem-Grundmann

(2009), both German business students studying English and the teacher involved in the experimental study reported the positive attitudes toward conceptual metaphor teaching in an oral survey. They also expressed their desire for the subsequent to be taught in the same way. However, the methodology adopted by Altakhaineh and Shahzad (2020) differed from the present study in that they used pictures only during the teaching phase rather than the more comprehensive approach adopted here. Also, Juchem-Grundmann (2009) only looked at the use of metaphor in the context of business-related articles. More importantly, analysis of the perceptions in both studies was very brief and neither study reported students' perceptions in relation to their proficiency levels, nor related them to motivational effects of teaching metaphors and motivation theories. Although motivation in L2 metaphor learning is important, as far as could be ascertained during the preparation for this thesis, no studies linked their results to motivational theories. Thus, although the present study did not study motivation in a systematic way, it could address existing research gaps by exploring the motivational effects of conceptual metaphor teaching in L2 classrooms.

One reason for the students' increased motivation could be their raised sense of relatedness to conceptual metaphor learning. In the interviews, students reported that they were able to directly connect what they learned in the teaching sessions and the reading texts to their own real-life experiences. As discussed in Section 6.4, metaphor research suggests that increased metaphoric knowledge results in increased personal relatedness because conceptual metaphors are embodied and pre-existing in human minds (Gibbs, 2008). It has already been established in Section 7.2.1.2 above that conceptual metaphors are embodied and that learners are likely to connect them to their own lives and personal experiences. This can be linked to the idea of intrinsic motivation and the ways in which students use their imagination in relation to the stories they read. This enhanced sense of relatedness is an important aspect of SDT (Deci & Ryan, 1985), which asserts that people's motivation is driven by their psychological need for a sense of competence, autonomy, and relatedness. For learners, the concept of intrinsic motivation or engaging in activities for the inherent reward of the behaviour itself is important. In the current study, this intrinsic motivation to comprehend what they read resulted from students using their imagination with respect to how they related to the stories they read, and thus building personal connections to the materials. Students imagined themselves as the characters in the story they read. Students even imagined new untaught metaphors as people performing the metaphors,

which further demonstrated the effectiveness of metaphors in evoking imagery (Boers, 2004). Consequently, it appears that the enhanced ability the students in the present study gained from the training in conceptual metaphors not only improved their reading comprehension (see Sections 6.2 & 6.3), but also allowed them to ‘enter’ into the texts more, thereby increasing their sense of personal connection, and subsequently their intrinsic motivation.

This greater engagement with the reading materials was also reflected in the increased emotional connection the students formed to the texts they read, as reported in the interviews. Students showed affective reactions to what they read and more emotional engagement with writers’ feelings. This is in line with Citron and Goldberg’s (2014) suggestion that conceptual metaphors could enhance emotional connection on the part of the learner which may consequently encourage metaphor learning and retention. Better interaction with the reading texts in the present study also included engagement with the incidents in the story and more connection with the writer’s feelings. This connection encouraged the students to think critically and comprehend the author’s emotions embodied in the stories. That is to say, more engagement with the materials and stories led to increased motivation which led to deeper understanding.

Addressing the students’ interests in the present study also seemed to lead to increased motivation. The content and type of the activities utilised in the intervention were reported to have an important impact on the motivation of the students. Students commented that, in addition to the new concept of conceptual metaphors, what motivated them was that sessions included more engaging content, interesting topics, visual aids, and more authentic learning consisting of real stories and examples. This is in line with the argument that paying attention to students’ interests could therefore motivate them and make them learn more actively (Harackiewicz, et al., 2016). In the present study, the salience and complexity of the idea of conceptual metaphors added to the curiosity on the part of students and created a degree of challenge that facilitated increased interest and motivation, thus strengthening their learning outcomes. A similar finding was reported by Li (2002), while these interpretations also support the study by Deci et al. (2001) who proposed that teachers should provide more engaging learning activities, and more options, and make sure that tasks are sufficiently challenging to boost students’ intrinsic motivation to promote “conceptual understanding” (Deci et al., 2001, p. 15). Likewise, Renandya, (2014) argued that language instructors must provide their students with intellectually demanding tasks

to increase their motivation and interest. That means classroom activities must be created to challenge students and to maximise their cognitive and linguistic knowledge to a more advanced level of learning.

The results from the current study further suggest that the students' motivation, enjoyment, and engagement also contributed to their enthusiasm, eliciting their willingness to persist in the activity of learning throughout the intervention and, importantly, to also persist in reading. Indeed, an important difference between the intervention and the comparison groups was related to their perceived ability to focus on what they read and to persevere in reading regardless of difficulties in comprehension. The intervention group mentioned in the interview that the teaching they received made them aware of the reading process and of how it is possible to infer meaning by paying more attention and focusing on all words included in the sentences. They linked this to being more aware of the relationship between language, text, and the meanings behind the words in the text. This increased degree of persistence when reading manifested itself through the reported strategies of *increase in concentration and maintaining focus, directed attention* and comprehension regulation strategies such as *keep on reading* and *paying more attention to the difficult parts*. Conversely, the comparison group students reported greater use of *skipping problematic parts, ignoring, and give-up*.

Another key finding was that the students' sense of being able to read effectively increased their self-belief which in turn further increased their motivation. Both higher and lower proficiency students in the intervention group mentioned their gradual improvement, academic progress, and better test-taking, all of which added to their self-belief and consequently led to better learning outcomes. Students mentioned that before the study they used to read in a fearful way and experienced feelings of low confidence. However, after the intervention, they reported their improved ability to understand what they were reading which increased their self-belief. This is related to competence and SDT (Deci & Ryan, 1985) in the sense that the intervention seemed to enhance the students' confidence, motivation and willingness to persist. This also supports the mutual relationship between reading and a student's sense of competence. In Naseri, and Zaferanieh (2012), students with a high sense of competence did well in reading. In contrast, students with a low sense of competence had lower reading skills because they lacked the confidence to take risks in their reading. This is also indicated in the present study, where scores

on the delayed reading tests significantly decreased for students who did not receive the metaphor teaching, showing no gain in their performance. Similarly, during the interviews, students in the control group reported no improved sense of competence or drive to learn. As a result, it might be argued that teaching expressions in a semantic way did not have any impact on students' performance and motivation.

As mentioned at the start of this section, an unanticipated finding from the interview was that students in the intervention group revealed instances of increased autonomy and engagement in independent learning. Examples of this include self-teaching and engagement in autonomous learning, such as working in a group to learn about metaphors, working in a pair to study metaphors, using online resources and watching videos about metaphors, and reading more to learn about conceptual metaphors. This was an interesting result, especially given that lower proficiency students also engaged in self-teaching activities. This last finding is arguably particularly important, as lower-proficiency students are clearly the ones with most to gain from finding the confidence and motivation to engage in autonomous learning. There was no mention at all in the comparison group of autonomous or independent learning. In the current study, the interesting findings related to students' autonomous actions could be linked to their enhanced motivation and interest in learning metaphors. This is in line with SDT (Deci & Ryan, 1985) where autonomy is one of the three central psychological needs. Sacristán (2004) also found that learner self-teaching occurred during a metaphor-awareness intervention. This intervention, however, required learners to work on their own, making such instances unsurprising. In the current study, however, such autonomous behaviour seemed to arise spontaneously from the learners, thus providing more convincing evidence that metaphor-awareness training can enhance learner autonomy.

Moreover, students in the intervention group also reported their intention to use the learned metaphors in their spoken and written production. This finding is important as it suggests that students had increased confidence in and appreciation for the value of these expressions. They reported finding them authentic and applicable in everyday language. This may also explain the better retention of the expressions at the delayed post-test, as discussed in Section 6.3. However, while higher proficiency learners stated their plans to use the expressions in both speech and writing, lower proficiency learners only mentioned their use in future writing. This

difference is perhaps an indication of lower proficiency learners relating the expressions more narrowly to academic work, in contrast to their applicability, in the eyes of higher proficiency learners, to everyday, spoken language. It may also reflect the more planned nature of writing, in which it is easier to insert metaphorical language in comparison to more spontaneous and hence less controllable spoken production. This relates perhaps to Kintsch's (1998) definition of learning as opposed to memorisation, whereby learning is used by learners as part of their functional working knowledge which can then be applied to novel situations. High-proficiency learners were perhaps better able to 'learn' the expressions in that sense.

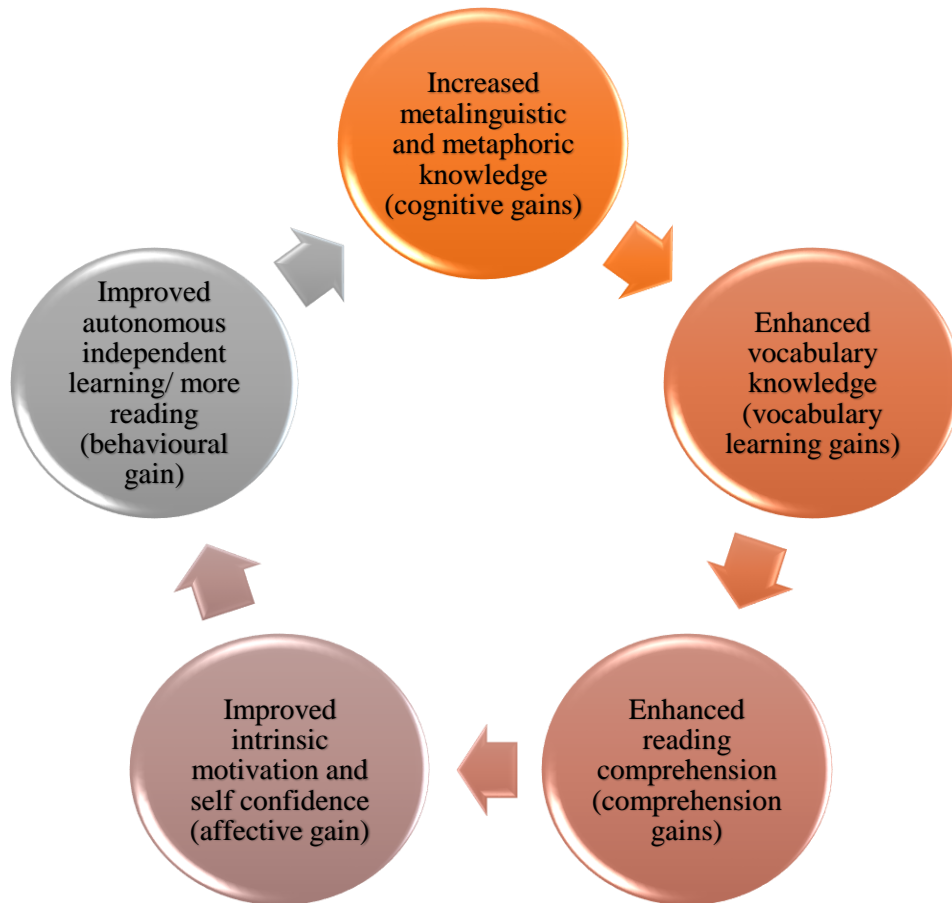
To summarise the findings for RQ4, it appears that the effects of the intervention were related in part to motivation. Through the teaching offered in the intervention, students' intrinsic motivation was nurtured, and they became more engaged with the learning materials, persisted in reading, improved their sense of competence, and developed autonomous self-teaching methods. These factors then seemed to have led them to read more, hence learn more, and consequently improve their reading comprehension. These conclusions apply to both higher and lower proficiency students.

7.5 Summary

To summarise the findings of the study as a whole, the diagram presented in Figure 7.1 exemplifies what might be called the *virtuous cycle of teaching conceptual metaphors to Saudi university L2 students*. Developing metalinguistic knowledge and metaphoric knowledge together helped learners develop a new comprehension strategy. This led to a virtuous spiral of growth as improved comprehension led to enhanced enjoyment and intrinsic motivation, to more study and independent reading, and hence to improved comprehension, and so the spiral grew. The following chapter will discuss the implications of the issues raised in this discussion on the theory and practice of teaching L2 readers about conceptual metaphor.

Figure 7.1

The Virtuous Cycle of Teaching Conceptual Metaphors to Saudi University L2 Student



CHAPTER EIGHT: CONCLUSION

8.1 Introduction

The study presented in this thesis has furthered understanding of how conceptual metaphors impact reading comprehension of L2 learners in a Saudi university and how they learn and remember metaphoric expressions. This chapter concludes the thesis by summarising the study and presenting the main findings. It then proceeds to outline the main contributions this study makes to both the theory and practice concerning the learning and teaching of conceptual metaphors in an L2 context. The limitations of this study are also presented, while recommendations for future studies are suggested. Moreover, the pedagogical implications to language teachers are proposed in the closing section of this chapter.

8.2 Substantive Findings

The theory of Conceptual Metaphor has been in development since the 1980s (see Section 2.2.1) and has been the subject of numerous studies investigating its effects with the L2 context (see Section 2.4). Nevertheless, research concerning the effectiveness of conceptual metaphor teaching on L2 learners' reading comprehension and metaphor learning and retention is still lacking. To address this gap, the present study was conducted to investigate the impact of teaching conceptual metaphors on L2 Saudi University students' comprehension of reading texts. This included both metaphoric language taught during the intervention sessions, and untaught metaphoric expressions. Furthermore, using metaphor understanding tests, the present study also investigated the impacts of employing conceptual metaphor teaching on students' learning and retention of metaphoric expressions over a two-week period. Moreover, stimulated recall interviews were employed to collect qualitative data to explore students' perceptions of the teaching methodology used in the intervention, in terms of enhancing the cognitive, behavioural, and affective aspects of their learning.

The analysis of the quantitative data gathered through the reading comprehension tests and metaphor understanding tests, as well as the qualitative data gathered in the interviews,

provided very important insights regarding the impact of conceptual metaphor practical teaching in the classroom among university L2 learners. Across both sets of tests, the participants in the intervention group showed significant progress in the immediate post-tests, and they sustained the improvement in the delayed post-tests. In contrast, the comparison group who only received teaching on the semantic meanings of the expressions did not show any changes in their scores in the reading comprehension or the metaphor understanding tests. In fact, they experienced a decline in these areas. These findings, therefore, confirm the effectiveness of conceptual metaphor teaching among Saudi L2 university students. It can thus be claimed that the traditional method of teaching metaphoric expressions as a list of vocabulary items related to a topic and only providing their semantic meanings fails to achieve the expected and desired results regarding students' performance and motivation. In light of this key finding and supported by the solid empirical evidence presented in this thesis, it is proposed that a new and updated approach to teaching metaphoric expressions should be implemented in educational settings. Adopting a conceptual metaphor teaching approach has the potential to both improve students' ability to engage with and understand metaphoric language and will also have wider implications such as improving reading comprehension and enhancing critical thinking skills.

The results of both the intervention and comparison groups' performance in the reading comprehension pre-tests and the metaphor understanding tests have revealed that Saudi L2 university students have limited metaphoric knowledge. The findings also illustrate that Saudi students experience difficulty understanding reading texts that include metaphoric expressions and struggle to decipher the meanings of these expressions when used within the context of a sentence (see Section 5.7 for details). As such, this study confirms concerns raised within academic literature that metaphors are especially difficult for L2 learners (Littlemore, 2011). To this end, it can be said that low metaphoric knowledge has a direct effect on comprehension in reading texts and metaphor understanding. This observation raises important questions about the insufficient attention that has been paid to the teaching of students about metaphors, which, as this study demonstrates, has contributed to typically low levels of metaphoric knowledge and reading comprehension. As such, based on the qualitative and quantitative data gathered in this study, practical and evidence-based solutions to address these issues are needed. In other words, this thesis proposes that conceptual metaphor teaching needs to be included in the educational practices of those learning English as an L2.

The findings of this study support the conclusion that delivering explicit instruction on how conceptual metaphors shape human understanding of the world as well as training students to grasp how conceptual metaphors are linguistically constructed can lead to tangible academic improvement. This improvement came about because students in the intervention were able to use the information they learned in class as the basis to develop new comprehension strategies, which allowed them to deal with a range of novel metaphors they encountered in subsequent readings (see Sections 5.7.2 & 6.1.5 for details). Furthermore, the fact that students showed improvement in both the immediate and the delayed reading comprehension tests supports previous research (Hung, 2019; Li, 2002) about the effectiveness of conceptual metaphor teaching in enhancing both immediate learning and longer-term retention of metaphoric expressions over two weeks. The improvements in the post-tests were also confirmed by findings from the qualitative data, as students reported improvement in reading comprehension, enhanced metaphoric knowledge, depth of vocabulary knowledge, and consequently were able to employ a wider repertoire of reading strategies and metaphor comprehension strategies relative to the comparison group (see Section 6.1.5 for details).

What is more, the above findings support the fact that the teaching methodology adopted in this study offers a new and improved pedagogical technique that enables students to develop a strategic competence that expands their understanding to encompass new texts and new metaphors within texts. Moreover, in contrast to participants in the study by Boers (2000b), Saudi students participating in this study demonstrated progress in both general comprehension and metaphor comprehension questions, which suggests that conceptual metaphor teaching allows students to be more critical readers who are able to accomplish a global understanding of the texts, as well as an understanding of their individual expressions.

The gains identified among the study's participants were found to impact a number of aspects, including cognitive (reading comprehension and metaphor learning and retention, explained above), affective and behavioural factors. The intervention increased students' stated motivation, personal relatedness, engagement, persistence in learning and reading, intention for future use, and led to unanticipated instances of independent learning. Interestingly, the positive changes related to the affective and motivation aspects, in addition to the increased use of reading strategies and metaphor interpretation strategies, were reported among both higher and

lower-proficiency students in the intervention group, which was not the case in the comparison group (see Sections 6.1.1 & 6.1.5). These results further confirm the pedagogical advantage of employing conceptual metaphor teaching for metaphor instruction. Moreover, it can be concluded from these findings that language teachers should be encouraged to provide more training to their students to understand conceptual metaphors and to use metaphor interpretation strategies. The training would lead to a wide array of benefits for both lower and higher proficiency students that will enhance their language learning, language comprehension, critical reading skills, and their understanding of reading texts including metaphoric language.

Based on the main findings of this study, a virtuous cycle combining the interrelated factors discussed above has been established and presented in Section 7.5. The virtuous cycle of teaching conceptual metaphors to Saudi university L2 students suggested that by developing students' metalinguistic knowledge and metaphoric knowledge simultaneously, students developed a new comprehension strategy and gain a deeper knowledge of vocabulary. The improved comprehension leads to enhanced enjoyment and intrinsic motivation, which leads to more study and independent reading, and so the spiral grows.

8.3 Main Contributions of the Study

This study has attempted to bring together pedagogy and research in an in-depth investigation of L2 reading and figurative language teaching in Saudi Arabia. In this context, a number of contributions to L2 pedagogy will be outlined and discussed. Firstly, it is widely recognised that cognitive and applied linguistics in metaphor teaching encourages the use of conceptual metaphor teaching methodologies that help learners with the comprehension of metaphors in languages such as English. Nevertheless, research has not established whether the benefits of these instructional strategies include learners' reading comprehension, with the exception of Boers' (2000b) small-scale study. It has been stated that there is not enough empirical data to demonstrate the efficiency of this form of instruction in improving reading comprehension (Boers, 2011). On the one hand, the few studies conducted on reading comprehension were mostly correlational studies with no interventions or were done in an ESP context. On the other hand, most instructional studies employing conceptual metaphor teaching have only measured the effects of raising metaphoric awareness on vocabulary learning and

writing production. Thus, this thesis has facilitated the empirical application of conceptual metaphors to a wider context, moving this type of instruction from an exclusive focus on learning lexical items (metaphorical expressions), towards promoting a fuller and more deeper understanding of texts, particularly among L2 adult/university learners.

Secondly, very little research exists that has explored the ability of learners to transfer their acquired knowledge of conceptual metaphors to their understanding of metaphoric expressions and conceptual metaphors not previously learned. Thus, in an attempt to address this gap, the current study was the first to investigate L2 students' ability to transfer their newly learned knowledge to new metaphors within reading texts. In this context, the findings of this study provide solid empirical evidence in support of conceptual metaphor instruction as an approach to enhancing both reading comprehension and the ability of students to use newly acquired metaphoric knowledge in understanding reading texts. This is important for learners to gain the necessary skills that will help them improve language learning. It is worth noting that this effect was only found in one of the studies reviewed (see Section 2.4.5). It is also important for teachers as they are not always able to teach a large number of figurative expressions in classrooms. By teaching their students about how conceptual metaphors work, teachers can concentrate instead on helping them develop the autonomous reading comprehension strategies they need to decode novel conceptual metaphors, and the linguistic expressions they give rise to.

The third contribution of this study pertains to the fact that previous studies investigating students' learning of metaphoric expressions have been predominantly based on a limited sample of participants and a small number of targeted expressions. In contrast, this study included a large number of participants and a more holistic approach to teaching conceptual metaphors that relied on a larger repertoire of 40 metaphoric expressions. The approach was holistic in the sense that it did not only teach the metaphoric expressions but also students were taught about how the conceptual metaphors are constructed in terms of source and target domain, as well as an image and the literal and figurative meaning of each metaphoric expression.

In terms of the fourth contribution, earlier empirical and experimental studies have largely investigated learning metaphoric expressions, and little research has touched upon the retention of metaphoric expressions. Therefore, the findings of this study contribute to a growing body of empirical literature supporting the positive effects of raising metaphor awareness on

students' learning and retention of the metaphoric expressions. Retention is particularly important in L2 learning in a broader sense and vocabulary learning and reading comprehension in particular.

There is an important gap in understanding how learners themselves perceive conceptual metaphor teaching, and how they believe it to affect their learning. In this context, by conducting interviews with the students, the present study has been able to gather pioneering and in-depth insights into the thought processes and perceptions of students towards this new teaching method. Thus, the fifth contribution of this study is that it has added to conceptual metaphor teaching studies by demonstrating how this instructional method has yielded positive impacts on behavioural and affective factors in addition to the previously discussed cognitive (learning and comprehension) aspects.

Finally, the current study has shed the spotlight on classroom figurative language teaching for L2 university learners in Saudi Arabia, an area previously underexplored in research. This hopefully paves the way for similar research on language teaching to be conducted across the Arab region specifically, and non-Western contexts, more generally.

8.3.1 Methodological Contributions

In relation to the design of the study, this research employed a methodological design to avoid the limitations of earlier experimental studies. These studies relied almost exclusively on quantitative methods, which offered only a partial and limited understanding of the topic under study. In contrast, in the present study, a mixed methods design was the main approach adopted where triangulation was employed combining both qualitative and quantitative methods to gain a more holistic perspective of the topic under study. Whereas the quantitative analysis enabled a broader statistical exploration of the main trends concerning conceptual metaphor teaching on reading comprehension and metaphor learning and retention, the stimulated recall interviews provided important in-depth insights into students' perceptions of the teaching methodology and the strategies employed as they answered the reading tests. Such a holistic methodological approach has been shown to be fruitful as the different methodological perspectives have been complementary, with each single method compensating for the potential weaknesses of the other.

Furthermore, going beyond a simple theoretical design (usually adopted by cognitive linguistic theories), this study has employed a quasi-experimental approach in practice with L2 students in a real-life setting (real classrooms). Following Littlemore and Low's (2006a) recommendation to use evidence-based applied metaphor research in classrooms to expose learners to authentic metaphoric expressions from the real world, this study also employed authentic examples and stories in teaching metaphors. Additionally, in an important critical review, Boers (2013) highlighted that one of the main methodological issues involved in research was the lack of pre-testing and delayed post-testing. To overcome this shortcoming, and to generate data that are reliable, pre- and delayed post-tests were used in this study. Boers (2013) also criticised previous research that included differences in the kind of cognitive processing that learners in conceptual metaphor groups and control groups likely engaged in according to the teaching they received. Thus, when designing the current study, every step was taken to ensure the two groups received similar input, including the same number of exercises, metaphoric expressions, tables, and images.

8.4 Recommendations and Limitations

As with all research projects, the current study had a number of limitations which must be borne in mind when evaluating its conclusions. Firstly, one limitation of this study was the lack of male participants. As co-education is restricted in Saudi Arabia, the present study was conducted with females only, having obvious implications on the representativeness of the findings. However, based on previous studies (e.g., Doiz & Elizari, 2013), it is unlikely that the effect would differ in male participants. Secondly, as the present study used a quasi-experimental design, a convenience sampling strategy and intact classes were utilised, in which participants were not assigned randomly. As this research was conducted in such a conservative culture with its own unique norms, using a sampling technique that relied on close and personal networks was the only way to gain access to the participants. Nonetheless, this may impact on the validity of the results and the ability to generalise to the wider population.

Moreover, the third limitation concerned the experimental timeframe. None of the previous empirical studies, according to Boers (2006), have investigated retention for a period of over two weeks, something which the present study was also unable to do, and which poses a

limitation. The university where the study was conducted employs a modular system of seven intensive weeks. As the present study lasted for six weeks only, the empirical phase of the research could practically extend over just six weeks, including two 3-hour teaching sessions. As such, the delayed post-test took place two weeks after the intervention. Although it is concluded that the effects of the intervention were durable within this time frame, had it been possible to leave a longer gap before the post-test, it would have been possible to test if the effects were durable over the longer term. Unfortunately, due to institutional constraints where the intervention and testing took place, this was not possible.

