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THE EFFECT OF CORPUS ACTIVITIES ON EFL LEARNERS' ACQUISITION
OF PHRASAL VERBS:
CONTRASTING EXPLICIT AND IMPLICIT INSTRUCTION

By

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Abstract

Phrasal verbs (PVs) are considered an important aspect of EFL mastery; however, they are among the most puzzling forms for EFL learners (Celce-Murcia et al. 1999; Thrush, 2001). Arab EFL learners often find PVs exceptionally challenging, as Arabic, a Semitic language, does not have a specific category of PVs. It is hypothesized in this study that data-driven learning (DDL) is a possible foreign language learning approach to promote Arab EFL learners' acquisition of PVs (Johns 1986). The aim of this study is to investigate the effects of corpus-based activities on EFL learners' acquisition of PVs and examines how explicit and implicit instructions through corpus-based activities influence PV acquisition.

Before conducting the classroom intervention study, an exploratory corpus-based study of EFL learners', particularly intermediate Arab EFL learners', usage of PVs was carried out to gain a clearer image of EFL learners' actual usage. A selection of the 10 most and 10 least frequently used English PVs as identified in Liu (2011), were chosen for analysis. The EF-Cambridge Open Language Database (EFCAMDAT) served as a source of data produced by intermediate Arab EFL learners. The descriptive statistics for this study revealed that several semantic and syntactic PV errors are produced by Arab EFL learners. The main semantic error observed was the learners' use of unsuitable PVs in various contexts. This included either choosing an incorrect verb or a wrong particle. Regarding syntactic errors, the primary grammatical errors were the lack of tense consistency with the PVs and the absence of subject-verb agreement.

As part of an experimental classroom intervention study, 76 female intermediate Saudi students studied 27 transitive and intransitive PVs by one of three different methods. I) The Control Group (N=25) followed the traditional learning approach through dictionaries. Learners had access to English definitions of each PV and carried out PV translation activities into Arabic. II) The

Explicit DDL Group (N=26) followed the explicit ‘inductive’ learning protocol through which students were exposed to concordances with PVs and carried out some activities such as determining the meanings of the PVs from context or completing concordances with a suitable PV. III) The Implicit DDL Group (N=25) adopted the implicit instruction approach that exposed learners to a set of concordance lines and drew their attention to aspects other than PVs. All learners’ knowledge was tested before the start of the intervention, as well as after the intervention, at two different points in time, 7 days for the post-test and 28 days for the delayed post-test. A mixed effects linear regression analysis revealed a statistically significant improvement between the post and delayed post-test results for the Explicit DDL group compared to the Control group. While there was no significant difference between the Control group and the Implicit DDL group in the post-test, there was a statistically significant difference in the delayed post-test results, with an improvement for the Implicit DDL group. Finally, the Explicit DDL group scored better in the post-test in comparison with the Implicit DDL group, but there was no significant difference at the time of the delayed post-test.

This project contributes to advancing our understanding of Arab EFL learners' usage of PVs. It also involves an exploration of the effects of corpus-based activities on PV acquisition and the influence of explicit and implicit types of instructions on short and long-term learning gains, which can help relevant stakeholders make informed decisions about PV learning and teaching.

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List of Abbreviations

1 - First person

3 - Third person

Adv. - Adverb

APVs - Arabic Phrasal Verbs

DDL - Data-driven Learning

EPVs - English Phrasal Verbs

EFL - English as a Foreign Language

F - Feminine

FL - Foreign Language

L1- First language

L2 - Second Language

M - Masculine

Obj. - Object

PhaVE List - PHrasal VERb Pedagogical List

Prep. - Preposition

PRT - Particle

PrtPl - Particle Placement

PV - Phrasal Verb

SG - Singular

V. - Verb

Transliteration System of Arabic

The following transliteration conventions, which are based on Ryding (2005) and Aldahesh (2008), were used in this dissertation.

Arabic Consonants

Arabic letters	Names of Arabic letters	Transliteration
ء	hamza	ʔ
أ	ʔalif	a
ب	baaʔ	b
ت	taaʔ	t
ث	thaaʔ	th
ج	jiim	j
ح	Haaʔ	H
خ	khaaʔ	kh
د	daal	d
ذ	dhal	dh
ر	raaʔ	r
ز	zaay	z
س	siin	s
ش	shiin	sh
ص	Saad	S
ض	Daad	D
ط	Taaʔ	T
ظ	Zaaʔ	Z
ع	3ayn	3
غ	ghayn	gh
ف	faaʔ	f
ق	qaaf	q
ك	kaaf	k

ل	laam	l
م	miim	m
ن	nuum	n
هـ	haa?	h
و	waaw	w
ي	yaa?	y

Arabic Short Vowels

َ	fatHa	a
ِ	kasra	i
ُ	Damma	u

Arabic Diphthongs

أَي	ay
أَو	aw

1. Chapter 1: Introduction

1.1 Introduction

This thesis examines how the data-driven learning (DDL) approach (Johns, 1991) influences foreign-language learners' acquisition of English phrasal verbs (PVs). Also examined are the effects of different modes of instruction—explicit and implicit—on PV learning through the use of corpus-based activities. (For brief definitions of DDL, EFL learners, explicit instruction, implicit instruction, and PVs, [see section 1.7](#)).

In this opening chapter, the history and significance of DDL as a broader learning and teaching approach are introduced, along with the importance of PVs for EFL learners. This chapter also highlights the research problem, identifying the specific issue or gap in knowledge that the research project aimed to address. By defining the problem, the chapter lays the foundation for the exploration and analysis to follow, underscoring the significance of the research and its potential impact on the field. Furthermore, the aims and justifications of the research are outlined, and the specific goals and objectives of the study are articulated. The justifications further emphasize the importance and relevance of the research, demonstrating the need to investigate the chosen topic and offering a compelling rationale for its significance. The chapter also presents the research questions, which were formulated to guide the investigation and provide a framework for the analysis and interpretation of the data.

Finally, the chapter concludes by outlining the structure of the dissertation, offering a guide to the chapters. This overview provides a clear understanding of the sequence and content of the research project.

1.2 Background of the Study

1.2.1 EFL Teaching Methods

The field of teaching EFL has undergone a dynamic evolution over time, transformed by insights from linguistic theories and new pedagogical approaches (Celce-Murcia, 2001). It is crucial to acknowledge that the landscape of EFL pedagogy is deeply rooted in historical connections to traditional educational practices (Richards & Rodgers, 2014). Early traditional teaching approaches, exemplified by methodologies such as the grammar-translation method and the audiolingual method, have played a significant role in shaping EFL instruction (Howatt & Smith, 2014) and remain prevalent in numerous EFL contexts, such as among Arab and Chinese EFL learners, despite subsequent developments (Al-Mwzaiji & Muhammad, 2023; Benati, 2018; Rao, 2013; Spahiu & Kryeziu, 2021).

At the core of these traditional approaches lie pedagogical techniques that have become emblematic of many EFL classrooms. These encompass instructional strategies characterized by deductive learning, where EFL instructors dominate the classroom by presenting information through lectures and explicating grammatical rules (Alrabai, 2016; Assalahi, 2013; Benati, 2018). Rote memorization, another cornerstone of traditional methods, involves repetitive learning to internalize vocabulary and language forms through textbook memorization (Assalahi, 2013; Benati, 2018). Additional practices associated with some traditional methods, particularly the grammar-translation method, include translating texts and conducting a contrastive analysis between learners' first languages and English (Alrabai, 2016; Benati, 2018; Celce-Murcia, 2001).

However, these traditional teaching methods and practices have faced substantial criticism concerning their efficacy and theoretical alignment with language acquisition processes (Benati, 2018; Richards & Rodgers, 2014). Notably, Richards and Rodgers (2014) described the grammar-

translation method as “a method for which there is no theory. There is no literature that offers a rationale or justification for it or that attempts to relate it to issues in linguistics, psychology, or educational theory” (p. 7). Another pivotal limitation of traditional teaching methods lies in their focus on isolated grammar structures, vocabulary lists, and repetitive drills, which fail to develop learners’ ability to use language communicatively (Benati, 2018; Celce-Murcia, 2001; Chang, 2011). Furthermore, the extensive use of translation exercises promotes overreliance on the native language instead of encouraging target-language thinking and usage (Samardali & Ismael, 2017). The teacher-centred practices that are dominant in traditional teaching methods can negatively impact student engagement because there is little teacher–student interaction, resulting in a passive learning environment.

In response to the limitations of traditional EFL teaching methodologies, innovative teaching approaches have emerged to address the evolving needs and goals of language learners. Cognitive and constructivist theories highlight the active role of learners in building language knowledge (Williams & Burden, 1997). The learner-centred methods that emerged focus on discovery, collaboration, and task-based learning. For instance, communicative language teaching (CLT) fosters communication and meaningful language use within genuine contexts, departing from traditional rote methods (Savignon, 1991). Likewise, task-based language teaching (TBLT) advocates for learning through tasks that simulate real-world activities, engaging learners in problem solving and contextual communication (Ellis, 2003).

Concurrently, advancements in corpus linguistics and analysis of natural language data have provided new insights into acquisition and authentic usage patterns (Biber et al., 1998; Sinclair, 1991). These developments converged with the inception of DDL, which leveraged corpus resources to engage learners in exploring authentic language data (Johns, 1991). The use

of corpus-based activities, which is a form of the DDL approach, aligns with usage-based theories of language acquisition, which emphasize that learning is driven by exposure to authentic language use in context (N. Ellis & Wulff, 2020).

The historical journey of EFL teaching methodologies unfolds from the grammar-translation method to newer approaches, such as DDL, highlighting the evolving understanding of language acquisition. While each methodology responded to its predecessors' limitations, DDL approaches stand out as a modern synthesis, providing learners with meaningful insights from real language usage patterns. This evolution reflects the dynamic nature of language teaching and learning, aligning with current research on effective pedagogy and linguistic competence.

1.2.2 Data-driven learning (DDL)

As an EFL pedagogical approach, DDL is a common language method that is based on the use of authentic language data to facilitate the educational process. These authentic data are retrieved from 'a corpus' (plural: corpora), which McArthur (1992) defined as follows:

A body of texts, utterances, or other specimens considered more or less representative of a language, and usually stored as an electronic database. Currently, computer corpora may store many millions of running words, whose features can be analysed by means of tagging (the addition of identifying and classifying tags to words and other formations) and the use of concordancing programs. Corpus linguistics studies data in any such corpus. (p. 266)

DDL bases its pedagogical approach on the analysis of usage patterns in authentic language data from corpora. DDL uses these corpus resources to provide learners with exposure to authentic conventions, frequencies, and contexts of real language usage. Corpus data aids the learning

process by allowing the inductive discovery of patterns, promoting the noticing of salient features, providing contextualized input, and instantiating usage-based perspectives.

DDL activities guided by corpora give learners direct contact with real systemic uses of language, supporting usage-based cognitive mechanisms of acquisition. Usage-based approaches emphasize the importance of language use, frequency, contexts, and meaning in the emergence of linguistic constructions and learner development (N.Ellis & Cadierno, 2009). This paradigm shift has informed new teaching practices and methodologies by highlighting the role of input, usage patterns, and form–meaning connections. As N.Ellis and Wulff (2020) clarified, according to usage-based theory, “Language learning is primarily based on learners’ exposure to their second language (L2) in use, that is, their communicative experience using the L2” (p. 63). One such approach is DDL, which utilizes corpora and corpus tools to provide learners with authentic examples of real language use (Boulton & Cobb, 2017). Corpus-based tasks provide the kind of inductive experience aligned with this theory by engaging learners directly with textual examples of language as it is used in various authentic contexts. In this way, corpus activities reflect usage-based theories’ focus on the associative learning of linguistic constructions and patterns through repeated exposure to actual language exemplars from use events. Similar to usage-based theories viewing language competence as emerging from experience, corpus-based pedagogy aims to develop learners’ abilities through interactive, data-driven tasks using corpora that reflect authentic usage.

For more than 30 years, corpus linguistics has found utility in the field of language teaching. In particular, the integration of corpus linguistics into language teaching has its origins in the 1980s with pioneers such as Sinclair (1987), who initiated the COBUILD Project, and Johns (1986), who started developing the DDL approach. Subsequently, numerous scholars have

recognized and enumerated diverse advantages of using corpora for language learning and teaching. However, the adoption of DDL and usage-based pedagogies remains limited in many EFL contexts where decontextualized grammar instruction persists (Boulton & Cobb, 2017). The present study aims to build on prior research and explore further the implementation and efficiency of DDL, specifically within the context of EFL classrooms in Saudi Arabia, which heavily depend on traditional learning and teaching practices. The purpose is to extend an understanding of how insights from DDL can shape effective teaching practices to improve learning outcomes. Moreover, this study aims to explore how different types of instruction, explicit and implicit, influence DDL.

Hence, an investigation into the effectiveness of DDL as an EFL language teaching and learning approach holds significant relevance and importance. In specific educational contexts where traditional methodologies have proved inadequate for equipping learners with the multifaceted skills needed in today's interconnected world, DDL emerges as a potential solution to bridge that gap. With its foundation in data-driven insights and a focus on usage-based principles, DDL possesses the capacity to fundamentally reshape language instruction. This could lead to a shift towards a more learner-centred, contextually grounded, and communication-oriented framework. As language educators and researchers explore the efficacy of DDL, they embark on a path that holds the potential to redefine language pedagogy, contributing to enhanced language learning experiences.

1.2.3 Phrasal Verbs (PVs) and Their Usage by EFL Learners

PVs are multi-word verb phrases comprising a verb combined with one or more particles, either prepositions or adverbs. McArthur and Atkins (1974) defined PVs as “combinations of simple, monosyllabic verbs (put, take, get, etc.) and members of a set of particles (on, up, out,

etc.)” (p. 5). These combinations are among the most confusing and challenging lexical items for English-language learners and are notoriously difficult for non-native speakers to master (Celce-Murcia et al. 1999; Cowie, 1993; Herra, 2013; Pye, 1996; Thrush, 2001); MacArthur (1975) described PVs as the “biggest headache” for English-language learners (p. 6). However, PVs are part and parcel of the English language, and mastering them is a prerequisite for higher levels of proficiency (Aldahesh, 2008; Cornell, 1985; Gardner & Davies, 2007; Liu, 2011). EFL learners cannot avoid PVs when communicating with native or non-native speakers or while reading authentic texts. Sometimes, EFL learners may find themselves in difficult situations due to their misunderstanding of PVs. In a classroom filled with EFL students, a teacher addressed her students: ‘I have an important announcement: your English test scheduled on Monday is called off due to a school event.’ On Monday, most of the students diligently prepared for the exam and waited for the test to begin. They had clearly misunderstood the meaning of ‘called off’ as ‘cancelled’.

Many EFL learners from different L1 backgrounds, such as Arabic, Hebrew, or Chinese, prefer using single verbs to avoid PVs (Alshayban, 2018; Dagut & Laufer, 1985; El-Dakhs, 2016; Hulstijn & Marchena, 1989; Liao & Fukuya, 2004; Sara & Mohammadreza, 2013). Some of the factors influencing the EFL learners’ avoidance of PVs are their limited exposure to the second language (L2), the linguistic differences between the first language (L1) and the L2, and both the prevalence and polysemic features of PVs (Chen, 2007; Dagut & Laufer, 1985; El-Dakhs, 2016; Liao & Fukuya, 2004; Liu, 2011). The linguistic differences are partially attributable to the complex semantic and syntactic properties of PVs. Semantically, PVs are often characterized by idiomaticity and non-compositional meanings that are not readily predicted from the constituent parts. Syntactically, they demonstrate variability in transitivity, with some PVs requiring an object

and others not. Additionally, the placement of particles exhibits variability when used with objects. These complex semantic and syntactic features, which have no direct analogue in many L1s, pose significant challenges for EFL learners. The idiomaticity, variability in transitivity, and flexibility of particle placement all increase the difficulty faced by EFL learners in acquiring PVs.

Research on a global scale conducted on language learning and teaching through the use of corpora reflects a positive relationship between exposure to examples extracted from corpora and language learning (Boulton & Cobb, 2017; Lee et al., 2019). However, these experimental studies were not conducted with Arab native speakers of English nor with participants who speak one of the Semitic languages. Additionally, to the best of my knowledge, no research has yet investigated the impact of different types of instruction, namely, implicit versus explicit, on learning through corpus-based activities, nor have any studies explored their influence on the development of EFL learners' short- and long-term retention of PVs. Implicit instruction in the context of corpus-based learning refers to learners being exposed to language patterns or examples without direct, explicit attention to the target language pattern. This method relies on the learner's ability to infer grammatical rules or usage patterns from exposure to authentic language usage retrieved from corpora. On the other hand, explicit instruction within the same context involves direct attention to the target language patterns. Here, learners are not only exposed to authentic language usage but also have their attention specifically drawn to the target language pattern.

Therefore, the primary aim of this study is to contribute to the existing knowledge regarding the impact of corpus-based activities for enhancing the acquisition of PVs among Arab EFL learners. Furthermore, the study aims to examine the effectiveness of two types of instruction (implicit and explicit) of corpus-based activities in developing EFL learners' acquisition of PVs at two distinct time intervals: an immediate post-test after 7 days of learning and a delayed post-test

after 28 days. This investigation aims to determine which type of instruction is superior in facilitating EFL learners' retention of learned PVs.

1.3 Statement of the Problem

During the years 2017 through 2019, I assumed the role of English-language instructor, specifically responsible for teaching the skills of listening and speaking, reading, and grammar subjects to Saudi EFL learners who were at a comparable proficiency level as those involved in this research. Active participation in the Saudi EFL context provided first-hand exposure to recurring pedagogical issues, such as the utilization of ineffective language learning and teaching methodologies and an overreliance on textbooks for language acquisition. Within this instructional context, it became evident that Saudi EFL learners encountered significant difficulties in accurately employing PVs, affirming the received notion that PVs pose a challenge for EFL learners. These observations, grounded in contextual insights, underscore the need to address the shortcomings and complexities associated with PV usage, thereby contributing to the enhancement of PV acquisition strategies among Saudi EFL learners.

Section 1.2.3 sheds light on the critical role of PVs in the proficiency of EFL learners while simultaneously acknowledging the challenges commonly encountered by EFL learners in effectively mastering PV usage. It is noted that there is a notable scarcity of empirical research on learning and teaching PVs through corpus-based activities as DDL is relatively new in language teaching; thus, there is a need for of empirical studies exploring the effects of corpus-based activities on PV learning. Moreover, different modes of instruction input, such as explicit or implicit, in PV learning through corpus-based activities remain largely unexplored. It is crucial to investigate the extent to which PVs can be learned from different modes of input with corpus-

based activities and the influence of each mode of learning input on EFL learners' short- and long-term retention.

1.4 Objectives of the Study

This PhD project has three overarching objectives. First, it aims to investigate the challenges faced by EFL learners in accurately and appropriately using PVs in various contexts. The study seeks to explore how intermediate Arab EFL learners utilize PVs and identify the types of errors they commonly make when using them. To achieve this, an exploratory corpus-based study is conducted and provides a detailed analysis of PV usage among intermediate Arab EFL learners (see [Chapter 6](#)). This analysis provides a comprehensive understanding of how intermediate Arab EFL learners employ PVs and confirms previous claims regarding the challenges faced by EFL learners with using PVs.

Second, the study aims to examine the impact of corpus-based activities on the acquisition of PVs among intermediate Saudi EFL learners, who often rely on traditional learning approaches. The study investigates the influence of corpus-based activities compared to traditional learning approaches in terms of both short-term and long-term retention. By comparing the effectiveness of these two approaches, the study provides insights into the benefits of incorporating corpus-based activities in PV acquisition and its potential to enhance the retention of PVs among Saudi EFL learners.

Finally, the project aims to explore the effects of different input modes, specifically explicit and implicit instruction, on the acquisition and retention of PVs through the use of corpus-based activities. This study seeks to explore the impact of explicit and implicit corpus-based learning approaches on PV acquisition and retention, taking into account both short-term and long-term learning outcomes. Through a comprehensive examination of the efficacy of these distinct input

modes, the project aims to yield insights into the most effective instructional strategies for PV acquisition and retention.

In sum, this project aims to contribute to enhancing our understanding of PV usage by Arab EFL learners by evaluating the effectiveness of corpus-based activities in Saudi EFL learners' PV acquisition and exploring the influence of different input modes on both short-term and long-term retention. By addressing these topics, the research project contributes to the field of language teaching and learning, providing insights and recommendations that may enhance PV acquisition strategies for EFL learners.

1.5 Research Questions and Hypotheses

Taking into account the limited amount of empirical evidence regarding how Arab EFL learners use PVs, as well as the influence of learning PVs through corpus-based activities reviewed in [Chapter 3](#) and [Chapter 5](#) along with the literature review, this study addresses three central research questions. Two of these questions are accompanied by a sub-question:

- Q1: How do intermediate Arab EFL learners use PVs in terms of their semantic and syntactic usage patterns?**
- Q2: What is the effect of corpus-based activities on enhancing intermediate Saudi EFL learners' acquisition of PVs?**

(H0): There is no significant difference in the acquisition of PVs between intermediate Saudi EFL learners who engage in corpus-based activities and those who receive traditional PV instruction.

(H1): Intermediate Saudi EFL learners who engage in corpus-based activities show significantly better acquisition of PVs than those who receive traditional instruction.

(H2): Intermediate Saudi EFL learners who receive traditional instruction show significantly better acquisition of PVs than those who engage in corpus-based activities.

Sub-question 1: Which of the two groups (the traditional approach or the explicit corpus-based approach) demonstrates better learning and retention of PVs on the delayed post-test (after 28 days)?

(H0): There is no significant difference in the learning and retention of PVs between the group that received the traditional instruction and the group that used the explicit corpus-based approach in the results of the delayed post-test conducted after 28 days.

(H1): The group using the explicit corpus-based approach demonstrates significantly better learning and retention of PVs than the group using traditional methods on the delayed post-test conducted after 28 days.

(H2): The group utilizing traditional methods demonstrates significantly better learning and retention of PVs than the group employing an explicit corpus-based approach on the delayed post-test conducted after 28 days.

Q3: What is the effect of the explicit use of corpus-based activities and implicit use of corpus-based activities on EFL learners' acquisition of PVs?

(H0): There is no significant difference in the acquisition of PVs between EFL learners who receive explicit corpus-based instruction and those who receive implicit corpus-based instruction.

(H1): EFL learners who receive explicit corpus-based instruction show significantly better acquisition of PVs than those who receive implicit corpus-based instruction.

(H2): EFL learners who receive implicit corpus-based instruction show significantly better acquisition of PVs than those who receive explicit corpus-based instruction.

Sub-question 1: Which of the two modes of DDL learning (explicit corpus-based or implicit corpus-based) exhibits better retention of PVs on the delayed post-test (after a period of 28 days)?

(H0): There is no significant difference in the retention of PVs between the group receiving explicit corpus-based instruction and the group receiving implicit corpus-based instruction on the delayed post-test conducted after 28 days.

(H1): The group using explicit corpus-based instruction exhibits significantly better retention of PVs than the group using implicit corpus-based instruction on the delayed post-test conducted after 28 days.

(H2): The group receiving implicit corpus-based instruction shows significantly better retention of PVs than the group receiving explicit corpus-based instruction on the delayed post-test conducted after 28 days.

1.6 Aim of the Study

The main aim of this project is to provide insights and advancements in both theoretical and pedagogical aspects. In terms of theory, through exploring the impact of the DDL approach on the learning and teaching of PVs in comparison to traditional approaches utilized in Saudi EFL classrooms, as well as investigating the various modes of explicit vs. implicit DDL input on PV learning, this project has the potential to enhance our comprehension of the role of the DDL approach in language learning and teaching, specifically in learning and teaching PVs.

Additionally, the project contributes to examining the influence of explicit and implicit DDL input modalities on the long-term and short-term retention of PVs.

In terms of pedagogy, which refers to the practice and methods of teaching, this project holds significant potential. By investigating the effects of the DDL approach and different modes of DDL input on the learning and teaching of PVs in EFL classrooms, the project aims to provide insights and practical implications for pedagogy. The findings can inform educators and practitioners about the most effective approaches and modes of DDL input to promote PV learning. This knowledge can assist with making informed decisions about instructional strategies, curriculum development, and material design, ultimately enhancing pedagogical practices related to PV learning in the EFL context. Thus, the project contributes to the field of pedagogy by offering evidence-based recommendations that can improve the teaching and learning of PVs in EFL classrooms in general and in the Saudi context in particular.

1.7 Brief Definitions of the Study's Major Terms

This section presents certain terms and concepts that are fundamental to the current research.

EFL (English as a Foreign Language): The study of English by non-native speakers living in a non-English-speaking country, where English is not commonly spoken or used in daily interactions. EFL learners often study English as an academic subject for practical purposes, such as business, travel, or test preparation (Nunan, 2015).

DDL (Data-driven learning): A language teaching approach that utilizes concordances and corpora to allow learners to explore authentic linguistic patterns and derive discoveries about the target language (Boulton & Cobb, 2017).

Phrasal Verbs (PVs): Multi-word verbs made up of a verb and an adverb or preposition. Thrush (2001) notes that a PV is "a verb and a preposition (or two). The meaning is often idiomatic; that is, the meaning of the phrasal verb cannot be derived by looking up the verb and the preposition separately in a dictionary" (p. 293).

Implicit Instruction: Language teaching that focuses on meaning and communication without intentionally directing attention to specific language forms or rules (Spada & Tomita, 2010).

Explicit Instruction: Language teaching that intentionally draws students' attention to particular language forms, patterns, or rules (Spada & Tomita, 2010).

1.8 Structure of the Dissertation

Following this introductory chapter, the subsequent chapters of this dissertation are structured as follows.

Chapter 2 establishes the empirical context of the research. It provides an overview of the educational system in the Kingdom of Saudi Arabia, discusses EFL teaching practices in the country, and explores proposed solutions to enhance EFL learning in the Saudi context. Additionally, this chapter examines the future prospects of EFL in Saudi Arabia, focusing on how the integration of corpus-based activities may impact Saudi EFL classrooms.

Chapter 3 explores the concept of DDL and its pedagogical significance. It elucidates the implementation of DDL in language learning classrooms and evaluates the barriers that may impede its widespread application. The chapter presents two possible approaches to using corpora in classrooms: hands-on and hands-off DDL. Moreover, it explores the practical application of paper-based concordance activities as a viable method for integrating DDL into language learning.

Additionally, the chapter reviews empirical studies on DDL, focusing specifically on its application in the acquisition of PVs. Finally, it reviews experimental studies on DDL conducted within the Saudi context.

Chapter 4 provides an in-depth examination of implicit and explicit learning in language acquisition. It begins by providing precise definitions of explicit learning and implicit learning and examines their conceptual frameworks. The chapter traces the origins of these terms to cognitive psychology and explores their initial coinage. It further investigates the effectiveness of implicit and explicit learning and the implications for language acquisition. The perspectives of applied linguists are also considered, providing insights into how these learning approaches are perceived within the field. Additionally, the chapter offers an overview of various theoretical frameworks within second-language acquisition (SLA) that emphasize implicit or explicit learning. The discussion extends to explicit and implicit SLA instruction, examining impacts on L2 retention. Finally, the chapter examines the concept of input spacing and its influence on L2 learning.

Chapter 5 undertakes a thorough review of PVs from multiple perspectives. It starts by defining PVs and explores various semantic and syntactic types of PVs in English. It also investigates the tendencies of EFL learners to avoid PVs, as well as the existence of PVs in Arabic, the native language of the study participants.

Chapter 6 aims to answer the first research question and investigate how intermediate Arab EFL learners utilize PVs in terms of semantics and syntax. The process and results of the exploratory corpus-based study are presented in this chapter.

Chapter 7 provides a comprehensive overview of the research methodology employed in the classroom intervention study. It encompasses several key aspects, including research design, classroom material development (including target PV identification, distribution of PVs among

worksheets, resource utilization for activity development, and the process of creating classroom activities), instrument design for data collection, a pilot study conducted to refine the methodology, and finally, participant recruitment and the ethical approval process for the main study. The chapter offers insights into the practical implementation of the research, ensuring alignment between data collection methods and the study's objectives, while also addressing ethical considerations in the participant recruitment and approval processes.

Chapter 8 focuses on the data analysis and results of the study. It commences with the pre-statistical analysis stage, involving the scoring of participants' tests and the preparation of data for analysis. Subsequently, the chapter examines participants' prior knowledge of PVs through descriptive statistics and one-way ANOVA tests. Moving into the data analysis stage, the chapter presents descriptive statistics of the datasets and the mixed-effects linear regression models used to analyse the data. The subsequently interpreted results are summarized, providing insights into observed relationships and effects. This chapter is essential for comprehending the study's findings and their statistical significance, offering insights into the data analysis process employed in this project.

Chapter 9 provides a comprehensive discussion of the research findings and their implications. The chapter summarizes the results obtained from the study and conducts a detailed analysis of each research question. It aims to convey the impact of corpus-based activities on enhancing the acquisition of PVs among intermediate Saudi EFL learners, comparing the effectiveness of traditional and explicit corpus-based approaches and examining the effects of explicit and implicit use of corpus-based activities on PV acquisition. Furthermore, the chapter explores PV retention between different modes of corpus-based learning activities and evaluates their effectiveness over a delayed post-test period of 28 days. The discussions in this chapter

contribute to a deeper understanding of the research findings and their significance in the context of PV acquisition among Saudi EFL learners.

Chapter 10 serves as the conclusion to the study. It commences with a concise summary of the research, highlighting its primary findings. Moreover, it discusses the theoretical and pedagogical implications of the study's findings. Limitations and possible criticisms of the study are acknowledged, ensuring transparency and promoting critical evaluation. Suggestions for future studies are presented, identifying areas that warrant further investigation and offering recommendations for expanding upon the current research.

2. Chapter 2: English as a Foreign Language in Saudi Arabia

2.1 Introduction

In order to appreciate the wider context of the current study, it is important to clarify the situation of EFL teaching in the Kingdom of Saudi Arabia. This chapter starts by examining the educational system adopted in Saudi Arabia and describes the hierarchy of the public educational system in the kingdom. It also provides a comprehensive overview of the state of EFL in Saudi Arabia and the ways in which it is being shaped by the country's economic and social development. The impact of *Saudi Vision 2030* on the future of EFL is discussed in order to give a clear picture of the future of education and EFL in the Kingdom of Saudi Arabia. This chapter also examines the methods and approaches used in teaching and learning EFL in Saudi Arabia and how these teaching practices influence the FEL learning outcomes. Finally, the chapter concludes by considering proposals for solutions to enhance the quality of EFL teaching and learning practices in Saudi Arabia, which shed light on the importance of the current study to enhance the future educational strategies in the region and beyond.

2.2 Educational System in the Kingdom of Saudi Arabia

Saudi Arabia's education system, like that of any nation, is primarily designed to provide its residents with essential education. A comprehensive range of public education services, comprising both general education and higher education, is accessible to all individuals in the country. General education, or what is known as public schooling, is divided into three levels, which are primary, intermediate, and secondary education, whereas higher education usually consists of three levels: Bachelor, Master, and Doctorate levels (Alamri, 2011).

Primary education is subdivided into six grades (1st grade-6th grade), intermediate education, into 3 grades (7th grade-9th grade), and secondary education is also divided into 3 grades (10th grade-12th grade). According to this division, learners start general education at the age of seven and complete their general education at Saudi public schools at the age of eighteen (Alqarni, 2019; Alrashidi & Phan, 2015). Learners usually complete higher education to gain their bachelor's degrees at universities, and this stage usually lasts at least four years, depending on the major of the study (Alqarni, 2019). Public schooling in Saudi Arabia is free for all of its residents, whether they are Saudis or non-Saudis; however, higher education, which includes undergraduate and postgraduate education, is offered for free to Saudi citizens, but scholarships might be offered for non-Saudis to gain access to higher education in the kingdom (Alamri, 2011; Alqarni, 2019).

One of the features that characterize the public educational system in Saudi Arabia is that it is based on gender segregation. In other words, throughout all educational stages, there are separations in schools and universities between males and females in which female learners are taught by female instructors and male learners are taught by male instructors (Alqarni, 2019; Alrashidi & Phan, 2015; Mitchell & Alfuraih, 2017; Smith & Abouammoh, 2013). Thus, instructors and learners are divided into schools and universities based on their gender. The only exceptions in regard to gender separation in the Saudi educational system are at the kindergarten level and medical schools at the higher education level (Smith & Abouammoh, 2013).

Despite the gender segregation in the Saudi educational system, Saudi Arabian's education is of the same quality, facilities, and standards for both genders (Alrashidi & Phan, 2015; Smith & Abouammoh, 2013). For instance, in general, in public schools, the Ministry of Education offers both genders the same curriculums and textbooks for each subject; however, a slight change might be made to address gender differences (Al-Seghayer, 2015; Alrashidi & Phan, 2015). In higher

education contexts, each university is responsible for assigning the curriculums for subjects and majors, e.g., commercial series of textbooks are usually used for teaching English in Saudi universities (Alqarni, 2019). However, both genders in the same university follow the same curriculums and assigned textbooks, which means female and male learners from the same university are exposed to the same input regardless of gender separation in education.

2.3 EFL in the Kingdom of Saudi Arabia

Arabic is the official language in Saudi Arabia, and English is the only foreign language integrated into the public Saudi educational system. There are several reasons behind the choice of integrating English to be taught at schools and universities as a foreign language, among many other languages spoken all over the world. One of the main reasons is that English is a dominant language and is deeply rooted as the global language for communication across the world (Nouraldeen & Elyas, 2014). It is widely spoken and understood around the world by many non-native speakers, which makes it an important tool for communication between people from different countries and cultures. English is also considered the international language of science, technology, business, and education (Alrashidi & Phan, 2015; Nouraldeen & Elyas, 2014). After the kingdom's discovery of oil in the 1930s, the English language started to be used in Saudi Arabia because many international oil companies and Western and non-western expatriates who speak English as a primary or secondary language moved to the kingdom to work in the oil industry (Alshahrani, 2016; Mahboob & Elyas, 2014). It was essential to shed light on the English language to provide Saudis with the required communication skills to be able to communicate with English native speakers' expatriates and also to contribute in expanding the kingdom's economic and business development (Mahboob & Elyas, 2014).

In the 1950s, the Saudi Arabian Ministry of Education decided to implement English as a foreign language in universities as well as in intermediate and elementary public schools as a mandatory subject (Alrashidi & Phan, 2015; Mahboob & Elyas, 2014). At that time, EFL was not part of the curriculum for all grades of Saudi primary education. After many years, a reform of the educational system was made to enhance the educational system in Saudi Arabia, and the English language was given special attention due to its important role in keeping pace with economic growth. In the year 2010, English was introduced in primary public schools in the 4th, 5th, and 6th grades (at ages 10, 11, and 12) (Alrashidi & Phan 2015). The EFL learning hours vary according to the education level. Learners in each grade of primary school have two classes per week, each last for 45 minutes, whereas learners in each grade of intermediate and secondary schools have 45 minutes of English lessons 4 times every week (Alrashidi & Phan 2015).

In the higher educational system, Arabic is also used as a medium of communication and instruction in non-scientific courses (e.g., humanities), but English is introduced as a mandatory subject to fulfil the degree. For instance, English is integrated as a mandatory subject in the course plans of the bachelor's degree in history or in Arabic language and literature (Alrashidi & Phan, 2015). However, science courses (e.g., science, medicine, and engineering) in higher education are taught and delivered in English rather than Arabic at most Saudi universities because English is an essential language of these disciplines (Alrashidi & Phan, 2015).

Beyond the confines of the classroom, the use of the English language is not extensively practiced in Saudi. Alharbi (2015) and Alqahtani (2019) emphasized this fact by stating that Saudi learners face a shortage of genuine opportunities to practice their English skills beyond the classroom. Saudi learners encounter limited authentic opportunities to engage in English communication outside the educational setting. One significant reason for this scarcity of

opportunities is the dominant role of the Arabic language in Saudi society (Alqahtani, 2019). Arabic has firmly established its presence in various aspects of daily life, leading to less exposure to and usage of English in everyday situations.

2.4 Saudi Vision 2030 and the Future of EFL in Saudi Arabia

The Saudi Ministry of Education has put a significant effort over the years into developing teaching and learning in the Kingdom (Alqahtani, 2019; Khan, 2021). However, the EFL learning outcome is still unsatisfactory and below the expected level (Alrashidi & Phan, 2015; Khan, 2021). Based on the latest data on IELTS test taker performance, as disclosed in the year 2022, it has been observed that Saudi candidates attained the 4th lowest mean overall score within the cohort of 40 listed nationalities. With the launch of the *Saudi Vision 2030* on 25 April 2016, a transformation of the kingdom's educational system is essential to achieve part of the *Vision 2030* goals (Allmnakrah & Evers, 2020)

The *Saudi Vision 2030* is a long-term plan that aims to expand the Saudi economy through a transformation from an oil-based economy to a knowledge-based economy and develop the country's different sectors, e.g., education, health, tourism, recreation, and many other fields (Vision 2030, 2022). According to Albiladi (2022), there are six educational goals and objectives that were identified in the Vision 2030 framework and need to be achieved by the year 2030. These objectives revolve around fostering learners' innovation and creativity through improving the learning environment, enhancing teaching curriculums and methods, moving learning to be more digital, preparing learners to fulfill the labor market needs, enhancing learners' social skills and values, and offering learners' a chance to meet national development requirements.

There is no doubt that English is an influential lingua franca language across the whole world; thus, for a successful implementation of the *Saudi Vision 2030*, English should be given a special interest and concern. After launching the *Saudi Vision 2030*, an obvious change has been implemented by the Saudi Ministry of Education towards EFL teaching and learning practices in Saudi Arabia. In the previous Saudi educational system, English used to be integrated for learners in the public education system in the fourth grade of primary school, which means at age nine (Alrabai, 2019). However, the Ministry of Education recently decided to integrate the English language for learners from the first grade, which means at age six starting from the 1st semester of the academic year 2021-2022, (Ministry of Education, 2021). This major development and change towards EFL in the Saudi educational system are intended to result in better learning outcomes and habilitate the coming generations to master the language and fulfil the *Saudi Vision 2030* educational objectives.

Furthermore, Saudi EFL teaching practices and methods would be given special concern by instructors to be abreast of the new vision and the rapid development in the country. Al-Shehri (2020) proposed a few recommendations to promote the current learning strategies used in EFL learning and teaching in the Saudi context, which have the potential to contribute to the realization of *Saudi Vision 2030* objectives. These recommended strategies include personalized learning, which tailors instruction to individual learners' needs and preferences, and self-learning, which encourages students to take greater responsibility for their learning process. Additionally, the adoption of contextual learning, where language is taught in real-life, meaningful contexts, can enhance language acquisition. In addition to this, the development of critical and creative thinking skills is seen as crucial to fostering effective language use and communication. Embracing appropriate technology can also enhance language learning experiences, engage students in

interactive activities, and provide access to a wealth of language resources. Moreover, Al-Mwzaiji and Muhammad (2023) argued that several changes should be implemented in Saudi EFL learning practices to achieve the goals of *Saudi Vision 2023*. This transformation primarily entails shifting away from a traditional teaching approach toward learner-centred learning approaches that foster EFL learners' autonomy. By implementing these recommended strategies, the Saudi education system can effectively support the achievement of the vision goals.

The implications of *Saudi Vision 2030* for the country's educational framework, particularly within the EFL sphere, are expected to be significant. The vision's influence is intended to foster a higher standard of excellence and innovation, thus paving the way for expanded opportunities for growth and development in the educational sector.

2.5 EFL Teaching and Learning Practices in Saudi Arabia

Language learning methods and practices are considered among the most crucial factors that influence the process of language learning and teaching. It is known that effective teaching practices can create a positive learning environment that promotes student engagement, motivation, and language acquisition. On the other hand, using ineffective teaching practices might have negative consequences on learners, such as low levels of engagement, lack of motivation, and learning. In the Saudi context, English as a foreign language is taught to students at public educational organizations by non-native speakers of English, mainly Saudi instructors who hold degrees in the English language.

One of the traditional approaches frequently used by Saudi EFL teachers is the traditional grammar translation method (GTM), where language teachers give the learners explicit instruction of the FL and translate the FL to the learners' native language (Al-Seghayer, 2015; Alqahtani, 2019; Alrabai, 2016, 2019; Alrashidi & Phan, 2015; Fareh, 2010). The amount of Arabic used in

Saudi EFL classrooms usually exceeds the amount of English spoken by teachers and learners (Al-Seghayer, 2015). There are different reasons behind using Arabic in EFL classrooms. Instructors usually code-switch between English and Arabic during the lesson to clarify the meanings of words, to explain grammatical rules for their learners, to simplify language activities and tasks that the learners are doing to undertake or to give exam instructions (Alrabai, 2019; Mitchell & Alfuraih, 2017; Moskovsky, 2019). Moreover, this act of using Arabic in EFL classrooms for the purpose of clarification is not limited to instructors only but is also used by high-proficiency levels learners in their pair work activities at EFL classrooms (Storch & Aldosari, 2010). Teachers and learners considered using Arabic in EFL classrooms as a useful method for clarifying vague language elements, saving classroom time, and facilitating the teaching and learning process (Fareh, 2010; Mitchell & Alfuraih, 2017; Storch & Aldosari, 2010). However, even using a reasonable amount of L1 in EFL classrooms could have a negative influence on the learners' process of learning. The act of frequent code-switching and using Arabic alongside English in the classroom will result in a lack of sufficient exposure to English (Alrabai, 2019; Fareh, 2010). It has been claimed that integrating the first language into FL classrooms minimizes learners' exposure to the taught language, which will influence learners' communicative competence ability (Alrabai, 2019).

Another feature of Saudi EFL classrooms, usually linked to the grammar-translation method, is the teachers' dominance in the classroom and in the learning process (Al-Seghayer, 2015; Alqahtani, 2019; Alrabai, 2019; Alrashidi & Phan, 2015; Fareh, 2010). In other words, in the Saudi FL environment, the teacher is the centre of the learning process rather than the learner. Students are used to being spoon-fed knowledge and depend on their teachers in the process of learning and treat teachers as the main source of knowledge, which produces a passive type of

learner. In EFL classrooms, Saudi learners listen to lectures, take notes, and reproduce information they have memorized rather than thinking and engaging to find answers to their EFL questions (Al-Seghayer, 2021). Thus, EFL teachers are active and dominant, whereas learners are passive and silent in the language learning process. This teacher-centred approach negatively affects Saudi learners' autonomy, engagement, motivation, and individualism in learning and prevents learners from interacting and practising the target language, at least inside the classroom (Alqahtani, 2019; Alrashidi & Phan, 2015; Fareh, 2010).

Saudi learners' dependence on memorization as a primary learning strategy is another practice that influences EFL classrooms in both general education and higher education in Saudi Arabia (Al-Seghayer, 2021). The memorization or the rote learning strategy is a result of the dependence on the grammar-translation method and teacher-centred approach in Saudi EFL classrooms (Al-Seghayer, 2015; Alrabai, 2019; Alrashidi & Phan, 2015; Fareh, 2010). Saudi EFL learners tend to memorize language elements like rules, vocabulary, phrases, and even paragraphs without a proper understanding of how the rules are constructed or what the words and phrases meanings. Learners put tremendous effort into memorizing English elements for their exams without actually learning the language and developing a comprehensive understanding of how to use the language effectively in real-life situations. In the Saudi EFL context, learners' ability to memorize the language aspects determines their language achievement; learners depend on memorizing language aspects just for that short-time purpose (Al-Seghayer, 2021). The reliance on such an ineffective strategy results in building memory-based declarative knowledge and hinders learners from acquiring English skills and reaching the required level of language competence (Alqahtani, 2019; Alrabai, 2019). Al-Rashidi and Phan (2015) claimed that Saudi EFL learners' rote and memorization strategy is considered one of the most important factors that

contribute to producing low English language competence. In addition, depending on memorization as a strategy prevents learners from developing critical thinking and solving problem techniques (Fareh, 2010).