A further limitation relates to the scope of the present study. First, it would have been useful to analyse the results by proficiency, given that both higher and lower proficiency students in the intervention group benefited motivationally. Moreover, the present study did not explore other factors that may have affected learning metaphors, such as the different levels of imageability and concreteness of metaphoric expressions, which had an effect in the study by Littlemore (2004). It also did not focus on comparing target metaphoric expressions and their L1 metaphors, which affected the results in Altakhaineh and Shahzad (2020). Further research, therefore, could advance and verify the present results by exploring the interrelation of a wider array of variables. Furthermore, the present study showed improvement in learners' comprehension of narrative texts and Boers (2000b) showed improvement in academic texts on business themes, it would be interesting to look at other different genres of reading. In addition, as motivation and autonomy emerged as important factors in the present study, it would be beneficial to measure them before and after the intervention, to assess the extent to which the intervention truly did have an impact on them. It is suggested, therefore, that future research collects data on motivation and autonomy in a more systematic way. As a final recommendation, as there is a very limited body of research employing cognitive linguistic approaches for the study of reading comprehension and L2 metaphor learning and retention, it is recommended that further studies be conducted to further investigate the impact of these approaches.

8.5 Pedagogical Implications

The findings of the present study have important implications on both figurative language teaching and learning, and L2 reading comprehension. First, taking into account the positive

impact of conceptual metaphor teaching on the reading comprehension of students in this research, compared to teaching meanings from a list of vocabulary, this study highly recommends that conceptual metaphor teaching is employed in L2 classrooms. As reading comprehension is a complicated skill, the present study's approach to meaning and comprehension has evidence-based implications for improving reading comprehension. That is, supporting students in understanding conceptual embodied metaphors and the original meanings enhances their ability to form mental representations, to boost depth of knowledge, and consequently to increase engagement in understanding reading texts. In this context, reading comprehension educational programmes based on this approach should be developed.

Findings related to metaphor learning and retention have confirmed the efficiency of the conceptual metaphor approach to increasing vocabulary knowledge and enhanced metaphoric competence, which in turn, helps improve reading comprehension. Therefore, it is suggested that this approach is implemented to increase vocabulary knowledge, and the ability to learn and retain such knowledge, which is vital to learners' lexical competence. As such, one of the key implications that came out of this study is that both teachers and producers of teaching materials should focus on metaphor teaching much more. Given the ubiquity of metaphor in language, and especially within academic contexts (see Sections 2.3 & 3.3.2 for details), if L2 learners are to be able to thrive in native speaker environments, it is crucial they be provided with the knowledge and strategies they need to comprehend metaphor in natural language use.

An implication which comes out of this new understanding is that it is not enough to simply teach students the meanings of specific metaphoric expressions, as was the case in the comparison group. Rather, it is necessary to engage with this issue on a much deeper level, particularly as the results have shown that this new conceptual metaphor teaching methodology impacts students' motivation. Hence, it is strongly advised that classroom activity should focus on tasks that are appropriate to students' interests and abilities, and that provide a level of challenge in order to boost motivation, and thus raise cognitive and linguistic knowledge to a new advanced learning level (Renandya, 2014). In this way, students will be encouraged to interact with the texts they use on a much deeper level and in a more holistic way that has the potential to not only lead to comprehension gains, but also to wider development improvements as a result of enhanced levels of motivation. Moreover, data from this study provide evidence

that supports the effectiveness of the conceptual metaphor teaching for both lower and higher-level students in terms of their increased level of motivation and engagement with the teaching materials, as well as in using reading and metaphor interpretation strategies. This lends itself to the recommendation that more explicit teaching in mixed ability classrooms would lead to successful teaching and learning processes. In addition, the intervention increased students' motivation and autonomy, which usually leads to a better learning environment. Independent learning is beneficial to language teachers, who usually do not have the capacity to teach everything to students during class time.

Importantly, the findings of the pre-tests and interviews reveal the difficulty that students face in understanding metaphors, and that metaphor is still a challenging lexicon class for L2 learners, including the Saudi students in this study. Despite past research that has shown the importance of explicit metaphor teaching methodologies, metaphor has taken a long time to find its way into modern L2 textbooks, which are a primary resource for language learners. Therefore, the current study calls for curricula designers to seriously consider the addition of metaphor to L2 textbooks. Specifically, more focus should be given to this lexicon, with conceptual metaphors being taught from a more theoretical point of view in terms of how they are formed, and not simply presented in vocabulary lists related to topics. In addition, textbooks should include tasks that raise language learners' awareness of metaphors, and link metaphoric vocabulary to conceptual metaphors in figurative language teaching (Boers, 2000a). It is also recommended to start employing this teaching approach at an earlier language learning stage, e.g., in secondary schools.

Another interesting finding that came out in the present study was that conceptual metaphor teaching could contribute to better cultural understanding or more efficient teaching of the target culture. This result is based on the strong relationship between conceptual metaphors and culture as identified by previous research (Boers, 2015; Littlemore, 2001). Importantly, although conceptual metaphors are universal, they result in different manifestations across cultures (e.g., *TIME IS MONEY* in English and *TIME IS A SWORD* in Arabic). Therefore, raising students' awareness towards L2 conceptual metaphors may help them learn about L2 native speakers' specific cultural norms, and consequently increase students' competence of L2 and their understanding of reading texts that include metaphoric language. Thus, including metaphor

awareness in L2 classrooms and textbooks has significant pedagogical implications that can potentially advance and strengthen cultural awareness and recognition.

Last but not least, given that the results of the present study suggest that enhancing metaphoric competence plays an important role in students' learning and reading comprehension, it is hoped that this can be a solution helping to address some of the issues faced by students in EMI courses in Saudi Arabia and other global contexts. Indeed, evidence shows that many international students struggle to understand metaphors which are frequently used in academic texts and in the language of instruction. General concerns exist around EMI instruction and whether or not students learn sufficiently from reading English texts (Trenkic & Warmington, 2018). Questions are specifically raised about how understanding can be affected by the presence of metaphors. Therefore, the proposed teaching methodology in the present study seems to be effective in teaching metaphoric knowledge, and, hence, can help L2 students as they advance to higher levels of education. More specifically, it can help Saudi students attain international scholarships to learn abroad, in line with the Saudi vision 2030 where scholarships to English-speaking countries are widely encouraged. In addition to this, metaphoric competence is central in all facets of the communicative process, and thus language learners' use of metaphoric expressions can help their speech to sound more natural and native-like when communicating with English speakers (Boers et al., 2006; Littlemore & Low, 2006a). It is hoped that this study has gone some way to highlight the importance of developing such metaphoric competence and how that goal can be achieved.

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APPENDICES

Appendix A: Metaphor Understanding Test

Pre-test

Name: _____

Section: _____ ID: _____

Kindly circle the letter of the item that best explains the meaning of the **underlined** word or phrase. If you do not know it, circle item E.

1. A blind person **overcomes many obstacles** in their daily lives. These obstacles include driving, cooking, crossing streets, and even building a career.
 - A. To remove or navigate around an object (e.g., a wall or rock) to move forward
 - B. To succeed in solving a problem or a challenge that stops you from achieving a goal
 - C. To walk from one location to another
 - D. I do not know

2. We missed our flight. Tomorrow, we will drive to the airport and buy a new ticket to our **destination**.
 - A. A situation where you feel that you can continue till the end
 - B. The goal or dream you hope to achieve
 - C. The place designated as the end (as of a journey or a race)
 - D. I do not know

3. At top of rise, turn left **on track** which after three miles descends slightly then turns to left while in minor valley.
 - A. On schedule; progressing as planned
 - B. A path or road with a rough surface
 - C. The time you spend to get to your destination
 - D. I do not know

4. When we were small, we used to take a **short-cut** by going through the fields to school, but now they've built a housing estate on the farmland.
- A. A path or road from one place to another that people walk along
 - B. A way of saving time or effort in doing something, often a method that produces a result that is not good enough
 - C. A path or route that is quicker and shorter than the usual way
 - D. I do not know
5. The reading course gives young children a **head start**.
- A. A situation in which you start a race either before your opponent or from a position that is further ahead than your opponent's position
 - B. An advantage over other people in the same situation as you
 - C. The hard work and commitment that students should start school with
 - D. I do not know
6. Many employers consider applicants over 40 years olds to be **over the hill** these days, so what work can older applicants hope to find?
- A. To be too old to do a particular thing
 - B. To be working very hard to earn a promotion at a job
 - C. To be moving across an area of land that is higher than the other land surrounding it
 - D. I do not know
7. If you are eating healthy food and exercising regularly, you should be well **on the way** to having good-looking skin.
- A. The particular road, path, or track that you use to go from one place to another
 - B. To be approaching a particular goal or outcome
 - C. To do something new and different
 - D. I do not know
8. Tickets are valid all day, so you can get off, see an attraction, and then re-board a later bus that is **heading to** another.
- A. Travelling, going or moving towards to a certain/intended destination
 - B. Achieving goals that support your dreams in life
 - C. Going in a particular direction, but expecting to arrive late

D. I do not know

9. The press believed that it was **the end of the line** for the President; he'd never be re-elected.

- A. The point past which a person cannot progress
- B. A work environment that is discouraging
- C. The physical end of a route of travel, usually a bus or train route
- D. I do not know

10. The group last attempt to increase their profits failed. Nonetheless, the group continued to **push ahead** with an expansion strategy.

- A. To create a productive work environment
- B. To force other groups to move from one place to another
- C. To continue trying to achieve something despite difficulties
- D. I do not know

11. Emily's teacher says she has **hit a wall** with her schoolwork and assignments. She failed two tests and never submitted her essay.

- A. To reach a point where you are physically or mentally unable to make progress or continue
- B. To slam or crash into a wall with great force
- C. To try your best to work on a new project
- D. I do not know

12. The day she found out that she was pregnant marked a **turning point** in her life.

- A. A moment at which a shift in motion or direction occurs
- B. A time of serious trouble or difficulty
- C. A time when an important change takes place in a situation, especially a change that makes the situation better
- D. I do not know

13. The new city was so big. She looked at her map again, not sure which **direction to take**.

- A. The general development or progress of someone

- B. An area that someone does not want to stay in
 - C. The path that someone or something moves along when going towards a place
 - D. I do not know
14. After I stop playing tennis, I will see the world. I want to **go places** I've not seen, and I also want to return to places I've visited but not really explored because I was busy with tennis.
- A. To progress or find success in some area of one's life
 - B. To travel and see destinations
 - C. To try new activities
 - D. I do not know
15. Ugh, the neighbour put his trash cans too close to my parking spot. The cans **get in the way** when I try to park my car.
- A. To obstruct or interfere physical movement
 - B. To be in the opposite direction
 - C. To make it difficult for a person to achieve a goal
 - D. I do not know
16. I couldn't **get over** the huge rock in the path, so I went around it.
- A. To find a way to deal with a difficult problem
 - B. To send a physical obstacle to another place
 - C. To move or climb over the physical obstacle
 - D. I do not know
17. 'Good night' she said, disappointed, before **turning back** to the empty room.
- A. Stopping moving and begin returning the same way that he came instead of continuing on his journey
 - B. Undoing a course of action
 - C. Asking for help to accomplish something.
 - D. I do not know
18. The player did not stop trying until finally the ball was kicked into the open **goal**.
- A. To score a point in sports

- B. Succeed in doing what he planned for, usually after effort
- C. Try new techniques and methods
- D. I do not know

19. Alan: Where will we stop tonight?

Jane: At the next town.

Alan: What if all the hotels are full?

Jane: Let's **cross that bridge** when we come to it.

- A. To go from one side of a bridge to the other
- B. To delay worrying about something that might happen until it actually does happen
- C. To visit a new place and explore it
- D. I do not know

20. Just as you do not like others to inform you what you should do, you must leave it to them to be free to follow their own **direction** in life.

- A. The general development or progress of someone
- B. The time that they should stop overthinking and take an action
- C. The path that someone or something moves along when going towards a place
- D. I do not know

21. We are sad that our schooldays must come to an end, but we **look ahead** to the future with great hope.

- A. Think about / plan for what is likely to happen
- B. Turn your eyes to the view in front of you
- C. Worry about what will happen later
- D. I do not know

22. As it is the end of the term, we have a busy period **coming up** in a couple of weeks.

- A. Reaching a particular point or level
- B. A period of time full of tasks and assignments
- C. About to be happening soon
- D. I do not know

23. The project is already a month **behind** schedule. You have to work harder to finish it.
- A. Late or too slow
 - B. Remaining in a place after people have left
 - C. Making efforts to accomplish a task
 - D. I do not know
24. As time **goes by** and I continue to avoid studying, I become more worried that I will not be prepared for my exam.
- A. Passes
 - B. Moves to a place beyond the original location
 - C. Makes a significant effort during the time available
 - D. I do not know
25. The poor have no money because they are out of work; they **pass** their time watching game shows on television.
- A. To spend, consume, or use spare time doing something
 - B. To move something in a particular direction or to a particular place or position
 - C. To wait to find work
 - D. I do not know
26. She was surprised that her mum does not like her lifestyle and the way she **spends** her time every month.
- A. Can afford more time and money to work on her project
 - B. Uses money to pay for things
 - C. Stays somewhere or does something for a period
 - D. I do not know
27. Owners of the company were told that over half of their savings had vanished and could not be **accounted for**.

- A. Were significant and important
 - B. Had no value and did not carry a certain weight
 - C. Stated how this amount of money have been used
 - D. I do not know
28. Sara hesitated to buy the new dress that she really liked when her husband said, 'Why **waste** money on expensive designer clothes you hardly even wear?'
- A. Fail to use something in an effective way
 - B. Produce as many benefits that as possible
 - C. Spend time on things that do not matter
 - D. I do not know
29. I know you are in a difficult situation now, but the time is **approaching** when you will succeed and move on.
- A. Coming close in distance
 - B. Coming close in time
 - C. Slowing down
 - D. I do not know
30. They stopped their trip to South Africa and returned when their money **ran out**.
- A. Used all of it in a useless way
 - B. Did not have any more left
 - C. Used up the allotted time
 - D. I do not know
31. Now is a good time to **invest** in the property market. The prices keep going up.
- A. To use time with the aim of making a profit
 - B. To put less effort towards a goal
 - C. To put money to use in something offering profitable returns
 - D. I do not know

32. These discussions with the Prime Minister are all part of a plan to **buy** time to win more support.
- A. To plan how to use the available time on important things
 - B. To get something by paying for it
 - C. To do something in order to gain more time for finishing something else
 - D. I do not know
33. Her mistake was that she put the money in her bag without **counting** it.
- A. Calculating how much was there
 - B. Waiting for something that she wants to happen
 - C. Having an insignificant amount of money
 - D. I do not know
34. I am kind of **pressed for** cash right now, so can we go out to dinner next weekend instead?
- A. Not needing a lot of it
 - B. Having a small or limited amount available
 - C. Not having a lot of time to do something
 - D. I do not know
35. The shop was scheduled to open in April, but the staff's work led to the museum opening **ahead of** time.
- A. Before the agreed-upon time
 - B. In front of something
 - C. Leaving school early
 - D. I do not know
36. If you look at the history, you can really understand why our country was **divided** into distinct halves.
- A. Being in one place or doing one thing some of the time, but being in another place or doing something else the rest of the time
 - B. Existing in separate parts or groups
 - C. Attempting to unify all the separated parts

- D. I do not know
37. If you plan it well ahead of time and buy your tickets before Saturday, you can **save** up to ten percent of the total amount.
- A. Avoid using money or use less of it
 - B. Try not to spend a lot of time on it
 - C. Use extra money to buy new things
 - D. I do not know
38. The school could not **afford** the expense of putting bar-codes on all books in both libraries.
- A. Do all the processes needed
 - B. Have enough money to be able to pay for it
 - C. Have enough time to do things with it
 - D. I do not know
39. A report shows that many of our clients are **short of** money and are not able to pay taxes.
- A. Unable to manage money
 - B. Not having enough of it
 - C. Not having sufficient time
 - D. I do not know
40. John is very excited to blow out the candles on his cake and make a wish for himself. **How far** is it to his birthday?
- A. What distance?
 - B. How many days or hours until a certain event?
 - C. Cannot wait till that time
 - D. I do not know

Two-week delayed Post-test

Name: _____

Section: _____ ID: _____

Kindly circle the letter of the item that best explains the meaning of the **underlined** word or phrase. If you do not know it, circle item E.

1. A car came **over the hill**, and I ran out, and whoever was in it got out – suppose he was crazy.

- A. Too old to do a particular thing
- B. Working hard to get to a place
- C. Moving to area of land higher than the other land
- D. I do not know

2. When we were driving through the mountains, the GPS navigation tool in the car took us to a **turning point**. We discovered that we must choose between two paths. We were scared, but luckily, we could make it to the mountains.

- A. A moment at which a shift in motion or direction occurs
- B. A time of difficulty
- C. A point at which an important change in a situation occurs, particularly one with beneficial results
- D. I do not know

3. The Americans looked to be **heading to** victory in the World Cup.

- A. Travelling, going or moving towards to a certain/intended destination
- B. Achieving goals
- C. Going in a particular direction but expecting to arrive late
- D. I do not know

4. He believes that the purpose of life is to follow decisions that will help take you to your **destination**.

- A. A situation where you feel that you can continue till the end

- B. A goal or dream you hope to achieve
 - C. The place designated as the end (as of a journey or a race)
 - D. I do not know
5. Down the road, James could see a bus coming from the opposite **direction**. Therefore, he decided to stay at the bus stop.
- A. The general development or progress
 - B. The time that they should stop overthinking and take an action
 - C. The path that someone or something moves along when going towards a place
 - D. I do not know
6. James is a very competitive person. He would do anything to **achieve his goal**.
- A. To score a point in certain sports, such as football and hockey
 - B. To succeed in doing or having what you planned or intended, usually after a lot of effort
 - C. To try new techniques and plans
 - D. I do not know
7. You must have strong fence to protect your flower garden. Fences present an **obstacle** that animals are not able to **overcome** and ruin the flowers.
- A. A difficulty or problem that makes it hard for someone to achieve their goals that is later addressed
 - B. Walking distance from one location to the other
 - C. A wall or rock that stops one from walking or moving forward
 - D. I do not know
8. This is **the end of the line**, folks, so everyone needs to get off the bus now.
- A. The point at which no more progress can be made
 - B. A discouraging area
 - C. The physical end of a route of travel, usually the final stop of a bus or train route
 - D. I do not know

9. Leave it behind you and **cross the bridge** beneath the restaurant that will help you escape south-west towards open country.

- A. Go from one side of a bridge to the other
- B. Delay thinking about something that may happen until it happens
- C. Visit a new place and explore it
- D. I do not know

10. He was very ambitious and determined. He never let anyone **get in his way**.

- A. Obstruct or interfere with physical movement
- B. Go in the opposite direction
- C. Make it difficult for a person to achieve a goal
- D. I do not know

11. Fred gave his younger brother a five-minute **head starts** in the Easter egg hunt.

- A. Situation in which you start a race either before your opponent or from a position further ahead than your opponent
- B. An advantage over other people in the same situation
- C. Hard work and commitment that students should start school with
- D. I do not know

12. **On my way** there, the first morning, I noticed that Nelly's house had a 'To Let' sign in the window.

- A. Particular road, path, or track someone uses to go from one place to another
- B. Approaching a particular goal or outcome
- C. Doing something new and different
- D. I do not know

13. If you need creative inspiration on which **direction to take** in your career, and which city to move to, for twenty minutes, write down every idea that comes into your head.

- A. The general development or progress of someone
- B. An area that someone does not want to stay in
- C. The path that someone or something moves along when going to a place

D. I do not know

14. The talented national team has found their confidence. With that finishing touch, they can really **go places**.

- A. Progress or find success in some area of one's life
- B. Travel and see destinations
- C. Try new activities
- D. I do not know

15. My dad's death was very hard. I almost never **got over** the shock.

- A. Found a way to deal with a difficult problem
- B. Sent a physical obstacle to another place
- C. Moved or climbed over a physical obstacle
- D. I do not know

16. You have to finish your university degree first, leaving university and getting a job now is a **short-cut** to nowhere.

- A. A path or road from one place to another that people walk along
- B. A way of saving time or effort in doing something, frequently a method that produces inadequate results
- C. A path or route that is quicker and shorter than the usual way
- D. I do not know

17. He realised that he had been foolish to risk the search alone, but there was no **turning back**.

- A. To stop moving and begin returning the same way that he came instead of continuing on his journey
- B. To reverse or undo his course of action
- C. To ask for help in accomplishing the work
- D. I do not know

18. My manager asked me to try to keep all plans **on track** this time.

- A. On schedule, progressing as planned

- B. A path or road with a rough surface
 - C. The time you spend to get to your destination
 - D. I do not know
19. Perhaps it was the force, but the doll fell to its side, **hit the wall**, and then rolled off the shelf on to the floor and smashed.
- A. Reached a point where one is physically or mentally unable to continue
 - B. Slammed or crashed into a wall with great force
 - C. Tried your best to make progress
 - D. I do not know
20. The worker **pushed ahead** with the plough, moving the snow to the side of the road.
- A. Created a productive work environment
 - B. Forced something to move from one place to another
 - C. Continued trying to achieve something despite difficulties
 - D. I do not know
21. It was a terrible experience. I was terrified and could not imagine that the water was **coming up** to my shoulders.
- A. Reaching a particular point or level
 - B. Being full of risk or adventures
 - C. Happening soon
 - D. I do not know
22. Charles told his wife that he was planning to **go by** the post office on his way home.
- A. Pass by
 - B. Move past a place or stop for a short time during a journey
 - C. Makes a significant effort during the time available
 - D. I do not know
23. If I **invest** my time in this project, I want to see good returns.

- A. Use time with the aim of making a profit
 - B. Put less effort towards a goal
 - C. Put money to use in something offering profitable returns
 - D. I do not know
24. Don't **waste** time re-inventing the wheel. Instead, take ideas from others and make them even better.
- A. Fail to use something in an effective way
 - B. Produce as many benefits as possible
 - C. Spend time on things that do not matter
 - D. I do not know
25. She was **counting** the days until her son who lived in Australia came home.
- A. Calculating how many days in the month
 - B. Waiting for something that she wants to happen
 - C. Thinking of her son's graduation
 - D. I do not know
26. My dad was driving in this city for the first time. He was nervous and asked me to **look ahead** all the time and see if I could see the exit sign.
- A. Think about/plan for what is likely to happen
 - B. Turn your eyes to the view in front of you
 - C. Worry about what will happen later
 - D. I do not know
27. In fact, even today, I doubt that my parents would **spend** money on items that they would consider useless.
- A. Put forth more money to stay with each one
 - B. Use money to pay for something
 - C. Stay somewhere or do something for a period
 - D. I do not know

28. They managed to **pass** a message under the doorway.
- A. To spend, consume, or use time doing something
 - B. To move something in a particular direction or to a particular place or position
 - C. To wait to find work
 - D. I do not know
29. Sarah was not sure **how far** she could ski in this cold.
- A. What distance
 - B. How many hours until a certain event
 - C. Cannot go on anymore
 - D. I do not know
30. One of her business manager's main responsibilities is to **account for** every hour that she spends at work.
- A. Be significant and important
 - B. Have no value and does not carry a certain weight
 - C. State how this amount of time has been used
 - D. I do not know
31. We could wait no more as we watched the carriage slowly and steadily **approaching**.
- A. Coming close in distance
 - B. Coming close in time
 - C. Slowing down
 - D. I do not know
32. After the long weeks of only hard work and studying, I think it's time to go shopping and **buy** new clothes.
- A. Plan how to use available time on important things
 - B. Get something by paying for it
 - C. Do something in order to gain time to finish something else
 - D. I do not know

33. If you are **short of** time, continue along the road into Maltese Square. It is a faster road.
- A. Unable to manage time
 - B. Not having enough of it
 - C. Not having enough money
 - D. I do not know
34. When you have two finals on the same day, keep in mind that you must **divide** your time between them.
- A. Do one thing some of the time and something else of the rest of the time
 - B. Exist in separate parts or groups
 - C. Attempt to make use of all the time _____
 - D. I do not know
35. To **save** time, he decided to take the bike with him across the fields to ride it on the smoother sections.
- A. Avoid using money or use less of it
 - B. Try not to spend a lot of time on it
 - C. Use extra time to finish things
 - D. I do not know
36. The institution could not **afford** the time to train employees every quarter.
- A. Do all the processes needed
 - B. Be able to pay for it
 - C. Have enough of it
 - D. I do not know
37. They left two of us **behind** to guard the luggage.
- A. Late or too slow
 - B. Remaining in a place after people have left
 - C. Making an effort to accomplish a task

D. I do not know

38. We have **run out of** time in trying to reach an agreement with all concerned.

A. Used all of it in a useless way

B. Had no more left

C. Used up the allotted time in discussing the important points

D. I do not know

39. We were late and by now they are several miles **ahead of** us.

A. Before the agreed-upon time

B. In front of

C. Not leaving early

D. I do not know

40. I was generally **pressed for** time in my few days in Sydney and did not have the opportunity to explore the main attractions of the city.

A. Not needing a lot

B. Having small or limited amount available

C. Being able to spend time and effort on something

D. I do not know

Immediate post-test

Name: _____

Section: _____ ID: _____

Kindly circle the letter of the item that best explains the meaning of the **underlined** word or phrase. If you do not know it, circle item E.

1. Many employers consider applicants over 40 years old to be **over the hill** these days, so what work can older applicants hope to find?