The very limited exposure to authentic English language inside and outside the classroom has been considered another widely cited practice that influences the EFL learning process in the Saudi context (Alqahtani, 2019; Alrabai, 2019; Alrashidi & Phan, 2015; Fareh, 2010). Teachers' intensive use of L1 in classrooms, in addition to limited use of English in everyday life, would affect learners' required amount of exposure (Alrabai, 2016, 2019). Moreover, Saudi EFL instructors limit their teaching resources to ready-made coursebooks and curricula, which limits learners' exposure to the natural use of language (Alrabai, 2019). In addition, the low number and short length of EFL lessons adopted in the Saudi Educational system played a role in limiting learners' exposure to the English (Alqahtani, 2019).

Alrabai (2016, 2019), Alrashidi and Phan (2015), and Fareh (2010) have underscored that predominant teaching practices in Saudi EFL classrooms, especially the widespread use of the grammar-translation method and the substantial use of the native language (L1), have constricted Saudi EFL learners' exposure to the English language (L2). This limited exposure is posited to inhibit the achievement of high levels of fluency and competence in English among Saudi EFL learners. It has been repeatedly noted in the literature that Saudi EFL students have a typically low level of achievement when it comes to English as a foreign language. One of the reasons that played a role in hindering Saudi EFL learners' competence is teachers' reliance on ineffective pedagogical practices (Alrabai, 2016).

2.6 Proposed Solutions for Enhancing EFL Learning in Saudi Context

The continued application of traditional approaches and practices in Saudi EFL learning classrooms has resulted in producing weak learning outcomes and students with low language proficiency and competence levels (Alqahtani, 2019; Alrabai, 2019; Alrashidi & Phan, 2015; Fareh, 2010; ur Rahman & Alhaisoni, 2013). The majority of Saudi students demonstrate low levels of English proficiency after secondary school despite the time and effort devoted to teaching English in public schools (Alrashidi & Phan, 2015; Al-Seghayer, 2015). To solve this problem and to enhance the quality of learning outcomes, many propose a call for changing the currently used EFL teaching practices and approaches in the Saudi context.

It has been claimed that this is the time to change the traditional practices used in Saudi EFL classrooms; at the top of the list is the grammar-translation method of language teaching and learning to newer approaches, such as the communicative approach, and task-based language teaching, which aims to enhance learners' autonomy and language competence ability (Alqahtani, 2019; Alrabai, 2019). EFL classrooms should be learner-centred rather than teacher-centred, which will enhance learners' autonomy and produce active learners who participate in the classroom and depend on their own to find answers to language questions (Alrabai, 2019; Fareh, 2010). Add to this, learners should be exposed to the language-learning process by raising their awareness of the available learning practices and strategies and giving them the opportunity to participate in determining the most appropriate strategies for learning a particular language aspect (Al-Seghayer, 2021). The point behind that is to produce active, productive, and independent learners who are partially responsible for their process of learning.

In the process of EFL learning, teachers should use extracurricular activities rather than depending completely on a ready-made curriculum, which will open a door for learners to engage

and think beyond ready-made content (Alrabai, 2019). These extracurricular activities could be any type of activity that is outside the course curricula and textbook, which creates a relaxed environment for EFL learners. Furthermore, there is a strong emphasis on the need for plenty of exposure to authentic language, for example, exposing learners to authentic reading and listening materials (Al-Seghayer, 2015). Albiladi (2022), Alqahtani (2019), and Alrabai (2016, 2019) placed emphasis on the importance of delivering EFL classrooms in English with limited and controlled use of Arabic. This will increase learners' chance of exposure to a satisfactory amount of the target language. Furthermore, it is important to encourage learners to practice and be exposed to the English language outside the classroom, e.g., by using social media and watching television programs and films in English (Alrabai, 2016).

In addition, there are a number of calls for implementing modern technology in Saudi EFL classrooms, for instance, using computers, YouTube, and educational channels as a resource for learning and teaching (Alqahtani, 2019; Alrabai, 2019). In addition, Al-Seghayer (2015) and Fareh (2010) argued that reducing the number of students in Saudi classrooms to be less than 40-50 students per class will have a positive influence on the process of EFL learning and teaching. Moreover, Alqahtani (2019), Alrabai (2019), and Fareh (2010) claimed that engaging teachers and students in designing English language curriculums will significantly impact the learning process as the curriculum will target their needs. Indeed, all of these proposed calls could help in enhancing the quality of EFL learning and teaching process, which will result in producing EFL learners with high levels of English language competence.

2.7 Summary of the Chapter

In conclusion, this chapter has provided an overview of the situation of EFL in the Kingdom of Saudi Arabia. It has highlighted the current educational system in the country, the

status of EFL in the Saudi context, and the importance and influence of *Saudi Vision 2030* in shaping the future of English learning and teaching in the Kingdom of Saudi Arabia. It has been noted that the vision emphasizes the importance of developing a highly skilled workforce, which requires a special focus on English language education. Therefore, one immediate action that has been taken is to reduce the age at which pupils begin learning English to the age of six.

This chapter discussed the teaching practices currently used in Saudi EFL classrooms. It also has discussed various proposed solutions for improving EFL learning in the Saudi context, including the implementation of more communicative and task-based approaches, the shift to more learner-centred rather than teacher-centred classrooms, and the need for more exposure to the English language inside and outside the classroom. In this research project, Data-Driven Learning (DDL) is identified as a promising pedagogical strategy with a range of anticipated advantages for enhancing learning outcomes. Specifically, it is considered for its potential to significantly improve the learning of PVs, a notably challenging aspect for EFL learners. The following chapter will introduce DDL as a potential solution, grounding the discussion in theoretical perspectives. Following this, empirical research will be presented to offer solid evidence supporting the theoretical claims about DDL's effectiveness in fostering language acquisition, thereby reinforcing the argument for DDL as a valuable approach in the EFL context.

3. Chapter 3: Data-Driven Learning (DDL)

3.1 Introduction

This chapter centres on Data-Driven Learning (DDL) as an approach to language learning and teaching. It begins by briefly introducing the concept of DDL and its advantages and disadvantages to language learning and teaching. Moreover, this chapter discusses the ways that DDL could be implemented in language learning classrooms and the types of paper-based concordance activities that could be used. This offers concrete ideas for possible ways to design effective corpus-based exercises. Shifting to a more research-oriented perspective, this chapter also provides an overview of the previous literature on DDL meta-analysis studies, the use of DDL on English PVs, and the applications of the DDL approach in the Saudi context. This investigation provides insights into how DDL has been applied across various linguistic contexts and its implications for language learning.

3.2 DDL and its Pedagogical Importance

The term Data-Driven Learning (DDL) was coined in 1990 by Tim Johns. This term referred to the concept of the direct integration of the tools and techniques of corpus linguistics in language learning and teaching (Gilquin & Granger, 2010; Romer, 2008). DDL aims to describe how language learners could benefit from corpora to explore authentic language and find answers to various questions related to language. Johns and King (1991) described DDL as “the use in the classroom of computer-generated concordances to get students to explore the regularities of patterning in the target language” (P. iii). Baker et al. (2006) defined DDL in their glossary of corpus linguistics as a technique “used in language teaching whereby the student takes a pro-active role in their own learning process by carrying out and analyzing a series of concordances from a corpus” (P. 54). These definitions illustrate the central concept of the DDL as an approach to

learning and highlight the learners' role in analysing authentic language independently to form their knowledge about the target language.

There are several pedagogical benefits of DDL on language learning that may prompt learners and teachers to consider using DDL in language classrooms rather than other approaches. It has been claimed in the literature that DDL has numerous theoretical benefits or advantages for language learners and the language learning process (Johns, 1991; Leech, 1997; Romer, 2008). Johns (1991) claimed that:

the use of the concordancer can have a considerable influence on the process of language learning, stimulating enquiry and speculation on the part of the learner, and helping the learner also to develop the ability to see patterning in the target language and to form generalizations to account for that patterning. (P: 2)

One of the main concepts that DDL is built on is that most of the learning process depends on learners rather than instructors. In other words, DDL has an influence on moving the language learning process from traditional deductive learning into an inductive approach to learning where learners are required to work out the rules by themselves from the corpus data (Gilquin & Granger, 2010). Leech (1997) argued that DDL “gives the student the realistic expectation of breaking new ground as a researcher” (P: 10). Learners' job here is to discover, extract, and search for the rule through exposure to the material, whereas instructors' role is to work as facilitators in the DDL classroom. Learners are expected to explore and consult corpus and generalize their findings rather than being presented with rules from language instructors (Gabrielatos, 2005). Thus, the learning process moves from being a teacher-centred approach of learning into learner-centred approach, and the learners act as ‘researchers’ and ‘language detectives’ as Johns (1997, p. 101) described them. This movement could have a positive influence on the learning process in many ways. The

inductive learning and independent discovery approach, it is argued, makes learners more autonomous, motivated, and active and also creates a fun atmosphere in the classroom (Gilquin & Granger, 2010; Laufer & Hulstijn, 2001). Laufer and Hulstijn (2001) claimed that in addition to the positive influence of the inductive nature of learning on learners' motivation, it also enhances various cognitive processing skills, leading to better understanding and retention.

According to Farr and Karlsen (2022), Laufer and Hulstijn (2001), and O'Sullivan (2007), DDL as an approach to learning has a noticeable influence on learners' acquisition and development of different skills. It offers learners an excellent opportunity to be exposed to several examples that facilitate and promote awareness and noticing to learn new language aspects (Gabrielatos, 2005). Moreover, the DDL approach has the necessary tools and resources to complement language learning approaches, such as the process-oriented approach (O'Sullivan, 2007). In other words, it encourages learners to depend on their own mental abilities to build their own knowledge independently by enhancing the quality of their cognitive and metacognitive skills. According to O'Sullivan (2007), using DDL as a resource for a consultation to find answers to language questions involves “predicting, observing, noticing, thinking, reasoning, analysing, interpreting, reflecting, exploring, making inferences (inductively or deductively), focusing, guessing, comparing, differentiating, theorising, hypothesising, and verifying” (P: 277). In addition, Vyatkina (2020) claimed that DDL has a positive influence on improving learners' analytical and critical thinking abilities. DDL advantages are not temporary and limited to short time benefits; nevertheless, DDL provides long-term benefits by boosting several cognitive processes and prompting learners' motivation (Boulton, 2010b).

Another main advantage of DDL is that corpora and concordances bring authenticity into language classrooms rather than depending entirely on ready-made contexts. Leech (1997) claimed

that DDL “invites the student to obtain, organize, and study real-language data” (P:10). Authenticity gives learners a chance to explore language as it is used and appears in natural contexts, which prepares language learners to deal with natural language used outside the classroom. Moreover, Gilquin and Granger (2010) claimed that DDL also offers learners exposure to a number of authentic examples of a target pattern in addition to its inherently authentic nature. Frequent exposure to authentic language in DDL enhances the process of usage-based learning (Crosthwaite & Schweinberger, 2021).

These advantages of the DDL approach reflect many theories and approaches. There is a relevant link between DDL and many theories and approaches from different fields, such as linguistics, learning, psycholinguistics, and second language acquisition theories and approaches (Boulton & Cobb, 2017; Flowerdew, 2015; O’Keeffe, 2021). Constructivism and learner-centred approaches are learning theories that might be linked to DDL by enabling language learners to work on DDL autonomously to construct their own knowledge and find solutions to their problems (Boulton & Cobb, 2017; O’Keeffe, 2021). Moreover, Vygotsky's sociocultural theory could be linked to the DDL approach because the role of mediation or interaction by learners themselves, teachers, and peers is more likely exist in the process of DDL learning (Flowerdew, 2015; O’Keeffe, 2021). In other words, based on sociocultural theory, learning is effective if a social interaction occurs in the learning process. Thus, the DDL approach could offer learners self-regulation, either learners' or teachers' scaffolding, teacher mediation, and peer learning, which fits the sociocultural theory features. DDL also reflects the noticing hypothesis (Schmidt, 1990) in which the DDL concordance-based tasks could have an influence on making patterns most noticeable, which is essential for noticing, then leading to uptake (Boulton & Cobb, 2017). Moreover, the current usage-based (UB) theories of language could reflect DDL through learners’

exposure to and recognition of authentic language that appears in the DDL context, which leads to acquisition (Boulton & Cobb, 2017; O’Keeffe, 2021). Thus, learners notice patterns and link meanings by experiencing authentic language in DDL.

3.3 DDL and its Barriers to Widespread Application

Besides DDL's advantages in language learning, it has several barriers or drawbacks that make it a problematic or unpreferable approach to implement in language classrooms. One of the main barriers and limitations is the difficulty of supplying all learners and teachers with the required tools and equipment (e.g., computers and corpora) to do corpus consultation (Boulton, 2009a). Gilquin and Granger (2010) referred to it as a logistic limitation and claimed that “Logistics is often cited as one of the biggest problems of DDL.” (P:366). For instance, every learner or group of two learners should have at least a computer connected to the internet, access to a corpus, and software to retrieve patterns from corpora, which costs institutions much money. Because of the enormous financial demand that DDL tools and equipment put on institutions, DDL could be considered an unpreferable approach to implement in language classrooms. However, the growing number of open-access corpora and software play a positive role in compacting this problem in which DDL users could have free access to multiple corpora with different sizes, types, registers, and genres (Vyatkina, 2020). In addition, a number of solutions for the logistic limitation have been proposed in the literature. Learners could be directed to use DDL at home, or instructors could use projectors to present concordances to learners during lectures (Boulton, 2009a). Moreover, one of the possible solutions is to supply learners with materials that require little or no technological equipment. For instance, learners could be presented with printed concordances in handouts rather than direct access through computer screens (Boulton, 2010a; Gabrielatos, 2005). Several studies confirmed that there is almost no difference in learners’ performance whether they

have direct access to corpus or have printed out corpus handouts (Boulton & Cobb, 2017; Saeedakhtar et al., 2020).

Another highly discussed DDL limitation is that it is a time-consuming approach both for learners and instructors (Boulton, 2009a; Boulton & Cobb, 2017; Gilquin & Granger, 2010). DDL is not a straightforward approach to use, which may cause difficulty for instructors and learners to use for the first time. Learners need to be trained to read concordances and use corpus as a resource for consultations (Boulton & Cobb, 2017; Gabrielatos, 2005). Thus, instructors will spend ample time training learners on using DDL and even preparing materials in case the DDL is delivered to learners in paper-based form. Even though the training is time-consuming for both instructors and learners, it has been argued in the literature that DDL is not always a comfortable approach for learners. Some learners find it challenging to deal with technology, and corpus interface, understand authentic L2 language, and interpret the incomplete concordance (Boulton, 2009a; Boulton & Cobb, 2017; Vyatkina, 2020). In addition to this, the lack of DDL usage and knowledge by language instructors could be considered another apparent limitation (Boulton, 2009a; Gabrielatos, 2005; Gilquin & Granger, 2010). There are instructors who possess limited or no expertise in implementing corpora in language classrooms. To overcome this limitation, scholars have proposed organizing training programs for instructors to train them on how to use DDL in their classes, read concordances, and develop corpus-based activities (Gabrielatos, 2005; Romer, 2008).

3.4 Methods of Implementing Corpora in Classrooms

Johns and King (1991) referred to DDL as “the use in the classroom of computer-generated concordances to get students to explore the regularities of patterning in the target language, and the development of activities and exercises based on concordance output.” (p. iii). This definition

provides a broad image of DDL and how corpus linguistics could be used as a direct pedagogical approach to learning either by learners' direct interaction with a corpus to explore language patterns or through controlled corpus-based activities developed by language instructors.

There are two possible methods for implementing corpora and concordances for learners in language classrooms. One way is known as the "hands-off" or "soft version" whereas the other is called the "hands-on" or "hard version" of DDL, as Boulton (2012) and Gabrielatos (2005) referred to them. In hands-off DDL, learners have indirect access to corpora; in other words, they access concordances through prepared corpus-based materials (printed concordances in handouts) by learners' instructors prior to the classroom. On the other hand, in hands-on DDL, learners have self-directed access to a corpus and concordances through computers to search and discover patterns of a language on their own without much interference from language instructors.

It has been claimed that hands-on DDL may offer learners higher levels of autonomy and dependency than the hands-off approach offers (Boulton, 2012; Saeedakhtar et al., 2020; Vyatkina, 2016); however, this does not affect the efficacy of hands-off DDL. Some empirical studies were conducted to examine the effect of hands-on and hands-off methods of DDL implementation and concluded that both ways hands-on and hands-off have a positive influence on the L2 language learning (Boulton, 2012; Boulton & Cobb, 2017; Saeedakhtar et al., 2020; Vyatkina, 2016). Boulton (2012) did an experimental study to compare low intermediate students' results in learning English collocations through hands-on vs. hands-off DDL, and the results revealed that both methods were affected with a slight non-significant improvement observed in the hands-off group's performance. Moreover, Vyatkina (2016) conducted an experimental study to examine intermediate learners' performance in learning German collocations and found that both ways were equally effective. In addition, Saeedakhtar et al. (2020) claimed that hands-on DDL demonstrated

a greater influence on the long-term retention of verb-preposition collocations compared to hands-off DDL among female pre-intermediate learners. The delayed post-test results, conducted 14 days after the immediate post-test, revealed that low-intermediate learners retained more knowledge when taught using the hands-on approach. This suggests that while both hands-on and hands-off DDL positively influence learning, hands-on DDL might offer superior long-term retention benefits.

There are various factors that play a role in determining the choice of the method adapted to present and use corpora in classrooms (Boulton, 2012; Gilquin & Granger, 2010; Vyatkina, 2016). In other words, some features should be taken into consideration before deciding to use hands-on or hands-off DDL in classrooms. For instance, the availability of required equipment to access DDL in the classroom, learners' proficiency level, learning style, and their expectations based on previous learning (Boulton, 2012; Gilquin & Granger, 2010; Vyatkina, 2016).

Prepared materials in the form of printed-out concordances have special characteristics, which sometimes make it a preferred method to deliver DDL for learners. Hands-off DDL offers instructors an opportunity to identify the appropriate input and amount of input for learners, determine the target points that assist learners' needs and abilities, exclude the difficult concordances for learners to understand and monitor learners' performance through classroom-controlled activities (Boulton, 2012; Gabrielatos, 2005). Boulton (2009a) argued that hands-off DDL reduced the cognitive load on learners compared with the cognitive loads on the hands-on approach, leading to more effective learning outcomes due to the lower demands on learners' working memory. Moreover, Gilquin and Granger (2010) argued that hands-off DDL is neither an utterly teacher-led approach nor a learner-led approach as it offers a balanced in-between approach to learning. Thus, paper corpus-based activities might be more suitable for some learning styles

and learners, for instance, learners who used to depend entirely on teachers. Boulton (2010a) claimed that sometimes new corpus users need teachers' help to control learners rather than exposing them to messy overwhelming input for the first time.

Moreover, paper corpus-based activities still convey the essential components of the DDL process. It encourages learners to explore the concordances to discover the patterns and generalize their findings (Boulton, 2010a). In addition, paper corpus-based activities might be a motivating approach for learners more than having direct access to corpora because it presents learners with familiar types of questions like matching and filling the gap. These types of activities develop a sense of realistic reasoning for using the concordances (Boulton, 2012). In addition, since learners are used to these types of activities, they can start working with corpus-based activities straight away without the need for extensive training or training at all (Boulton, 2009b). Printed-out concordances could be considered as learners' gateway for extensive independent use of DDL and scaffolding (Boulton, 2009a; Johns et al., 2008). Learners need to get used to concordances before further independent access to DDL. However, all these positive characteristics that hands-off DDL offers do not overcome or revoke DDL's hands-on advantage on high levels of learners' autonomy and long-term retention.

3.5 Presenting Concordance Lines

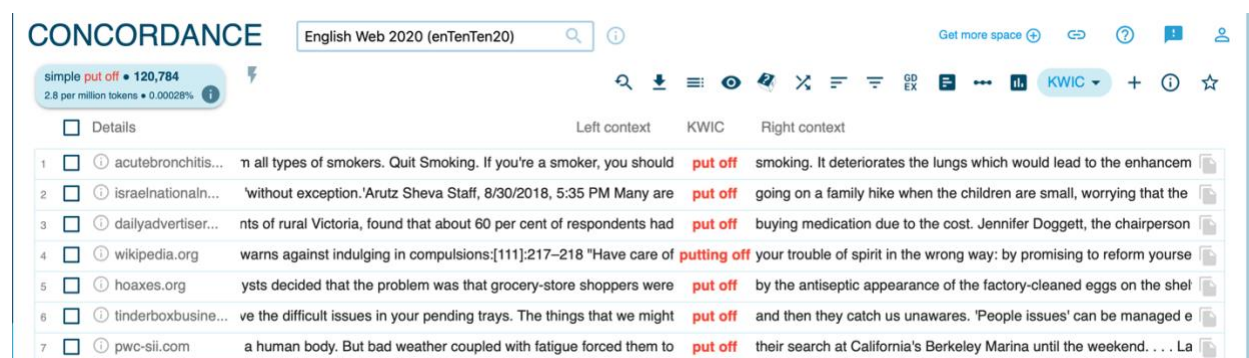
Most classroom DDL activities are based on concordance lines, which are defined by Baker et al. (2006) as “a list of all of the occurrences of a particular search term in a corpus, presented within the context in which they occur” (P. 42-43). To generate concordances with the use of technology, a concordancer is usually needed, which is a software or computing tool that allows users to retrieve all contexts of a target search item, e.g., words or phrases from large texts, and

present them in a useful shape for quick scanning and comparison (Johns, 1991; Tribble & Jones, 1997).

Concordancers can present and view concordances in two formats, in the form of key-words in Context (KWIC) or in the form of a complete sentence (Gilquin & Granger, 2010; Tribble & Jones, 1997). In the KWIC form, the target search term, or what is known as the node word, appears in the middle and is surrounded from the left and right sides by a few words of the actual contexts (see Figure 1). However, in the form of complete sentences, concordances can be presented and viewed in the form of a whole sentence without distinguishing the node word from the result of the sentence (see Figure 2).

Figure 1

An Example of the Phrasal Verb 'put off' in KWIC Format



	Left context	KWIC	Right context
1	acutebronchitis... n all types of smokers. Quit Smoking. If you're a smoker, you should	put off	smoking. It deteriorates the lungs which would lead to the enhancem
2	israelnationaln... 'without exception.'Arutz Sheva Staff, 8/30/2018, 5:35 PM Many are	put off	going on a family hike when the children are small, worrying that the
3	dailyadvertiser... nts of rural Victoria, found that about 60 per cent of respondents had	put off	buying medication due to the cost. Jennifer Doggett, the chairperson
4	wikipedia.org warns against indulging in compulsions:[111]:217-218 "Have care of	putting off	your trouble of spirit in the wrong way: by promising to reform yourse
5	hoaxes.org ysts decided that the problem was that grocery-store shoppers were	put off	by the antiseptic appearance of the factory-cleaned eggs on the shel
6	tinderboxbusine... ve the difficult issues in your pending trays. The things that we might	put off	and then they catch us unawares. 'People issues' can be managed e
7	pwc-sil.com a human body. But bad weather coupled with fatigue forced them to	put off	their search at California's Berkeley Marina until the weekend. . . . La

Note. This figure was captured from Sketch Engine – English Web 2020 ‘enTenTen20’, https://app.sketchengine.eu/#dashboard?corpname=preloaded%2Fententen20_tt31_1, Copyright 2020.

Figure 2

An Example of the Phrasal Verb 'put off' in Sentence Form

CONCORDANCE English Web 2020 (enTenTen20)

simple put off • 120,784
2.8 per million tokens • 0.00028%

Details sentence KWIC

1	acutebronchitis...	If you're a smoker, you should put off smoking.
2	israelnationaln...	Many are put off going on a family hike when the children are small, worrying that the stroller will not fit through.
3	dailyadvertiser...	The survey, of 325 residents of rural Victoria, found that about 60 per cent of respondents had put off buying medication due to the cost.
4	wikipedia.org	111]:217–218 In one of them, he warns against indulging in compulsions:[111]:217–218 "Have care of putting off your trouble of spirit in the wrong way: by promising to reform yourself and lead a new life, by your performances or duties".[
5	hoaxes.org	After studying the situation, its analysts decided that the problem was that grocery-store shoppers were put off by the antiseptic appearance of the factory-cleaned eggs on the shelves.
6	tinderboxbusine...	The things that we might put off and then they catch us unawares.
7	pwc-sii.com	But bad weather coupled with fatigue forced them to put off their search at California's Berkeley Marina until the weekend. . . . Laci's mother Sharon Rocha tells NBC's "Today" show she doesn't feel what was found in the marina will end up being her daughter's body.

Note. This Figure was captured from Sketch Engine – English Web 2020 ‘enTenTen20’, https://app.sketchengine.eu/#dashboard?corpname=preloaded%2Fententen20_tt31_1, Copyright 2020.

Each of these forms of viewing concordances has its advantages and disadvantages, as Boulton (2009b) and Gilquin and Granger (2010) discussed. Presenting concordances in the KWIC format could cause confusion for learners, particularly those who are at a low proficiency level. This confusion is due to its nature of presenting the output as an incomplete sentence. Thus, regular sentence viewing may be more appropriate in the sense that it has the same features as a regular sentence that the learners usually have. However, KWIC viewing has the advantage of presenting the target search terms in a more visible way than regular sentence viewing because the node word or the target search terms are aligned under one another, which enhances noticing.

3.5.1 Paper-based Concordance Activities

Concordance lines output offers learners a chance to deeply investigate lexical and grammatical patterns of a language and present how a single word could have more than one meaning and usage (Boulton, 2009a; Reppen, 2010). There are various types of paper-based concordance activities proposed in the literature that help learners benefit from concordance lines

output in the language classroom. Tribble and Jones (1997) proposed several modules of activities that could help language teachers in designing hands-off corpus-based classroom activities.

Tribble and Jones (1997) proposed that activities can be divided into two different categories according to the type of task required. The first category is based on presenting learners with raw concordances and then asking learners to look at the KWIC output and answer various questions. For instance, detecting the meaning and the grammatical features of keywords or doing homonyms and synonyms activity. In these types of activities, learners have raw concordances and are asked to discover the various meanings and different grammatical features of a target word (e.g., depend on vs. interested in) or distinguish between two different words that have the same meaning (e.g., above vs. over). The second category is based on generating exercises from concordance lines output by performing slight modifications to the concordance lines. For example, fill in the gaps exercise or match the concordance outputs. In gap-filling exercises, learners are asked to complete the KWIC with the appropriate word by identifying the missing KWIC from a list provided. However, in matching the concordance exercise, learners are asked to match the first context before the KWIC with the correct second part of the concordance to produce a complete concordance line; for further classification, (see Figure 3).

Figure 3

Matching the Concordance Exercise (adapted from Tribble and Jones, 1997)

In the concordance below something seems to have gone wrong with the printer! The contexts after the word *such* have come out in the wrong order. Can you put them back in order so that the first part of each context matches the second part? Write a number in the brackets at the end of each context to show which ending goes with each beginning. The first one has been done for you.

- 1 Burnley; 'but think how she felt, such things as salad, vegetables and bre (12)
- 2 d not mind. To him the old man was such thing as a ones meal. The recipes th (..)
- 3 nd this applies to other countries such richness of choice that a Book Toke (..)
- 4 r on clothes.-Empty containers, such as his nickname or what foods he lik (..)
- 5 the road to warn drivers at places such a little girl, she was only eleven, (..)
- 5 ything she should know about him, such as aerosols or tins. A combination (..)
- 7 gifts animals give us painlessly. such times the boy did not laugh. He was (..)
- 8 thin a year or two from illnesses such dinners, optimism is restored, and o (..)
- 9 e remains. Friend - ships bloom at such as skin cancer or pneumonia which th (..)
- 10 t under the sun. This is world of such as Australia, New Zealand and Can (..)
- 11 dish-Suppers There really is no such an object of fascination that he se (..)
- 12 ed accompaniment to the meat, are such as bends and brows of hills where t (..)
- 13 d rosewood and mahogany floor. At such as milk and eggs. The proposition (..)

Figure 11: Jumbled contexts of *such*

Note. This figure was adapted from, *Concordances in the classroom: A resource guide for teachers* (p: 58), by C. Tribble and G. Jones, 1997, Athelstan Publications. Copyright 1997 by Athelstan Publications.

These activities provided by Tribble and Jones (1997) are models for instructors to use and could be adapted or modified based on the type of the taught target item, in addition to learners' abilities and proficiency levels. Such model activities open the door for language instructors to design various corpus-based activities according to their needs.

3.6 DDL Meta-analysis Studies

DDL research is a flourishing field in which different types of learners from various cultures in a wide range of learning environments have shown a positive influence of DDL on various language aspects like vocabulary, grammar, and even in developing academic writing (e.g., Alhujaylan, 2016; Aluthman, 2017; Boulton, 2008; Cobb, 1997). Meta-analysis studies are widely used to combine the effect sizes of comparative studies into a single large analysis and calculate the overall effect. DDL meta-analysis studies have been examined to boost the precision of the conclusions regarding the effect of DDL on language learning processes and outcomes.

Boulton and Cobb (2017) conducted an empirical study on corpus use in language learning. Meta-analytic procedures were used to illustrate the effects of experimental and quasi-experimental examinations on the effectiveness of implementing DDL as techniques and tools for L2 learning and use. Sixty-four empirical studies were used to collate data from over 3,000 participants. The meta-analysis found that the DDL approach had large positive effects on second language learning outcomes. For studies comparing learners' performance before and after a DDL intervention, the average effect size was large, indicating DDL substantially improved language skills. For studies comparing DDL groups to control groups, the average effect size was also large, showing DDL was more effective than traditional methods of language instruction. Moreover, variables, which are publication details, population samples, treatment, and design, were examined, and results showed that minor size effects were linked to the small number of samples. This meta-analysis study also revealed that DDL was more intensively conducted in FL contexts than L2 contexts. Also, the studies conducted in the Middle East achieved large effect sizes compared to those conducted in Asia and Europe which showed large to medium effect sizes. Moreover, a large effect size of DDL was linked with intermediate learners' levels, in addition to

learners who are studying languages as a major. Overall, this meta-analysis confirmed that DDL is a robust and effective approach to learning regardless of the corpus size, and the method used to access the corpus, whether it is hands-on or paper-based. However, for strong results, longitudinal studies and delayed post-test designs are required for more solid evidence of the efficacy of DDL on L2 learning.

A more recent study by Lee et al. (2019) published a multilevel meta-analysis aimed at presenting the effectiveness of corpus usage on second language vocabulary learning, along with the impact of the moderators ‘population, publication, and treatment data of the collected studies’ on its efficacy. The criteria followed to collect the data were previous experimental studies with a control group for corpus usage, which means measuring the differences between the two groups, the experimental and control groups. There are a number of criteria that have been followed to determine the target studies to include in the meta-analysis, which are studies that have a random control group, provide instructions to the control group, and report descriptive statistics of participants' post-test scores. Based on the results of the inclusion criteria, 29 studies that represent 38 samples were selected for further analysis. The result illustrated that corpus use has a positive medium-sized impact on L2 vocabulary learning in all periods, whether it is short (one learning session or less than two hours of experiment) or long (more than ten learning sessions). Also, if the concordance lines have been chosen purposely, the result is more effective. Moreover, the depth of knowledge (the referential meaning, ‘e.g., synonyms’ and the syntactic features, ‘e.g., collocational patterns’) of L2 vocabulary knowledge showed a large effect size. Some factors, such as learners' L2 proficiency and corpus training sessions, interaction and corpus types, and duration of the learning, were examined to determine whether they play an influential role in improving L2 vocabulary learning. The results revealed that neither corpus type, duration of

learning through DDL, nor DDL training sessions significantly influence vocabulary L2 learning. In other words, DDL is still effective regardless of these factors. This meta-analysis has two main limitations: one is that the sample size was small, and the other is that learners' proficiency level was not recorded accurately enough.

These meta-analysis studies confirmed that DDL barriers and limitations do not nullify the obvious influential advantages of DDL on developing language learning. Many experimental studies have been conducted over decades and around the world and have proven the overall positive influence of DDL as a pedagogical approach.

3.7 Review of DDL Empirical Studies and Phrasal Verbs

There is no doubt that DDL has a positive influence on language learning. However, according to my knowledge, only a limited number of studies have been conducted to explore the effectiveness of DDL on learning and teaching PVs, and none of the studies were conducted in the Saudi context. In this section, all the experimental studies that were conducted to examine the influence of DDL on learning English PVs are chronologically reviewed to provide a clear overview of all the current state of affairs.

The first study that involved PVs, was a simple experimental study conducted by Boulton (2008) to examine whether learners who are of a low proficiency level could detect the meaning and use of two PVs (*pick up* and *look up*) through exposure to concordance lines output. The participants of this study were 113 first-year engineering students at a college in France. Most of the participants were male (84%), their age was over 18 years, and 4 of them were native speakers of Chinese and Arabic. To collect the required data, a pre-test was given to students, which consisted of 10 concordance lines, and students were required to select the correct verb (*picked vs. picked up*) or (*looked vs. looked up*) to complete the concordance. Printed-out concordances from

the British National Corpus (BNC) were used as a method to implement DDL in the classroom and expose learners to the target PVs. Learners had 10 minutes to read the concordances, then they were given the post-test, which was similar to the pre-test. During the post-test, learners were allowed to consult the printed concordance lines that they had studied. The whole experiment took place in one session and lasted under 30 minutes, and participants did not receive training prior to the experiment. The results of this study were promising. Even though the highest scores in this study were in favour of higher proficiency level learners, lower proficiency students showed an improvement in their ability to discern and gain linguistic knowledge of the two PV patterns through concordance analysis. However, Boulton claimed that there was a need for further research to examine the effect of DDL on the learning of PVs.

Following Boulton's first study in 2008, Azzaro (2012) conducted experimental research to investigate the effectiveness of using DDL in teaching 10 English PVs. Two techniques were followed in teaching two groups PVs; for each group, 5 PVs were taught through dictionary entries, and the other 5 PVs via concordance-based DDL. The participants were from different academic years and courses. The 1st group involved 82 students and the other 30 students. The 1st group during the experiment worked in groups of 2-3, whereas the 2nd group worked individually. The method used to collect data was within-group pre-posttests. The results revealed that students score higher at the words taught by DDL than those taught via dictionary. Moreover, the 30 students group achieved higher scores than the other group, which consisted of 82 students. The researcher claimed that this achievement is due to two main reasons, which are that the number of students was small, and their age was higher than the other group. In general, this study concluded with a claim that DDL has a positive impact on learning PVs.

Another experimental study was conducted by Sarab and Kardoust (2014), which aimed to reveal the impact and the difference between paper-based data-driven activities and dictionary-based activities on learning PVs. This study aimed to establish whether DDL is more effective than dictionary learning in immediate and delayed results. To answer this question, 34 male Iranian freshmen university students were divided into two groups: experimental and control groups. The participants were involved in fifteen sessions, including a 30-minute introductory session, with the rest of the sessions lasting for 90 minutes each. This quasi-experimental study used pre-posttests to measure participants' performance and another delayed post-test (nearly five weeks after the immediate post-test) to compare the achievement of the two groups. The findings demonstrated that DDL activities, when administered over an extended duration, have a significantly positive effect on learning PVs compared to the utilization of dictionary definitions. The study concluded by affirming that paper based DDL activities play a positive role in enhancing the learning of English PVs among low and intermediate Iranian EFL students and encourage them to be more independent in the learning process.

Özbay and Özer (2017) investigated the effectiveness of applying DDL instruction in improving learners' collocational competence. The research design was a mixed method; quantitative and qualitative. A placement test was administered prior to the study to ascertain the proficiency levels of the participants, which included 31 Turkish students aged between 16 and 18 years. They were then divided into two groups: 15 in the experimental group and 16 in the control group, with proficiency levels ranging from pre-intermediate to advanced. The first group was trained to use the DDL approach inductively, receiving clarifying instruction and focusing on the PV pattern, which involves a combination of a verb and a preposition, while the other group underwent deductive training using a non-DDL method. In the experiment, learners who joined

the DDL approach were trained to utilize corpus tools, such as AntConc. A corpus of 5 million words was built using 115 randomly selected books, enabling learners to interact with authentic language data. Learners worked with the concordances and looked up the meanings of the PVs. The instrument used for collecting data was a pre-posttest. The instrument employed for data collection in this study was a pre-posttest design. Findings from the study indicated that there were discernible differences in outcomes across the various activities undertaken by the DDL group. In particular, participants from the DDL group exhibited a notable enhancement in achievement levels during the post-test, especially in activities such as gap-filling, error identification, and correction tasks. Conversely, when engaged in the single sentence writing activity—where participants were tasked to generate a correct sentence utilizing the target PVs—the performance of the learners did not exhibit a significant divergence compared with the other group.

In the same vein, Troy and Millar (2019) conducted a study in a private English school in Japan to measure the effectiveness of using a data-driven approach in learning PVs. The study utilized a micro-evaluation approach consisting of four components: a learning-based evaluation via pre- and post-tests to assess learning outcomes; a response-based evaluation through analysis of classroom recordings; a student-based evaluation via post-course interviews to gain student perspectives; and an overall feasibility assessment through teacher reflection. This multi-faceted evaluation strategy enabled the production of quantitative learning data along with important qualitative insights into student motivation, classroom processes, and real-world viability of the data-driven learning approach. The sample of this study included 16 Japanese participants whose ages ranged from 16 to 70; however, most were adults aged 26-50 years old and were intermediate and advanced private school students. The participants were divided into two groups, an experimental group (DDL approach) and a control group (non-DDL approach) which means each

group consisted of only 8 students (one male and seven females). 22 PVs were taught to both groups, and the treatment duration was one month (3 lessons, each lasted for 1 hour), and the findings showed that both the DDL and non-DDL approaches resulted in significant gains in test scores, with no statistically significant difference between the two approaches. However, the DDL class provided substantially more student talking time and student-centred activities compared to the more teacher-centred non-DDL class. The data from the interviews revealed that students largely reacted positively to the DDL method, citing benefits for motivation and learning, though some found it time-consuming. The class recordings confirmed that DDL is time-consuming. Students in the first session spent 5 minutes reading the concordance of each PV, whereas in the final session, the time decreased. The researchers claimed that one of the main limitations of this study is the small number of participants. A larger sample could provide more insight into the benefit of DDL on language learning.

The final empirical study to be reviewed in this section, conducted by Girgin (2019), explored the role of corpus-based activities in learning phrasal prepositional verbs (verb + particle + preposition). The main aim was to decide if six hours of instruction through corpus-based activities could contribute to developing three main aspects: students' recognizing and understanding the verb form, understanding the structure's metaphorical meanings, and forming accurate verb structures to be able to use them in paraphrasing purposes. The participants were 70, 48 female and 22 male, Turkish university students, and their English proficiency level was upper-intermediate. A quantitative pre-posttest was used to collect the required data. Three tests were administered: testing for form recognition, meaning via multiple choice, and sentence rewriting, along with the corpus-based activities. The instructions spanned two days, with six hours allocated to each class. Participants were presented to 4 sets of corpus-based activities, each comprising 20

concordance lines retrieved from the Corpus of Contemporary American English (COCA) that included 10 phrasal-prepositional verbs and five different kinds of tasks (including form, meaning, and use activities). 2 weeks after the treatment, participants were given a post-test. The result revealed that the six hours of instruction had proven the effectiveness of corpus-based activities in two aspects, form, and use, while it was not effective in teaching metaphorical meanings of PVs. For further studies, the researcher suggested conducting longitudinal studies to measure the prolonged effect of using corpus-based activities and examining the influence of corpus-based activities on other skills like speaking. Furthermore, the researcher argued that this study design should be applied to participants from different proficiency levels and backgrounds. Additionally, it was noted that this study did not compare the results with another group, i.e., the control group, to ascertain the influence.

To sum up, experimental research that explored the influence of DDL as an approach to learning English PVs has not been given special attention in the research literature. Over the past 30 years, only six experimental studies have been conducted to explore that effect. Moreover, these six studies have several limitations that make it difficult to generalize the findings. Some of these studies were conducted to explore learners' improvement of a few PVs (Boulton, 2008). Other studies used research designs that do not have a control group (Girgin, 2019), which makes it difficult to ensure the internal validity of the experiment, i.e., without the control group, it is difficult to judge whether the outcome is caused by the treatment or by any other variable. Moreover, the participants in some experiments were from a wide range of ages (Troy & Millar, 2019). Other studies were conducted among mixed genders (Boulton, 2008; Girgin, 2019) and among learners from different proficiency levels (Boulton & Cobb, 2017). In addition, none of these six experimental studies were conducted in the Saudi context or on Arab EFL learners.

3.8 DDL Experimental Studies in the Saudi Context

A limited number of studies have been conducted in the Saudi context to explore the influence of the DDL approach on Saudi EFL learners, teachers, and classrooms. Alhujaylan (2016) conducted a study aimed to broaden the understanding of the effect of using DDL paper-based tasks and dictionary-based tasks for teaching verb-noun collocations and lexical phrases. This study also worked on understanding L2 learners' and teachers' attitudes toward these types of activities. The collocations and lexical phrases studies were designed as follows: Four weeks before the treatment for the collocations study and five weeks before the treatment for the lexical phrases study, a pre-test for each group was given in addition to a vocabulary placement test called vocabulary levels test (VLT). A week before the experimental sessions, learners were introduced to the DDL approach and collocations and lexical phrases worksheets. In the first week of the treatment, the two experimental groups received counterbalanced treatments for learning collocations. Group one worked with five concordance worksheets focused on certain target collocations, then five dictionary worksheets focused on different target collocations. Group two received the opposite order of treatments. Questionnaires on the collocations worksheets and interviews were administered to both groups during the same week. In the second week of the treatment, the groups received counterbalanced treatments for learning lexical phrases, with the order of concordance and dictionary worksheets reversed from week one. Each group completed five concordance worksheets focused on specific target lexical phrases, followed by five dictionary worksheets on different targets. Questionnaires on lexical phrases worksheets and interviews were carried out with both groups during the same week. Later, in week 3, short-term delayed post-tests on collocations were given to both groups, whereas short-term delayed tests on lexical phrases were given in week 4. Moreover, two long-term delayed post-tests (one on collocations and the

other on lexical phrases) were designed to assess learning. The delayed tests on collocations were delivered in week 9, whereas the delayed tests on lexical phrases were taken in week 10. The short-term delayed post-tests aimed to explore the improvement of learners' knowledge of the forms and meanings, whereas the long-term delayed post-tests aimed to determine whether the participants retained any learning gains over time. The results of this experiment revealed that, in general, Saudi learners perform better using DDL. More specifically, the short-term delayed post-test results, in the case of collocations, were not significantly higher than the dictionary-based instructional condition, but they were significantly better in the lexical phrases condition. However, the DDL long-term delayed post-tests results were significantly higher than the dictionary results for both the collocations and lexical phrases. The results of the questionnaires and interviews showed that Saudi learners and teachers have positive attitudes and perceptions toward DDL materials.

Another study was conducted in the Saudi context by Aluthman (2017) to examine the influence of the DDL approach on the improvement of learners' authorial voices, specifically in terms of the selection and usage of citation patterns, in an educational academic writing context. Another aim of this study was to investigate learners' choices of integral and non-integral citation patterns before and after using DDL. The participants were 32 upper-intermediate and advanced Saudi EFL learners who were asked to write a review of the literature before being given the treatment. Then, learners over 3 weeks were given the same amount of DDL training and were asked to write literature reviews. It is obvious from the above summary that this study utilized a repeated measure design. The participants' performance in the mastery of citation patterns and selection of integral and non-integral citation patterns were analysed before and after the DDL training. The paired sample t-test measure was applied to participants' submissions before and

after the DDL. The data analysis revealed that DDL has an influence on improving learners' authorial voices, and a significant increase in the use of non-integral citation patterns to sounds like native speakers. In other words, this study confirms the effectiveness of guided instruction using corpus-based activities in improving Saudi learners' general proficiency.