B. To be too old to do a particular thing

B. To be working very hard to earn a promotion at a job

- C. To be moving across an area of land that is higher than the other land surrounding it
D. I do not know
2. Tickets are valid all day, so you can get off, see an attraction, and then re-board a later bus that is **heading to** another.
B. Travelling, going or moving towards to a certain/intended destination
B. Achieving goals that support your dreams in life
C. Going in a particular direction, but expecting to arrive late
D. I do not know
3. The day she found out that she was pregnant marked a **turning point** in her life.
A. A moment at which a shift in motion or direction occurs
B. A time of serious trouble or difficulty
C. A time when an important change takes place in a situation, especially a change that makes the situation better
D. I do not know
4. This is **the end of the line**, folks, so everyone needs to get off the bus now.
A. The point at which no more progress can be made
B. A discouraging area
C. The physical end of a route of travel, usually the final stop of a bus or train route
D. I do not know
5. Emily's teacher says she has **hit a wall** with her schoolwork and assignments. She failed two tests and never submitted her essay.
B. To reach a point where you are physically or mentally unable to make progress or continue
B. To slam or crash into a wall with great force
C. To try your best to work on a new project
D. I do not know
6. Alan: Where will we stop tonight?
Jane: At the next town.
Alan: What if all the hotels are full?
Jane: Let's **cross that bridge** when we come to it.

- A. To go from one side of a bridge to the other
 - B. To delay worrying about something that might happen until it actually does happen
 - C. To visit a new place and explore it
 - D. I do not know
7. Fred gave his younger brother a five-minute **head starts** in the Easter egg hunt.
- A. Situation in which you start a race either before your opponent or from a position further ahead than your opponent
 - B. An advantage over other people in the same situation
 - C. Hard work and commitment that students should start school with
 - D. I do not know
8. You have to finish your university degree first, leaving university and getting a job now is a **short-cut** to nowhere.
- A. A path or road from one place to another that people walk along
 - B. A way of saving time or effort in doing something, frequently a method that produces inadequate results
 - C. A path or route that is quicker and shorter than the usual way
 - D. I do not know
9. The new city was so big. She looked at her map again, not sure which **direction to take**.
- A. The general development or progress of someone
 - B. An area that someone does not want to stay in
 - C. The path that someone or something moves along when going towards a place
 - D. I do not know
10. My dad's death was very hard. I almost never **got over** the shock.
- A. Found a way to deal with a difficult problem
 - B. Sent a physical obstacle to another place
 - C. Moved or climbed over a physical obstacle
 - D. I do not know

11. **On my way** there, the first morning, I noticed that Nelly's house had a 'To Let' sign in the window.
- A. Particular road, path, or track someone uses to go from one place to another
 - B. Approaching a particular goal or outcome
 - C. Doing something new and different
 - D. I do not know
12. James is a very competitive person. He would do anything to **achieve his goal**.
- A. To score a point in certain sports, such as football and hockey
 - B. To succeed in doing or having what you planned or intended, usually after a lot of effort
 - C. To try new techniques and plans
 - D. I do not know
13. 'Good night' she said, disappointed, before **turning back** to the empty room.
- A. Stopping moving and begin returning the same way that he came instead of continuing on his journey
 - B. Undoing a course of action
 - C. Asking for help to accomplish something.
 - D. I do not know
14. The talented national team has found their confidence. With that finishing touch, they can really **go places**.
- A. Progress or find success in some area of one's life
 - B. Travel and see destinations
 - C. Try new activities
 - D. I do not know
15. We missed our flight. Tomorrow, we will drive to the airport and buy a new ticket to our **destination**.
- A. A situation where you feel that you can continue till the end
 - B. The goal or dream you hope to achieve
 - C. The place designated as the end (as of a journey or a race)
 - D. I do not know

16. My manager asked me to try to keep all plans **on track** this time.
- A. On schedule, progressing as planned
 - B. A path or road with a rough surface
 - C. The time you spend to get to your destination
 - D. I do not know
17. The worker **pushed ahead** with the plough, moving the snow to the side of the road.
- A. Created a productive work environment
 - B. Forced something to move from one place to another
 - C. Continued trying to achieve something despite difficulties
 - D. I do not know
18. Down the road, James could see a bus coming from the opposite **direction**. Therefore, he decided to stay at the bus stop.
- A. The general development or progress
 - B. The time that they should stop overthinking and take an action
 - C. The path that someone or something moves along when going towards a place
 - D. I do not know
19. Ugh, the neighbour put his trash cans too close to my parking spot. The cans **get in the way** when I try to park my car.
- A. To obstruct or interfere physical movement
 - B. To be in the opposite direction
 - C. To make it difficult for a person to achieve a goal
 - D. I do not know
20. A blind person **overcomes many obstacles** in their daily lives. These obstacles include driving, cooking, crossing streets, and even building a career.
- A. To remove or navigate around an object (e.g., a wall or rock) to move forward
 - B. To succeed in solving a problem or a challenge that stops you from achieving a goal

- C. To walk from one location to another
 - D. I do not know
21. As it is the end of the term, we have a busy period **coming up** in a couple of weeks.
- A. Reaching a particular point or level
 - B. A period of time full of tasks and assignments
 - C. About to be happening soon
 - D. I do not know
22. Sarah was not sure **how far** she could ski in this cold.
- A. What distance
 - B. How many hours until a certain event
 - C. Cannot go on anymore
 - D. I do not know
23. The project is already a month **behind** schedule. You have to work harder to finish it.
- A. Late or too slow
 - B. Remaining in a place after people have left
 - C. Making efforts to accomplish a task
 - D. I do not know
24. In fact, even today, I doubt that my parents would **spend** money on items that they would consider useless.
- A. Put forth more money to stay with each one
 - B. Use money to pay for something
 - C. Stay somewhere or do something for a period
 - D. I do not know

25. The poor have no money because they are out of work; they **pass** their time watching game shows on television.
- C. To spend, consume, or use spare time doing something
 - B. To move something in a particular direction or to a particular place or position
 - C. To wait to find work
 - D. I do not know
26. The school could not **afford** the expense of putting bar-codes on all books in both libraries.
- A. Do all the processes needed
 - C. Have enough money to be able to pay for it
 - C. Have enough time to do things with it
 - D. I do not know
27. If you plan it well ahead of time and buy your tickets before Saturday, you can **save** up to ten percent of the total amount.
- A. Avoid using money or use less of it
 - B. Try not to spend a lot of time on it
 - C. Use extra money to buy new things
 - D. I do not know
28. As time **goes by** and I continue to avoid studying, I become more worried that I will not be prepared for my exam.
- C. Passes
 - B. Moves to a place beyond the original location
 - C. Makes a significant effort during the time available
 - D. I do not know
29. Her mistake was that she put the money in her bag without **counting** it.
- A. Calculating how much was there
 - B. Waiting for something that she wants to happen
 - C. Having an insignificant amount of money
 - D. I do not know

30. I was generally **pressed for** time in my few days in Sydney and did not have the opportunity to explore the main attractions of the city.
- A. Not needing a lot
 - B. Having small or limited amount available
 - C. Being able to spend time and effort on something
 - D. I do not know
31. We could wait no more as we watched the carriage slowly and steadily **approaching**.
- A. Coming close in distance
 - B. Coming close in time
 - C. Slowing down
 - D. I do not know
32. We have **run out of** time in trying to reach an agreement with all concerned.
- A. Used all of it in a useless way
 - B. Had no more left
 - C. Used up the allotted time in discussing the important points
 - D. I do not know
33. Sara hesitated to buy the new dress that she really liked when her husband said, 'Why **waste** money on expensive designer clothes you hardly even wear?'
- A. Fail to use something in an effective way
 - B. Produce as many benefits that as possible
 - C. Spend time on things that do not matter
 - D. I do not know
34. If you are **short of** time, continue along the road into Maltese Square. It is a faster road.
- A. Unable to manage time
 - B. Not having enough of it
 - C. Not having enough money
 - D. I do not know

35. We were late and by now they are several miles **ahead of** us.
- A. Before the agreed-upon time
 - B. In front of
 - C. Not leaving early
 - D. I do not know
36. When you have two finals on the same day, keep in mind that you must **divide** your time between them.
- A. Do one thing some of the time and something else of the rest of the time
 - B. Exist in separate parts or groups
 - A. Attempt to make use of all the time _____
 - B. I do not know
37. Now is a good time to **invest** in the property market. The prices keep going up.
- A. To use time with the aim of making a profit
 - B. To put less effort towards a goal
 - C. To put money to use in something offering profitable returns
 - D. I do not know
38. One of her business manager's main responsibilities is to **account for** every hour that she spends at work.
- A. Be significant and important
 - B. Have no value and does not carry a certain weight
 - C. State how this amount of time has been used
 - D. I do not know
39. My dad was driving in this city for the first time. He was nervous and asked me to **look ahead** all the time and see if I could see the exit sign.
- A. Think about/plan for what is likely to happen
 - B. Turn your eyes to the view in front of you
 - C. Worry about what will happen later
 - D. I do not know

40. These discussions with the Prime Minister are all part of a plan to **buy** time to win more support.

- A. To plan how to use the available time on important things
- B. To get something by paying for it
- C. To do something in order to gain more time for finishing something else
- D. I do not know

Appendix B: Reading Comprehension Tests

Pre-test (Test A)

Name: _____

Section: _____ ID: _____

Please read the following text and answer the questions.

A Love Story

Greenside Park is a large park in the middle of a town in the north of England. Three years ago, two junior gardeners – Vincent and Maya – started to work there. Vincent had roots in the Caribbean. One branch of his family still lived there. Maya had grown up in Kenya, but was now putting down roots in England. Both of them desperately missed the brightly coloured tropical plants of their childhoods. This was something they talked about a lot when they first met. On winter days, Maya often felt depressed, and she was sure that the root of the problem was the cold, grey weather. Vincent understood how she felt. Thinking of Maya, he felt the seeds of an idea start to take root.

Near the park was an old Victorian greenhouse. It was a lovely building, designed and built at a time when the art of greenhouse architecture was flowering in England. Vincent's idea was to repair this greenhouse and bring it back to life. However, the building had not been used for many years. The roof needed restoration, the heating needed to be mended, and the inside had to be cleaned up. Vincent realised that, if he tried to do everything alone, his idea would die on the vine. Thus, he started to plant his idea in Maya's mind. He suggested to Maya that they try to get money to restore the missing panes of glass in the building's roof.

Together, they wrote many letters to branches of local chain stores, asking them to sponsor the restoration of the greenhouse. Finally, a branch of a large supermarket agreed. As Maya had a fertile mind, she then started to imagine other ways to help with the restoration. Vincent suggested announcing the need for support in newspapers and online. After some brainstorming, however, Maya came up with the idea of asking for support from other local organisations. Specifically, she thought of asking these local organisations to cooperate with her and Vincent in organising a weekend market in the park. Thus, Maya and Vincent contacted a number of local schools and local volunteering groups. The goal was to sell baked goods and homemade products in order to collect money. To support the cause, people made different kinds of cakes and dishes as well as handmade crafts and traditional artworks. Fortunately, everything sold very well. The fruit of all this effort was that Vincent and Maya had enough money not only for restoration but also for some tropical plants they wanted to grow in the greenhouse.

At last, after two years, all their hard work bore fruit. The greenhouse was officially opened by the town's mayor. It was filled with beautiful, brightly coloured plants from the

Caribbean and Kenya. In addition, as their friendship had blossomed, Vincent and Maya had come to realise how much they enjoyed each other's company. They started going out a lot.

However, ten months later, a problem with the land of the greenhouse arose. The family who owned the land requested that the greenhouse be removed. Both Maya and Vincent fought to stop the removal process. Sadly, they failed. Soon after the greenhouse was torn down, Vincent had to move out of town for his new job. For three years, he lived in the city instead. This period was a harsh winter for Vincent and Maya's relationship. They barely spent time together, and both became very busy. Their relationship could not withstand drought after drought. They broke up and stopped seeing each other.

Finally, though, Vincent moved back to town. He asked Maya to coffee, and his company reminded her of all the good times and memories that they had enjoyed together. Although she was hesitant at the beginning, she remembered their true friendship, and from those strong roots, their relationship blossomed all over again. Soon, Maya was blooming – happy to know that she and Vincent would be married in a few weeks. Their happy marriage produced beautiful children, and the family lived happily ever after. They started working on building a new greenhouse on their own land this time.

1. Which of the following statements is true about Vincent and Maya?

- a) They were together for a long period of time but could not get married.
- b) Their passion about flowers and tropical plants was the reason for their relationship.
- c) They often felt upset about their relationship and wanted to break up.
- d) They always wanted to buy the old Victorian greenhouse, but never had enough money.

2. How do you see the efforts of Vincent and Maya for the restoration of the old Victorian greenhouse?

- a) They were only interested in making money out of the restoration of the greenhouse.
- b) Their main desire was to become popular in the town and own the greenhouse.
- c) They wanted to repair the greenhouse and fulfil their childhood passion for flowers.
- d) They wanted the town Mayor to help them repair the greenhouse.

3. How did Vincent and Maya manage to repair the old Victorian greenhouse?

- a) By collecting money with the help of local community.
- b) By requesting the town Mayor to restore the missing panes of glass in the building's roof.
- c) By selling their own house to pay for the repair cost of the building.
- d) By involving the charity organisations.

4. Why did Vincent move out of the town?

- a) Because he wanted to go back to his native country.
- b) Because he had found a new job.
- c) Because he lost interest in the greenhouse.
- d) Because he did not like the busy life in town.

5. Vincent had *roots* in the Caribbean. It means that _____

- a) he loved the people and places in the Caribbean.
- b) he visited Caribbean in winters to see his family and friends.
- c) he originally came from Caribbean since he and his family had lived there.
- d) he wished to settle down in Caribbean and make a family there.

6. *The root of the problem* refers to _____

- a) a problem that cannot be solved easily.
- b) roots of the plants that have serious issues.
- c) problems concerning implanting trees in a greenhouse.
- d) the main cause of some issue, problem, or difficulty at hand.

7. The old Victorian greenhouse was built at a time when the art of greenhouse architecture was *flowering*. Here *flowering* means _____

- a) the buildings had an architect that was similar to the shapes of different flowers.
- b) a development process in which something passes by degree to a different stage.
- c) a process of producing flowers near old greenhouses and buildings.
- d) the types of buildings that are built specially for planting flowers in them.

8. Vincent realised that, if he tried to do everything alone, his idea would *die on the vine*. It means that his idea would _____

- a) be unsuccessful at an early stage.
- b) not be accepted by Maya.
- c) be very popular and successful.
- d) not be recognized by his friends

9. Maya had a *fertile mind*. A *fertile mind* refers to _____

- a) a mind that has a lot of complicated issues.
- b) a mind that does not always work according to the situations.
- c) a mind that is able to produce a lot of interesting and unusual ideas.
- d) a mind that is unable to generate new and fascinating ideas.

10. The hard work by Vincent and Maya bore fruit. Bearing fruit means _____

- a) eating lots of fruit after working hard during the day.
- b) producing positive and successful results.
- c) working hard in a farm to look after the fruit plants.
- d) making money through selling fruit in an open market.

11. The friendship of Vincent and Maya had blossomed, which means that _____

- a) their relationship existed due to flowers and plantation.
- b) their friendship was popular among local people in the town.
- c) they love flowers in the greenhouse more than anything else.
- d) their relationship developed in a promising and healthy way.

12. The period was a harsh winter for Vincent and Maya's relationship. It means _____

- a) they experienced difficult times in their relationship.
- b) they had to think a lot about their relationship.
- c) their relationship was smooth even though they had financial problems
- d) they could not continue their friendship during cold winters.

13. Soon, Maya was blooming. It means she _____

- a) was healthy, energetic and attractive again.
- b) lost interest in gardening and flowers again.
- c) started a new job that earned her a lot of money.
- d) was extremely satisfied with her job.

14. The happy marriage of Vincent and Maya produced beautiful children. Produced means to _____

- a) move something from one place to another.
- b) make something or bring something into existence.
- c) introduce new people and their interests.
- d) look after children's needs.

Immediate post-test 1

Name: _____

Section: _____ ID: _____

Please read the following text and answer the questions.

Life Stories

Layla's Life Story

Since I was a child, I have always surrounded myself with stories and lived in books. While other children played sports, went shopping, or saw movies, I was always at home reading. I also started writing short stories at an early age, which gave me a head start in my writing career. However, my parents thought that with writing, I would not go anywhere in life. As successful engineers, my parents felt that pursuing a career in the sciences was the only road to success. Unfortunately, when I was 14, my mother was diagnosed with an incurable disease. I felt helpless, but some part of me believed that if I could achieve my goal of becoming a writer, my dream of seeing mom healthy and happy again would somehow come true too. So, I began my journey in writing, but secretly, never telling my parents.

My first obstacle was that I was not accepted by any colleges. With this failure, I fell short of my parents' expectations. Family and friends also began to worry about me, trying to convince me that I should let go of writing and focus on getting a real job because there was no money in writing. At that point, it was easier for me to give up than to push ahead, so I stopped writing. I worked at a number of dead-end jobs. In these jobs, I had no way to improve or climb up the ladder. I felt that my life was going nowhere. Then, when I was 22, my mom passed away. Her death only made things worse. I could not believe it. I had thought that my mom was on the road to recovery. At that point in my life, I felt like I had hit a wall. I could either try to push through or just turn around and run away. I decided to run away. I left the country to work as an English teacher for three years in China. During the 3 years of teaching, I got married, and not

long after, I gave birth to a daughter. Sadly, just four months later, my husband and I went our separate ways. I did not know where to go or what to do. I felt lost. Finally, I returned to my county as a homeless single mother. I was in a dark place and didn't know where I was heading to.

As I started to watch my daughter grow, though, I found myself reaching a turning point. I wanted to change. I started working on my book again, and when I finished it, I submitted the draft to fifteen publishing companies. It was rejected by them all. But for the first time, I didn't let anyone get in my way. I worked very hard as a full-time writer and reminded myself that with my talent, I would go places. Eventually, 1000 copies of my book were published and I started to earn money. To my surprise, my book went on to win prizes. Today, many of my books have been translated into several languages, and I have a good income. The journey that led me here was long and difficult. I had to work very hard to follow my childhood passion to become an author. But I can say I am now where I want to be. Sometimes things do not go the way they should, and we are unsure of where we are headed. But we just have to trust in ourselves. In the end, with hard work, we can overcome any obstacle and make it to our destination.

Wood's life story

After I finished school, I didn't take the usual path of going to college. Instead, since I had always enjoyed woodcarving, I took the first step towards trying to earn some money from this hobby. I decided to open a stall at our local market, where I started selling some wooden toys I had carved. At first, I thought I was going nowhere fast. But a few weeks later, the toys started to sell very well. When I couldn't make enough of the toys to satisfy the demand, I asked two of my friends to join me and showed my new partners how to make them. Our little business was on the road to success when, unfortunately, there was a fire in the garage where we stored our toys. We lost all our stock. Step by step, we had to build the business up again. This process took hard work and very long hours. There is no short-cut to success.

After a few years of rebuilding, we felt we were at a crossroads. We could have continued to sell our toys in the market. But we decided not to go down that road anymore. Instead, we decided to sell our toys over the Internet.

In the last few years, the company has become very successful, but we are arguing about everything, and I feel very bored. I think I am coming to the end of the road with this company. It's time to take some steps towards doing something different. I know it is a big decision and there is no turning back. One positive step might be to get some advice from friends and family. So, tell me, what do you think I should do?

1. Which of the following statements is true about Layla's story?

- a) She believed in her writing abilities, but never wanted to have it as a career.
- b) She worked very hard to achieve her childhood goals.

- c) She often felt that becoming a writer was an easy job.
- d) She was often encouraged by her friends to be a writer.

2. Which of the following statements is true about Wood's life story?

- a) He did not go to college. He started his own business and became successful.
- b) He did not go to college. He joined a company and became successful.
- c) He went to college and started his own business and became successful.
- d) He did not go to college. He started his own business, but was not successful.

3. What did help Layla financially?

- a) She started her own business.
- b) She published her own book.
- c) She earned money from a new job
- d) She sold household items.

4. Which of the following statements is true about Wood's company?

- a) His friends helped him at the beginning of the new business.
- b) He could not earn any money from his hobby.
- c) When the demand of toys increased, he included his friends as business partners.
- d) His friends failed to meet the market demand.

5. In ordinary jobs, Layla had no chance to *climb up the ladder*. It means _____

- a) She was not ready to experiment new things in life.
- b) She had many options available in her professional life.
- c) She was optimistic about her current job.
- d) She would not become successful as a professional.

6. At one point in life, Layla was not ready to *push ahead*, which means _____

- a) She had no money.
- b) She was not prepared to continue trying to achieve her goal despite difficulties.
- c) She was not capable of doing her job.
- d) She did not believe in taking chances.

7. Layla felt like she had *hit a wall*. It means she was _____

- a) unable to see the path.
- b) physically or mentally unable to make progress or continue doing something,
- c) was not focused on the road.
- d) thinking too much about her future plans.

8. Layla found herself reaching a *turning point*. A turning point means _____

- a) a closed road.
- b) a time when an important change takes place in a situation, especially one that makes it better.
- c) an event which is remembered for a longer period of time.
- d) a time in life when nothing seems to be important.

9. Layla says, “I did not let anyone *get in my way*”. She means _____

- a) nobody could prevent her from what she was doing.
- b) anyone could meet her in her free time.
- c) nobody was allowed to disturb her.
- d) she was happy with her own routine.

10. At the start of his business, Wood thought he was *going nowhere fast*, which means _____

- a) he was failing to make progress or to produce desired results.
- b) he was not prepared for this business.
- c) he should not have started this business at all.
- d) he could not achieve his business targets.

11. Wood and his business partners felt that they were *at a crossroads*. At a *crossroads* means _____

- a) a point in journey when you have to stop and take a rest.
- b) not understanding the real problem in a business.
- c) thinking about new marketing strategies.
- d) a point in time when a critical decision must be made.

12. In Wood's life story, the expression 'to go down that road anymore' means _____

- a) getting ready to take risks.
- b) planning to control a business loss.
- c) to follow a series of actions to achieve a particular result.
- d) to appreciate and not discourage other people.

13. Wood came to *the end of the road* with his company. It means he _____

- a) was not profiting from the company.
- b) did not like the location of the company.
- c) did not know what was going on in the company.
- d) was unable to progress any further.

14. Wood believed there was *no turning back* for him. *No turning back* means _____

- a) not entering a previous state of being.
- b) thinking about one decision for a long time.
- c) being unable to move around.
- d) not going back and forth.

Immediate post-test 2

Name: _____

Section: _____ ID: _____

Please read the following text and answer the questions.

Time Management Is Really Life Management

Have you ever felt that you have used up all the time left? Have you ever found yourself run down by your daily workload or overwhelmed by the complexity of projects and tasks in your life? Have you ever felt disappointed when the day flies by, and you realize you're behind? You are not alone; many people all over the world feel that they live on borrowed time.

Laura Vanderkam (2010) in her book, *168 Hours: You Have More Time Than You Think*, believes that we feel time goes by fast because odd unimportant stuff cost us hours and hours.

And when it comes to the more significant tasks like doing assignments and studying for the final exams, we run out of time completely. When we complain of how we are always pressed for time, it is because we underestimate its value, says Laura.

Time is really one of most valuable things in life; if it is gone, you can never get it back. So, learning how to manage your time and how to make every single hour of the day is accounted for is one of the most essential life skills. This skill does more than just increase productivity. It can yield important health benefits as well. It even minimizes stress and improves the overall quality of your life.

According to Laura, time management needs good planning and self-discipline. She provides realistic time-use advices which we all can benefit from:

- Identify and evaluate how you are currently spending your time. If you drive to work, how do you pass the time during your commute? If you take a bus or train, how do you spend all those hours a week? How many audiobooks or language tapes could you have completed while in traffic the preceding month? How many books could you read on the train while getting to and from work the next few weeks? These are the best times throughout your day to incorporate all those little things that you “wished” you had time for.

- Say no to nonessential tasks and prioritize the ones of extreme value. Consider your goals and look at your schedule before agreeing to take on more work. If a task is time consuming but not important to the main goal, pass it off or add it to the bottom of the list.

- Stop wasting hours on unimportant things. Watching TV or using Twitter and Instagram are not the best use of your spare time. They are not as worthwhile as an evening with friends or a quality time with family. And they distract us from real work. And trust that every wasted second is a second that’s lost forever.

- Multi-task: buy some extra time by doing two things at once. Listen to beneficial lectures as you clean your house. Complete an assignment during TV commercials. Multi-tasking, however, is not always effective. If for example, you have two tests in chemistry and psychology, it is better that you divide your time between them rather than studying them together.

An interview with Jane, a young successful business woman and a mom of two children was conducted. Here is a part of it:

Interviewer: first, thank you for taking time off your busy schedule.

Jane: it is my pleasure.

Interviewer: How old are you now?

Jane: (Laughing) how far is it to October 2nd? It will be my 26th birthday. However, I already feel that I accomplished a lot and looking ahead to the bright future.

Interviewer: Wow. You are really ahead of your time, running a big successful business, working, and looking after your children, how can you do it?

Jane: I learned from the beginning that a woman can have a career and be a mother, as long as she is careful about how she plans ahead her daily schedule. So, if I wanted to succeed in life, I couldn't pass any minute of my day without doing something. To push myself, I always ask, what is my time worth? And this makes me work harder.

Interviewer: What advice can you give to all the busy people like you out there?

Jane: Make sure that you do some rewarding activities with your beloved ones. I always try to have some time to travel as a family. Christmas is coming up on us! What your plans? For us, we are looking forward to traveling to a new and fun destination.

We all have the same amount of time, 168 hours in each week, as Laura says. Just remember, the difference is how we invest it! After all, time management is really life management!

1. Which of the following statements is true about the passage?

- a) People consider time a precious thing that is why they can't manage it.
- b) Time management is important to professionals who're usually ahead of time.
- c) Using Social Media is the best use of our spare time.
- d) As time is extremely precious, we need to properly manage and utilize it to our benefit.

2. Laura believes that _____

- a) we all have time for significant tasks in life.
- b) we often waste our valuable time on insignificant things in our daily life.
- c) it's not easy to save time for rewarding activities or friends and family.
- d) if you discipline your life, you don't need time management.

3. One of Laura's pieces of advice for time-use advices is to prioritise your tasks and _____

- a) Identify your time-consuming activities while driving your car.
- b) spend less time with friends and family.
- c) Ignore tasks that are irrelevant to your key objectives.
- d) Multi-task to manage your time at school.

4. Jane, who succeeded in managing both her business and family, suggests that busy people should _____

- a) Know the importance of time management skills
- b) Live the moment and avoid planning ahead
- c) Have quality time and do more rewarding activities with the people they love
- d) Not pass any minute of the day without doing something at home

5. We often feel disappointed when our day *flies by*. *Flies by* refers to _____

- a) the time that is spent on flying during the day.
- b) the time that passes quickly and swiftly.
- c) the time that we don't spend with our family.
- d) the valuable time spent on studies.

6. When you realize *you're still behind on work*, it means _____

- a) you're late or slow in completing your task.
- b) you've enough time to finish your work.
- c) you don't need to worry about the time in the past.
- d) you're going to finish the work soon.

7. Students often *run out of time*, which means _____

- a) they don't care about the time and the tasks that they need to finish.
- b) they run fast to complete the assignments and submit them on time.
- c) they no longer have time to finish a task or assignment.
- d) they don't need any extra time for a task or assignment.

8. We're always *pressed for time*, which means _____

- a) we have lots of time available.
- b) we need time to do house chores.
- c) we shouldn't waste time on unimportant things.
- d) we're short of time.

9. Jane would always ask herself, "what is *my time worth*". She means whether _____

- a) she can easily spare more time for a task.

- b) she has a good reason for spending time on a task.
- c) she can spend quality time with friends and family.
- d) it's possible to do two tasks at the same time.

10. In the text, *spending your time* refers to _____

- a) dedicate time to an activity.
- b) think about your time carefully.
- c) divide time according to the important tasks.
- d) evaluate your time.

11. It's important to think about how you pass the time. *Passing the time* means to _____

- a) know how time management works in real life.
- b) spend quality time with friends.
- c) let time go by especially while doing something enjoyable.
- d) understand the value of time in work.

12. A *time consuming* task refers to an activity which _____

- a) doesn't take longer to finish.
- b) is very easy to finish.
- c) is a waste of time.
- d) takes a lot of time to complete.

13. *Spare time* refers to the time that _____

- a) you manage really well for your house chores.
- b) is spent on studying and playing games.
- c) is available for hobbies and other activities that you enjoy.
- d) is spent on multi-tasking at home.

14. Laura argues that odd unimportant things *cost us* precious hours. She means that _____

- a) we usually spend many hours on activities that take too much effort to complete.
- b) odd unimportant things take so much of our time.

- c) we do not spend our spare time to enjoy ourselves.
- d) we should not waste our time on unimportant things in life.

Two-week Delayed Post-test

Name: _____

Section: _____ ID: _____

Please read the following text and answer the questions.

What is the best as well as the worst thing that has happened in your life?

Mike:

The best and worst moments of my life happened on the same day. I will start with the worst moment of my life. My mother was diagnosed with cancer. I was drowning in sorrow: I could not imagine my life without her as she was the light of my life. After losing my father, she was my emotional support. She motivated me and gave me the encouragement that would help me to be successful in my studies. After months of chemotherapy, she underwent major surgery to remove the tumour. Those months were the most difficult of my entire life. After the surgery, my mother was in the Intensive Care Unit (ICU) for eight days. Those days were very intense, and I felt very low.

One evening, I was allowed to visit her in the ICU. Until that day, I had seen ICUs only in movies. I put on the scrubs and walked in. I passed through three other patients before seeing my mom. It was heart-breaking to see her like that; I became numb. The huge machines were beeping. There were tubes attached to all parts of my mom. She looked completely pale, which hit me hard. She spoke to me for a little while and complained that she hadn't had even a sip of water for four days. The doctor arrived, and my mom introduced me to him. The doctor told my mom that I had donated blood for her and that I was very brave, which made her cry. Seeing my mom cry was a massive blow. I was also very touched. But expressing my emotions is not something that I am very good at. I neither smiled nor shed a tear. I stood there expressionless. My five minutes were over, and I was asked to leave. That moment was the worst of my life.

I left the hospital, and my uncle dropped me off at the bus stop so I could go home. It was a forty-minute bus ride from the hospital. I was in a very black and horrendous mood.

Sitting in the bus, I turned on my phone. Because of my 2G mobile data, I was having trouble sending and receiving messages and emails. I then realized that I had received a long-awaited e-mail: an acceptance letter for my dream job. I was delighted; I felt over the moon. I looked out of the bus window. It was almost night, and the whole city was lit up to celebrate with me. (The

lights were actually the headlights from the vehicles stuck in a traffic jam). I was smiling ear to ear. It was cold outside, but I wanted to run out and jump up and down! I contained my excitement and got off at my bus stop.

When I got the job and started working as a software engineer, I began earning an incredible salary. Finally, I had the chance that I was waiting for: spoiling my completely recovered mom. I felt up every single day. Anywhere that I travel, she comes with me. Any fancy meals that I have, she is there. Anything that she wants to buy, I give her a part of my salary to spend. Seeing her happy and free makes me feel on top of the world.

Tom:

I have passed through dark times during which everything seemed impossible to achieve. Three years ago, I started at medical school. However, after two years, I had failed some essential courses and was unable to give more. Having to leave medical school was extremely difficult. I met a lot of criticism from family and some friends, which hit me hard. The feeling that no one supported me, not even my parents, brought me down. I began to feel like I was a failure who didn't deserve anything, which, in turn, led me to focus on the negatives, ignoring all of the positive things that were happening in my life. With the dark thoughts, I was unable to think of alternatives such as finding a permanent job or learning something new. The most difficult thing, which was like a slap on the face and I had to overcome was my best friend's attitude. He stopped visiting me and hanging out like before. All of my other friends were also busy achieving their dreams and working on themselves. I felt alone which made me even more depressed and in a gloomy mood all the time.

One day, I came across a man reading a book in the park. The book had an imaginative cover, and I thought that it must contain a wonderful story. I asked him about the book, and we began to talk. He saw that I was depressed and tried to cheer me up with his motivational stories. From that day forward, I wanted to be his friend. He supported me and could lift my spirits. Every time we met; he tried his best to lighten my mood. I started to appreciate my strengths, look on the bright side, and had the desire to work on myself and future. This relationship was one of the best things that has happened to me.

1. Which one of the following statements is true about Mike?

- a) His mother recovered from cancer and lived a healthy life.
- b) His mother's surgery was not successful, but she survived.
- c) His mother recovered from cancer but did not live happily afterwards.
- d) His mother started a job after her recovery from cancer.

2. Which one of the following statements is true about Tom?

- a) He achieved his dream by reading an imaginative story suggested by his friend.
- b) He was interested in friendship with a stranger whom he met in a park.
- b) He met a man who inspired and motivated him to achieve his dream in life.
- c) He watched an inspirational movie that helped him achieve his dream.

3. What did Mike observe in the ICU?

- a) There were patients who were in worse conditions than his mother.
- b) He saw three other patients before seeing his mother.
- c) He met the doctor who donated blood to his mother.
- d) There were tubes attached to some parts of his mom's body.

4. Why did Tom leave medical school?

- a) because his family criticized me.
- b) because nobody supported him in his studies.
- c) He had not taken the right courses so he had to quit.
- d) He had failed important courses due to which he could not continue.

5. *The light of one's life* refers to _____

- a) someone who loves his job.
- b) a much loved person.
- c) a much ignored person.
- d) someone full of energy.

6. Mike's mother was completely pale, which hit him hard. *Hit hard* means _____

- a) he was affected badly.
- b) he hit himself hard.
- c) he did not know what to do.
- d) he started crying.

7. If someone is *jumping up and down*, it means _____

- a) they are not sure what to do.

- b) they are happy and excited.
- c) they are ready to start a new journey.
- d) they are extremely upset.

8. When you *feel on top of the world*, it means _____

- a) you're extremely happy and healthy.
- b) you're extremely angry and anxious.
- c) you need to finish your job on time.
- d) you need to interact with the world.

9. *Bringing someone down* means _____

- a) making one feels responsible.
- b) solving problems in a professional way.
- c) getting support from family members.
- d) causing someone failure and defeat.

10. A *slap in the face* means _____

- a) talking in a polite manner to someone who misbehaves.
- b) insulting someone when it comes as a surprise.
- c) speaking bad about someone in their absence.
- d) making someone feel bad about their life.

11. Tom was in a gloomy mood due to loneliness. *In a gloomy mood* means _____

- a) having bad and sad feelings
- b) thinking about present and future.
- c) taking risks in life.
- d) being unsuccessful in job.

12. The support of his friends could lift Tom's spirits. *Lift one's spirits* means _____

- a) to make one feel sad.
- b) to lend a friend some money.
- c) to support someone in their job.

d) to make one feel happier and cheerful.

13. His friend lightened Tom's mood. *Lighten up one's mood* means _____

a) to make one feel at ease.

b) to lose weight.

c) to show trust in someone.

d) to make one feel proud.

14. A *bright side* means _____

a) an unfavourable situation.

b) appreciating someone for their hard work.

c) a favourable or hopeful aspect.

d) gaining support of friends and family.

Appendix C: Teaching Procedure

Two three-hour teaching sessions were setup in weeks 2 and 3, which included a number of key phases, teaching session 1 is presented below.

Teaching session 1

Phase 1

For the intervention group, the first stage of week 2 interventional teaching was the introduction phase to the theme 'traveling through life'. Students were asked to watch a YouTube video of a girl who falls but still wins the race (<https://www.youtube.com/watch?v=xjejTQdK5OI>).

Learners were encouraged to think of how this paralleled events and experiences in their own lives where one may fall but decide to continue the path to achieving their goals. Following the video, the learners were then invited to verbally answer some questions that focused on life and journey. The questions were intended to help the learners think about events and occurrences in life that could be understood in terms of a journey and to find similarities between the two domains. In a subsequent task, the learners were asked to underline expressions in sentences that conveyed the key idea of travelling. The goal was to familiarise the students with the idea of life as a journey.

For the comparison group, same procedure and materials were given to students, however, no reference in the tasks was made to the source domain journey. Students were not encouraged to find similarities between the two domains of life and journey.

Phase 2

In this phase, learners in the intervention group were introduced to the conceptual metaphor LIFE IS A JOURNEY. The researcher explicitly clarified the relationship between the source domain 'journey' and the target domain 'life,' in order to help learners understand that, in English, one domain is referenced in terms of another. This concept was explained by sharing the following quote with the students, which was inspired by the conceptual metaphor interventions proposed by Juchem-Grundmann (2009) in an experimental study of German business students learning English:

English is full of metaphors, which means that words and phrases for one concept are used to explain other concepts. In English, 'life' is described as a 'journey'. The metaphor of life as a physical journey, in which a person travels in a forward direction, is common. Words like *way*, *direction*, *head start*, *overcome obstacles* and *end of the line*, which are used to describe a physical journey, can also be used to describe a person's life. Due to the underlying metaphor LIFE IS A JOURNEY, we can say things like: *He's without direction in life*, *She's never let anyone get in her way*, *We worked hard to overcome this obstacle*.

Inspired by CL approaches to teaching figurative language, the researcher provided an image of the mapping between the two domains, to clarify the relation and similarities between them. The image of the mapping was created by the researcher based on Grady's (1997) primary metaphors. This was an important part of the intervention that helped students go beyond the surface meanings of the linguistic metaphoric expressions targeted. The mapping is given in Appendix C, where the students were taught the mappings between LIFE and JOURNEY, such as:

TRAVELLERS ⇔ PEOPLE

DESTINATIONS ⇔ PURPOSES

OBSTACLES ⇔ DIFFICULTIES

Then, the metaphoric expressions derived from the conceptual metaphor LIFE IS A JOURNEY were taught. The learners received the expressions' literal and figurative meanings, accompanied by descriptive images indicating the literal meanings. This method was used to raise learners' awareness of the source domain 'journey'. Based on previous studies (Section 2.4.5), this method helped learners better understand, create mental images of, and remember the metaphoric expressions. As an illustration, '**take direction**' was explained as the *path* that someone or something *moves* along when *going* towards a *place*, and as the *general development* or *progress* of someone or something.

For the comparison group, the vocabulary was introduced with only an explanation of the figurative meanings of the metaphoric expressions and a clarification of its relationship to the domain of 'life'. The literal interpretations were not included in the comparison group's

intervention in order to avoid bringing their attention to the source domain 'journey'. As an illustration, the lexical item 'take direction' was explained through its figurative meaning only, namely as the *general development* or *progress* of someone or something, while no reference was made to the literal or physical senses of the expression. The explanation given to the control group was as follows.

When we think of life in English, we think of how it has directions, obstacles, and roads. We use words like **way, direction, head start, obstacles, and end of the line/destination**. We say things like *He's without **direction** in life, she's never let anyone get in her way, we worked hard to overcome this obstacle*.

The images presented with the expressions indicated the figurative meaning of the expression without giving any indication of the literal meaning and original context. The addition of the images was to ensure the comparability between the groups by keeping all other variables equal.

Phase 3

For both groups, in the first task of the practice phase, the learners were given the opportunity to practise using metaphoric expressions in contextual format, in order to develop the metaphoric meanings of the vocabulary. In the second task of this phase, learners were given the opportunity to practise the learned language. They were encouraged to use the newly learnt metaphoric expressions in their sentences, by being invited to work in pairs and discuss questions about their experiences, directions, and decisions in life. Once the discussion was complete, the researcher asked the learners whether they were able to use any of the words and phrases they learnt in their explanations of their life experiences. They were asked to provide examples of when they used these words and why, and the researcher made sure to correct or clarify the incorrect uses of any of the words or phrases, as necessary.

Finally, the meanings were presented to the students one last time. The learners were also asked to review the lexical items for 10 minutes before taking the reading comprehension immediate post-test. The interventional teaching session in week 3 followed same key phases as week 2 and included instructions of metaphoric expressions related to the conceptual metaphors TIME IS MOTION and TIME IS MONEY.

Teaching session 2

Phase 1

First, as an introduction to the theme 'importance of time', learners in the intervention group were asked to fill out a 24-hour time log of a typical day, and to answer survey questions in pairs.

These questions included metaphoric expressions related to the conceptual metaphors TIME IS MOTION and TIME IS MONEY. The survey questions asked learners how they usually use and spend their time during the holidays and working days. For the comparison group, same introduction tasks were given to students without any reference to conceptual metaphors.

Phase 2

The aim in this phase was to raise the learners' awareness of time conceptual metaphors. The relationship between the source domains MOTION and MONEY and the target domain TIME was clarified, and was explained through the following quote, inspired by the conceptual metaphor interventions proposed in (Juchem-Grundmann, 2009):

English is full of metaphors, which means that words and phrase for one concept are used to explain other concepts. In English, 'time' is described as 'motion' and as 'a moving object'. It *comes*, *goes*, *goes by fast*, *comes up on us*, and *approaches us*. For example, we say things like *Time goes by fast*, *Eid is coming up on us*, and *The time for action has come*. Also, passing of time is described as our motion over a landscape. We say things like, *We're getting close to summer*, *He passed his time happily*, and *Put the problem behind you*. Also, when we think of time, we usually think of it in terms of a valuable commodity, and a limited resource as 'money'. Time is *valuable*, *saved*, *spent*, *wasted* and *lost*. For example: *We need to buy more time for our assignment*, and *You have to stop wasting your time*. The conceptual metaphors TIME IS MOTION and TIME IS MONEY, motivate a large number of linguistics metaphors in English.

Then students were presented with the mapping of time conceptual metaphors. Subsequently, the metaphoric expressions were taught to the students. They were taught both the literal and the figurative meanings of the expressions through conceptual metaphor awareness. The metaphoric expressions were accompanied by descriptive images indicating the literal meanings, and the learners received the expressions literal and figurative meanings and their images.

For the comparison group, teaching of the metaphoric expressions included explanations of the figurative meanings and was accompanied with images, with no reference made to the source domains. The images presented with the expressions connoted the figurative meaning of the expression yet gave no indication of the literal meaning and original context. The addition of images was to maintain consistency with the intervention group, and to ensure the comparability between the groups by keeping all other variables equal. Importantly, the images were chosen with care to avoid any hint of the source domains MOTION and MONEY. Instruction to the comparison group was the following:

When we think of time in English, we think of how it can **go** or **come** fast or slow, how we **look ahead** to a certain time, how **valuable** it is, and what we can do to **save** it. We say things like *time is **gone***, *winter is **coming***, and *I am looking **ahead to** the new year*. We also say things like *I cannot **afford** to lose any time*, *I **ran out of** time*, and *we have to **save time***.

Phase 3

In the practice phase, learners were given the chance to practise the metaphoric expressions in a contextual format, in order to develop the metaphoric sense of the vocabulary. The learners were also encouraged to use the newly learnt metaphoric expressions in their answers by discussing questions in pairs. The questions were about how the learners prefer to spend their time, how their time can often be wasted, and how they choose to invest their time. Finally, the researcher reviewed the literal and metaphoric meanings one last time, while the learners were also asked to review the lexical items for 10 minutes before taking the immediate reading comprehension post-test.

For the comparison group, in the practice phase, the learners were given the opportunity to practise the metaphoric expressions in contextual format in order to develop the metaphoric sense of the vocabulary. The learners were invited to discuss questions in pairs and were encouraged to use the newly learnt metaphoric expressions in their answers. The questions were about how the learners prefer to spend their time, how their time can often be wasted, and how

they choose to invest their time. In the final stage, the researcher reviewed the metaphoric meanings with the students one more time. The learners were then asked to review the lexical items for 10 minutes before taking the immediate reading comprehension post-test.

Appendix D: Teaching Materials

Interventional teaching session 1

Metaphor Group

Part One: Introduction

A- You are going to watch a YouTube video of an inspiring girl who fell during the race; however, she stood up and continued until she won the race.

(<https://www.youtube.com/watch?v=xjejTQdK5OI>).

- Can you relate her experience to your own life experiences?
-
-

- Do you think your life is like a journey?
-

- What procedures do you go through to complete a JOURNEY?
(clues: to book tickets, to book hotel, packaging, to live in a hotel)
-

- What procedures do you go through to complete a LIFE?
(clues: birth, starting school, college, starting work, death)
-

- What kind of things do you normally experience in a JOURNEY?
(clues: flat tire, driving the wrong way)
-
-

- What kind of things do you normally experience in a LIFE?
(clues: depression, no choices, losing jobs, high spirit)
-

b. Now look at the sentences below. All of them use the key idea of a journey while talking about life. Underline the words that convey the key idea of travelling (an example has been done for you).

- The baby arrived at 6 o'clock this morning!
- I don't know where I'm heading. My life has no direction at the moment.
- You want to know where we are going to be this summer? We'll cross that bridge when we come to it; it's still winter!
- You have to push ahead/move on and forget about what has happened.
- His life took an unexpected direction after he accepted this job.
- My father passed away last night. He went in his sleep.
- Her parents don't understand her at all. They're over the hill!

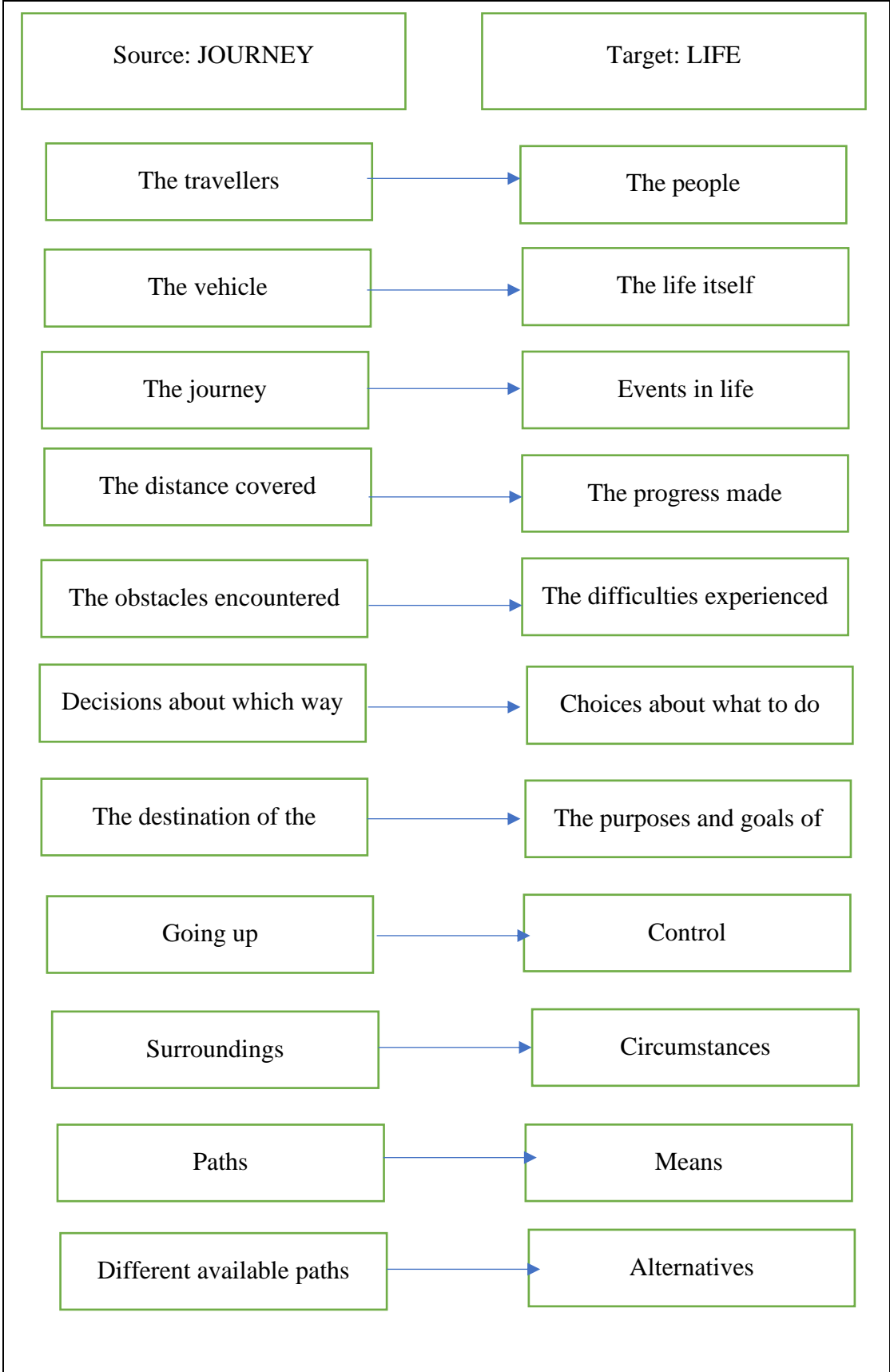
Part Two: metaphoric expressions teaching:

A.