Alruwaili (2020) published a paper that addressed Saudi learners' actual use of corpora in classrooms for exploring general verb patterns. 51 female participants, who were at an intermediate proficiency level and studying general English during their foundation year, were involved in the study. The study aimed to explore whether learners learned how to use the DDL approach independently in the EFL classroom and whether there is a link between learners' performance on completing general verb tasks and their usage of DDL. The study ran for five weeks (3 training sessions and 2 testing sessions), and each session lasted for one hour. In the training sessions, learners were trained on how to use corpus analysis tool (AntConc) and how to read and interpret concordance lines. In the testing sessions, learners did tasks similar to the ones in the training sessions but without guidance. Data were collected from learners' completion of the task and answering a set of questions in addition to the information generated from tracking logs software 'All-In-One Keylogger.' Results of this study revealed that Saudi intermediate-level learners are able to use corpus resources in the same way as they had been trained, and learners are able to identify general verbs by using concordance lines. This study did not measure learners' level of acquisition; the researcher stated that she is not able to claim that the concordances have an influence on improving learners' acquisition of general verbs because of the absence of a pre-test or post-test.

Moreover, Alruwaili (2018) examined learners' attitudes towards the DDL approach, and 'AntConc' as a corpus tool for obtaining concordance lines were examined. Learners' reflective

forms and in-depth interviews showed that most Saudi learners have a positive attitude toward using DDL in language learning classrooms. Learners believe that the DDL approach boosts their confidence and positively influences their English language development. However, learners claimed that they faced some difficulties while using the corpus. Some learners indicated that concordance lines involved difficult words, which made it hard to read and comprehend. The researcher claimed that according to students' suggestions, concordances could be integrated into the Saudi English curriculum as a type of activity.

On the other hand, Alruwaili (2018) examined teachers' attitudes toward corpora in their classrooms. 56 Saudi female teachers were involved in this study and attended a training workshop on using corpus in classrooms. To collect data, two questionnaires were used (one before the training and another after), and interviews were conducted. Data were quantitatively and qualitatively analysed and revealed that teachers' attitudes were moderately positive towards the use of corpora in the classroom. There are some factors that influence teacher attitudes, e.g., training courses, computer literacy, and teachers' perceptions towards the role of the learner and the teacher in the communicative approach. The interviews provide an in-depth examination of Saudi teachers' attitudes toward the use of the corpus in the classroom. The findings suggest that, after addressing the main obstacles that could prevent the implementation of the DDL approach in the Saudi EFL setting, the utilization of corpora is feasible.

In sum, DDL approach has been used to teach languages for over three decades, but until now, it was not a standard method of language teaching and learning in Saudi Arabia classrooms. A limited number of studies were conducted in the Saudi context either to use DDL as an approach to improve learners' writing skills (Aluthman, 2017) or to examine learners' ability to use DDL in classrooms (Alruwaili, 2020). The majority of the studies have centred on exploring Saudi EFL

learners' and teachers' perceptions and attitudes toward the use of corpora in classrooms (Alhujaylan, 2016; Alruwaili, 2018). Only one study was conducted to examine Saudi learners' usage of DDL in classrooms to influence learners' collocation and lexical items (Alhujaylan, 2016). Thus, there is a lack of published studies that examine the influence of DDL on the EFL acquisition of PVs in the Saudi context. Furthermore, experimental work exploring the implicit and explicit use of DDL in language learning is lacking. Therefore, the next chapter will shift its focus toward comparing and contrasting explicit and implicit instruction which are two fundamental approaches to language learning. This discussion is crucial as it not only enhances our understanding of effective language teaching strategies but also prepares the ground for evaluating how DDL, as an innovative approach, can be integrated into classroom settings.

4. Chapter 4: Implicit and Explicit Learning and Instruction

4.1 Introduction

This chapter starts by examining and defining the concepts of explicit and implicit learning from the perspective of cognitive psychology, neuropsychology, and applied linguistics, to give a full image of the characteristics that shape these two concepts from different perspectives. It discusses the efficacy of each type of learning by examining a range of experimental studies, which will encourage understanding the influential extent of each type in the learning process. In addition, this chapter examines the difference between explicit instruction and implicit instruction in learning in general and particularly in second language acquisition and the effect of each type of instruction on short-term and long-term L2 retention; this will help in understanding whether there is an influence of each interactional type on L2 learning and the scope of the instructional effect on short-and long term L2 retention. This chapter also examines the impact of mass learning and distributed learning on the learning and retention of a second language; this will provide a clear image of the influence of these two approaches on L2 long and short-time retention, which also will facilitate further work in designing the experiments in the current study.

4.2 Explicit and Implicit Learning

A fundamental part of any experience is learning; humans often learn something from exposure. Richards and Schmidt (2010) defined learning as “the process by which change in behaviour, knowledge, skills, etc., comes about through practice, instruction or experience and the result of such a process” (p. 328). There are different ways in which the process of learning may occur. Two of the best-known forms of learning that are based on different cognitive processes are implicit and explicit learning. These approaches to learning have been discussed extensively in the literature from different perspectives. The following sections in this chapter will discuss the

concept of implicit and explicit learning from the perspective of cognitive psychologists, neuropsychologists, and applied linguists who are specialized in second language learning (SLA).

4.2.1 Implicit and Explicit Learning from the Perspective of Cognitive Psychology

Several definitions have been proposed by various scholars from different disciplines, which makes it a bit challenging to highlight the difference between implicit and explicit learning. However, early attempts to differentiate between implicit and explicit learning were originally presented in psychology. Thus, it is worth starting by examining the dissociation between these two types of learning from the perspective of early cognitive psychologist researchers who built the foundation of implicit and explicit learning. Reber (1976) dissociated explicit and implicit learning by defining implicit learning as “a primitive process of apprehending structure by attending to frequency cues” (p. 93). However, Reber (1976) referred to explicit learning, or what he called rule learning, as “a more explicit process whereby various mnemonics, heuristics, and strategies are engaged to induce a representational system” (p. 93). Based on these distinctions, a few key concepts formed the dissociation between implicit and explicit learning, which are that the explicit process of learning is based on strategies and memory aids, whereas the implicit process of learning is a more innate and natural process that is usually based on exposure and frequency. Thus, implicit learning could be distinguished from other types of learning by the lack of consciousness or intention of the learning structure.

Further definitions of implicit learning have been proposed after Reber’s (1976) early dissociation between implicit and explicit learning. For instance, Seger (1994), refers to implicit learning as “nonepisodic learning of complex information in an incidental manner, without awareness of what has been learned” (p.163). According to these definitions and many others proposed by cognitive psychologists, several characteristics have been highlighted to differentiate

between implicit and explicit learning. During implicit learning, learners are not aware that they are involved in a learning process, and they cannot verbalize what they have learned, although the effect of learning is visible in their performance. On the other hand, during explicit learning, learners are aware that the learning process is taking place, and they usually learn by instructions and memorizing rules. As a result of being taught the rules, they have the ability to verbalize their knowledge by stating the rules.

4.2.1.1 Efficacy of Implicit and Explicit Learning. Both implicit and explicit learning are important processes that contribute to our overall ability to acquire new knowledge and skills. They are different types of learning processes that can occur in a variety of contexts. Implicit learning has been demonstrated to exist through various experiments and studies in psychology. Reber (1967) coined the term implicit learning after conducting experimental research about artificial grammar learning to investigate the mechanisms underlying language learning and processing. In this empirical study, participants were asked to practise and memorize a meaningless list of strings as stimuli without being aware of the fact that those strings are generated from a grammatical rule, and they are in the process of learning. After that phase, participants were requested to differentiate between new strings, determining whether they followed correct grammatical patterns or not. Participants showed an ability to distinguish between grammatical and non-grammatical structures even though they were not able to explain the rules verbally. Reber claimed that the implicit learning process is effective for learning in general, especially for learning complex rules. He used the paradigm of artificial grammar learning to show that new knowledge could be acquired unconsciously, and he claimed that implicit learning yields abstract knowledge.

The findings of Reber's empirical study about artificial grammar learning inspired further researchers in the discipline to examine the dissociation of the implicit and explicit process of

learning. Since then, numerous follow-on studies have confirmed and extended the primary findings of artificial grammar learning (e.g. Reber, 1989; Reber & Lewis, 1977). In addition to a considerable development in analyzing implicit and explicit learning by following a number of other experimental paradigms and methods rather than artificial grammar learning. For instance, Berry and Broadbent (1984) conducted a study seeking to find out how participants learn to control complex systems by a paradigm known as dynamic system control. In this experiment, participants found themselves in an imaginary situation where they were asked to control the sugar production plan for a factory by managing variables like workers' numbers, salaries, work input, output, and so on in order to achieve the target production. As a result, participants implicitly learned the dynamic rules to control the system even though they could not state the rules. The concept of implicit learning has proven its existence and effectiveness even though it was applied in different conditions and contexts than learning language rules.

Another experimental paradigm was used by Nissen and Bullemer (1987), who adapted sequence learning experiments to prove the existence and effectiveness of implicit learning, learning without awareness. In this experiment, serial reaction time tasks (SRT) were given to participants to measure their reaction times to a sequence of stimuli. A light appeared on a monitor at one of four positions, and participants were required to press the key below the light's position. The sequence of lights could either be randomly generated or follow a repeating 10-trial pattern. The results revealed a rapid decrease in reaction time with training in the repeating sequence but not in the random sequence. In other words, when participants in the repeating sequence condition were changed to a random sequence, their reaction times significantly increased. Most participants in the repeating sequence condition successfully recognized the sequence. Nissen and Bullemer's

(1987) experimental study revealed that sequence learning could occur implicitly, and participants were able to learn the underlying structure of the sequence without conscious awareness.

The dissociation between implicit and explicit learning was first introduced in the 1960s by cognitive psychologists. Various experimental diagrams were used to examine the characteristics, possibility, and efficiency of implicit learning compared to explicit learning. The number of experimental research studies in cognitive psychology, which were conducted to confirm the existence and effectiveness of implicit learning, has increased over the years, and many similar findings have been obtained that confirm the possibility of learning without awareness. The promising results of early experiments have opened the door for further research in cognitive psychology and different fields like neuropsychology and second language acquisition.

Neuropsychology is a scientific discipline dedicated to exploring the intricate interplay between brain function and behavior, with a particular emphasis on cases involving brain injuries or neurological disorders. Within this domain, neuropsychologists have extensively investigated the differentiation between implicit and explicit learning and have scrutinized the effectiveness of implicit learning from their own perspective. The corroborating evidence derived from neurological studies provides additional support for the interpretation of the observed behaviors and outcomes obtained from these investigations. Consequently, the integration of neurological research findings contributes to a more comprehensive understanding of the underlying mechanisms and neural substrates involved in implicit learning processes.

Many studies in neuropsychology used various methods and equipment like a brain positron emission tomography (PET) scan, which serves as a brain imaging examination, or functional magnetic resonance imaging (fMRI), which detects minute variations in blood flow

associated with brain activity, to examine the brain activity and mechanism during implicit and explicit learning (Destrebecqz et al., 2005; Yang & Li, 2012). The results revealed that there is a clear separation between brain areas that are involved in implicit learning and other areas which are responsible for explicit learning. In other words, the two types of learning have different brain networks. The neural systems in the prefrontal cortex are involved in explicit learning, characterized by the conscious apperception of stimuli, and the neural systems in the hippocampus and related limbic structures are involved in explicit memories. In contrast, the striatum, which is a part of the brain located in the basal ganglia, is responsible for implicit learning. This separation supports the existence of separate mechanisms for implicit and explicit learning. Cognitive neuroscience suggests that implicit and explicit learning are different processes and that people have different memory systems for each, each stored in different parts of the brain, which contain different types of knowledge.

Implicit learning has also been applied to language pathology. A recent study by Schuchard and Thompson (2014) investigated implicit and explicit learning of auditory word sequences in individuals with stroke-induced agrammatic aphasia and healthy controls. The findings indicated that individuals suffering from agrammatic aphasia made significant progress in learning auditory word sequences implicitly rather than learning explicitly. On the other hand, this study revealed that normal healthy participants who were treated as a control group showed an improvement in both ways of learning. This underscores a notable capacity for implicit learning in agrammatic aphasia, despite apparent challenges with explicit learning and accompanying working memory deficits.

In short, different experimental studies have been conducted by using different experimental paradigms and various types of equipment to observe and examine implicit and

explicit learning across a range of domains, e.g., language skills, and on a range of participants, e.g., healthy adult participants and people who are suffering from neurological disorder like aphasia. These studies revealed that both methods of learning, whether implicit or explicit, do exist and lead to improvements in behavior and knowledge. In other words, learning could occur with and without awareness of the learned element.

4.2.2 Implicit and Explicit Learning from the Perspective of Applied Linguistics

As discussed in the previous section, the separation between implicit and explicit learning was first introduced in cognitive psychology, and, after a few years, the concept of implicit and explicit learning has been extended to be discussed in SLA field (e.g., Dekeyser, 1994; N. Ellis, 2008; R.Ellis et al., 2009; Hulstijn, 2005). SLA researchers have proposed many definitions of implicit and explicit learning from the perspective of applied linguistics and language acquisition theories. For instance, Dekeyser (1994) generally distinguished between implicit and explicit learning by simply referring to implicit learning as the type of learning where no rules are formulated about the learned items; in contrast, explicit learning does involve rules formulation in the process of learning. In this definition, rule formulation was vital in determining and distinguishing between these two types of learning. However, Hulstijn (2005) expanded the explicit and implicit definitions and referred to implicit learning as “input processing without such an intention, taking place unconsciously” whereas explicit learning is defined as “input processing with the conscious intention to find out whether the input information contains regularities and, if so, to work out the concepts and rules with which these regularities can be captured” (p. 131). These definitions correspond with previous definitions proposed by cognitive psychologists, where implicit SLA learning would occur without awareness; thus, no explicitly available knowledge is generated about the learned item. In contrast, explicit SLA learning would take place

with an awareness of that learning process; thus, learners can verbalize the rules because they are aware of the generated rules about the learned knowledge.

Many other definitions of implicit and explicit learning have been proposed in and linked to SLA research. Among these definitions, there is a distinction between the concepts of implicit and explicit learning in SLA that has been proposed by Williams and Rebuschat (2023). According to Williams and Rebuschat (2023), when learners learn from their environment under incidental exposure conditions and without being aware of what they are learning, this phenomenon is referred to as implicit learning. This type of learning unfolds when learners remain oblivious to the targeted learning objective as well as the impending assessment. On the other hand, when learners learn from their environment under intentional exposure conditions and by employing conscious learning strategies, e.g., being aware of the testing, this phenomenon is referred to as explicit learning. This type of learning occurs when learners are informed of the targeted learning and actively engage in acquiring the knowledge. Table 1 below demonstrates the key characteristics of implicit and explicit learning adapted from Williams and Rebuschat (2023).

Table 1

Key Characteristics of Implicit and Explicit Learning proposed by Williams and Rebuschat (2023)

Explicit Learning	Implicit Learning
Conscious – with awareness	Unconscious - without awareness
Intentional exposure	Incidental exposure
Learners are informed about the learning target	Learners are not informed about the learning target
Might be aware of testing	Having surprise test.

Given the lack of consensus on the conceptualization and operational definition of implicit and explicit learning, it was necessary to set a working definition for this project. Williams and Rebuschat (2023) distinctions and definitions of implicit and explicit learning have been adopted

as key definitions in this project due to their comprehensiveness and recency. These definitions cover all the implicit and explicit learning aspects discussed previously in the literature and present the applications of these two concepts in SLA from the perspective of cognitive psychology in which implicit learning was initially proposed and distinguished.

4.2.2.1 An Overview of SLA Theoretical Frameworks of Implicit or Explicit Learning. For many years, there has been a debate among SLA researchers about learning mechanisms and the most effective method for second language acquisition and learning in general. There are many arguments in the SLA field about whether acquiring L2 is a conscious or unconscious process. Several scholars have debated and questioned the role of awareness within SLA. The question is, how awareness impacts a person's ability to acquire proficiency in a second or foreign language (e.g., N. Ellis, 2002; R. Ellis et al., 2009; Hulstijn, 2005; Krashen, 1982; Robinson, 1995; Schmidt, 1990). When we track the history of implicit and explicit learning from the view of applied linguistics, we find that Krashen (1982), in his monitor model, had already distinguished between two types of knowledge which are acquisition and learning. According to him, learning is an intentional process that results in conscious knowledge, “metalinguistic knowledge” that is used consciously, and it usually occurs in a formal setting, such as a language classroom, and is accompanied by explicit instruction. By contrast, acquiring a second language is an incidental unconscious process that occurs through exposure and results in tacit knowledge. According to him, second language acquisition is similar to the natural and intuitive process of learning a first language, which both are the result of implicit learning. Thus, extensive language input is necessary for successful acquisition. Krashen posited that learning, exemplified by methods such as the grammar-translation method, does not transform into acquisition. Adult L2 learners, through such methodologies, might develop the capability to articulate language rules

and aspects with explicit awareness, sometimes even surpassing native speakers in this regard. However, native speakers, who have acquired the language, often demonstrate a fluency and intuitive linguistic competence that is not necessarily paralleled by a similar explicit understanding of grammatical rules. This provides support for the theory of explicit and implicit learning and rejects any theory that supports a strong overlap between these two types of learning.

As is the case with any theory, Krashen's model was criticized by many scholars and eventually lost some of its importance. For instance, McLaughlin (1987) suggested that merely receiving input is inadequate for effective second language acquisition, and it is necessary to pay attention to the language input in order to learn it. Schmidt (1990) proposed the "noticing hypothesis", which stated that there is no subliminal learning of any kind, including language learning, because paying attention is accompanied by a low level of awareness, which is necessary for adult learners to acquire redundant grammatical features. In other words, language learners need to be aware of the target language forms they encounter in order to pay attention to them and process them effectively. According to this theory, language learners need to notice the difference between what they already know and what they are exposed to in the target language to be able to close the gap between what they already know and what they do not yet know. Schmidt (1990) claimed that there is no guarantee that language acquisition will proceed even if a learner has a great deal of input exposure, frequently participates in meaningful interactions, and has a positive attitude toward the second language. Schmidt's noticing hypothesis has also received its share of criticism over the years. One of the criticisms against the noticing hypothesis is that it is not based on solid evidence or provides a clear interpretation from the perspective of cognitive psychology, i.e., the theory did not provide a detailed explanation of how this process works and how it involves attentional mechanisms and memory (Truscott, 1998).

Since then, there has been considerable disagreement and debate in the literature regarding the theoretical frameworks of the role of awareness in SLA. Different points of view have emerged regarding the efficacy of implicit or explicit learning in L2 learning. Some SLA researchers partially supported the idea of the possibility of unconscious learning of L2, while others partially advocated the importance of attention and conscious awareness to successful learning. For instance, Tomlin and Villa (1994) argued that L2 learners' noticing, and conscious awareness, may not be as fundamental for second language learning as other cognitive processes. A key cognitive process they discuss is detection, which involves registering or picking up specific linguistic features in the input without necessarily having a conscious awareness of them. Detection can occur below the level of conscious attention and still potentially contribute to language acquisition. Thus, according to Tomlin and Villa, learners might process and learn from linguistic input in an L2 even without overtly noticing or being consciously aware of the features being learned.

Regardless of all the contradictions in the theories of SLA, all major theories highlight the fundamental role of input in L2 learning. VanPatten and Williams (2014) state that, "acquisition will not happen for learners of a second language unless they are exposed to input" (p. 9). Thus, input is the key to acquiring an L2, whether awareness is present or absent. N. Ellis (1993) and R. Ellis (1997) offer distinct perspectives on the role of exposure and awareness in SLA. N. Ellis (1993) posits that implicit learning, characterized by acquiring knowledge without conscious intention or awareness, can occur from any type of linguistic exposure, even when it is random or unstructured, underscoring the potency of unconscious learning processes in SLA. In contrast, R. Ellis (1997) advocates for the significance of conscious cognitive processes in language learning, arguing that certain levels of awareness or noticing might be requisite for effective learning to take place, particularly in grasping more complex linguistic elements. Thus, the different perspectives

between these two researchers reflect the broader debate in the SLA field concerning the interplay and importance of conscious and unconscious cognitive processes in language learning.

4.3 Implicit and Explicit SLA Instruction

A second language learner may either learn the language spontaneously by interacting with others in social situations that are authentic, or they may learn it under pedagogical guidance. The first condition is known as uninstructed second language acquisition, which is also known as the naturalistic, unguided, or spontaneous acquisition of L2. The second condition is instructed second language acquisition, which is also known as the guided or tutored condition of the acquisition of L2 (Housen & Pierrard, 2005). The first condition, uninstructed SLA, refers to the concept of learning a language, in the same way that children acquire their first language, i.e., through exposure and interaction with native speakers and real-life communication. However, the second condition, which is instructed SLA, refers to formal language instruction and usually occurs in a classroom setting or through structured language study programs. These two types of L2 learning conditions can be linked to two types of learning instruction, which are implicit and explicit learning instruction.

Instruction is like learning and knowledge: it can be either implicit or explicit. Implicit and explicit instruction refers to the difference in the conditions in which learners are exposed to L2 input (R.Ellis, 2009). Input in language learning has been defined by Richards and Schmidt (2010) as “language which a learner hears or receives and from which he or she can learn.” (p.286). Implicit and explicit instructions are two main types of conditions through which second language learners can learn a language.

Scholars have offered various definitions of implicit and explicit instructions in learning a second or foreign language. Hulstijn (2005) proposed that explicit or implicit instruction is shaped

by the nature of the instruction; thus, when learners receive information about the rules that underlie the input of learning is considered explicit instruction, whereas implicit instruction is when learners do not receive such information. This definition corresponds to a previous definition provided by Dekeyser (1995), who defined explicit instruction as “rule explanation comprised part of instruction” (p. 385), whereas implicit instruction makes learners learn through exposure to examples without awareness. R.Ellis (2009) claimed that implicit instruction refers to the concept of exposing learners to input by which learners unconsciously infer knowledge. In other words, learners are provided with rich input, and their intention may be oriented towards a particular target feature; however, the learning pathway could ultimately result in the acquisition of an alternate feature without an explicit intention of learning it. On the other hand, R.Ellis (2009) argued that explicit instruction involves thinking about the knowledge during the learning process, which builds a metalinguistic awareness of the knowledge that was thought about during the learning. This metalinguistic awareness is developed deductively by providing learners with direct knowledge, or inductively, by encouraging learners to detect and find the knowledge by themselves from the input they are exposed to. Spada (2014), and Norris and Ortega (2000), discussed the features of implicit and explicit instruction and claimed that the implicit type of instruction does not involve any direct or indirect explanations of rules either by the teacher or the learners themselves as well as directing learners’ attention to a target item; however, explicit instruction could involve any of these features.