Teacher's instruction of the conceptual metaphor LIFE IS A JOURNEY:

English is full of metaphors, which means that words and phrase for one concept are used to explain other concepts. In English, 'life' is described as a 'journey'. The metaphor of life as a physical journey, in which a person travels in a forward direction, is common. Words like **way, direction, head start, obstacles, and end of the line/destination**, which are used to describe a physical journey, can also be used to describe a person's life. Due to the underlying metaphor LIFE IS A JOURNEY, we can say things like: *He's without **direction** in life, She's never let anyone get **in her way**, We worked hard to **overcome this obstacle**.*


B. Look at the similarities between LIFE and JOURNEY






C. The Journey of Life vocabulary list

Teacher's instructions

Teacher teaching the metaphoric expressions and refers to the descriptive images related to each vocabulary item

Metaphor expression	Literal meaning	Metaphoric meaning
<p>Head start</p>  <p>From Pxfuel – https://www.pxfuel.com/en/free-photo-jyoxs CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>A situation in which you start a race either before your opponent or from a position that is further ahead than your opponent's position</p>	<p>An advantage over other people in the same situation</p>
<p>On the/one's way</p>	<p>The particular road, path, or track that you use to go from one place to another</p>	<p>To be approaching a particular goal or outcome</p>

 <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xpako CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>		
<p>The end of the line</p>  <p>Image by Iva Balk from Pixabay, https://pixabay.com/photos/line-end-track-train-railway-rail-4199256/</p>	<p>The physical end of a route of travel, usually a bus or train route</p>	<p>The point a person cannot progress or the final step of something</p>
<p>Take direction</p> 	<p>The path that someone or something moves along when going towards a place</p>	<p>The general development or progress of someone or something</p>

<p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrnlr</p> <p>CC0 1.0, Public Domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>		
<p>Go places</p>  <p>By Mohamed_hassan from Pixabay, https://pixabay.com/illustrations/tourist-traveling-airport-2959674/</p>	<p>Travel or move to another place to see destinations</p>	<p>To progress or find success in some area of one's life</p>
<p>To get over something</p>	<p>To move or climb over a physical obstacle</p>	<p>To find a way to deal with a difficult problem, to recover from difficulties regarding someone or something</p>



By Mohamed_hassan
from Pxhere,
<https://pxhere.com/en/photo/1587995>

CC0 1.0, Public domain,
<https://creativecommons.org/publicdomain/zero/1.0/>

On track


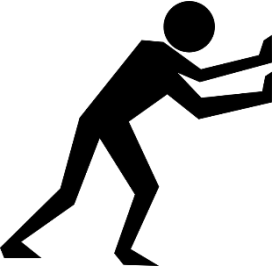




"tracks" by speakslyrics,
CC BY-NC-ND 2.0,
<https://ccsearch.creativecommons.org/photos/828fa6b3-456a-4de2-ba20-cd31010588de>



A path or road with a rough surface

On schedule; progressing as planned



<p>Short-cut to</p>  <p>“Man Take A Shortcut, Not Detour” by nonicknamephoto at FreeDigitalPhotos.net,http://www.freedigitalphotos.net/images/man-take-a-shortcut-not-detour-photo-p252877</p>	<p>A path or route that is quicker and shorter than the usual way</p>	<p>Way of saving time or effort in doing something, often a method that produces a result that is not good enough</p>
<p>A turning point</p>  <p>By Paul Gillet, https://www.geograph.org.uk/photo/6194659, CC BY-SA 2.0, https://creativecommons.org/licenses/by-sa/2.0/</p>	<p>A moment at which a shift in motion or direction occurs</p>	<p>A time when an important change takes place in a situation, especially one that makes it better</p>

<p>Achieve my goal</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrtyi CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To score a point in certain sports, such as football or hockey</p>	<p>To succeed in doing or having what you planned or intended, usually after a lot of effort</p>
<p>Push ahead</p>  <p>By OpenClipart-Vectors, at Pixabay, https://pixabay.com/vectors/push-pushing-moving-action-150175/</p>	<p>To force something to move from one place to another</p>	<p>To continue trying to achieve something despite opposition or difficulties</p>

<p>Hit a wall</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-ebuie CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To slam or crash into a wall with great force</p>	<p>To reach a point where you are physically or mentally unable to make progress or continue</p>
<p>Get in someone's way</p>  <p>By Hans, at Pixabay https://pixabay.com/photos/forest-work-wood-casework-road-100747/</p>	<p>To obstruct or interfere physical movement</p>	<p>To make it difficult for a person to achieve a goal</p>

<p>Heading to</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jraqd CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Travelling, going to or moving towards a certain/intended destination</p>	<p>Achieving goals that support your dreams in life</p>
<p>Turning back</p>  <p>'Trail sign' from Pxhere, https://pxhere.com/en/photo/799926 CC 1.0 Public domain, https://creativecommons.org/publicdomain/zero/1.0/</p>	<p>To stop moving and begin returning the same way that you came instead of continuing on your journey</p>	<p>To reverse or undo one's course of action</p>

<p>Cross the bridge</p>  <p>By Momentmal from Pixabay, https://pixabay.com/photos/bridge-steel-metal-frame-2525587/</p>	<p>To go from one side of the bridge to the other</p>	<p>To delay worrying about something that might happen until it actually does happen</p>
<p>Over the hill</p>  <p>By Public Domain Vectors, https://publicdomainvectors.org/en/free-clipart/House-on-the-hill/84362.html</p> <p>CC01.0 Public domain https://creativecommons.org/publicdomain/zero/1.0/</p>	<p>To be moving across the area of land that is higher than the land surrounding it but smaller and lower than a mountain</p>	<p>To be too old to do a particular thing</p>

<p>To overcome an obstacle</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jraui CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Removing or navigating around an object (e.g., rock or wall) to move forward</p>	<p>To succeed in dealing with a problem that prevents you from achieving something</p>
<p>Destination</p>  <p>By Mohamed-hassan from Pixabay, https://pixabay.com/illustrations/destination-goal-the-purpose-3162515/</p>	<p>The place designated as the end (as of a journey or a race)</p>	<p>The goal or dream you hope to achieve in life</p>

Part Three: Practice

Head start, on the/one's way, the end of the line, direction, go places, to get over something, on track, short-cut, turning point, achieve/reach my goal, push ahead, hit/run into a wall, get in someone's way, heading to, no turning back, cross the bridge, over the hill, destination, overcome an obstacle, journey

A- Use the expressions in the following box to complete the sentences below:

1. Once you've made your decision, you realise there's don't you?
2. The reading course gives young children a
3. He was very unsure of what he wanted to do; he was without in life.
4. If you plan to in five years' time, what would you have to do in the coming four years' time to get there?
5. Alan: Where will we stop tonight? Jane: At the next town. Alan: What if all the hotels are full? Jane: Let's when we come to it.
6. He wouldn't allow emotions to of him doing his job.
7. We want to on this project and continue to achieve our goals.
8. Last year marked in Saudi women's history as they were allowed to drive cars.
9. Sometimes when we are in a hurry, we take that we later regret.
10. The managers see the closure of the last branch as for this company.
11. What is more important is not to make it to the but to enjoy the journey till the end, they say.
12. I knew that Sally, with all her talent, would in life.
13. It can take weeks to an illness like that.
14. He is the team member who always keeps the group and encourages them to do their tasks.
15. If you are eating healthy food and doing exercise, you are well to having beautiful, good-looking skin.
16. There are certain times in life where you feel you really do not know where you are
17. He needs to of convincing his parents that he does not want to go to Medical college.
18. On her first day at high school, Emily felt she had with all the schoolwork and assignments.

B- You have learned that words like way, direction, and obstacles, which are used to describe a physical journey, can also be used in English to describe a person's life. Work with a partner. Choose a question and explain your answer to the others.

1. What age is 'over the hill' for you? And why?
2. Has your life ever taken an unexpected direction?
3. Is it better to plan ahead in life or cross bridges when you come to them?
4. What are the choices you made that helped you achieve your goal?
5. Do you remember any time in your life when you did not let anyone get in your way?
6. Which decisions did you make and felt that there was no turning back?
7. Have you ever felt that you are not sure where your life is heading?
8. Was it useful to use the words you have learned like way, direction, and obstacles to answer the questions?

Part Four: Revision

Teacher revises the metaphoric expressions one more time and ask students to take 10 minutes going over the metaphoric expressions before giving them the reading comprehension post-test.

Comparison group

Part One: Introduction

1- You are going to watch a YouTube video of an inspiring girl who fell during the race; however, she stood up and continued until she won the race.

<https://www.youtube.com/watch?v=xjejTQdK5OI>

- Can you relate her experience to your own life experiences?
-
-

- Have you ever decided to try to overcome an obstacle to achieve your goal?
-
-

- Has your life ever taken an unexpected direction?

2. Now look at the these spoken expressions below. Underline the words that convey the key idea of travelling through life (an example has been done for you).

- The baby arrived at 6 o'clock this morning!
- I don't know where I'm heading. My life has no direction at the moment.
- You want to know where we are going to be this summer? We'll cross that bridge when we come to it; it's still winter!
- You have to push ahead/move on and forget about what has happened.
- His life took an unexpected direction after he accepted this job.
- My father passed away last night. He went in his sleep.
- Her parents don't understand her at all. They're over the hill!

Part Two: metaphoric expressions teaching:

A.


Teacher's instruction of the conceptual metaphor LIFE IS A JOURNEY:

When we think of life in English, we think of how it has paths, directions, obstacles, and roads. We use words like **path, direction, road, crossroads, obstacles, and step**. We say things like *After university I was **at a crossroads**, and I didn't know which **way to go**, My life has **no direction** at the moment, and I wish I can follow in my parents' **footsteps**.*

B. Vocabulary list

Teacher's instructions

Teacher teaching the metaphoric expressions and refers to the descriptive images related to each vocabulary item

Expression	Meaning
<p>Head start</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrnff</p> <p>CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>An advantage over other people in the same situation as you</p>
<p>On the/one's way</p>	<p>To be approaching a particular goal or outcome</p>



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jmvns> CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

The end of the line



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-xnskr> CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

The point a person cannot progress or the final step of something

Take direction

The general development or progress of someone or something



'3d Hold Success and Failure Stock photo', Image courtesy of nonicknamephoto at

FreeDigitalPhotos.net,

<http://www.freedigitalphotos.net/images/agree-terms.php>

Go places



From Pxfuel

<https://www.pxfuel.com/en/free-photo-jraxn>

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<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

To progress or find success in some area of one's life

To get over something



By Pxfuel,

<https://www.pxfuel.com/en/free-photo-jylwn>

CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

To find a way to deal with a difficult problem, to recover from difficulties regarding someone or something

On track





From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jrtsd> CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

On schedule; progressing as planned

<p>Short-cut to</p>  <p>By Fotografile-Link, from Pxhere, CC0 Public Domain, https://pxhere.com/en/photo/1420841</p>	<p>Way of saving time or effort in doing something, often a method that produces a result that is not good enough</p>
<p>A turning point</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-erldx</p> <p>CC0 Public Domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>A time when an important change takes place in a situation, especially one that makes it better</p>

Achieve my goal



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jrjur> CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

To succeed in doing or having what you planned or intended, usually after a lot of effort

Push ahead






From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jrcsc> CC0 1.0, Public domain,

<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

To continue trying to achieve something despite opposition or difficulties

<p>Hit a wall</p>  <p>By Lukasbieri, From Pixabay https://pixabay.com/photos/youtuber-blogger-screenwriter-2838945/</p>	<p>To reach a point where you are physically or mentally unable to make progress or continue</p>
<p>Get in someone's way</p>  <p>By Mohamed Hassan, from Pxhere, CC0 Public Domain https://pxhere.com/en/photo/1450419</p>	<p>To make it difficult for a person to achieve a goal</p>
<p>Heading to</p> 	<p>Achieving goals that support your dreams in life</p>

<p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrpuz CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	
<p>Turning back</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-ocstc CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To reverse or undo one's course of action</p>
<p>Cross the bridge</p> 	<p>To delay worrying about something that might happen until it actually does happen</p>

<p>By Pxfuel, https://www.pxfuel.com/en/free-photo-jrtuq</p> <p>CC0 Public Domain https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	
<p>Over the hill</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xnrev CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To be too old to do a particular thing</p>
<p>Overcome an obstacle</p>	<p>To succeed in dealing with a problem that prevents you from achieving something</p>



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jylwn>

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[n/zero/1.0/deed.en](https://creativecommons.org/publicdomain/zero/1.0/deed.en)

Destination



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-jrpzk>

[jrpzk](https://www.pxfuel.com/en/free-photo-jrpzk)

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The goal or dream you hope to achieve in life

Part Three: Practice

Head start, on the/one's way, the end of the line, direction, go places, to get over something, on track, short-cut, turning point, achieve/reach my goal, push ahead, hit/run into a wall, get in someone's way, heading to, no turning back, cross the bridge, over the hill, destination, overcome an obstacle, journey

B- Use the expressions in the following box to complete the sentences below:

1. Once you've made your decision, you realise there's Don't you?
2. The reading course gives young children a
3. He was very unsure of what he wanted to do; he was without in life.
4. If you plan to in five years' time, what would you have to do in the coming four years' time to get there?
5. Alan: Where will we stop tonight? Jane: At the next town. Alan: What if all the hotels are full? Jane: Let's when we come to it.
6. He wouldn't allow emotions to of him doing his job.
7. We want to on this project and continue to achieve our goals.
8. Last year marked in Saudi women's history as they were allowed to drive cars.
9. Sometimes when we are in a hurry, we take that we later regret.
10. The managers see the closure of the last branch as for this company.
11. What is more important is not to make it to the but to enjoy the journey till the end, they say.
12. I knew that Sally, with all her talent, would in life.
13. It can take weeks to an illness like that.
14. He is the team member who always keeps the group and encourages them to do their tasks.
15. If you are eating healthy food and doing exercise, you are well to having beautiful, good-looking skin.
16. There are certain times in life where you feel you really do not know where you are
17. He needs to of convincing his parents that he does not want to go to Medical college.
18. On her first day at high school, Emily felt she had with all the schoolwork and assignments.

Answer: 1. no turning back, 2. head start, 3. direction, 4. Achieve your goal, 5. cross that bridge, 6. get in the way, 7. push ahead, 8. a turning point, 9. short cuts, 10. the end of the line, 11. destination, 12. go places, 13. get over ,14. on track,15. on the way, 16. heading to, 17. overcome the obstacle, 18. hit a wall.

C- You have learned that words like way, direction, and obstacles, which are used to describe a physical journey, can also be used in English to describe a person's life. Work with a partner. Choose a question and explain your answer to the others.

9. What age is 'over the hill' for you? and why?
10. Has your life ever taken an unexpected direction?
11. Is it better to plan ahead in life or cross bridges when you come to them?
12. What are the choices you made that helped you achieve your goal?
13. Do you remember any time in your life when you did not let anyone get in your way?
14. Which decisions did you make and felt that there was no turning back?
15. Have you ever felt that you are not sure where your life is heading?
16. Was it useful to use the words you have learned like way, direction, and obstacles to answer the questions?

Part Four: Revision

Teacher revises the metaphoric expressions one more time and ask students to take 10 minutes going over the metaphoric expressions before giving them the reading comprehension post-test.

Interventional Teaching Session 2

Metaphor group

Part one: Introduction:

1-Analyse how you are currently using your time by making a 24-hour breakdown of a typical weekday.

Here's a snippet of a typical day

6:00 sleep	18:00
------------	-------

7:00 wake up, shower, get dressed, breakfast	19:00
8:00 go to college	20:00
9:00 first lecture	21:00
10:00	22:00
11:00	23:00
12:00	24:00
13:00	1:00
14:00	2:00
15:00	3:00
16:00	4:00
17:00	5:00

- What about a typical day at the weekend?

2. A. With a partner, ask and answer the following questions:

- How many hours do you sleep every night?

- How much time do you spend with your family?

- Do you ever feel like you are wasting your time at home?

- Do you make the most profitable use out of your free time?

- How much time do you have for holidays every year?

- How many hours do you work a week?

- If you run out of time to finish something at work (school), do you take it home?

- Is there a time clock where you work? Are your hours accounted for?

- How much time do you use for lunch?

B. Look back at the survey that you did. The first part represents non-working time, the second represents working time.

- Do you feel that you spend more time working than not working?

- Do you do things quickly or slowly? Are you often in a rush or do you take your time?

3. **Look at the following expressions. Underline the words or phrases that are used to describe time:**

- We need to buy some more time for our assignment.
- I can't afford to spend any more time on this!
- This is wasting my precious time!
- In the weeks following next Monday, I will start my final exams.
- I'm looking ahead to summer vacation during which I plan to visit a new destination.
- Eid is coming up on us.
- Time goes by fast when you meet your friends and have a lot of fun.
- His stay in Rome extended over many years.
- He passed the time happily.
- We are getting close to Christmas.

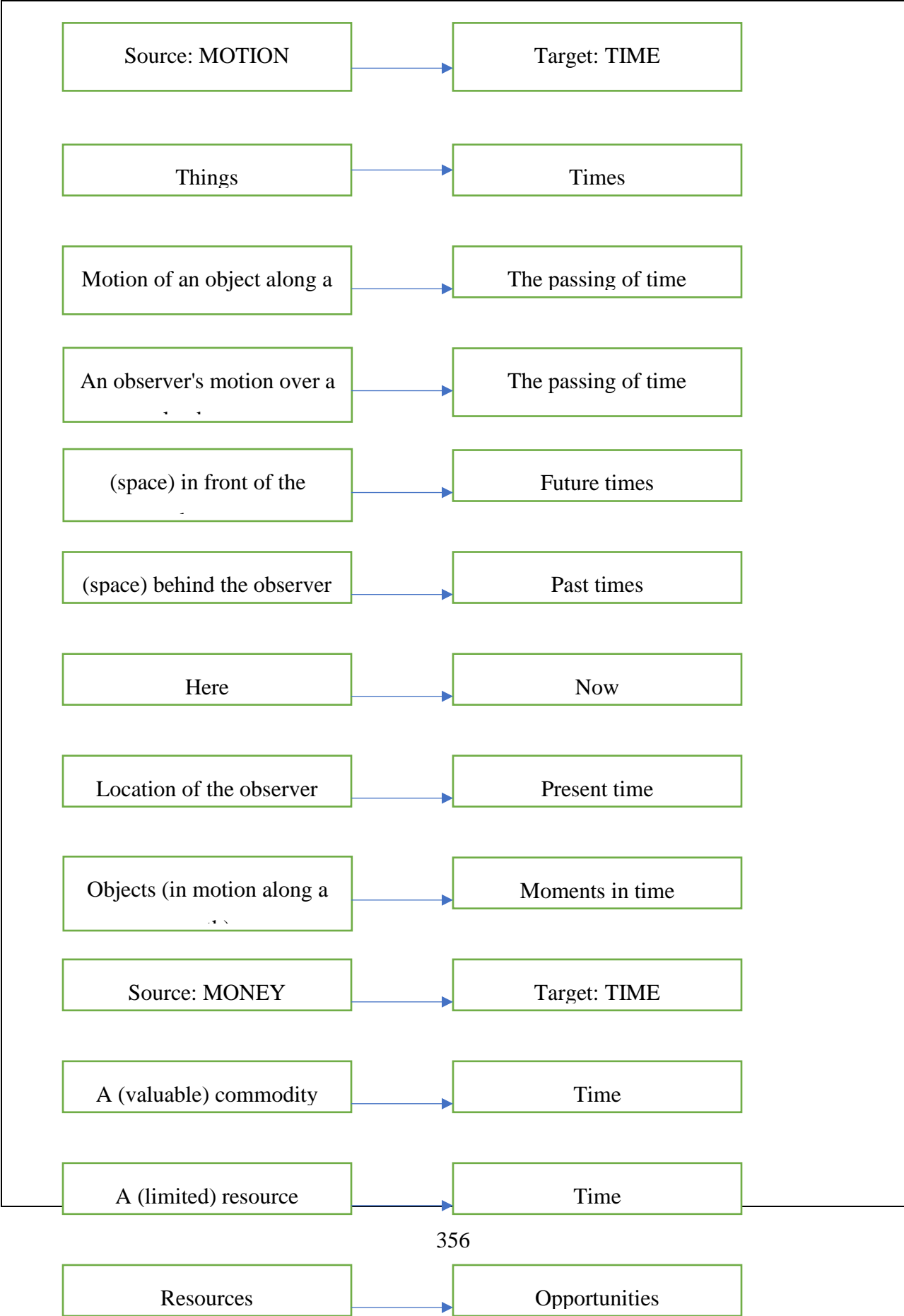
4. **Can you find any expressions in exercise 2 above that use similar expressions?**

Part Two: Vocabulary teaching:


A. Teacher's instruction:

English is full of metaphors, which means that words and phrase for one concept are used to explain other concepts. In English, 'time' is described as 'motion' and as 'a moving object'. It *comes*, *goes*, *goes by fast*, *comes up on us*, and *approaches us*. For example, we say things like *Time goes by fast*, *Eid is coming up on us*, and *The time for action has come*. Also, passing of time is described as our motion over a landscape. We say things like, *We're getting close to summer*, *He passed his time happily*, and *Put the problem behind you*. Also, when we think of time, we usually think of it in terms of 'a valuable commodity', and 'a limited resource' as 'money'. Time is *valuable*, *saved*, *spent*, *wasted* and *lost*. For example: *We need to buy more time for our assignment*, and *You have to stop wasting your time*. The conceptual metaphors TIME IS MOTION, and TIME IS MONEY, motivate a large number of linguistics metaphors in English.


B. Look at the similarities between the two domains







C. The time vocabulary list



Metaphoric expression	Literal meaning	Metaphoric meaning
<p>Goes by</p>  <p>https://www.pxfuel.com/en/free-photo-emhej</p>	<p>To move to a place beyond the original location /to past a place</p>	<p>Passes. If time goes in a particular way (fast/quickly/slowly), it passes in that way</p>
<p>Coming up on</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-emjii CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Reaching a particular point or level</p>	<p>About to be happening soon</p>



<p>Looking ahead to</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrtka CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Literally, to look forward and turn your eyes to the view in front of you</p>	<p>to think about/ plan for what is likely to happen in the future</p>
<p>Ahead of time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrneq CC0 1.0, Public domain,</p>	<p>In front of</p>	<p>Before the agreed-upon time.</p>



<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>		
<p>Behind schedule/ work</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrnnj CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Remaining in a place after people have left</p>	<p>Late or too slow in doing things that you have to do</p>
<p>Pass the time</p> 	<p>To move something in a particular direction or a particular place or position</p>	<p>Spend or consume or use spare time by doing something</p>



<p>By Susannp4, from Pixabay, https://pixabay.com/illustrations/time-fast-moving-balancing-act-1528627/</p>		
<p>How far</p>  <p>By Mohamad_hassan, From Pxhere, CC0 Public Domain, https://pxhere.com/en/photo/1588997</p>	<p>What distance?</p>	<p>How many days or hours until a certain event?</p>
<p>Approaching</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xpamq CC0 1.0, Public domain,</p>	<p>Coming close in distance</p>	<p>Coming close/nearer in time</p>



<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>		
<p>Spend</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jratx CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To use money to pay for things</p>	<p>To stay somewhere or do something for a period</p>
<p>Count days/ hours/minutes</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jyjiu CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To name or list (the units of a group or collection) one by one in order to determine a total number.</p> <p>to calculate how many people or things there are in a group</p>	<p>To wait for something that you want very much to happen</p>

<p>Accounted for</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jmfjq CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To say how you have used, or how you will use, an amount of money that you are responsible for spending</p>	<p>To be of significance or importance</p>
<p>Waste</p>  <p>By Foto-Rabe, from Pixabay, https://pixabay.com/photos/monkey-burn-dollar-waste-finance-4418858/</p>	<p>Fail to use something valuable in an effective way, so that it does not produce the benefits that it could</p>	<p>(verb) Spend time in things that do not matter (Noun) A situation in which time, money, or energy is used without bringing any useful results</p>

<p>Run out of time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-eyrgs CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To use all money and not have any left</p>	<p>To have used up most of the allotted time: to have no time left</p>
<p>Invest</p>  <p>By Nattanan23, From Pixabay, https://pixabay.com/photos/monkey-coin-investment-business-2724241/</p>	<p>To put money to use in something offering profitable returns</p>	<p>To use your time with the aim of making a profit from it</p>

<p>Buy extra time</p>  <p>By Alexas_Fotos, From Pixabay, https://pixabay.com/photos/time-is-money-bank-note-coins-3344165/</p>	<p>To get something by paying money for it</p>	<p>To do something in order to get more time to do or finish something else</p>
<p>Pressed for time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jnaty CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To have a small or limited amount of money available</p>	<p>To not have a lot of time to do something/ in a difficult situation because you do not have enough time</p>

<p>To be short of</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xtolj CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>You do not have enough of something/ Insufficient amount</p>	<p>Having little time</p>
<p>Divide</p>  <p>From Pxfuel, https://www.pxfuel.com/en/desktop-wallpaper-jjenu CC0 1.0, Public domain,</p>	<p>To have separate parts, or to form into separate groups</p>	<p>Being in one place or doing one thing some of the time, but being in another place or doing something else the rest of the time</p>

<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>		
<p>Have time</p>  <p>By Tumisu, from Pixabay, https://pixabay.com/illustrations/save-time-save-time-time-is-money-1667023/</p>	<p>Avoid using money or use less of it</p>	<p>Try not to spend a lot of time on something</p>
<p>Afford time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-</p>	<p>Have enough money to be able to pay for it</p>	<p>Have enough time to do things with it</p>

<p>photo-qlnad CC0 1.0, Public domain, https://creativecommons.org/licenses/by/4.0/ licdomain/zero/1.0/deed.en</p>		
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Part three: Practice:

A. There is a missing word in each sentence. Choose the correct answer with your partner:

1. She _____ a lot of time in her new business.
a. afforded b. invested c. saved
2. We've a busy period _____ in a couple of weeks.
a. coming up b. going c. spending
3. Wow, we're _____ time today. Let's keep it up!
a. Behind b. wasted c. ahead of
4. What I do not want to happen as time _____ is to sit down and say that I did not study hard for my exam.
a. goes by b. extends c. wastes
5. We regret the end of our schooldays but _____ future with great hope. `
a. spend b. look ahead to c. waste
6. The project is already a month _____ schedule. You have to work harder to finish it.
a. behind b. ahead c. extend
7. I read to _____ the time while waiting in the doctor's office
a. save b. spend c. pass

8. I know you are in a difficult situation now, but the time is _____ when you will succeed and get over it.
a. approaching b. going c. wasting
9. It's a _____ of time trying to get her to change her mind.
a. passing b. waste c. saving
10. You need to _____ time with each student and that requires a little bit more effort.
a. spend b. value c. afford
11. The school could not _____ the time or expenses of putting bar-codes on all books in both libraries.
a. invest b. waste c. afford
12. He managed his time at the office, and every hour is _____.
a. accounted for b. saved c. spent
13. I _____ time before I could finish the test.
a. passed b. ran out of c. pressed for
14. We have to _____ time in understanding the new math rule very well before May 2.
a. invest b. buy c. save
15. These discussions are all part of a plan to _____ time to win more support.
a. invest b. buy c. spend
16. She couldn't see me because she was _____ time these days.
a. pressed for b. dividing c. saving
17. If you are _____ time, take the highway to reach the university earlier.
a. dividing b. short of c. affording
18. She used to do _____ activities with his cousins like fishing and sewing.
a. rewarding b. spending c. wasting
19. She _____ her time between teaching and research.
a. saves b. divides d. wastes
20. Travelling by plane is more expensive, but it _____ time.

a. borrows b. invests c. saves

21. The children are very excited about the summer vacation. _____ is it to summer?

a. How far b. How many c. How much

22. The problem is that I am _____ these days. Can we delay working on that project until next week?

a. investing money b. spending time c. short of time

Answers: 1.b. 2. a. 3.c. 4. a. 6.b. 7. a. 8.c. 9. a. 10. b. 11.a. 12. c. 13.a. 14. b. 15.a. 16. b. 17.a. 18. b. 19.a. 21. a. 22. c

D- Work with a partner. Answer the questions and explain your answer to the others.

1. Do you ever feel you time goes by fast? If so, when?
2. Which time of the year do you usually look ahead to? Why?
3. Do you ever try to buy more time to do something else? If so, what is it? How do you do it?
4. How much time do you like to spend with family or friends? Why?
5. How much do you waste time in a week? When do you waste this time? Do you think it matters? Why?
6. Is there anything in your life you want to make more time to do? If so, what is it? Why?
7. Do you usually feel you are behind schedule? Or ahead?
8. Do you manage to do your tasks in time? If so, how do you do it?
9. Have you ever run out of time in a test or exam? If so, how did you feel about it?
10. In your future life, is there anything in which you would like to invest time and energy? What is it? Why?

Part Four: Revision

Teacher revises the metaphoric expressions one more time and ask students to take 10 minutes going over the metaphoric expressions before giving them the reading comprehension post-test.

Comparison group

Part one: Introduction:

1-Analyse how you are currently using your time by making a 24-hour breakdown of a typical weekday.

Here's a snippet of a typical day

6:00 sleep	18:00
7:00 wake up, shower, get dressed, breakfast	19:00
8:00 go to college	20:00
9:00 first lecture	21:00
10:00	22:00
11:00	23:00
12:00	24:00
13:00	1:00
14:00	2:00
15:00	3:00
16:00	4:00
17:00	5:00

- What about a typical day at the weekend?

2. A. With a partner, ask and answer the following questions:

(The following questions are adapted from onestopenglish.com)

- How many hours do you sleep every night?

- How much time do you spend with your family?

- Do you ever feel like you are wasting your time at home?

- Do you make the most profitable use out of your free time?

- How much time do you have for holidays every year?

- How many hours do you work a week?

- If you run out of time to finish something at work (school), do you take it home?

- Is there a time clock where you work? Are your hours accounted for?

- How much time do you use for lunch?

Look back at the survey that you did. The first part represents non-working time, the second represents working time.

- Do you feel that you spend more time working than not working?
-
-

- Do you do things quickly or slowly? Are you often in a rush or do you take your time?
-
-

3. Look at the following expressions. Underline the words or phrases that are used to describe time:

- We need to buy some more time for our assignment.
- I can't afford to spend any more time on this!
- This is wasting my precious time!
- In the weeks following next Monday, I will start my final exams.
- I'm looking ahead to summer vacation during which I plan to visit a new destination.
- Eid is coming up on us.
- Time goes by fast when you meet your friends and have a lot of fun.
- His stay in Rome extended over many years.
- He passed the time happily.
- We are getting close to Christmas.



4. Can you find any expressions in exercise 2 above that use similar expressions?



Part two: metaphoric expressions teaching



A. Teacher's instruction to the control group:



When we think of time in English, we think of how it can **go** or **come** fast or slow, how we **look ahead** to a certain time, how **valuable** it is, and what we can do to **save** it. We say things like *time is gone*, *winter is coming*, and *I am looking ahead to the new year*. We also say things like *I cannot afford to lose any time*, *I ran out of time*, and *we have to save time*.

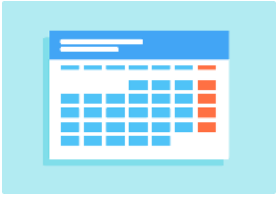
B. Time metaphors vocabulary list:

Expression	Meaning
<p>Goes by</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-eroyu CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Passes. If time goes in a particular way (fast/quickly/slowly), it passes in that way</p>
<p>Coming up on</p> 	<p>About to be happening soon</p>

<p>By Cramirez2400, from Pixabay, https://pixabay.com/illustrations/time-countdown-clock-hour-2810649/</p>	
<p>Looking ahead to</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jylbc CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To think about/ plan for what is likely to happen in the future</p>
<p>Ahead of time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-eemlw CC0 1.0, Public domain,</p>	<p>Before the agreed-upon time.</p>

<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	
<p>Behind schedule/ work</p>  <p>By Pinterastudio, from Pixabay, https://pixabay.com/illustrations/rush-deadline-late-time-hurry-3857337/</p>	<p>Late or too slow in doing things that you have to do</p>
<p>Pass the time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xvcrw CC0 1.0, Public domain,</p>	<p>Spend or consume or use spare time by doing something</p>

<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	
<p>How far</p>  <p>From Pxfuel, https://www.pxfuel.com/en/search?q=countdown CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>How many days or hours until a certain event?</p>
<p>Approaching</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-xiswr CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>Coming close/nearer in time</p>
<p>Extend (over)</p>	<p>To continue for a particular period of time</p>



By 200degrees, from Pixabay,

<https://pixabay.com/vectors/calendar-date-month-day-week-1763587/>

Spend



From Pxfuel,



<https://www.pxfuel.com/en/free-photo-jmseh> CC0 1.0, Public domain,
<https://creativecommons.org/publicdomain/zero/1.0/deed.en>



To stay somewhere or do something for a period



Count days/ hours/minutes



To wait for something that you want very much to happen

<p>By Jeshoots-com, from Pixabay</p> <p>https://pixabay.com/photos/waiting-appointment-schedule-time-410328/</p>	
<p>Accounted for</p>  <p>By Geralt, from Pixabay,</p> <p>https://pixabay.com/illustrations/stop-watch-time-clock-1082661/</p>	<p>To be of significance or importance</p>
<p>Waste</p>  <p>From Pxfuel,</p> <p>https://www.pxfuel.com/en/free-photo-olbrd CC0 1.0, Public domain,</p>	<p>(verb) Spend time in things that do not matter</p> <p>(Noun) A situation in which time, money, or energy is used without bringing any useful result</p>

<p>https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	
<p>Run out of time</p>  <p>From Pxfuel, https://www.pxfuel.com/en/free-photo-jrnnj CC0 1.0, Public domain, https://creativecommons.org/publicdomain/zero/1.0/deed.en</p>	<p>To have used up most of the allotted time: to have no time left</p>
<p>Invest</p>  <p>By Geralt, from Pixabay, https://pixabay.com/illustrations/clock-time-calendar-agenda-163202/</p>	<p>To use your time with the aim of making a profit from it</p>

<p>Buy extra time</p>  <p>By TheDigitalArtist, from Pixabay, https://pixabay.com/illustrations/time-time-machine-distortion-1961319/</p>	<p>To do something in order to get more time to do or finish something else</p>
<p>Pressed for time</p>  <p>By Mohamad_hassan, from Pixabay, https://pixabay.com/illustrations/multi-tasking-efficiency-manager-2840792/</p>	<p>To not have a lot of time to do something/in a difficult situation because you do not have enough time,</p>
<p>To be short of</p>	<p>Having little time</p>



From Pxfuel,

<https://www.pxfuel.com/en/free-photo-oimyl> CC0 1.0, Public domain,
<https://creativecommons.org/publicdomain/zero/1.0/deed.en>

Divide



By Geralt, from Pixabay,


<https://pixabay.com/illustrations/personal-silhouettes-human-885550/>

Being in one place or doing one thing some of the time, but being in another place or doing something else the rest of the time

Save time



Try not to spend a lot of time on something

<p>By ThePixelman, from Pixabay, https://pixabay.com/photos/time-timer-clock-watch-hour-488112/</p>	
<p>Afford time</p>  <p>By Geralt, from Pixabay, https://pixabay.com/illustrations/girl-woman-time-watches-juggle-1940244/</p>	<p>Have enough time to do things with it</p>

Part three: Practice:

A. There is a missing word in each sentence. Choose the correct answer with your partner:

1. She _____ a lot of time in her new business.
 b. afforded b. invested c. saved

2. We've a busy period _____ in a couple of weeks.
b. coming up b. going c. spending
3. Wow, we're _____ time today. Let's keep it up!
b. Behind b. wasted c. ahead of
4. What I do not want to happen as time _____ is to sit down and say that I did not study hard for my exam.
b. goes by b. extends c. wastes
5. We regret the end of our schooldays but _____ future with great hope. `
b. spend b. look ahead to c. waste
6. The project is already a month _____ schedule. You have to work harder to finish it.
b. behind b. ahead c. extend
7. I read to _____ the time while waiting in the doctor's office
b. save b. spend c. pass
8. I know you are in a difficult situation now, but the time is _____ when you will succeed and get over it.
b. approaching b. going c. wasting
9. It's a _____ of time trying to get her to change her mind.
b. passing b. waste c. saving
10. You need to _____ time with each student and that requires a little bit more effort.
b. spend b. value c. afford
11. The school could not _____ the time or expenses of putting bar-codes on all books in both libraries.
b. invest b. waste c. afford
12. He managed his time at the office, and every hour is _____.
b. accounted for b. saved c. spent
13. I _____ time before I could finish the test.
b. passed b. ran out of c. pressed for

14. We have to _____ time in understanding the new math rule very well before May 2.
b. invest b. buy c. save
15. These discussions are all part of a plan to _____ time to win more support.
b. invest b. buy c. spend
16. She couldn't see me because she was _____ time these days.
b. pressed for b. dividing c. saving
17. If you are _____ time, take the highway to reach the university earlier.
b. dividing b. short of c. affording
18. She used to do _____ activities with his cousins like fishing and sewing.
b. rewarding b. spending c. wasting
19. She _____ her time between teaching and research.
b. saves b. divides d. wastes
20. Travelling by plane is more expensive, but it _____ time.
b. borrows b. invests c. saves
21. The children are very excited about the summer vacation. _____ is it to summer?
b. How far b. How many c. How much
22. The problem is that I am _____ these days. Can we delay working on that project until next week?
b. investing money b. spending time c. short of time

Answers: 1.b. 2. a. 3.c. 4. a. 6.b. 7. a. 8.c. 9. a. 10. b. 11.a. 12. c. 13.a. 14. b. 15.a. 16. b. 17.a. 18. b. 19.a. 21. a. 22. c

B. Work with a partner. Answer the questions and explain your answer to the others.

1. Do you ever feel your time goes by fast? If so, when?

2. Which time of the year do you usually look ahead to? Why?
3. Do you ever try to buy more time to do something else? If so, what is it? How do you do it?
4. How much time do you like to spend with family or friends? Why?
5. How much do you waste time in a week? When do you waste this time? Do you think it matters? Why?
6. Is there anything in your life you want to make more time to do? If so, what is it? Why?
7. Do you usually feel you are behind schedule? Or ahead?
8. Do you manage to do your tasks in time? If so, how do you do it?
9. Have you ever run out of time in a test or exam? If so, how did you feel about it?
10. In your future life, is there anything in which you would like to invest time and energy? What is it? Why?

Part Four: Revision

Teacher revises the metaphoric expressions one more time and ask students to take 10 minutes going over the metaphoric expressions before giving them the reading comprehension post-test.

Appendix E: Interview Questions

Stimulated recall interview questions used in the pilot study

Please look at the responses you gave for this reading test.

- Look through your responses and try to tell me what was going through your mind when you made those responses?
- What were you thinking when you answered this question?
- What did you think about these activities?
- Did you recognise that this word (taught vocabulary) was familiar to you?
- What did you do then? How did you try to understand its meaning?
- Did you recognise that this word (untaught vocabulary) was unfamiliar to you?
- What did you do then? How did you try to understand its meaning?
- What are your comments about the intervention you experienced?
- How did you feel about the way I explained the vocabulary?
- Did the way I explained this vocabulary make it easier to understand it in the text and remember it?
- Did the teaching method help you understand the reading text? If yes, how?

Stimulated recall interview questions for the main study

Please look at the teaching materials you received during the intervention

- What are your comments about the intervention you experienced?
- How did you feel about the way I explained the vocabulary?
- What did you think about these activities?
- Do you feel that the teaching method helped you understand the reading text? If yes, how?

- Did you feel that there was any difference in your comprehension of the reading texts before and after the teaching? How?
- What exactly has changed in the way you read?
- What helped in improving your reading?
- Was the teaching methodology new to you? What exactly?
- Do you feel that teaching the expressions helped you? How exactly?
- Was learning and remembering the words easy or hard? How?
- What exactly changed in your learning after the study?
- What were the points you found the most helpful?
- What was the least beneficial part for you?
- Do you think that what you learned will be beneficial in anyway?
- Were there difficult parts for you?
- Do you feel that you want to be taught this way again? And why?

Please look at the responses you gave for this reading test.

- Look through your responses and try to tell me what was going through your mind when you made those responses?
- What were you thinking when you answered this question (main idea question)?
- What did you do then? How did you understand the main idea?
- How did you answer this question (specific detail question)?
- How did you look for the answer?
- And what helped you to choose this answer?
- Did you notice that this word (taught expression) was not new?
- How did you understand what it meant in the text?
- Can you elaborate?
- Did the way I explained this vocabulary make it easier to understand it in the text and remember it?
- Did you recognise that this word (untaught vocabulary) was unfamiliar to you? How did you feel when you first read it?
- What did you do then? How did you try to understand its meaning?

- What helped you to figure out its meaning here? What was in your mind?
- What about this word? What was going through your mind when you answered this question?
- Could you relate this new expression to anything else? If yes how? Remember that I am asking about the time of the test and not now.

Appendix F: Pilot Study

Procedure of pilot study

Students were first given the information sheets (in Arabic) and the researcher explained the benefits and risks of participation, as well as data management details. All the students agreed to participate and signed the consent forms, with very few ticking the agreement box to be interviewed. The plan for the pilot study included first testing the group on prior knowledge of the target metaphoric expressions and reading comprehension skills. The students took 15 minutes to finish the metaphor test, after which they were handed the reading comprehension pre-test, which took 15-20 minutes. Each group received one teaching session in the same class. The teaching materials were projected on a screen, and the students were given copies of them and asked to study all the meanings of the metaphoric expressions. Immediately after the teaching session, each group completed a reading comprehension test of texts including taught and untaught metaphoric expressions that fit within the conceptual metaphor targeted in that specific intervention session. One week later, each group completed a delayed reading comprehension test based on a text including new conceptual metaphors in order to explore students' ability to transfer the acquired metaphoric knowledge. They also completed a delayed metaphor understanding post-test used to investigate the retention of the target metaphoric expressions. Two students did not attend as scheduled, although they completed the tests two days later. As a final stage of the pilot phase, one student from each group was asked to take part in a stimulated recall interview. However, due to time constraints and the practicality of accessing participants, the delayed post-tests were administered one week after the intervention. This differed to the main study plan, where the delayed post-tests were administered two-weeks after the intervention. The table below illustrates the procedure of the pilot study.

Procedure for the Pilot Study

Date	Group 1	Group 2
Sunday 8th December, 2019	Consent forms and information sheets Metaphor understanding pre-test Reading comprehension pre-test First intervention Immediate reading comprehension test	
Monday 9th December, 2019		Consent forms and information sheets; Metaphor understanding pre-test Reading comprehension pre-test Second intervention Immediate reading comprehension test
Sunday 15th December, 2019	Delayed metaphor understanding post-test Delayed reading comprehension post-test Stimulated recall interview with one student	
Monday 16th December, 2019		Delayed metaphor understanding post-test Delayed reading comprehension post-test Stimulated recall interview with one student

Analysis of the pilot study

Quantitative analysis

This section presents the statistical analysis results for Groups 1 and 2 of the pilot study combined (32 learners). The reason for this is that both groups were analysed together and there was no effect for the group factor. Firstly, it was imperative to scrutinize the reliability of each of

the tests used. Cronbach's alpha (Cronbach, 1951) was one method employed in the pilot analysis to test if there was internal consistency among all the test items. This was carried out in three stages. For the metaphor understanding pre-test, Cronbach's alpha of .93 results showed that the scale had a good level of internal consistency. Regarding the metaphor post-test, results showed the same, with a Cronbach's alpha outcome of .91. Second, for the reading comprehension, the scale showed a moderate level of internal consistency for the reading comprehension pre-test, with a Cronbach's alpha of .89, while a good level was indicated for the reading comprehension immediate post-test (.90) as well as for the delayed post-test (.93). Third, as the reading comprehension tests included general comprehension questions (4) and metaphor comprehension questions (10), the scores for each section were determined separately within each of the reading tests, including the pre-test, post-test, and delayed post-test. As such, the scores for the two sections were considered as two isolated test items. Results showed a moderate level of internal consistency for the reading pre-test, with a Cronbach's alpha of .88, whereas a good level of internal consistency was found for the post-test (.92) and the delayed post-test (.91).

Next, testing normality using the Shapiro-Wilk test for the group showed that metaphor understanding tests were normally distributed ($p > .05$). Reading comprehension tests and the correct answers to the taught and untaught metaphoric expression questions were not normally distributed. A paired sample t-test was employed to compare metaphor understanding tests. This test is a parametric statistical test that compares two tests within the same group that appear to be normally distributed. Repeated measures, namely ANOVA using the Friedman test, were used to compare the reading comprehension tests (pre-, post-, and delayed). The Wilcoxon test was used to test correct answers to taught and untaught metaphoric expressions. These non-parametric tests (repeated measure ANOVA and Wilcoxon test) were used because data were not normally distributed.

Results of the statistical analysis of the quantitative data showed an improvement in learners' reading comprehension and metaphor learning and retention, in response to the intervention. However, participants did not perform as well in answering untaught metaphoric expressions compared to the taught expressions.

Tests of normality of distribution for pilot study

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Metaphor Pre-test	.134	32	.153	.966	32	.397
Metaphor Post-test	.136	32	.141	.934	32	.050
Reading Comprehension Pre-test	.140	32	.113	.933	32	.048
Reading Comprehension Immediate Post-test	.160	32	.037	.935	32	.053
Reading Comprehension Delayed Post-test	.145	32	.085	.957	32	.220
Correct answers of Taught metaphoric expressions	.434	32	.000	.585	32	.000
Correct answers of Untaught metaphoric expressions	.257	32	.000	.897	32	.005

a. Lilliefors Significance Correction

Quantitative Analysis

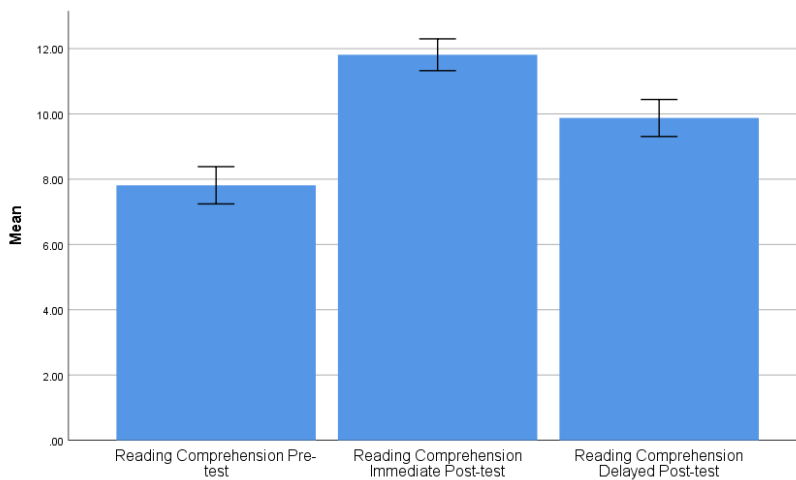
Reading comprehension tests

To answer the first research question, “what is the impact of conceptual metaphor teaching on learners' reading comprehension?”, descriptive statistics for the reading comprehension pre-test, post-test, and delayed post-test are presented in the table below. Looking at the mean, median, and SD (maximum total score was 14), it can be deduced from the table that participants performed poorly on the pre-test, revealing low comprehension of texts - including metaphoric expressions - and thus a need for the intervention. After the interventional teaching session, participants completed the immediate post-test and performed better. One week after the pilot

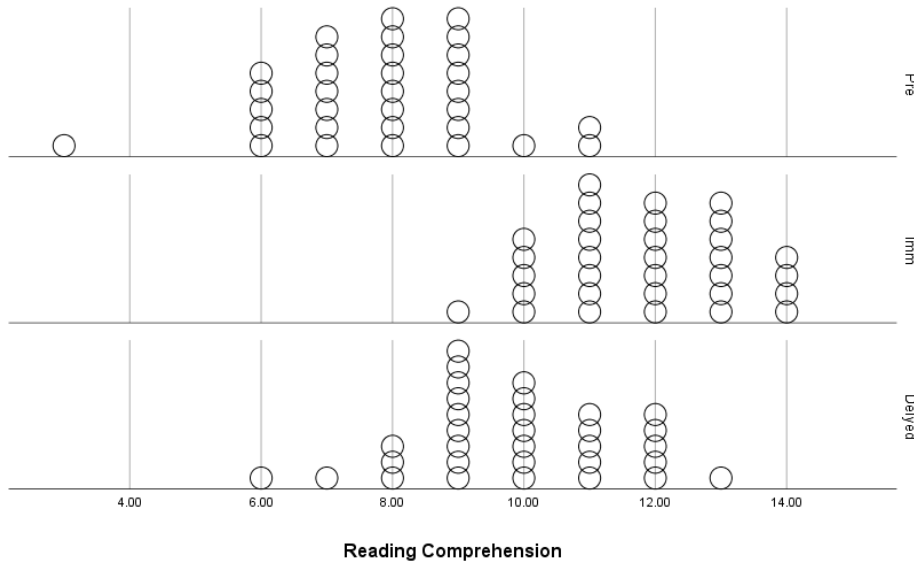
intervention, learners completed the delayed post-test and performed well, as shown in the table below. This indicates an improvement in learners' reading comprehension in response to the intervention. The Figure below shows that, although delayed post-test scores were lower than the immediate post-test scores, they were higher than pre-test scores, indicating the positive effect of the intervention on students' reading comprehension scores. The Figure below displays a bar-plot for Mean \pm SE, which was used to present the differences, while figure 4.8 includes a dot-plot used to present data distribution.

Descriptive statistics and Friedman test for reading comprehension tests for groups combined

	Reading Comprehension	Reading Comprehension	Reading Comprehension	Friedman Test	
	Pre-test	Immediate Post-test	Delayed Post-test	Chi-square	p-value
Mean (M)	7.81	11.81	9.88	59.21	<.001
Median (Mdn)	8.00	12.00	10.00		
Std. Deviation (SD)	1.62	1.38	1.60		
Minimum	3.00	9.00	6.00		
Maximum	11.00	14.00	13.00		



Mean \pm SE raw scores for reading comprehension pre-test, immediate post-test and delayed post-test



Individual scores for reading comprehension pre-test, immediate post-test and delayed post-test and distribution of tests

However, although the statistically significant results from the Friedman test ($chi\text{-square} = 59.21, p < .001$) shown in the table above suggest a difference among the set of scores, they do not tell us which set of scores differ from others. Therefore, another post-hoc pairwise comparisons was needed to compare each set of scores and indicate whether there was a difference, as well as whether that difference was significant.

Follow-up comparisons using the Wilcoxon Signed Ranks Test, see Table below, indicate that each pairwise difference was significant. A Bonferroni correction was applied to adjust for multiple comparisons, reducing the alpha level to .016 (.05/3). Results also showed a significant difference between all the pairwise comparisons ($p < .016$). There was a variation in the change of scores. However, the largest difference was between the pre-test ($Mdn = 8.00$) and immediate post-test ($Mdn = 12.00$) ($z = -4.67, p < .016$), suggesting an increase in scores over time, and that

the intervention increased participants' scores on reading comprehension tests. However, the delayed post-test ($Mdn = 10.00$) was significantly different from immediate post-test ($Mdn = 12.00$) ($z = -4.54, p < .016$), indicating that the learners' performance decreased between the two tests. This may be attributed to the time lapse between the two tests or the fact that metaphoric expressions in the delayed post-test were new and untaught, making the test more difficult. In addition, the participants' lower achievement addresses the fourth research question, indicating that students cannot always transfer acquired knowledge to the reading text, including metaphoric expressions instantiated by a new, untaught conceptual metaphor.