According to the above, there is an overlap or similarity between instructed and uninstructed SLA conditions and implicit and explicit instruction in which uninstructed SLA and implicit instruction take place through exposure and interaction with native speakers without paying attention to learning. This emphasis on the previously discussed cognitive psychologist's

perspective on the idea of implicit learning is that when learners have been exposed to a particular input numerous times, they would be able to comprehend it without consciously being aware of the learning. The above dichotomy between implicit and explicit learning could help us draw a clear image of each type of instruction. Implicit learning does not involve any direct explanations of any knowledge. It also does not involve any indirect explanation, e.g., by attracting learners' attention to a piece of a particular language item. Usually, learners are not aware of the target item. By contrast, explicit learning involves a direct or indirect explanation of the target learning item; learners are usually aware of the target learning item.

4.3.1 Implicit and Explicit Instruction and L2 Retention

L2 retention refers to learners' ability to recall and remember a language (including words, constructions, etc.) and use it over an extended period of time. It aims to measure how well learners are able to retain their knowledge about a particular language aspect after an interval of time. There are two main types of retention: short-term retention and long-term retention. The former refers to the ability to store and recall information for a short period. In contrast, long-term retention is the ability to recall information for longer times after learning. Richards and Schmidt (2010) claimed that there are three variables that might influence learners' retention, which are the type and quality of learning and teaching, teaching materials, and learners' interest in learning. Thus, implicit and explicit learning and instruction might have an influence on L2 learners' ability of long- and short-term ability of retention.

Several studies have explored the influence of L2 instructions or learning a second or a foreign language. After decades of research, the amount of experimental and quasi-experimental research has increased, which has led to the flourishing of meta-analysis studies to examine the effect of L2 instructional treatments. One of the earliest meta-analysis studies conducted to

determine the influence of implicit and explicit instruction on L2 learning was performed by Norris and Ortega (2000), who examined a range of 49 quasi-experimental and experimental studies which were conducted and released from 1980 to 1998 to explore the effectiveness of L2 instructions on learning. In this meta-analysis, four categories of instructional duration used as a treatment were coded and identified in which brief treatments last less than one-hour, short treatments last more than one hour but less than two hours, medium treatments last three to six hours, and finally, long treatments which last more than six hours. The general findings of this meta-analysis revealed that there is a durable effect of L2 instruction on learning; in particular, explicit types of instruction have more effect on L2 learning than implicit types of instruction, regardless of any other variable. The mean effect size of explicit treatments ($d = 1.13$) was greater than that of implicit interventions ($d = 0.54$), according to the findings of the Cohen's d statistical analysis. Norris and Ortega (2000) also compared the effect of implicit and explicit instruction on immediate and delayed post-tests and stated that “across all treatment types, observed effectiveness of instructional treatments was generally maintained, although the observed effect was reduced on average by one-fifth of a standard deviation unit from the immediate post-test to the delayed post-test” (p. 476-7). However, they claimed that the number of studies that aimed to measure the effect of implicit and explicit instruction on short and long-term retention was limited in number (22 comparisons only); thus, the results should not be “interpreted as definitive” (p. 500). In addition, this meta-analysis study does not have a clear time distribution of the post-tests. Norris and Ortega (2000) claimed that in some studies, immediate post-tests were not conducted until 26 days after the last treatment, whereas only 47% of the selected studies involved delayed post-tests, which generally occurred one to four weeks after the instructional treatment, and some post-tests were

performed several months later. For the delayed post-test, only 18% of the studies included this type of test which occurred after two to forty-eight weeks.

This early meta-analysis by Norris and Ortega (2000) has been criticized, and some researchers have raised concerns about the study's conclusions due to its wide scope, that is, it does not focus on a particular language feature (e.g., Spada & Tomita, 2010), or due to some limitations raised about the approach adopted in the analysis (e.g. Goo et al., 2015). These criticisms led to the publication of replicated meta-analysis studies that followed different methodological procedures and examinations of many linguistic elements. Spada and Tomita (2010) conducted a meta-analysis of 30 studies to investigate the impact of English grammatical features' complexity on the effectiveness of implicit and explicit L2 instruction. In this work, the foundation for identifying simple and complex forms was established based on the number of linguistic transformation rules that exist in grammatical regulations. For instance, the regular past tense was coded as a simple rule, whereas the passive form was coded as a complex form. The results of the meta-analysis revealed that explicit instruction led to higher effect sizes compared to implicit instruction, regardless of the complexity of the target structure and timing of the test. The effect sizes for explicit instruction were higher for both immediate and delayed post-tests, with complex features resulting in a bit larger effect sizes than simple features (immediate post-test, complex, $d = 0.88$, simple, $d = 0.73$; delayed post-test, complex, $d = 1.02$, simple, $d = 1.01$). Similarly, implicit instruction resulted in smaller effect sizes for both immediate and delayed post-tests, with complex features resulting in larger effect sizes than simple features (immediate post-test, complex, $d = 0.39$, simple, $d = 0.33$; delayed post-test, complex, $d = 0.56$, simple, $d = 0.51$). Spada and Tomita (2010) argued that the duration between treatments and post-tests exhibited variation in the studies involved in the meta-analysis. For immediate tests, this could span from the same day of the

treatment to four weeks later; however, it could be from 1 week to 16 weeks for the 1st post-delayed tests and from 3 weeks to 7 weeks for the 2nd delayed post-tests. Additionally, they asserted that several studies did not offer explicit details regarding the exact timing of the pre-test and both immediate and delayed post-tests. Only half of the studies in this meta-analysis administered delayed post-tests, whereas a very small number of studies, 4 studies only, involved second delayed post-tests.

Another meta-analysis study conducted by Li (2010) aimed to examine the effectiveness of implicit and explicit instruction in the form of corrective feedback on L2 learners. This meta-analysis study involved 33 feedback studies, and the results revealed that overall corrective feedback has a positive effect on L2 learners; however, implicit feedback has a larger effect on long-term post-tests, 30 days and more after the intervention, than explicit feedback instruction (implicit, $d = 0.54$; explicit, $d = 0.44$). On the other hand, explicit corrective feedback has larger effect sizes on immediate tests ($d = 0.69$), which occurred 7 days and more after the intervention, than implicit feedback instruction ($d = 0.54$). Moreover, in short-term post-tests, which took place 7–29 days after the intervention, explicit feedback instruction showed a better effect size on learning L2 ($d = 0.61$) than implicit feedback instruction ($d = 0.44$).

Meta-analysis studies that intended to determine the influence of implicit and explicit instruction have continued to be published, aiming to produce more precise results. Goo et al., (2015) claimed that one significant issue with the approach used in Norris and Ortega (2000) meta-analysis study is that the amount or level of instruction in terms of explicit and implicit treatments may not have been adequately controlled for across the studies. They decided to include all studies that investigated the effects of instruction, regardless of whether both types of instruction were compared appropriately. Therefore, their analysis comprised not only studies that compared both

explicit and implicit conditions but also studies where either explicit or implicit instruction was compared with a control or comparison condition. Moreover, they included studies that compared different instructional treatments of the same nature, whether implicit or explicit, with each other or with the control/comparison condition. Thus, this adapted approach might influence the findings of the explicit vs. implicit comparisons. Goo et al. (2015) asserted that for a more precise comparison between explicit and implicit instruction, it is important to select studies that have the same amount and level of instruction across treatments within the study. Thus, they re-executed Norris and Ortega's (2000) meta-analysis study, to cover 23 new studies published between 1999 and 2011 in addition to 11 studies taken from Norris and Ortega's (2000) study. The resulting meta-analysis study covered 34 experimental and quasi-experimental studies. The time interval between the treatments and the tests was coded as 'immediate post-tests' if it was given to participants immediately or after 7 days of the treatment. A post-test was coded as a 'short-term delayed test' if it took place after 8 to 29 days of the treatment, while a 'long-term delayed test' referred to tests administered 30 days or more after the treatment. The overall conclusions of this meta-analysis demonstrated that both implicit and explicit instructions have a positive effect on learning L2. Specifically, on immediate post-tests, both types of instructions, explicit and implicit, have a large effect on L2 learners' performance. The larger effect size appeared in explicit instruction treatments (mean = 1.361); however, a slightly smaller, yet still large effect, is noted for implicit instruction (mean= 0.830). On short-term delayed post-tests, explicit instruction has a large effect size (mean=1.022), whereas a medium effect size is observed in implicit instruction (mean= 0.661). On long-delayed post-tests, the explicit instruction treatment has a medium-to-large effect on L2 learners' performance (mean=0.747); however, implicit instruction treatment shows a small effect size (mean = 0.345).

To sum up, the majority of experimental and quasi-experimental studies that were selected in these meta-analysis studies aimed to measure L2 learners' improvement after a short period of time, i.e., only one post-test was used to measure L2 learners' ability to recall knowledge. Moreover, there is a clear variation regarding the interval of time between the treatment and the post-tests. In other words, some studies conducted the immediate test after 4 weeks of the treatment, whereas others conducted the immediate post-test after 1 day or 1 week of the treatment and treated any test that took place after 3 or 4 weeks as the first or second delayed post-test. There is also variation in time devoted to learning, and it does not seem to have been accounted for in any of the meta-analyses. This diversity of the timeline in designing the methodology makes it difficult to generalize the findings of the influence of implicit and explicit instruction on short and long-term retention.

4.4 Input Spacing in L2 Learning

The term 'input spacing', or what is known as 'distributed learning', is defined as the extent to which the process of learning or practicing occurs over several training sessions or is separated in a single session by an interval of time. It is the opposite of massed learning, where all the learning input and practice happen in one single intensive session without an interval of time between inputs. Distributed learning and massed learning are two different approaches to learning that might have a significant impact on the effectiveness of second language acquisition and retention over time.

In the literature related to input spacing, there are some terms used frequently by researchers to refer to specific concepts. Spacing effect and distributed learning effect are terms used to refer to spreading learning across several sessions with or without breaks in between (Rogers, 2017; Serrano, 2011). Moreover, the term 'lag effect' is used to refer to a comparison

between two different length gaps in the distributed learning (Kim & Webb, 2022; Rogers, 2021); for instance, the effect of short spacing (e.g., one day) or long spacing (e.g., 7 days) on the process of practicing and learning. Scholars refer to both spacing and lag effects as ‘distributed practice,’ or ‘spaced practice’ without making a distinction between the two concepts (Cepeda et al., 2006). However, from the point of view of time distribution, there are two types of spacing with different conditions, which are ‘absolute spacing’ and ‘relative spacing’ (Karpicke & Bauernschmidt, 2011). Absolute spacing or total spacing refers to the total amount of spacing time between the learning input. However, relative spacing refers to the concept of how learning intervals are spaced comparatively or relatively to one another. Relative spacing pertains Equal and expanding spacing are two conditions of relative spacing. Equal spacing, or what is sometimes referred to as uniform or fixed spacing, represents the condition where the interval between learning is consistent (e.g., spacing repeats by 7 days each time), whereas expanding spacing refers to the condition where the spacing between learning increases progressively (e.g., spacing repeats by 1 day, then 3 days, then 5 days).

4.4.1 Distributed Learning and Mass Learning Empirical Studies

It has been argued in cognitive research about memory that spaced practice has an effective influence on learning many skills in general situations (Kim & Webb, 2022). Moreover, this act of distributing the learning input over an interval of time has been considered in second language learning and acquisition (Bird, 2011; Kim & Webb, 2022; Rogers, 2021; Serrano, 2011). It has been argued by scholars like Bird (2011) and Kim and Webb (2022) that an appropriate understanding of the distributed practice could help teachers, learners, and curriculum developers understand how to learn and teach an L2 properly. It has been examined in the literature whether input spacing has a positive or negative influence on L2 learning and whether there is an influence

of the length of spacing on L2 learning and retention. In other words, whether a short period of time (e.g., 1 day) or a long period of time (e.g., a week) between the learning sessions has an influential effect on retention.

Many studies have been conducted to explore the effectiveness of distributed practice on L2 learning and retention of knowledge. However, there is a clear variation between these studies' results. Some studies found that spacing has a positive influence on L2 vocabulary and grammar learning and retention (e.g., Bird, 2011; Bloom & Shuell, 1981), while other studies have revealed that distributed practice has exactly the same effect as massed learning on participants' immediate post-test results. (e.g., Lee & Choe, 2014). It seems there is no empirical study yet that shows that massed learning has a superior influence on L2 learning than distributed practice.

It has been discussed whether there is an influence of the lag effect on L2 learning and longer retention. Some studies concluded by arguing that a long time of spacing has a more positive impact on L2 learning of grammar and vocabulary in the delayed post-test results in comparison with a short time of spacing (Pashler et al., 2003; Rogers, 2015). On the other hand, other studies contradicted the previous finding and concluded that, on delayed post-tests, short time of spacing has a superior influence on L2 learning and retention compared to long times of spacing. (Küpper-Tetzel et al., 2014). However, some researchers claimed that there is no significant difference between short and long spacing intervals in influencing delayed post-test results. (Kasprowicz et al., 2019). Finally, some studies found that, on delayed post-tests, expanding spacing is less effective than equal spacing (Çekiç & Bakla, 2019), whereas other studies concluded by claiming that equal and expanded spacing have a similar effect on delayed post-tests (Kang et al., 2014).

This contradiction in results of the effectiveness of distributed practice on L2 learning and retention might be due to the different variables that may influence the studies (Kim & Webb,

2022). Spacing might be affected by different variables like age, individual differences, teachers' techniques in teaching, instructors' feedback, learners' L1, previous L2 knowledge, the type of input, and many other variables. For a better understanding of the influence of distributed practice on L2 learning and retention, previous meta-analysis studies have been investigated carefully.

Donovan and Radosevich (1999) did a meta-analysis study that included 112 effect sizes retrieved from more than 60 studies and concluded that distributed practice is better than massed practice in general regardless of whether the studies were conducted in an L2 environment and were straightforwardly linked to SLA. Later, another meta-analysis by Cepeda et al. (2006) was conducted to find the effect of distributed practice on memory tasks. In this meta-analysis, 317 experiments retrieved from 184 articles were examined, although only 4% of the experiments were conducted on L2. Nevertheless, this meta-analysis concluded by arguing that distributed conditions were significantly better than massed conditions. Moreover, from the point of view of the lag effect on long-term retention, long time of spacing was more effective than short spacing regardless of the type of spacing, whether it was equal or expanding.

A recent meta-analysis by Kim and Webb (2022) systematically examined 37 studies that were conducted to explore the influence of distributed practice, particularly on the ability of L2 learning and retention. These studies encompassed 48 experiments and a total of 98 effect sizes, all of which were categorized into three groups for further comparison, with the mean effect sizes being calculated for both immediate and delayed post-tests. The first group is gathered to compare spaced learning and massed learning. The second group aimed to compare long spacing and short times of spacing, whereas the last group compared equal and expanding conditions of learning L2. In this meta-analysis, each group has two measurements: immediate tests, which are categorized as any test that took place immediately after the final training session (i.e., on the same day of the

training), whereas delayed post-tests, which are classified as any test that administered more than one day after the training (i.e., after one day or more following the last session of training). Moreover, the authors examined a total of 9 moderator variables in this meta-analysis, claiming that they may have an influential effect on spaced practice. Only one of the 9 variables is related to learners, which is the learners' age, and the rest of the variables are related to the methodology used in training (e.g., feedback, number of sessions, and learning target, whether it is grammar, vocabulary, or pronunciation, and so on). The results of the meta-analysis showed that distributed practice has a statistically significantly better influence on L2 learning and retention than massed learning in both immediate and delayed post-tests. In other words, the results revealed that the length of spacing, whether it is short or long, does have a positive influence on learning and retention compared to instances of learning with no spacing. The results from this meta-analysis align with the findings of other meta-analytic studies (Cepeda et al., 2006; Donovan & Radosevich, 1999). However, the short and long times of spacing have the same effect on immediate post-tests, whereas long times of spacing are more effective in delayed post-tests. Moreover, this meta-analysis also showed that neither the immediate nor the delayed post-tests exhibited a statistically significant difference between equal and expanding conditions of spacing.

In the context of the variables scrutinized in the Kim and Webb (2022) meta-analysis, age does impact the influence of spacing practice on L2 learning and retention, albeit in varied ways for different age groups and over different time scales. Both young and adult L2 learners showed a positive influence of spaced practice on grammar and vocabulary learning and retention. However, the impact of long spacing differed between age groups and over different retention intervals. Specifically, adults, such as university students, demonstrated more substantial benefits from spacing in the short term, while young learners exhibited larger advantages in the long term.

Also, long spacing enhances the ability to learn and retain L2 aspects of grammar. Long spacing between sessions led to greater L2 retention than long spacing within one single session. Moreover, there is no significant influence of the frequency of practice on the act of spaced practice on L2 learning. In other words, the frequency of practice does not have a statistically significant influence on spaced and massed learning, short and long spacing, and equal and expanding conditions.

In general, this meta-analysis has several limitations that might prevent us from generalizing all the findings, particularly findings related to the moderator variables that influence L2 learning and retention. One of the major concerns is linked to the limited number of studies that involved one of the moderator variables. According to Kim and Webb (2022), there is a relatively small number of studies exploring relative spacing and its two conditions. In addition, there is a need for more work to be conducted to explore the effect of spacing on L2 learning and retention in young learners, measuring different types of knowledge (i.e., production and receptive knowledge), and targeting L2 grammar and pronunciation rather than vocabulary. Despite these limitations, it is prudent to recognize the value of this meta-analysis in providing comprehensive results regarding the impact of spacing practice on L2 learning and retention, summarizing results from 26 effect sizes in studies comparing spaced and massed L2 learning, examining 49 effect sizes from studies scrutinizing the influence of short and long spacing on L2 learning and retention, and incorporating 23 effect sizes from studies exploring equal and expanding spacing types. Furthermore, the findings of this study resonate with previous meta-analyses examining spacing, learning, and practice in a generalized context.

In SLA, distributed learning is generally considered to be more effective than massed learning. Based on the results of previous studies conducted to examine the spacing practice effect on L2, the spacing practice has been considered rather than massed learning because of its well-

observed positive influence on L2 learning and long-term retention. In other words, the long spacing practice has demonstrated its beneficial impact on L2 learning, specifically in terms of long-term retention.

5. Chapter 5: Phrasal Verbs (PVs)

5.1 Introduction

The present study has a significant emphasis on PVs; thus, this chapter seeks to offer an in-depth analysis of PVs as a linguistic phenomenon. To achieve this, the chapter begins by providing a comprehensive literature review of PVs in English by discussing their definition, characteristics, different types, and their usage in different contexts. Moreover, a major focus of the chapter is on the acquisition of English PVs by non-native speakers, particularly by EFL learners. The review synthesizes research demonstrating that EFL learners frequently avoid using PVs. Possible factors contributing to this avoidance are discussed, along with the impact of EFL learners' avoidance of using PVs on their proficiency levels.

To provide deeper insight into Arab EFL learners' difficulties with PVs, the chapter presents a contrastive analysis of PVs in English and Arabic, the native language of the research participants. By conducting a thorough comparative analysis of PVs in English and Arabic, the study aims to reveal the similarities and differences between these two linguistic systems, thereby offering insights into the challenges encountered by Arabic-speaking learners when acquiring English PVs.

Through an integrated examination of theoretical concepts and empirical evidence, this chapter aims to deepen our understanding of PVs and illuminate the challenges faced by EFL learners in acquiring them. By examining the intricacies of PVs in both English and Arabic, this investigation provides insights into the complex features of PVs.

5.2 EPVs Definition and Characteristics

English Phrasal verbs (henceforth EPVs), or what some refer to as multi-word verbs, have been defined by several scholars, and each definition highlights unique aspects of this linguistic phenomenon. Live (1965) referred to a set of PVs examples as "a considerable group of basic verbs, each of which is, in certain of its occurrences, closely linked with a particle – adverbial or prepositional – in such a manner as to justify considering the two elements as constituting one discontinuous verb" (p. 428).

Sroka (1972) referred to PVs as the verb and particle, or a group of particles, combining to create a functional unit that is integral in nature. In other words, the verb and particle or particles work together to form a cohesive and meaningful unit rather than being separate components. Sroka's assertion highlights the importance of understanding PVs as a unified whole rather than separate parts. On the other hand, McArthur (1992) referred to PV as "A type of verb in English that operates more like a phrase than a word" (p:772). Thrush (2001) argued that a PV "consist of a verb and a preposition (or two). The meaning is often idiomatic; that is, the meaning of the phrasal verb cannot be derived by looking up the verb and the preposition separately in a dictionary" (p:293).

Based on the previous definitions and other various definitions proposed by many scholars, such as Celce-Murcia et al. (1999), and Quirk et al. (1985), a PV could be defined as a verb combined with one, two, or more particles, which can be either adverbs or prepositions, or both of them; for example, *I throw away all the papers*, *I look after Sara*, and *I look forward to hearing from you*. In the first example, *throw away* is a PV, which is made up of a verb followed by an adverb. The PV *look after* in the second example combined a verb and a preposition, whereas the PV *look forward to* in the third example consists of a verb followed by an adverb and a preposition.

Mitchell (1958) proposed a sub-division of verb-particle combinations and categorized them as follows based on their combination with particles: verb + adverb as a PV, verb + preposition as a prepositional verb, and verb + adverb + preposition, which is known as a phrasal prepositional verb. Quirk et al. (1985) referred to such combinations as multi-word verbs, and adopted Mitchell's (1958) classification of verb-particle combinations whereby only the combination of verb + adverb qualifies as a PV. By contrast, Courtney (1983), in the *Longman dictionary of phrasal verbs* and Cowie (1993), in *Getting to grips with phrasal verbs*, considered all three subdivisions to be EPVs since they convey an idiomatic meaning. In this study, we follow Courtney and Cowie in saying that the three forms of PV combinations are considered to be EPVs.