Pairwise comparisons of the three tests using the Wilcoxon Signed Ranks Test

	z	p-value
Reading Comprehension Immediate Post-test - Reading Comprehension Pre-test	-4.982	<.001
Reading Comprehension Delayed Post-test - Reading Comprehension Pre-test	-4.674	<.001
Reading Comprehension Delayed Post-test - Reading Comprehension Immediate Post-test	-4.549	<.001

Metaphor Understanding Tests

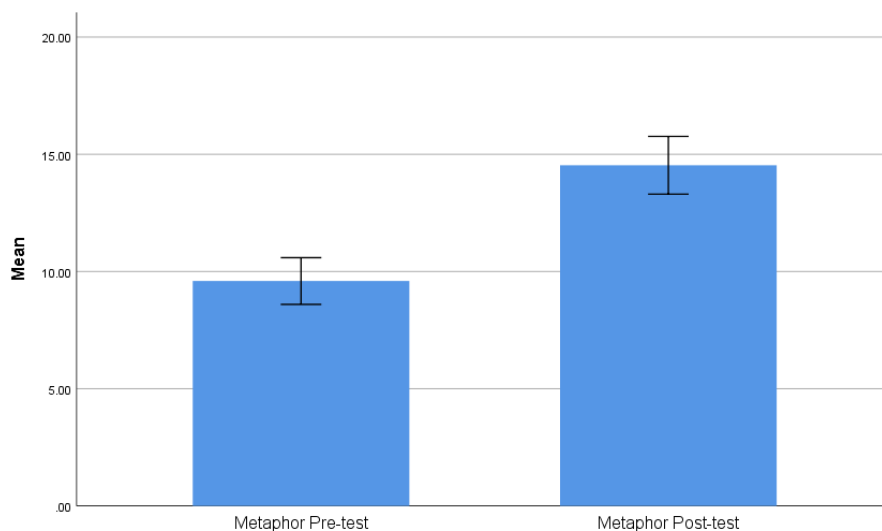
To address the second research question, “to what extent do L2 learners in the conceptual teaching group retain the taught metaphoric expressions?”, descriptive statistics on the participants’ performance on the metaphor pre- and delayed post-tests are presented in the table below. These numbers illustrate the difference between the two tests by comparing means (maximum total score of 20).

Descriptive analysis and paired t-test of metaphor tests for groups combined

	Metaphor Pre-test	Metaphor Post-test	t	p-value
Mean (M)	9.59	14.53	9.29	<.001
Median (Md)	9.50	14.50		

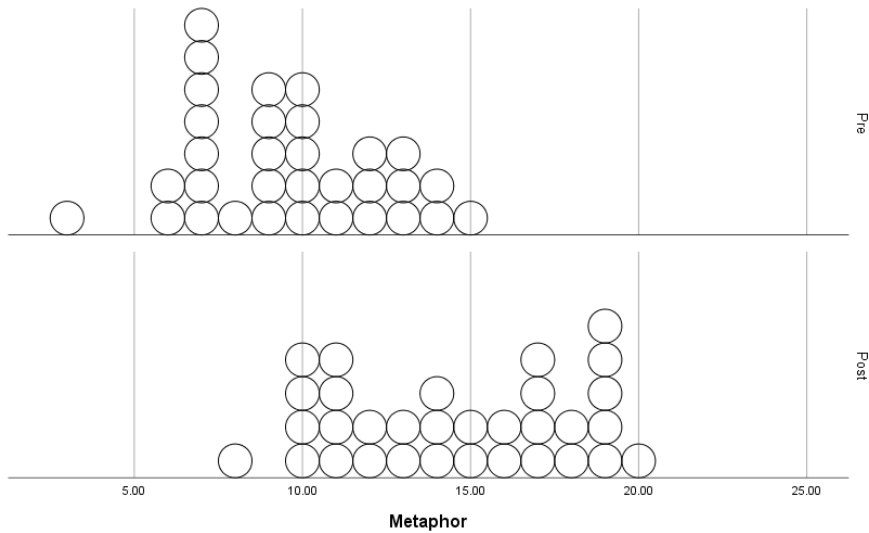
Std. Deviation (SD)	2.82	3.48
Minimum	3.00	8.00
Maximum	15.00	20.00

Descriptive statistics of the metaphor pre-test suggest that learners had low metaphoric knowledge, thus pointing towards the need for explicit teaching of metaphoric expressions. One week after the interventional session, learners completed the delayed post-test. Descriptive statistics initially showed an increase in the learners' performance. Next, a paired t-test illustrated that post-test results were significantly different from the pre-test results in relation to the metaphor tests ($t = 9.29, p = <.001$), shown in Table 3.15. This indicated that conceptual metaphor teaching facilitated an understanding and retention of metaphoric expressions. The bar-plot in the figure below, displaying the mean \pm SE, shows an improvement in participants' performance in response to the intervention.



Mean \pm SE raw scores for metaphor understanding pre-test and delayed post-test

Furthermore, the figure below presents a dot-plot that was used to present data distribution.



Individual scores for metaphor understanding pre-test and delayed post-test and distribution of tests

Comparing correct answers for taught and untaught metaphoric expressions

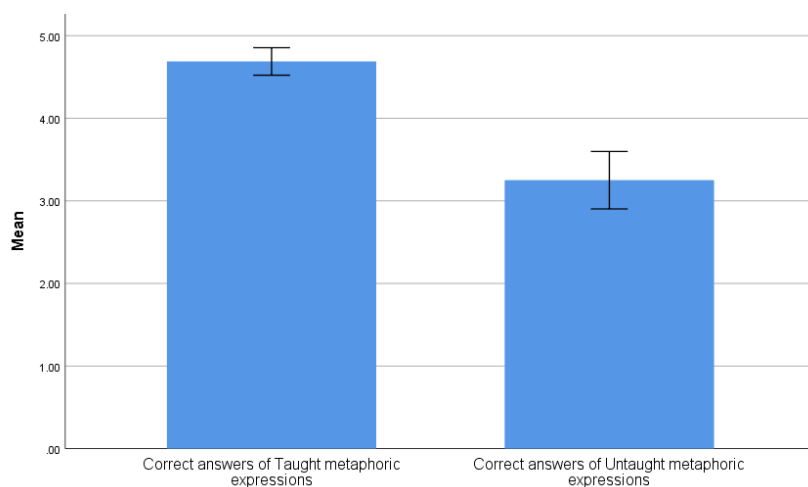
To answer the third research question and determine whether learners were able to transfer their acquired knowledge to understanding untaught metaphoric expressions that fit within the taught conceptual metaphor, a statistical analysis of the correct answers for taught and untaught expressions in the immediate reading comprehension post-test was used. The descriptive analysis, shown in the table below, indicates that correct answers for taught metaphoric expressions (maximum total score of 5) were higher than answers to untaught metaphoric expressions (maximum total score of 5). The Wilcoxon Signed Ranks Test was run to compare the correctly answered taught and untaught metaphoric expressions, showing a statistically significant difference between the two sets of scores ($z = 4.63, p < .001$).

Descriptive analysis and Wilcoxon Signed Ranks Test of correct taught and untaught metaphoric expressions for groups combined

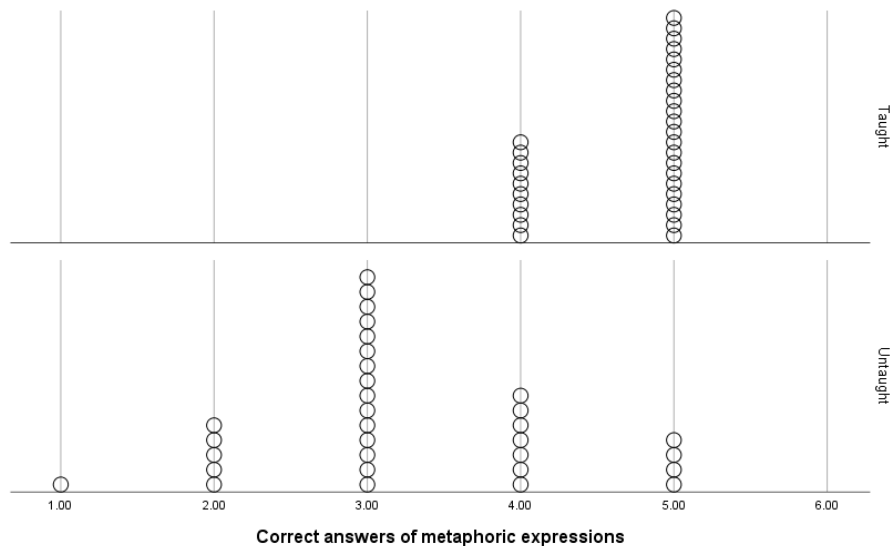
		Wilcoxon Test	
Correct answers of taught metaphoric expressions	Correct answers of untaught metaphoric expressions	z	p-value

Mean (M)	4.69	3.25	4.63	<.001
Median (Mdn)	5.00	3.00		
Std. Deviation (SD)	.47	.98		
Minimum	4.00	1.00		
Maximum	5.00	5.00		

The main significant difference, as seen in the figures below, is that learners were able to more accurately and correctly answer taught expressions compared to untaught expressions.



Mean \pm SE raw scores for correct taught and untaught metaphoric expressions



Individual scores for correct taught and untaught metaphoric expressions and test distribution

To conclude, a number of statistical tests were used to analyse the quantitative data from the pilot study. Results suggest an improvement in learners' reading comprehension and metaphor understanding and retention, in response to the intervention. However, participants did not perform as well in answering untaught metaphoric expressions compared to the taught expressions.

Qualitative data analysis of the pilot study

Stimulated recall interviews with two students (henceforth Student 1 and Student 2) were conducted after delayed post-tests. Although the interviews were in the students' L1, the researcher felt that many of the participants were hesitant and did not like to speak at length or elaborate on their thoughts, which could be due to the fact that the researcher was not their teacher and that they had met her only twice prior to the pilot. Although it was made clear before starting the interview that there were no correct and incorrect responses, the students seemed anxious about answering incorrectly. One student, after explaining why she chose the main idea of the reading text, asked the researcher if she was right. This was avoided in the main study ne

assuring students that there were no correct and incorrect responses, as well as that the researcher met the students several times before the interview, unlike one meeting only in the pilot phase.

A brief analysis of the two interviews with quotations from the students' transcripts are given in Appendix E. Students applied their own strategies to understanding reading texts by summarising paragraphs, giving every paragraph a title, and looking for contextual clues. An important insight from the interviews is that learners' use of the metaphoric knowledge of new vocabulary is not always transferred. Moreover, in terms of students' perspectives towards the teaching methodology, and whether it helped them in their reading tests, Student 1 mentioned that she found the post-tests easier, understood more ideas, and even took less time in understanding the test, compared to the reading task before the teaching. Student 2 still found understanding reading texts difficult even after the intervention. However, what helped this student the most is that she looked at the vocabulary from another perspective and learn more meanings of the vocabulary.

In answering the comprehension questions in the test, Student 1 depended largely on understanding every sentence and every paragraph in the reading text. Student 1 stated that, "I imagined myself as Layla (the main character in the story) and tried to think of everything that happened to her". Specifically, Student 1 referred to the following strategy: "first, I summarised the ideas in the passage, I read each paragraph and gave it a title or a main idea". This technique helped Student 1 answer the main questions, while in relation to the more detailed question, she stated that, "I then tried to locate the specific idea and tried to find the answer". Student 2, on the other hand, "read the whole passage from the beginning to the end to understand everything together and I did not need to go back to the text again". With regards to Student 2's response to the specific detail question, she followed a strategy of reading the whole passage as follows: "I underlined and put stars on lines for points, so when I read this question about this point, I went back to the reading and looked for this point to find the answer".

Concerning the taught metaphoric expression questions, Student 1 understood its meaning in the text because she stated the following: "when you explained it, I knew that it can have two meanings," and thus she was aware that there was more than just the literal meaning. For Student 2, she found it easy, as she said the following: "I felt it stuck to my mind when you taught it".

When Student 1 encountered untaught metaphoric expression questions, she was able to identify three of the expressions as metaphoric:

I noticed that it is related to life as a journey metaphor that we learned. This metaphor also helped me understand the correct meaning because I will not climb up the ladder to reach success, I imagined that in my mind. So, I figured out it is also a metaphor and, in this metaphor, I can climb up the ladder to be successful.

However, when answering another untaught metaphoric expression, Student 1 "understood the meaning of it from the sentence before and after it" and did not relate it to the conceptual metaphor. Student 2, on the other hand, despite noticing that the metaphoric expression was new and untaught, tried to "read the sentence before and after it to conclude and understand the meaning of it". There was no transference of the learned knowledge. When Student 2 was asked if she did relate it to the taught conceptual metaphor, she answered "yah possible". I reminded her to think about the time when she answered this question, and she stated the following: "no, it did not come to my mind in the test, just right now it came to my mind".

In terms of students' perspectives towards the teaching methodology, and whether it helped them in their reading tests, Student 1 mentioned that she found the post-tests easier, understood more ideas, and even took less time in understanding the test, compared to the reading task before the teaching. She found that the teaching methodology was helpful, organised and clear. For Student 1, the strongest points were the mapping and that the researcher "explained the similarities between the two things," the presence of both the literal and the metaphoric meaning, as well as the images. The student stated the following: "I could be classified as a visual learner: I remember images more than words, and this makes me understand the information directly".

On the other hand, Student 2 expressed that she experienced "difficulty in understanding everything together and putting all the ideas together". She still found understanding reading texts difficult even after the intervention. However, what helped this student the most "is that I looked at the vocabulary from another perspective and I see the other meaning of the vocabulary, more metaphoric meaning, not only literal, and remember there are different uses in different places". She found that the comparison of the two domains was the most effective:

When you showed us the image and the literal meaning, we were expecting that it was the meaning. Then, when you gave the metaphoric meaning, and we thought, okay, that is what it usually means – the literal and metaphor use, exactly.

Generally speaking, students applied their own unique strategies to understanding reading texts by summarising paragraphs, giving every paragraph a title, and looking for contextual clues. An important insight from the interviews is that learners' use of the metaphoric knowledge of new vocabulary is not always transferred.

Appendix G: Ethical Approval Documents

University of Reading
 Institute of Education
Ethical Approval Form A (version May 2019)

Tick one:

Staff project: _____ PhD EdD _____

Name of applicant (s): **Ghadeer Alghahtani**

Title of project: **Comparing the effects of conceptual metaphor teaching and semantic explanation teaching on L2 Saudi university learners' reading comprehension and metaphor retention**

Name of Supervisors (for student projects): **Professor Suzanne Graham and Dr Holly Joseph**

Please complete the form below including relevant sections overleaf.

	<i>YES</i>	<i>NO</i>
<i>Have you prepared an Information Sheet for participants and/or their parents/carers that:</i>		
<i>a) explains the purpose(s) of the project</i>	<input type="checkbox"/>	
<i>b) explains how they have been selected as potential participants</i>	<input type="checkbox"/>	
<i>c) gives a full, fair and clear account of what will be asked of them and how the information that they provide will be used</i>	<input type="checkbox"/>	
<i>d) makes clear that participation in the project is voluntary</i>	<input type="checkbox"/>	
<i>e) explains the arrangements to allow participants to withdraw at any stage if they wish</i>	<input type="checkbox"/>	
<i>f) explains the arrangements to ensure the confidentiality of any material collected during the project, including secure</i>	<input type="checkbox"/>	

<i>arrangements for its storage, retention and disposal</i>		
<i>g) explains the arrangements for publishing the research results and, if confidentiality might be affected, for obtaining written consent for this</i>	<input type="checkbox"/>	
<i>h) explains the arrangements for providing participants with the research results if they wish to have them</i>	<input type="checkbox"/>	
<i>i) gives the name and designation of the member of staff with responsibility for the project together with contact details, including email. If any of the project investigators are students at the IoE, then this information must be included and their name provided</i>	<input type="checkbox"/>	
<i>k) explains, where applicable, the arrangements for expenses and other payments to be made to the participants</i>	<input type="checkbox"/>	
<i>j) includes a standard statement indicating the process of ethical review at the University undergone by the project, as follows: 'This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct'.</i>	<input type="checkbox"/>	
<i>k) includes a standard statement regarding insurance: "The University has the appropriate insurances in place. Full details are available on request".</i>	<input type="checkbox"/>	
<i>Please answer the following questions</i>		
<i>1) Will you provide participants involved in your research with all the information necessary to ensure that they are fully informed and not in any way deceived or misled as to the purpose(s) and nature of the research? (Please use the subheadings used in the example information sheets on blackboard to ensure this).</i>	<input type="checkbox"/>	

2) Will you seek written or other formal consent from all participants, if they are able to provide it, in addition to (1)?	<input type="checkbox"/>		
3) Is there any risk that participants may experience physical or psychological distress in taking part in your research?		<input type="checkbox"/>	
4) Staff Only - have you taken the online training modules in data protection and information security (which can be found here: http://www.reading.ac.uk/internal/humanresources/PeopleDevelopment/newstaff/humres-MandatoryOnlineCourses.aspx) Please note: students complete a Data Protection Declaration form and submit it with this application to the ethics committee.			
5) Have you read the Health and Safety booklet (available on Blackboard) and completed a Risk Assessment Form to be included with this ethics application?	<input type="checkbox"/>		
6) Does your research comply with the University's Code of Good Practice in Research?	<input type="checkbox"/>		
	YES	NO	N.A.
7) If your research is taking place in a school, have you prepared an information sheet and consent form to gain the permission in writing of the head teacher or other relevant supervisory professional?	<input type="checkbox"/>		
8) Has the data collector obtained satisfactory DBS clearance?			<input type="checkbox"/>
9) If your research involves working with children under the age of 16 (or those whose special educational needs mean they are unable to give informed consent), have you prepared an information sheet and consent form for parents/carers to seek permission in writing, or to give parents/carers the opportunity to decline consent?			<input type="checkbox"/>
10) If your research involves processing sensitive personal data ¹ , or if it involves audio/video recordings, have you obtained the explicit consent of	<input type="checkbox"/>		

<i>participants/parents?</i>			
<i>11) If you are using a data processor to subcontract any part of your research, have you got a written contract with that contractor which (a) specifies that the contractor is required to act only on your instructions, and (b) provides for appropriate technical and organisational security measures to protect the data?</i>			<input type="checkbox"/>
<i>12a) Does your research involve data collection outside the UK?</i>	<input type="checkbox"/>		
<i>12b) If the answer to question 12a is “yes”, does your research comply with the legal and ethical requirements for doing research in that country?</i>	<input type="checkbox"/>		
<i>13a) Does your research involve collecting data in a language other than English?</i>	<input type="checkbox"/>		
<i>13b) If the answer to question 13a is “yes”, please confirm that information sheets, consent forms, and research instruments, where appropriate, have been directly translated from the English versions submitted with this application.</i>	<input type="checkbox"/>		
<i>14a. Does the proposed research involve children under the age of 5?</i>		<input type="checkbox"/>	
<i>14b. If the answer to question 14a is “yes”:</i> <i>My Head of School (or authorised Head of Department) has given details of the proposed research to the University’s insurance officer, and the research will not proceed until I have confirmation that insurance cover is in place.</i>			<input type="checkbox"/>
<i>If you have answered YES to Question 3, please complete Section B below</i>			

- Complete **either** Section A **or** Section B below with details of your research project.
- Complete a risk assessment.
- Sign the form in Section C.
- Append at the end of this form all relevant documents: information sheets, consent forms, tests, questionnaires, interview schedules, evidence that you have completed information security training (e.g., screen shot/copy of certificate).
- Email the completed form to the Institute’s Ethics Committee for consideration.

Any missing information will result in the form being returned to you

<p><i>A: My research goes beyond the 'accepted custom and practice of teaching' but I consider that this project has</i></p> <p><i>no significant ethical implications. (Please tick the box.)</i></p>	<input type="checkbox"/>
<p><i>Please state the total number of participants that will be involved in the project and give a breakdown of how many there are in each category e.g., teachers, parents, pupils etc.</i></p> <p><i>The total number of the participants who will be involved in the project is 170 female university students (including 20 for the pilot), aged 18-20. The teacher is the researcher. No parents are involved in the project.</i></p>	
<p><i>Give a brief description of the aims and the methods (participants, instruments and procedures) of the project in up to 200 words noting:</i></p> <ol style="list-style-type: none"> <i>1. title of project</i> <i>2. purpose of project and its academic rationale</i> <i>3. brief description of methods and measurements</i> <i>4. participants: recruitment methods, number, age, gender, exclusion/inclusion criteria</i> <i>5. consent and participant information arrangements, debriefing (attach forms where necessary)</i> <i>6. a clear and concise statement of the ethical considerations raised by the project and how you intend to deal with them.</i> <i>7. estimated start date and duration of project</i> <p><i>Comparing the effects of conceptual metaphor teaching and embodied metaphor teaching on L2 Saudi university learners' reading comprehension and metaphor retention</i></p> <p><i>The aim of the study is to investigate the impact of conceptual metaphor teaching and embodied metaphor teaching on English as a Foreign Language learners' reading comprehension and metaphor retention. Cognitive linguistics inspired approaches to foreign language teaching encourage the employment of conceptual metaphor teaching activities,</i></p>	

which are recognized as techniques that aid the comprehension of metaphors in L2 such as English. However, research has not established whether the benefits of these instructional strategies extend to the learners' reading comprehension or to the retention of metaphors, both of which are significant skills that language learners require in the real world. This study aims to compare three instructional methods, based on: semantic explanation, conceptual metaphors, and embodied metaphors and test how they may facilitate learners' reading comprehension and the retention of these metaphors.

With consent from the head teacher and students, participation would involve 170 female learners, aged 18-20, from five selected classes (30 learners from each class) in a Saudi University for the main study and 20 learners for the pilot study. The classes would be randomly assigned to the comparison (semantic explanation) group and treatment groups: metaphor teaching group and embodied metaphor group. The experimental study will be divided into two phases; at two different times. In the first phase which will take place in March 2020, one class will be assigned to the comparison (semantic explanation) group and one class will be assigned to the treatment (metaphor teaching) group. In the second phase, which will take place in September 2020, three different classes will be divided between the comparison (semantic explanation) group and the intervention (metaphor teaching) group. The pilot study will take place in December 2019.

Each intervention will last for six weeks and will include teaching sessions (vocabulary instruction), language tests, reading comprehension tests, and interviews. Learners would complete two metaphor understanding pre-tests and a reading comprehension test; both are paper based. In the metaphor understanding tests, learners will answer multiple-choice questions including the metaphoric expressions that will be taught in the intervention and have to choose the best meaning of the expression or write their own meaning. In the reading comprehension test, learners will read a reading text that includes metaphoric expressions and answer multiple-choice questions focusing on the general comprehension, main idea, details, and metaphoric expressions' meanings. After that, two intervention teaching sessions for each group would be administered, taught by the researcher herself. In each class, each group would receive vocabulary instruction through semantic explanations, conceptual metaphor teaching, or embodied metaphor teaching. At the end of each class, the participants would complete an immediate reading comprehension post-test. At the end of each phase, all participants will complete a delayed reading comprehension post-test and a metaphor retention post-test.

After the delayed post-tests, four participants within each group will be selected and invited to take part in a stimulated recall interview. Participants will be selected according to their test results, to give a range of participants across proficiency levels and degree of improvement from the interventions. The learners will have their reading comprehension test and will be asked a series of recall questions with the aim of exploring the thoughts that were going through their mind during the test and their views on the intervention. The interviews will be conducted at a time and place convenient to students and will be audio-recorded.

It is worth mentioning that my position within the university will not be used to coerce students to take part in the study or respond in a certain way. Students and head of the department will be made aware that participation in the study will not affect the students' grades, nor will any decision by the head of department or students to participate in the study or withdraw from it. Kindly note that the plan is to use the same information and consent forms for both the pilot study and the main study, modified as appropriate for each stage of the study.

RISK ASSESSMENT: Please complete the form below

<i>Brief outline of Work/activity:</i>	<i>Participants will undergo teaching sessions (vocabulary instruction), and complete language tests, reading comprehension tests, and audio-recorded interviews.</i>
--	---

<i>Where will data be collected?</i>	<i>One Saudi University, using the University's premises</i>
--------------------------------------	--

<i>Significant hazards:</i>	<i>None identified. The university has a duty to maintain a safe area of work within the university.</i>
-----------------------------	--

<i>Who might be exposed to hazards?</i>	<i>None.</i>
---	--------------

<i>Existing control</i>	<i>The rooms fall within the university's Health and Safety responsibilities.</i>
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<i>measures:</i>	
------------------	--

<i>Are risks adequately controlled:</i>	<i>Yes.</i>
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<i>If NO, list additional controls and actions required:</i>	<i>Additional controls</i>	<i>Action by:</i>
--	----------------------------	-------------------

C: SIGNATURE OF APPLICANT:

Note: a signature is required. Typed names are not acceptable.

I have declared all relevant information regarding my proposed project and confirm that ethical good practice will be followed within the project.

Signed:

Print Name: Ghadeer Alghahtani

Date: 19 /11/2019

STATEMENT OF ETHICAL APPROVAL FOR PROPOSALS SUBMITTED TO THE INSTITUTE ETHICS COMMITTEE

This project has been considered using agreed Institute procedures and is now approved.

Date /

Signed:

Print Name:

Karen Jones

(IoE Research Ethics Committee representative)*

(IoE Research Ethics Committee representative) *

* A decision to allow a project to proceed is not an expert assessment of its content or of the possible risks involved in the investigation, nor does it detract in any way from the ultimate responsibility which students/investigators must themselves have for these matters.

Approval is granted on the basis of the information declared by the applicant.

Student information sheet:

Research project: Comparing different types of L2 vocabulary teaching for Saudi University learners of English

Researcher: Ghadeer Alghahtani

Supervisors: Professor Suzanne Graham and Dr Holly Joseph

Dear Student,

I am a PhD candidate at the University of Reading. As part of the data collection stage of my dissertation, I am writing to invite you to take part in a research study about teaching and learning English.

What is the study?

The aim of the study is to develop L2 university learners' vocabulary learning by teaching vocabulary through different methods. It hopes to make recommendations about how teachers can best help learners to improve in English learning.

Why have I been chosen to take part?

You have been invited to take part in this project because I am looking for university students learning English as a Second Language at the University. A total of approximately 200 students have been invited to participate in this study. In addition, your English teacher has shown an interest in helping this research study.

Do I have to take part?

It is entirely up to you whether you participate. You are under no obligation to take part in this study. You may also withdraw at any time during the project, without any repercussions to you, by contacting the researching using the details above. Participation in the study will not affect your grades, nor will any decision by you not to participate in the study or withdraw from it. Results of the study will not be shared with your teachers.

What will happen if I take part?

You will participate in two three-hour teaching sessions as part of your normal English instruction. With your consent, you would in addition complete four vocabulary tests and four reading comprehension tests within lesson time. The outline of planned activities is as follows:

- On day 1, you will complete one vocabulary tests (60 minutes) and a reading comprehension test (30 minutes)
- On day 2 and 3, you will participate in a classroom-teaching session, a vocabulary test (30 minutes), a reading comprehension test (30 minutes)

- On day 4, you will complete a vocabulary tests (60 minutes) and a reading comprehension test (30 minutes), and a small number of you will be asked to participate in an interview that is audio recorded

The interview session will last 30-40 minutes at a time convenient to you and with your consent will be audio-recorded and transcribed. Finally, to help the researcher set your learning in context, it will be very helpful to have details of your performance levels in your most recent English placement tests.

All the tasks will take place during normal class time, except for the interview. I will try my best to seek an appropriate time for you to take part and to make sure that your normal study will not be affected.

What are the risks and benefits of taking part?

You are under no obligation to take part in this study and there are no risks in taking part. The information you give will remain confidential and used for research purposes only and will only be seen by the researcher herself and the supervisors. Neither you nor the university will be identifiable in any published report resulting from the study. Information about individuals will not be shared with anyone in the university. Participation or withdrawal will not affect your course-grades. Information and your results will not be shared with teachers.

Participants in similar studies have found it interesting and useful to take part. We hope that the findings of the study will help teachers in improving how they teach English at university level. A copy of the findings of the study can be made available to you by contacting the researcher.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The audio records of this study will be kept private. You will be assigned a number and will be referred by that number in all records. The records of this study will be kept private. No identifiers linking you to the study will be included in any sort of report that might be published. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the researcher will have access to the records. In line with the University's policy on the management of research data, anonymised data gathered in this research may be preserved and made publicly available for others to consult and re-use. The data will be destroyed securely once the study is written up. The results of the study may be presented at national and international conferences, and in written reports and articles. We can send you electronic copies of these publications if you wish.

Who has reviewed the study?

This study has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

What happens if I change my mind?

You can change your mind at any time without any repercussions. If you change your mind after data collection has ended, we will discard the data.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact the researcher's supervisors, Professor Suzanne Graham or Dr Holly Joseph, University of Reading; Tel:

, e-mail: s.j.graham@reading.ac.uk, or h.joseph@reading.ac.uk.

We do hope that you will agree to take part in the study. If you do, please complete the attached consent form.

Thank you for your time.

Yours sincerely,

Researcher: Ghadeer Alghahtani

E-mail: g.alghahtani@pgr.reading.ac.uk

Telephone:

Researcher: Ghadeer Alghahtani
University of Reading

DATA PROTECTION FOR INFORMATION SHEETS

The organisation responsible for protection of your personal information is the University of Reading (the Data Controller). Queries regarding data protection and your rights should be directed to the University Data Protection Officer at imps@reading.ac.uk, or in writing to: Information Management & Policy Services, University of Reading, Whiteknights, P O Box 217, Reading, RG6 6AH.

The University of Reading collects, analyses, uses, shares and retains personal data for the purposes of research in the public interest. Under data protection law we are required to inform you that this use of the personal data we may hold about you is on the lawful basis of being a public task in the public interest and where it is necessary for scientific or historical research purposes. If you withdraw from a research study, which processes your personal data, dependant on the stage of withdrawal, we may still rely on this lawful basis to continue using your data if your withdrawal would be of significant detriment to the research study aims. We will always have in place appropriate safeguards to protect your personal data.

If we have included any additional requests for use of your data, for example adding you to a registration list for the purposes of inviting you to take part in future studies, this will be done only with your consent where you have provided it to us and should you wish to be removed from the register at a later date, you should contact.....

You have certain rights under data protection law which are:

- Withdraw your consent, for example if you opted in to be added to a participant register
- Access your personal data or ask for a copy
- Rectify inaccuracies in personal data that we hold about you
- Be forgotten, that is your details to be removed from systems that we use to process your personal data
- Restrict uses of your data
- Object to uses of your data, for example retention after you have withdrawn from a study

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You can find out more about your rights on the website of the Information Commissioners Office (ICO) at <https://ico.org.uk>

You also have a right to complain the ICO if you are unhappy with how your data has been handled. Please contact the University Data Protection Officer in the first instance.

Research project: Comparing different types of L2 vocabulary teaching for Saudi University learners of English

Student Consent Form

Please use tick box after each statement to confirm it has been read and agreed to.

1. I have read the information sheet about the project.

2. I understand what the purpose of the study is and what you want me to do. All my questions have been answered. I agree to take part in this project.

3. I understand that it is my choice to help with this project and that I can stop at any time, without giving a reason and that will not have any effect on my grades.

4. I understand that the data collected from me in this study will be preserved and made available in anonymised form, so that they can be consulted and re-used by others.

5. I have received a copy of this Consent Form and of the Information Sheet.

6. I agree to completing language tests and reading comprehension tests for use within this study.

7. I agree to the university giving the researcher details of my recent English placement test results.

8. I agree to take part in a follow-up interview.

9. I agree to this interview being audio-recorded.

10. I agree to the use of anonymised quotes in subsequent publications.

Name: _____

Signed: _____

Date: _____

Head of department information sheet:

Research project: Comparing different types of L2 vocabulary teaching for Saudi University learners of English

Researcher: Ghadeer Alghahtani

Supervisors: Professor Suzanne Graham and Dr Holly Joseph

Dear head of the department,

I am a PhD candidate at the University of Reading. As part of the data collection stage of my dissertation, I am writing to invite your institute to take part in a research study about teaching and learning English.

What is the study?

The study aims to develop L2 university learners' vocabulary learning by teaching vocabulary through different methods. It investigates the different ways in which English as an L2 is being taught in university and the impact these might have on learning outcomes. It hopes to make recommendations about how teachers can help learners to improve in English learning.

Why has my university been chosen to take part?

Your university has been invited to take part because it adopts the English-only instruction mode for English language teaching at university level which will enable the collection of appropriate data. Also, as a lecturer at this university, I anticipate that the findings of this study will be useful in recommending how teachers can best teach English at the university level and best help students improve in English learning.

Does my university have to take part?

It is totally up to you whether you give permission for the department to participate. You may also withdraw your consent to participation at any time during the project, without any consequences to you, by contacting the researcher; Tel: _____, e-mail: g.alghahtani@pgr.reading.ac.uk. Students will be under no obligation to take part in this study. Participation in the study will not affect the students' grades, nor will any decision by you or the students not to participate or withdraw from it. Results of the study will not be shared with the teachers.

What will happen if the university takes part?

With your agreement, participation would involve 220 learners from selected classes. The classes would be randomly assigned to different treatment groups. Each group would receive two sessions of English instruction over two weeks during the four weeks as an intervention, divided into two phases. The sessions will be taught by the researcher herself, each with slightly different form of vocabulary teaching. For all groups, the intervention sessions would involve vocabulary teaching instruction and a reading comprehension test. With your permission, and also that of students, individual interviews with 16 students across the different groups will be audio-recorded and transcribed. Each interview will last approximately 20-30 minutes.

The learners will also complete a vocabulary test (60 minutes) and a reading comprehension test (30 minutes) before and after each phase of English instruction. These tests will take place in class time. Finally, it will be very helpful to have details of the students' performance levels in their most recent English placement tests in order to be able to set their learning in context and assist with interpretation of data gained during the study.

If you agree to the department's participation, I will seek further consent from the students.

What are the risks and benefits of taking part?

The information given by participants in the study will remain confidential and will only be seen by the researcher herself and the supervisor. Neither you, the university, nor the students will be identifiable in any published report resulting from the study. Information about individuals will not be shared with the university. Students' participation or withdrawal will not affect their course-grades. Information and the students' results will not be shared with teachers.

Participants in similar studies have found it interesting to take part. We hope that the findings of the study will help teachers in planning how to teach English at the university level.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The audio records of this study will be kept private. Participants will be assigned a number and will be referred by that number in all records. The records of this study will be kept private. No identifiers linking you, the students, or the university to the study will be included in any sort of report that might be published. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the researcher will have access to the records. The data will be destroyed securely once the findings of the study are written up. In line with the University's policy on the management of research data, anonymised data gathered in this research may be preserved and made publicly available for others to consult and re-use. The data will be destroyed securely once the study is written up. The results of the study may be presented at national and international conferences, and in written reports and articles. We can send you electronic copies of these publications if you wish.

Who has reviewed the study?

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What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact the researcher's supervisors, Professor Suzanne Graham or Dr Holly Joseph, e-mail: s.j.graham@reading.ac.uk, or h.joseph@reading.ac.uk.

We hope you agree to your participation in the study. If you do, please complete the attached consent form.

Thank you for your time.

Yours sincerely,

Researcher: Ghadeer Alghahtani

University of Reading

DATA PROTECTION FOR INFORMATION SHEETS

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If we have included any additional requests for use of your data, for example adding you to a registration list for the purposes of inviting you to take part in future studies, this will be done only with your consent where you have provided it to us and should you wish to be removed from the register at a later date, you should contact.....

You have certain rights under data protection law which are:

- Withdraw your consent, for example if you opted in to be added to a participant register
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- Be forgotten, that is your details to be removed from systems that we use to process your personal data
- Restrict uses of your data
- Object to uses of your data, for example retention after you have withdrawn from a study

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Researcher: Ghadeer Alghahtani *E-mail:* g.alghahtani@pgr.reading.ac.uk

Telephone:

Supervisor: Professor Suzanne Graham and Dr Holly Joseph

E-mail: s.j.graham@reading.ac.uk, h.joseph@reading.ac.uk

Telephone:

Research project: Comparing different types of L2 vocabulary teaching for Saudi University learners of English

Head of Department Consent Form

Please use tick box after each statement to confirm it has been read and agreed to.

1. I have read the information sheet about the study and received a copy of it.
2. I understand what purpose of the project is and what is required from me. All my questions have been answered.
3. I understand that participation is entirely voluntary and that I have the right to withdraw from the project any time, and that this will be without detriment.
4. I agree to the involvement of my university in the project as outlined in the Information Sheet.
5. I agree to the audio-recording of interviews with students.

Name of Head of the Department: _____

Signed: _____

Date: _____

Appendix H: Themes, Subthemes, and Codes of Thematic Analysis of Students' Perceptions

Impacts on Cognitive Aspects

Sub-theme	Codes	Definition
	No or limited L2 metaphor knowledge	Prior to the intervention sessions, students had no knowledge or only a basic idea of L2 metaphors.
Metaphor awareness	Metalinguistic knowledge	Students gained understanding of the nature of language and how words can be metaphorical, capable of expressing meaning beyond surface meanings.
	Improved L2 metaphor awareness	Students acquired knowledge of the conceptual metaphors that underly many expressions in English and an increased ability to comprehend what an English metaphor is.
	Improved level of text comprehension	An increased understanding among students of what texts mean and what ideas authors are attempting to convey.
	Increase in concentration and maintaining focus	Students' improved ability to read for an extended period while paying sustained attention to significant details and patterns to develop an understanding of the text's meaning.
Reading comprehension improvement	Accessing text meaning through deeper understanding of the words	Grasping the context behind terms and phrases and how vocabulary usage can affect meaning behind texts.
	Improved understanding of the relationship between language, text, and	Stronger understanding of the nature of language, how language works, and how it relates to meaning and our ability to seek meaning.

	meaning behind the text	
	More interaction with the texts	Students increased their understanding and engagement with the events presented in the text.
	Imagining the stories	Students, through conceptual metaphor, envisioned the big picture of the story, the characters in the stories, and the words in the reading texts.
	Faster reading	Students' speed in reading texts increased.
	No improvement	Students' reading comprehension did not improve.
	Expanding breadth of vocabulary knowledge	Broadening of students' repertoire of expressions and phrases in L2.
Vocabulary learning	Adding depth of vocabulary knowledge	Learning new meanings of vocabulary and phrases.
	Understanding vocabulary in context	A better understanding of vocabulary in both literal and metaphoric contexts and picking up meaning through context clues.
	Enhanced retention	The intervention and some elements in the teaching materials allowed students to easily remember the vocabulary and the different meanings of words.
	Unsuccessful retention	Difficulty remembering the vocabulary and the different meanings of words.
	Imagining stories and metaphors	Learning about conceptual metaphors improved the students' imaginations by creating mental images of stories, events and metaphors.
Use of imagination	Imagining words	The utility of pictures in teaching materials allowed students to have mental images of words and their different meanings.

Academic Progress	Gradual improvement	Students' progress in their learning throughout the study.
	Enhanced test-taking	Students answered tests more easily than before the intervention.

Impacts on Affective Aspects

Sub-theme	Code	Definition
Motivation	Extrinsic motivation	Incentivisation that emerges when learners want something in return for learning (e.g., better grades in university).
	Intrinsic motivation	Incentivisation that emerges when learners are interested in learning for the sake of learning rather than for their degrees.
	Personal interest	Curiosity about metaphors, about how words are created, and where words come from.
More engaging content	Interesting topics	Topics that relate to students' reality and inspire students to want to learn, bringing enjoyment to the class.
	Variety of teaching materials	Diversity in the content used in class (e.g., mapping, pictures, tables, examples, and exercises) to create a motivating learning environment.
	More authentic learning	Content that relates to learners' real lives. Students recognised how metaphors often describe their real-life experiences.

Impacts on Behavioural Aspects

Sub-theme	Code	Definition
Independent learning	Engaging in autonomous learning	Students made use of other resources outside the classroom (without teachers' direction) to learn more about metaphors and new meanings of words.
	Collaborative active engagement	Students met outside the classroom and worked together while learning in order to develop understanding of metaphors.
Use in spoken and written production	Use in spoken production	Students brought their acquired knowledge of metaphorical expressions into their speaking production and used learned expressions in verbal communication.
	Use in written production	Students used what they learned in the teaching sessions in metaphorical expressions in their written production.

Difficulties

Sub-theme	Code	Definition
Reported difficulties	Similarities of the words	The students were confused when different expressions closely resembled each other.
	Number of words	Students felt the number of words was large in the teaching sessions.

Appendix I: Taxonomy of Reading Comprehension and Metaphor comprehension Strategies

Reading Comprehension Strategies Adapted from Mokhtari & Sheorey (2002) and Mushait (2003)

Strategy name	Definition	Example quotes from transcripts
1- Reading comprehension strategies		
a. Global reading strategies		
Strategy planning and monitoring	Strategy planning Plans what strategy to use or what to do while reading	I start skimming the text then read the events. if something is hard, I will try to translate it or reread it or skip it.
Mushait	Strategy monitoring Checks, verifies, and evaluates the choice and success of the strategy used. Makes some positive/negative remarks about it	Maybe my mistake was I had not read the whole text first, it would have been better if I did.
Hypothesis formation	Hypothesis formation Suggests a possible interpretation of the text	This text is about how to make use of your time to be successful in life.
Mokhtari & Sheorey	Hypothesis monitoring Checks whether hypothesis is verified or contradicted by text or subsequent information	So, now here comes the answer.

Guessing		Guesses what the material is about without drawing on any clues or providing evidence for the interpretation	I guess this sentence may be about difficulty in studying.
Mokhtari & Sheorey; Mushait			
Inferencing		Uses information within the text or context to add an interpretation to the information in the text, fill in the missing information, to draw a conclusion, or to predict outcomes	So, the writer now is making a strong point. I think that's why some people like doing this thing.
Mushait			
Comprehension	Comprehension Monitoring and evaluation	Checks, self-questions, verifies, or corrects understanding of the meaning	Now I read this part I understand... I misunderstood in a way.
Mushait			
	Connect across text	Keeps the meaning in mind as he/she reads on and uses different parts of the text to comprehend meaning	I try to arrange the events in mind while I read. So, the author tries to answer the question by saying.....
Relate to previous knowledge	Relate to previous knowledge of content	Relates the information being read to previous information (that is, activating content schemata)	In our classes, some teachers taught us like this.
Mushait			
	Relating to personal experience	Relates the message in the text to previous personal experience	I come back to the events of the story and think about my life at this stage, I need this strength to continue.
Mushait			

	Relating to cultural knowledge	Comments on the text using cultural knowledge of L1 or L2	Usually in America or Europe, if the person gives his mom part of his salary, that means he has a good level in life.
	Mushait		
	Relating to metalinguistic knowledge	Uses metalinguistic knowledge of the nature of languages and how words can be figurative (have two meanings)	I understood that English, like other languages, could have figurative meanings of words.
	New		
Attention	Selective attention	Determines in advance of reading what to read closely and what to ignore	Reading the first lines of each paragraph looking for main ideas.
	Mokhtari & Sheorey		Skipping unimportant parts.
	On-line Selective attention	Decides while reading to pay more attention to certain parts of the text	It is a problem because it's an important word. The meaning should be clear to me.
	New		
Make affective reaction to the text		Reacts emotionally to the information in the text	I love stories of successful people.
	Mushait		Whenever I read her story, I felt her feeling and I feel what she faces.
b. Problem-solving strategies			
	Directed attention	Maintaining attention while reading	Now, I try my best to stay focused on what I am reading.
	Mokhtari & Sheorey		
	Reading slowly and carefully	Reads slowly but carefully to be sure to understand what is read	I prefer to read sentence by sentence. I don't move on to the next sentence till I have
	Mokhtari & Sheorey		

			understood the one I am reading.
Adjusting reading rate		Controls and adjusts the reading speed to achieve a better understanding of the text	I felt this paragraph is important, so I read it word by word and sentence by sentence.
Mokhtari & Sheorey; Mushait			
Comprehension regulation	Keep on reading	Acknowledges comprehension problem and keeps on reading	Sometimes when I read something hard, I continue reading even if I did not understand the sentence, with keeping on reading, I understand
	Mushait		
	Paying more attention	Pays closer attention to the difficult part to facilitate comprehension	This is hard to understand, I need to focus more to get it.
	Mokhtari & Sheorey		
	Skipping problematic parts	Skipping/ignoring the problematic part after identifying it and not returning to it	Honestly, I read the text, what I understand is ok, what I don't understand, I skip it. It is not necessary to understand everything.
	Mushait		
	Re-reading	Rereads a small or large portion of the text more than once to facilitate comprehension	I read the third paragraph and will read it again.
	Mokhtari & Sheorey; Mushait		
Visualising information read (other than metaphors)		Tries to picture or visualise information to help understand and remember what is read	I visualise what I read and imagine that it happens as a story in front of me.
Mokhtari & Sheorey			

		I visualise in my mind what I read, imagine the place, the characters, like this. I imagined like a movie, I put it in my head.
c. Supporting strategies		
Summarising text information Mokhtari & Sheorey; Mushait	Summarises what is read to reflect on important information in the text	In this text, there are some advice about how to manage time...
Paraphrasing Mokhtari & Sheorey; Mushait	Restates ideas in own words to better understand what is read	I can see that...
Going back and forth in text Mokhtari & Sheorey	Goes back and forth in the text to find relationships among ideas in it	Most of the time, I go back a few times to some sentences to understand better.
Support reading Mokhtari & Sheorey; Mushait	The reader marks the text, underlines, circles information in the text or make notes to help remembering them	I try to mark the text and the important information

Metaphor Understanding Strategies Adapted from Littlemore (2002, 2004), Mokhtari & Sheorey (2002) and Mushait (2003)

1- Metaphor understanding strategies		
Identification of the metaphorical meaning Littlemore	Decides and identifies that this expression is metaphoric and cannot be interpreted literally, whether reach out the correct meaning or not.	I knew it was metaphoric, I told myself he's expressing his happiness

	Literal interpretation of metaphoric expressions	Tries to decode the literal meaning of the metaphoric expression and understand it literally.	I understood that he was jumping. I don't know why.
Littlemore			
Inferencing	Source domain inferencing	Activates source domain connotations and suggests salient associations/features of the source.	"Climbing" is always trying, making effort, going up, and developing. "Nowhere" has to be something negative
Littlemore	Plausible interpretations of metaphoric expressions	Looks for possible alternative meanings and provides plausible interpretations of the unknown expressions metaphorically used	I said maybe he is thinking about another thing, he has to cross the road. It is like he moves to another strategy or another road in his business.
	Making use of contextual clues	Using surrounding context clues and supporting words to infer the meaning of the metaphoric expression	Honesty, from the sentence and the context, I knew it.
Analogy exploring		Searches for similarities or partial similarities between the two concepts, the source domain and the metaphoric expression, to understand new metaphors	It connected "success" with "up" because yes success has to be something high. "Happiness" has to be something beautiful, high, happy. And down means sad; you feel your falling down.
Littlemore			
Metaphor comprehension monitoring		The reader checks, verifies, or corrects misunderstanding of the metaphoric meaning.	"Crossroads" means something complicated. But then I said no maybe it means he needs to decide between two options.
New			
Metaphor comprehension regulation	Difficulty/ Problem identification	The reader identifies difficulty of (understanding) the metaphoric expression meaning or the unknown word.	I don't know it; it is hard to understand it.
	New		

	Skipping	Skipping/ignoring the problematic metaphor after identifying it and not returning to it	I did not understand its meaning, I skipped it.
	Mushait		
	Give-up	Thinks of nothing when reading the metaphoric expression, blank in mind.	For this word, nothing came to my mind, I could not understand it to be honest.
	New		
Image formation in metaphor understanding		Uses imagery in order to help herself to understand the meaning of the metaphoric expression	Image of a person standing not knowing which direction to take. No, I imagined a person sitting down in the corner, putting his hand on his cheeks. What came to my mind was the image of a person jumping very high in the sky because he is very happy.
Littlemore			
Use of prior knowledge	Transfer of metaphor knowledge	Relates to the (learned) conceptual metaphor knowledge of how metaphors work in English or to a learned metaphoric expression to understand and process new metaphors.	I knew it is a metaphor because it is similar to the concept life can walk, time also can walk. It is similar to “overcome an obstacle” (a taught metaphor)
	New		
	Relating to a metaphor in L1	Relates the metaphoric expression read to a metaphor in L1	It is like the metaphor in Arabic when you face a problem and cannot think.
	New		
Paraphrasing		Paraphrasing metaphors with their own words or produce a new metaphor with a similar meaning	I can see that she is developing in her career as a writer.
Mokhtari & Sheorey			
Translation		Translates the metaphoric expression into Arabic	It is like someone says in Arabic time goes by very quickly
Mushait			

Online thinking in both languages	Thinks about the metaphor in both language (English and Arabic) while trying to understand the English metaphor she is reading	From what you explained in the class, I took the meaning and imagined in Arabic go up to the top, I thought of it like this.
New		
Force to remember learned metaphor	Re-accesses the mental lexicon to try to retrieve/recall the meaning of a metaphor	I have taken this word; I think it means to be confused and not able to think properly.
Mushait		
Linguistic contextualisation	Relates a word or a phrase read to a setting/environment where the word has previously been used	I knew this word “jumping up and down” from blogs of real stories.
New		

Appendix J: Normality and Homogeneity Tests

Normality Distribution of Quantitative Tests

Instrument	Test	Section	Group	Kolmogorov-Smirnov ^a		Number of outliers
				df	<i>p</i> -value	
Reading	Pre-test	General Comprehension	Intervention Comparison	108	<.000	0
				102	<.000	0
		Metaphor Comprehension	Intervention Comparison	108	<.000	0
				102	<.000	0
		All	Intervention Comparison	102	<.000	0
				102	<.000	0
	Immediate post-test	General Comprehension	Intervention Comparison	108	<.000	3
				102	<.000	0
		Metaphor Comprehension	Intervention Comparison	108	<.000	0
				102	<.000	0
		All	Intervention Comparison	108	<.000	3
				102	<.000	0
	Taught	Intervention Comparison	108	<.000	2	
			102	<.000	0	
	Untaught	Intervention Comparison	108	<.000	0	
			102		0	

				<.000		
Metaphor understanding	Delayed post-test	General Comprehension	Intervention Comparison	108	<.000	3
				102	<.000	4
		Metaphor Comprehension	Intervention Comparison	108	<.000	2
				102	<.000	0
		All	Intervention Comparison	108	<.000	5
				102	<.000	4
	Pre-test	All	Intervention Comparison	106	.001	0
				101	<.000	0
	Immediate post-test	All	Intervention Comparison	106	<.000	4
				101	.014	0
	Delayed post-test	All	Intervention Comparison	106	.022	2
				101	<.000	0

Data results of Homogeneity of Variance

Instrument	Test	Part	Levene's Test	
Reading	Pre-test	General comprehension	<.000	
		Metaphor comprehension	.053	
		All	.79	
	Immediate post-test	General comprehension	.15	
		Metaphor comprehension	.171	
		Taught	.170	
		Untaught	<.000	
		All	.17	
			General comprehension	<.000

	Delayed Post-test	Metaphor comprehension	<.000
		All	<.000
Metaphor Understanding	Pre-test		.008
	Immediate post- test		<.000
	Delayed Post-test		<.000