5.3 Syntactic and Semantic Classifications of EPVs

In the domain of linguistic exploration, PVs hold significant importance as a multifaceted area of investigation. These linguistic phenomena encompass a diverse range of verb constructions that contribute to the richness of the English language, each exhibiting distinctive syntactic and semantic characteristics.

Within the classification of PVs, two fundamental aspects merit consideration: syntactic and semantic factors. Syntactic considerations involve an examination of the structural composition of PVs, with a particular focus on the placement of particles within the verb construction, while semantic considerations involve analyzing the conveyed meanings. Many scholars, including Celce-Murcia et al. (1999), Dagut and Laufer (1985), Dehé (2002), Laufer and Eliasson (1993), McArthur (1992) and Quirk et al. (1985), emphasize that both syntactic and semantic criteria delineate distinct categories of PVs, and underscore the existence of diverse semantic categories within PV classification.

Based on their syntactic structures, EPVs can be classified as transitive separable, transitive inseparable, and intransitive PVs, as summarized in Table 2.

Table 2

Syntactic Classification of EPVs

Syntactic classification	Type	Example
Transitive	Separable	Sara puts on her shoes. Sara puts her shoes on .
	Inseparable	Sara runs into her friend.
Intransitive		Sara wants to be a teacher when she grows up .

Transitive verbs usually require an object to produce meaning, and transitive PVs are divided into two types, namely separable and inseparable. In a transitive separable PV, the object can occur between the verb and the particle [V. PRT. OBJ.] or [V. OBJ. PRT.], as in *turn off the TV* or *turn the TV off*, whereas the object must follow the particles in the transitive inseparable PVs, as in *I look after your daughter*; * *I look your daughter after* is infelicitous. However, Mitchell (1958), Quirk et al. (1985), Celce-Murcia et al. (1999), Dehé (2002), and Gries (2003) observed that a PV must be separable if the object is a personal pronoun such as ‘it’, ‘her’, ‘him’; compare *I push it up* with * *I push up it*. In comparison with the transitive inseparable PVs, Celce-Murcia et al. (1999) argued that usually the transitive separable PVs are a large and more productive category, but there is a very small subcategory for the obligatory separation of transitive PVs where the object must follow the verb as the PV *get through* in the meaning of ‘convey or transmit’ e.g., *get the message through*. On the other hand, as intransitive PVs do not require a direct object, they cannot be separated by the object, for instance, *all the lights in the building went out*. According to Celce-Murcia et al. (1999), based on the agent role in the sentence, a single PV could be both transitive and intransitive, as in “*the arsonist burned down the hotel*” and “*the hotel*

burned down” (p. 427). Here, the same PV ‘*burned down*’ functions (1) as a transitive and (2) as an intransitive verb.

Semantically, PVs have been classified by Celce-Murcia et al. (1999); Dagut and Laufer (1985); Quirk et al. (1985) into three categories, which are transparent ‘literal’, semitransparent ‘aspectual’, or figurative ‘idiomatic’ PVs, as shown in Table 3.

Table 3

Semantic Classification of EVPs

Semantic Type	Definition	Example
Literal or transparent	The meaning of the PV can be derived directly from the meaning of its components.	Sara takes the rubbish out
Aspectual, semitransparent or semi-idiomatic	The verb in the semitransparent PVs has a literal meaning, but the particle carries an aspectual meaning; the meaning of the entire phrase is transparent when it appears in context.	Sara finds out the truth
Idiomatic or figurative	The meaning is idiomatic and cannot be derived from the individual parts of the PV components.	The missing file turned up in my bag.

In the transparent PVs, the meaning could be understood from the meaning of the PVs’ components ‘verb + particle’ because they retain their literal meanings, for example, *come in*, *come back* and *take out*. Celce-Murcia et al. (1999) argued that this type of PV should not pose difficulties for EFL learners because it is easy to determine the meaning of the PV from its components. However, the meaning in the semi transparent EPVs is not transparent and at the same time not idiomatic, which is why it is called semi transparent or semi-idiomatic: one of the

components has a literal meaning whereas the other is less transparent. For instance, the verb in a semi transparent PV has a literal meaning, but the particle carries an aspectual meaning, as in *read through* and *find out*. In idiomatic PVs, both components ‘verb + particle’ have an idiomatic meaning, for example, *catch up* and *turn up*. In other words, the semantic meaning is unpredictable in that the PV components represent different meanings when the parts are combined, for example, the verb *give* means transferring something to someone, but the PV *give up* means to stop doing something. This category is the most challenging category for L2 learners to recognize and deal with because it is difficult to predict the meaning from the PVs’ components (Celce-Murcia et al., 1999); and according to McArthur (1992) idiomatic feature is the most distinguishing characteristic of PVs. Moreover, many PVs are polysemous: Biber et al., (1999) and Celce-Murcia et al. (1999) observed that one PV could convey a multitude of meanings depending on the context. For example, *Sara brings up the books from the ground floor* means ‘to carry them up’, but *Sara brings up James* means ‘to nurture or take care of him’ and could also mean ‘mentioning him in conversation’, and *Sara brings up suggestions* means ‘She makes suggestions’ (Biber et al., 1999).

These different semantic and syntactic classifications of PVs make it difficult to predict native speakers’ choices of the particle placement (PrtPl) in the transitive PV; whether it follows the verb or the object (Gries 2001). Gries (2001, 2003) has investigated variables that influence different syntactic configurations, and proposed two construction orders for transitive PVs which in his works are referred to as a particle placement (PrtPl):

- 1- Construction₀ (C₀) when the verb is followed by the particle and the object, as in *Sara picked up the phone*.
- 2- Construction₁ (C₁) when the particle is placed between the verb and the object, as in *Sara picked the phone up*.

Gries (2001, 2003) noted that particle placement had been investigated by many scholars in order to provide a structural description of the constituents' orders and to identify the variables that determine native speakers' choices of using one of the constructions. However, most previous studies on particle placement examined variables influencing the choice of construction in isolation. They analysed one variable at a time without considering the combined influence of multiple variables simultaneously. This act results in inaccurate predictions for the particle placement. Thus, Gries (2001) adopted multifactorial approach, where a wide range of variables may influence one construction rather than another. Gries (2001) conducted a corpus-based analysis to identify the interactions of all the factors that play a role in determining the choice of the construction with transitive PVs. Gries used a multivariate statistical analysis to predict particle placement with a high degree of accuracy by carefully modeling the influences of various linguistic variables. By studying naturally occurring examples, he found correlations showing longer, more complex direct objects tend to favor one construction over the other. This demonstrates the possible interaction between properties of the direct object and syntax choice, providing support for a multifactorial approach. Gries (2001, 2003) claimed that there had been no clear explanation of why speakers in some situations use construction₀ instead of construction₁. Therefore, he proposed the processing hypothesis, which aimed to investigate native speakers' subconscious choices of constructions. This hypothesis claimed that the object of construction₀ (particle placed before object) was more difficult to process than the construction₁ object (particle placed after object), which requires only a small amount of processing effort. The reasoning is that separating a more difficult object from the verb + particle phrase requires more effort to complete processing the verb phrase, compared to positioning the particle before the object. In other words, construction₁ is predicted to involve less effort because simpler objects can be processed before

the particle without disrupting verb phrase processing. The particle does not need to be ‘held in memory’ during complex object processing like in construction_o. Thus, the particle placement choice could be affected by the processing effort that the direct object requires. For instance, new direct objects are long and complex, aiming to deliver essential information for the receiver. Moreover, because of the heaviness and complexity of long and complex noun phrases, they require more processing effort. As a result, long and complex direct objects are usually linked to construction_o. Gries (2001, 2003) and Wulff and Gries (2019) argued that choosing one of the above orders is influenced by phonological, morphosyntactic, semantic, discourse pragmatic, and other factors. Gries (2001, 2003) proposed a ranking for the most influential variable groups as follows: morphosyntactic, semantic, and discourse-functional variables. According to Gries, construction_o is frequently used with:

- 1- A stressed direct object. ‘*Sara picked up the brown book*’
- 2- A long direct object. ‘*Sara picked up the book Annie had bought her while she was in Canada*’
- 3- A complex direct object, such as embedded and relative clauses.
- 4- Indefinite determiners of the direct object, such as (a/an). ‘*Sara picked up a pen*’
- 5- Idiomatic ‘*Sara worked hard to eke out a living*’ or habitual meanings. ‘*The cops track down the thief*’
- 6- A new referent of the direct object; that is, the information status of the referent of the direct object ‘*what did Sara pick up? She picked up the pen*’
- 7- An abstract referent of a direct object. ‘*Sara held up her principles*’

However, Gries (2003) found that not all the factors mentioned in previous studies had an obvious effect on particles. For example, the animacy of the referent of the direct object did not

have any influence on particle position because animacy conveys information about concreteness of the direct object's referent; thus, if we partial out the effect of concreteness, animacy will not have a strong influence on particle placement. Gries and Stefanowitsch (2004) observed that some constructions are not strongly affected by variables that have an influence on particle placement choices in that certain particles consistently preferred one construction over the other regardless of other variables; for instance, some PVs follow construction₀, such as *find out*, *carry out*, and PVs preferred construction₁, as in *get back*, *get out*. Moreover, based on an analysis of whether the utterance mode was spoken or written, Gries (2003) reported that native speakers used construction₀ more often in writing, whereas construction₁ was used more frequently in speech.

Researchers expanded their investigations and studied the use of particle placement by other language users than adult native speakers (e.g. Diessel & Tomasello, 2005; Wulff & Gries, 2019). Some corpus analysis studies aimed to compare native-speaking children and native-speaking adults' use of constructions. Gries (2003) stated that children and adult native speakers preferred to use construction₁ with lexical direct objects. However, unlike for adults, the definiteness of the direct object played no role in children's preferred choices (Diessel & Tomasello, 2005).

Wulff and Gries (2019) conducted the first large-scale corpus analysis to investigate particle placement in English language learners. Their study analysed 4911 verb particle constructions retrieved from two learner corpora, The International Corpus of Learner English (ICLE) and The Louvain International Database of Spoken English Interlanguage (LINDSEI), and two native speaker corpora, The Louvain Corpus of Native English Essays (LOCNESS) and The Louvain Corpus of Native English Conversation (LOCNEC). The data came from intermediate to advanced English learners from 17 different L1 backgrounds including Bulgarian, Chinese, Czech,

Dutch, Finnish, French, German, Greek, Italian, Japanese, Norwegian, Polish, Russian, Spanish, Swedish, Tswana, and Turkish. Wulff and Gries (2019) hypothesized that the above-mentioned variables should also influence an L2 learner's choice of constructions. Thus, in this study, the constructions were comprehensively annotated by the researchers for 14 predictor variables related to syntax, phonology, semantics, information structure, and other factors known to impact particle placement choices. Variables included direct object complexity, definiteness, concreteness, segment and rhythmic alternation, idiomaticity, and more. A MuPDAR (Multifactorial Prediction and Deviation Analysis Using Regression) approach was used to analysis data, which involved fitting mixed effects regression models. Wulff and Gries (2019) concluded that intermediate and advanced L2 learners preferred to use construction₀ across nearly all contexts to minimize cognitive effort. Phonological factors like rhythmic alternation had less influence on learners' choices, whereas other factors like L1 background had a greater influence on learners' particle placement choices. Thus, learners encounter difficulties with verb-particle constructions because of their complexity and unpredictability, especially when these constructions are either non-existent or drastically different from native language. It is worth to note that Arab learners of English were not included in Wulff and Gries (2019) large-scale study.

A recent corpus-based study carried out by Creel (2022) to investigate Arab native speakers' usage of verb particle construction in English and explored any influence of Arabic on the use of English verb particle constructions. The Zayed Arabic-English Bilingual Undergraduate Corpus (ZAEBUC) was used as a resource to do the exploration. This corpus has two sub-corpora compiled from pairs of texts that are similar in content but written in Arabic and English by the same author at different times. These texts are short essays written by hundreds of Emirati Freshman students at different proficiency levels. The whole corpus holds 388 essays in English,

totalling approximately 84,000 words, and 214 essays in Arabic, with around 33,500 words. The study showed a clear influence of Arabic on learners' usage English verb particle constructions. Moreover, the results of the error analysis of B1 learners' usage revealed a predominance of two types of errors: insertion errors—where learners inappropriately add a particle to a verb, erroneously creating a prepositional verb instead of using the correct single verb—and incorrect particle usage, where the verbs chosen are correct, but they are paired with unsuitable particles.

This investigation is potentially the only corpus-based study undertaken to probe the linguistic interplay between Arabic and English. The limited number of studies which looked for insights into how Arabic L1 speakers produce of English PVs prompted the investigation of Arab EFL learners' usage of EPVs (see [Chapter 6](#)). There is a clear necessity to broaden this exploration to include native Arab speakers from diverse backgrounds, using different types of learner corpora, and exploring a different set of PVs to enrich the understanding of Arab learners' usage of PVs.

5.4 EFL Learners' Avoidance of PVs

Before going deeper into L2 learners' actual usage of PVs, it is essential to understand how L2 learners' PV avoidance affects their proficiency and the reasons behind this avoidance. In general, research has shown that L2 learners avoid using EPVs, particularly those that convey idiomatic meanings, and they tend to use a single verb instead of a complete PV (Sara & Mohammadreza, 2013; Dagut & Laufer, 1985; Alshayban 2018). However, avoiding PVs and tending to use a single verb instead may affect a learner's mastery of English. According to Cornell (1985) and Pye (1996), some PVs do not have an equivalent single verb; instead, they may have another PV equivalent, as in *put in for* versus *apply for*, or a phrase, such as *make up for* versus *compensate for*, *knock out* versus *make unconscious*, *wear out* versus *make unusable*, and

sometimes a long phrase equivalent as in *lie in* versus *to stay in bed after the usual time of getting up*.

Moreover, Celce-Murcia et al. (1999), Cornell (1985) and Pye (1996) claimed that, if a single verb exists as an equivalent of a PV, a problem regarding the degree of synonymy appears. In other words, the single verb equivalent does not act as a true synonym of the PV due to a shift in formality, for example, *hand over* versus the formal noun *surrender*. As Celce-Murcia et al. (1999) have argued, in some cases, the use of PVs would be more suitable and natural than would the use of a single verb. The authors provided the following examples to clarify this point:

- a- *I arose early this morning.*
- b- *I got up early this morning.* (p.425)

Various reasons have been proposed for this phenomenon of avoidance. According to Liu (2011), the massive number of PVs in the English language plays a role in this avoidance because learners are overwhelmed by the huge number of PVs and experience confusion regarding which of the PVs are worth learning. Idiomatic and polysemous features of PVs also play a role in this avoidance (Dagut & Laufer, 1985). An early study by Biber et al. (1999) found that EFL learners avoided using PVs due to their semantic complexity and idiomatic meanings, which often do not directly translate from learners' L1. In addition, Chen (2007) El-Dakhs (2016), and Liao and Fukuya (2004) claimed that limited exposure to L2 was the primary variable in EFL learners' avoidance of EPVs. The lack of exposure to English and the lack of opportunities to encounter and use PVs in context may lead EFL learners to rely on simpler and more familiar language structures when producing their own language. Moreover, Laufer and Eliasson (1993) argued that the reasons for such an avoidance could be traced to the linguistic differences between the L1 and the L2, or to the complexity of the L2 structure. In this study, they found that idiomatic PVs that differ

significantly from typical L1 lexical patterns were the most avoided by Swedish learners because many common PVs in English have no direct equivalent in Swedish for expressing the same semantic concepts idiomatically. Moreover, Liao and Fukuya (2004) proposed that one reason for the avoidance of PVs by Chinese EFL learners is the absence of the verb-particle structure in the Chinese language system, which contrasts with English. In the following section, an examination will be undertaken to demonstrate the parallels and discrepancies between English and Arabic PVs. This analytical exploration aims to garner a more profound understanding of the linguistic nuances that may impact the proficiency and utilization of English PVs amongst Arabic speakers.

5.5 PVs in the Arabic Language

Arab scholars have published a modest amount of research discussing whether PVs exist in Arabic or not, and if they do exist, an important question is raised: ‘What are the main differences between Arabic phrasal verbs ‘APVs’ and English phrasal verbs ‘EPVs’?’. Arabic is a Semitic language (Ryding, 2005), and Celce-Murcia et al. (1999) argued that few non-Germanic languages have PVs. Although it is known that the Arabic language does not have a separate category for PVs as is the case in English, some Arabic scholars, such as Aldahesh (2008); Alkhuli (1999); Heliel (1994); Mubarak (2015); and Najiib (2001) have attempted to identify similar phenomena in Arabic; they have argued that the Arabic language does have PVs, but only in the structure of ‘V+ prep’, and they influence one or sometimes two or more objects. The transitivity of verbs and prepositions plays an essential role in forming APVs. Thus, it is important here to investigate Arabic prepositions and subtypes of transitive verbs in Arabic.

Ryding (2005) proposed the following classification of true Arabic prepositions into three types based on their length as one-letter prepositions (*bi* – *lii* – *ka*) (*ب* ، *ل* ، *ك*) , two-letter prepositions (*fii* – *min* – *3an*) (*في* ، *من* ، *عن*) and three-letter prepositions (*hathi* ، *min* ، *3ala* ، *ilay*) (*حتى* ، *منذ* ، *على* ، *إلى*)

?ilaa – 3alaa - munthu – Hataa). Table 4 presents the classification of true Arabic prepositions proposed by Ryding (2005).

Table 4

Ryding's (2005) Classification of True Arabic Prepositions

Type	Arabic Form	Arabic Pronunciation	English Equivalents
One-letter prepositions	بـ	bii	at, with, in, by, by means of
	لـ	lii	to, belonging to, for, for the purpose of
	كـ	ka	like, as, such as, in the capacity of
Two-letter prepositions	في	fii	in, at; on
	عن	3an	from, away from, about
	من	min	of, from, than, with
Three-letter prepositions	على	3alaa	on, upon
	منذ	munthu	since, ago, for
	حتى	Hataa	until, up to
	إلى	?ilaa	to, towards

Since prepositions are the core of APVs, this classification of true Arabic prepositions and their English equivalents will facilitate understanding APV constructions and comparing them with EPVs. The following is an example of an APV in the form of a prepositional verb:

(1) جلسـت على الكرسي

Jalas-at 3alaa al-kursy

Sat -3SGF on. PREP DEF-chair. OBJ

‘She sat on the chair’

Some scholars have considered APVs to be a subtype of transitive verbs in Arabic. Helie (1994) and Mubarak (2015) discussed the traditional classification of Arabic verbs from a transitivity point of view. They stated that Arabic transitive verbs could be transitive by themselves or transitive through a preposition in which the former means that the verb reaches its object without the need of a preposition, as in:

(2)

بأشَر العمل

Bashar-a al-3am?l
 Started -3SGM DEF-work .OBJ
 ‘He started the work’

The second type of the transitive verb is the verb which reaches its object via a preposition, as in:

(3)

رجع الى صوابه

raja3-a ?ilaa sawab-eh
 returned -3SGM to. PREP senses- his OBJ
 ‘He returned to his senses’

(4)

نظرت في الدفتر

nZr-t fii al-daftar.
 Looked -3SGF into. PREP DEF-notebook. OBJ
 ‘She looked into the book’

This type of transitive verb shares similarities with the EPV prepositional verbs. Heliel (1994) made an important point, namely that some verbs could be used as transitive by themselves or transitive through a preposition and produce different meaning; for example, the verb ‘دعا’ ‘*da3aa*’, which essentially means ‘to call’, could be used as a transitive by itself, as in ‘دعاه’ ‘*da3ahu*’, which means ‘called him’, or as a transitive through a preposition ‘دعاه له’ ‘*da3aa lahu*’, which means ‘prayed for him’. Moreover, the same PV could convey different meanings based on its preposition; for example, APV رغب بـ ‘*ragheba bi*’ means ‘very interested’, but could mean the opposite, ‘uninterested’ when combined with the preposition ‘عن’ ‘*3an*’ ‘*ragheba 3an*’. However, Mubarak (2015) argued that, if the preposition could not be replaced by another one, the preposition could be omitted without any changes in meaning:

(5)

مررتُ بزید

Marar-tu	bi	Zaydi
Passed -1SG	by. PREP	Ziad. .OBJ

‘I passed by Zaid’

The preposition ‘بـ’ ‘*bi*’ could be omitted since it is not possible to replace it with another preposition which conveys the exact meaning of ‘بـ’ ‘*bi*’. Thus, by omitting the preposition, the meaning is not affected, as in:

(6)

مررتُ زيداً

Marar-tu

Zaydʔn

Passed -1SG

Ziad. .OBJ

‘I passed by Zaid’.

Semantically, APVs , which are verb + preposition, share some similarities with EPVs, in that they could have idiomatic or non-idiomatic meanings. Abboud and McCarus (1983), for example, claimed that there are prepositional verbs in Arabic, and that they differ idiomatically. Some verbs, when combined with a preposition, convey an idiomatic meaning, and they are called verb preposition idioms; an example here is the Arabic verb ‘*ʔamada*’ ‘اعتمد’, which essentially means ‘to authorize’. When the verb is combined with the preposition ‘*ʔala*’, the meaning changes, and an idiomatic connotation appears, as in:

(7)

اعتمدَ على معلمه

eʔamad-a

ʔalaa

moʔalem-eh

depended -3SGM

on. PREP.

teacher- his. OBJ

‘He depended on his teacher’

Thus, in the above example, the PV conveys an idiomatic meaning, *to depend*, that differs from the basic meaning of the verb, *to authorize*. Aldahesh (2008) contradicted Abboud and McCarus (1983), and argued that, in the above example, the PVs had a semi-idiomatic meaning because the verb preposition ‘*ʔalaa*’ led the verb to sacrifice its basic meaning, even though the

preposition itself retained its basic meaning in the phrase. On the other hand, some verbs convey the same meaning even when they are combined with a preposition; for example, the verb ‘ساعد’ ‘*sa3ada*’ alone means ‘to help’ someone, and ‘ساعد على’ ‘*sa3ada 3alaa*’ means ‘to help’ someone in doing something. Thus, in this example, even though the verb is combined with a preposition, the verb retains its same basic meaning. Therefore, we could call them literal PVs.

There is no detailed discussion in the literature about the existence of APVs in the structure of ‘v+adv’ or ‘v+adv+prep’. As Aldahesh (2008) argued, “unlike English, Arabic does not allow proper verbs to collocate with adverbs. And the only type of PVs in Arabic is that of verb + preposition structure” (p.295). Nasir (2015) conducted a linguistic contrastive analysis of PVs by analysing two English short stories and two other Arabic short stories. He concluded that the structure of APVs only appeared in combinations of lexical verbs with prepositions without adverbs. Those scholars who have investigated the existence of APVs, have not provided any claim that states that a combination of ‘v+adv’ exists. Their definitions and examples only discuss the combination of ‘v+ prep’. However, there are locative adverbs in Arabic, which are called ظروف المكان وظروف الزمان ‘*Zuruuf makaan wa Zuruuf zaman*’ ‘adverbs of place and adverbs of time’ (Ryding, 2005). Ryding categorized these locative adverbs as semi-prepositions, and stated that they signify locations in a similar way to prepositions. Thus, they are considered semantically as a second type of Arabic prepositions (Ryding, 2005). For example, ‘تحت’ ‘*tahat*’ ‘under’ is considered semantically to be a semi-preposition. Moreover, sometimes an EPV in the structure of ‘v+adv’, such as ‘*come back*’ may have an equivalent in APVs in the form of ‘v+ prep’ as in:

(8)

عاد الى المنزل

3ad-a

eilla

al-manzel

Came -3SGM

to .PREP

DEF-home. OBJ

‘He came back home’

To summarise, semitic languages such as Arabic do not have a designated category of PVs, unlike most of the Germanic languages. If we consider PVs as one structure, ‘verb + adv’, we could say that there are no PVs in Arabic because Arabic does not allow any kind of verbs to colligate with adverbs. In other words, there is one EPV that has a partial counterpart in an APV, which is the verb + prep structure, but APVs are generally literal, whereas EPVs are often semi-transparent or idiomatic. These semantic and syntactic differences between EPVs and APVs, together with the complexity of the EPVs may lead to the misuse and avoidance of EPVs by Arab EFL learners. Building on this premise, an exploratory corpus case study was undertaken to delve deeper into how Arab learners of English engage with PVs. This study demonstrates the intricacies faced by Arab learners while using PVs. Drawing on these insights might offer ways for refining pedagogical strategies and designing tailored instructional materials to optimize the English learning journey for Arab students.

6. Chapter 6: Corpus Case Study

6.1 Methodology for the Corpus Case Study

Corpus-based studies are an efficient and robust way to conduct empirical investigations of language usage. They offer researchers the opportunity to analyse extensive collections of authentic texts, enabling them to identify genuine patterns of language usage, rather than relying on artificial examples or subjective intuitions (Biber et al., 1998). This methodology enhances the robustness and objectivity of linguistic research, as it draws insights directly from actual language usage in various contexts.

As this study aimed to understand the actual use and manner of utilization of PVs by Arab EFL learners, as well as identify the types of mistakes they made when using them, I selected the EF-Cambridge Open Language Database (EFCAMDAT) along with 20 PVs for investigation in this exploratory study.

6.2 EF-Cambridge Open Language Database (EFCAMDAT)

The EF-Cambridge Open Language Database (EFCAMDAT) (Alexopoulou et al., 2015) is the largest publicly available database of written English samples produced by L2 learners worldwide and from different backgrounds. This database was created through a collaboration between English Town, an online school of EF Education First, and the Department of Theoretical and Applied Linguistics at the University of Cambridge. It includes 83 million words from largely written submissions (1 million writing assignments) produced by numerous adult EFL learners (174,000 learners) at different proficiency levels according to the common European framework of reference for languages (CEFR) scale, ranging from A1 to C2 (See Table.5). These writing assignments covered a range of different topics such as giving instructions to play a game, writing about what you do, covering a news story, or describing your family's eating habits. The data collected in this corpus dataset is labeled with metadata such as the learners' age, gender,

nationality of EFL learners, and their proficiency level, as well as the genre and topic of the submitted assignments (Alexopoulou et al., 2015; Geertzen et al., 2013).

Table 5

Information about EFCAMDAT

Name of corpus	Number of learners	Number of assignments	Number of words	CEFR
EF-Cambridge	174,000 learners	1 million writing	83 million	A1 A2 B1 B2
Open Language Database		assignments	words	C1 C2

The metadata guided the selection of target data for the PVs corpus-based analysis by specifying the data samples from intermediate Arab EFL learners. 17 Arab nationalities and learners who were in intermediate language proficiency levels were selected, resulting in 1950 intermediate Arab EFL learners who submitted 9447 scripts (more than 918775 words). Table 6 presents the list of nationalities and the number of scripts for each nationality.

Table 6

Arab Nationalities Selected from EFCAMDAT

No.	Nationality	Number of Scripts
1	Algeria	78
2	Bahrain	36
3	Egypt	492
4	Iraq	76
5	Jordan	126
6	Kuwait	283
7	Libya	20
8	Morocco	92

Table 6 Continued

No.	Nationality	Number of Scripts
9	Oman	95
10	Palestine	130
11	Qatar	309
12	Saudi Arabia	6593
13	Sudan	26
14	Syria	168
15	Tunisia	22
16	United Arab Emirates	813
17	Yemen	88

The above table provides information on the distribution of scripts across different Arab nationalities. Saudi Arabia has the highest number of scripts, with 6593, followed by the United Arab Emirates, with 831 scripts. On the other hand, some countries have a relatively low number of scripts, such as Libya, with only 20 scripts, and Tunisia, with 22 scripts. All these scripts, which consist of more than 918775 words, were used in the corpus case study to find how intermediate Arab EFL learners use PVs.

6.3 List of PVs Selected for the EFCAMDAT Investigation

The English language has a massive number of PVs (Liu, 2011). In order to conduct an exploratory corpus-based study of Arab EFL learners' usage of EPVs, a number of frequently and less frequently used PVs according to their occurrence in the British National Corpus (BNC) (Consortium, 2000) and Corpus of Contemporary American English (COCA) (Davies, 2008) were selected for investigation. The decision to select both highly frequently used PVs and less frequently used PVs was made in order to capture a wider spectrum of interactions between learners and PVs. Comparing the usage of highly frequent and less frequent PVs can reveal

differences in how learners use these PVs. Investigating these less common PVs can help us understand how learners adapt to and incorporate less familiar language structures.

Gardner and Davies (2007) conducted a corpus-based frequency study to investigate the most frequently used PVs in the BNC. In the results of this study, the researchers listed 20 lexical verbs that occurred in 53.7% of the PVs constructions found in the BNC. Moreover, the researchers studied the frequency of 16 adverbial particles, and they concluded that eight of these particles (on, back, out, down, in, up, over, off) occurred most frequently in PV forms. However, one of their main outcomes was a list of 100 frequent PVs found in the BNC. Liu (2011) argued that Gardner and Davies's (2007) list of PVs only included the PVs that were constituted by one of 20 lexical verbs. He also argued that, in their analysis, the researchers had concentrated on one corpus, the BNC, and had neglected the American use of PVs. Thus, Liu (2011) conducted a comparative investigation of the most frequently used PVs in British and American corpora. He examined the 31 PVs listed in Biber et al. (1999) and the 100 PVs listed in Gardner and Davies (2007), in addition to the PVs found in COCA. Liu (2011) found that there were shared PVs in Biber et al.'s, Gardner and Davies's lists and PVs retrieved from COCA, which means that most of the frequently used PVs were common to both British and American English. Liu (2011) provided a list of 150 most frequently used PVs in British and American English as a result of his study.

For the current exploratory corpus case study, the 10 most and 10 least frequently used EPVs from Liu's study (2011), which compiled a list of the 150 most frequent PVs in both American English and British English, were selected for investigation (See Table 7). The current ranking of PVs in Liu's 2011 list is based on their frequency in the COCA. While it is expected that American and British English do exhibit differences in the frequency and usage of PVs. Liu (2011) argued that the most frequently used PVs show a high degree of similarity in both varieties.

Consequently, learners and educators can approach the learning and teaching of these PVs without concern about which PVs to learn.

Table 7

List of the 10 Most and 10 Less Frequently Used PVs and their Syntactic Features

Frequency Ranking Order	Phrasal Verb	Syntactic Classification		
		Transitive Separable	Inseparable	Intransitive
1	Go on		√	√
2	Pick up	√		√
3	Come back			√
4	Come up			√
5	Go back		√	√
6	Find out	√		√
7	Come out			√
8	Go out			√
9	Point out	√		
10	Grow up			√
141	Fill in	√		√
142	Give out	√		√
143	Give in	√		√
144	Go along			√
145	Break off	√		√
146	Put off	√		
147	Come about			√
148	Close down	√		√
149	Put in	√		√
150	Set about			√

6.4 Tools Used in EFCAMDAT Exploration and Analysis

The EFCAMDAT is a web-based interface that can be accessed via <https://corpus.mml.cam.ac.uk>. The corpus is freely accessible; however, it is restricted to non-commercial academic use; thus, it requires approval from EF Education First and the University

of Cambridge to fully access its extensive features and data sets. The Corpus Query Language (CQL) (Christ & Schulze, 1994), which allows users to construct their queries to search for particular complex structures, grammatical constructions, or collocations, is embedded in the EFCAMDAT. To achieve the aim of the study, this query tool was used to identify and retrieve the target PVs and to perform further analyses.

6.5 Procedures

The following steps were followed to collect and investigate the retrieved data.

- 1- A registration request to access EFCAMDAT was sent to the corpus developers on November 30, 2020. It took around 12 days to get an active account.
- 2- The data which belonged to the target proficiency level, intermediate, was selected. Further refinement was made by selecting Arabic L1 learners. Thus, the inclusion criteria are proficiency level (intermediate – B1) and nationality (any Arab nationality). This means that the dataset is filtered to include data produced by EFL learners who meet these two criteria.
- 3- The 20 selected PVs were retrieved from the EFCAMDAT corpus by using the CQL function. Two strings were used to retrieve these PVs. For example, the following strings were used for the PV ‘close down’:

A- [lemma="close"][word="down"]

B- [lemma="close"][] {1,4 } [word="down"]

String A was used to find inseparable PVs used by learners; in other words, constructions in which the verb was followed by the particle, whereas string B was used to find separable PVs occurring

in construction₁ in which the object is placed between the verb and the particle. The rationale underpinning the selection of a word span ranging from 1 to 4 words, worked as a defined interval between the verb and the particle, is motivated by the intention to comprehensively encompass a diverse spectrum of linguistic contexts and syntactic arrangements. This range has been chosen with the intent of accommodating a multitude of linguistic situations, including instances where a single word functions as a direct object, along with simpler noun phrases that conventionally comprise a determiner and a noun. Moreover, this approach extends its applicability to encompass longer and more complex noun phrases, which may include a determiner and a maximal count of three nouns. Through the adoption of this flexible range, the analytical scope enhances the comprehensiveness and depth of the analytical outcomes.

- 4- The outcomes of the used strings were exported to Excel sheets for further investigation. I inspected all of the concordance lines and identified whether the combinations of verb + preposition were PVs or free combinations by following Biber et al., (1999) and Quirk et al., (1985) criteria for identification, which are: replacing the PV with a single verb, especially in the case of intransitive PVs, moving the particle to be placed after or before the object, the emergence of an idiomatic meaning from the PV, and employing the wh-question formation test. This test involves creating questions such as 'what' or 'who' for PVs in the form of prepositional verbs and 'where' or 'when' for free combinations to determine the function of the verb-particle construction. For instance, with the PV *turn down* meaning 'to reject', a wh-question would be *What did she turn down?* indicating it as a PV. In contrast, for a prepositional verb like *look at*, a question could be asked *What is he looking at?* where 'at' serves as a preposition tied to the verb. Whereas for a free combination such as *arrive at*, a question could be asked *Where did he arrive?* showing

that 'at' is part of an adverbial phrase indicating location. It is important to note that these criteria are not always clear-cut, as some combinations allow both functions. Thus, native speakers' consultation was required.

- 5- If the concordance lines involved PVs, I examined the learners' use of such PVs from two different angles, namely semantics and syntax. I checked whether the PVs were appropriate or inappropriate in the context, then identified the type of mistakes the learners made. Examples would be the entire PV being incorrect, the verb being correct but the particle being incorrect, or the PV being an inappropriate choice for the context. From the syntactic side, the objects of the PVs were checked to determine whether they were used in the correct position or not, and other grammatical aspects were considered, such as tense consistency and subject-verb agreement.
- 6- In order to confirm my identification of errors, after 3 weeks of my initial examination, I re-examined all the data to ensure that the initial identifications were accurate and that there were no inconsistencies between the two examinations.
- 7- 351 random examples out of 469 concordance lines were checked by two British native speakers of English. One is male, and the other is female, and both are working as English language instructors at the Institution of Public Administration (IPA) in Riyadh, Saudi Arabia. An inter-rater reliability test, which is a statistical measure used to assess the consistency or agreement between two or more raters or observers who are evaluating the same set of data, was conducted. The Cohen's kappa (Cohen, 1960) test was conducted to compare the examinations of the two native speakers' by using 'kappa2' function in the 'irr' (Gamer et al., 2019) package in R (R Core Team, 2020). The results revealed that the

Kappa value is 0.73, which indicates substantial agreement between the two raters (McHugh, 2012). The p-value is very small ($1.25e-150$), which indicates that the agreement between the raters is highly statistically significant. Therefore, we can conclude that there is good agreement between the two raters in their judgments on three-quarters of the data, 351 concordance lines, and the level of agreement between the raters is highly unlikely to be random or due to chance.

6.6 EFCAMDAT Initial Findings

The descriptive statistics that will be presented in this section were generated by using R version 4.0.2 (R Core Team, 2020). One of the main findings was that intermediate Arab EFL learners tended to use the 10 highly frequently used PVs more than the least frequently used PVs. Also, learners tend to prefer construction₀, as in ‘*give out the test*’ to construction₁, as in ‘*give the test out*’. Learners may have adopted a risk-averse strategy by avoiding the use of complicated structures and tend to use the most simplified constructions to keep steer clear of mistakes. Table 8 below illustrates the percentages of learners’ usage of each construction with the 10 high and less frequently used PVs. It is clear from the table that, in general, the 10 highly frequently used PVs are more frequently used by intermediate Arab EFL learners, while the 10 less frequently used PVs are mostly unused by learners; only 4 PVs were used ‘*fill in, go along, put off and put in*’.

Table 8

Percentages of PVs Constructions Used by Learners in EFCAMDAT

Frequency Rank	Phrasal Verb	Construction₀ [V+ PRT+OBJ]	Construction₁ [V+ OBJ+ PRT]
1	Go on	100%	0%
2	Pick up	100%	0%
3	Come back	99%	1%
4	Come up	100%	0%
5	Go back	100%	0%
6	Find out	99%	1%
7	Come out	100%	0%
8	Go out	99.21%	0.79%
9	Point out	0%	0%
10	Grow up	0%	0%
141	Fill in	100%	0%
142	Give out	0%	0%
143	Give in	0%	0%
144	Go along	100%	0%
145	Break off	0%	0%
146	Put off	100%	0%
147	Come about	0%	0%
148	Closed down	0%	0%
149	Put in	80%	20%
150	Set about	0%	0%

In more detail, for the separable PVs, between 99% - 100% were learners' usage of construction₀, with the PVs '*pick up, find out, fill in, put off*'. However, 1% of learners' correct usage of construction₁ was with the PV 'find out. It can be concluded that learners may be unmotivated to use construction₁ due to the complexity of the structure, which may lead to errors in production.

Semantic and syntactic misuse of PVs by Arab EFL learners was another clear-cut finding

Table 9 shows the total usage of the 10 most-frequently PVs, and the percentage of the correct and incorrect usage.

Table 9*Arab Learners' Usage of the 10 High Frequently Phrasal Verbs*

Frequency Rank	Phrasal verb	Total Usage	Appropriate Usage	Inappropriate Usage
1	Go on	26	67%	33%
2	Pick up	4	100%	0%
3	Come back	113	80.5%	19.5%
4	Come up	8	75%	25%
5	Go back	124	89.5%	10.5%
6	Find out	38	81.5%	18.5%
7	Come out	9	66.67%	33.33%
8	Go out	125	74.60%	25.40%
9	Point out	0	0%	0%
10	Grow up	0	0%	0%
All of the 10 most frequently PVs		447	78.4%	21.6%

Based on Table 9, the most frequently used PVs were '*go out*', '*go back*' and '*come back*', with a total usage of 125, 124, and 113, whereas '*pick up*' and '*come up*', and '*come out*', were used less often by Arab learners in EFCAMDAT, with a total usage of 4, 8 and 9. Moreover, the last two ranked PVs in the most frequently used PVs list, '*point out*' and '*grow up*', were not used by intermediate Arab EFL learners in the dataset. This might give an indication that intermediate Arab EFL learners are more familiar with the highly ranked PVs. There was a moderate usage '*find out*' and '*go on*' by intermediate Arab EFL learners, which were used 38 and 26 times.

In terms of appropriate and inappropriate usage, around 33% of usages of '*come out*' and '*go on*' were inappropriate; these were the most commonly misused PVs in the highly frequent list. However, the least misused PV was '*pick up*', where none of its usage was inappropriate. The rest of the PVs '*come back*, '*come up*, '*go back*, '*find out*, '*go out*' were used between 8 – 125 times with a percentage of appropriate usage 'between 74.60% - 89.5%'.

The total usage of the 10 most frequently used PVs was 447 instances, with an average of 78.4% of appropriate usage and 21.6% of inappropriate usage for the used PVs. This indicates that intermediate Arab EFL learners used the 10 highly frequent PVs 350 times appropriately, whereas only 97 of the 447 usages were inappropriate. To obtain deeper insight into the types of mistakes that the learners made, a more detailed examination was conducted, and the results are presented in Table 10.

Table 10

Analysis of the Types of Errors Found in EFCAMDAT (10 Highly Frequent PVs)

Phrasal Verb	Types of Errors		
	Inappropriate Syntactic Use	Inappropriate Semantic Use	Inappropriate Syntactic and Semantic Use
Go on	33.33%	33.33%	33.33%
Pick up	0%	0%	0%
Come back	91%	9%	0%
Come up	0%	100%	0%
Go back	92.3%	7.7%	0%
Find out	71.4%	0%	28.6%
Come out	33.33%	66.67%	0%
Go out	78.12%	15.63%	6.25%
Point out	0%	0%	0%
Grow up	0%	0%	0%

Table 10 classifies the types of mistakes intermediate Arab EFL learners made while using the 10 most frequent PVs, and the percentage of each type of mistakes. The errors are categorized as syntactic errors, semantics errors, or both. Learners tended to misuse the PVs ‘*come up*’ and ‘*come out*’ semantically, whereas ‘*go back*’ and ‘*come back*’ were the most common syntactically misused PVs. Specifically, 100% of the usage of the PV ‘*come up*’ was related to the semantic misuse, and 66.67% of the usage of the PV ‘*come out*’ was also due to semantic misuse. On

the other hand, 92.3% of the usage of the PV *'go back'* was associated with syntactic misuse, and *'come back'* exhibited a 91% rate of syntactic misuse. Moreover, *'go on'* was the most commonly misused PV in terms of both syntax and semantics, with an average of 33.33% of misuse. The general results showed that the most prevalent error in the usage of the 10 highly frequent PVs was inappropriate syntactic use, followed by inappropriate semantic use, with a smaller proportion of cases demonstrating both types of errors.

To compare the learner's usage of the 10 highly frequent PVs to the 10 less frequently used PVs, the total usage of the 10 less frequently used PVs and the percentage of appropriate and inappropriate usage of the selected PVs are presented in Table 11.

Table 11

Arab Learners' Usage of the 10 Less Frequently Used PVs

Frequency Rank	Phrasal Verb	Total Usage	Appropriate Usage	Inappropriate Usage
141	Fill in	8	50%	50%
142	Give out	0	0%	0%
143	Give in	0	0%	0%
144	Go along	1	0%	100%
145	Break off	0	0%	0%
146	Put off	3	33.33%	66.67%
147	Come about	0	0%	0%
148	Closed down	0	0%	0%
149	Put in	10	30%	70%
150	Set about	0	0%	0%
All of the 10 less frequently used PVs		22	23.64%	76.36%

Table 11 illustrates the total usage of each PV and the percentage of correct and incorrect uses of the 10 less frequent PVs by intermediate Arab learners. In general, it is clear from the analysis that the learners rarely used the less frequently PVs. Only 22 concordances involving *'fill in'*, *'go along'*, *'put off'* or *'put in'* which belong to 10 less frequently used PVs list were found,

with 23.64% being correct uses and 76.36% indicating the misuse of PVs. The investigation of the 10 less frequently used PVs retrieved from the EFCAMDAT revealed, in general, that 10 and 8 concordance lines were found for *'put in' and 'fill in'*, 3 concordance lines for *'put off'*, and only one concordance line for *'go along'*. Moreover, there was no use of the PVs *'give out, give in, break off, come about, close down, set about'* at all.

According to this, two less frequent PVs, *'put in' and 'fill in'*, were used frequently by Arab learners in comparison with the other 10 less frequently used PVs. Each one of the two PVs was used between 8 to 10 times, with a proportion of 30% to 50% being accurate usage and 50% to 70% of inaccurate usage. The general findings of the whole investigation may indicate that EFL learners tended to use the 10 highly frequent PVs more often in their writings. Table 12 shows the further analysis of the types of errors learners made with the 10 less frequent PVs.

Table 12

Analysis of Types of Errors Found in EFCAMDAT (10 Less Frequent PVs)

Phrasal Verb	Types of Errors		
	Inappropriate Syntactic Use	Inappropriate Semantic Use	Inappropriate Syntactic and Semantic Use
Fill in	0%	75%	25%
Give out	0%	80%	20%
Give in	0%	0%	0%
Go along	0%	0%	100%
Break off	0%	0%	0%
Put off	0%	50%	50%
Come about	0%	0%	0%
Closed down	0%	0%	0%
Put in	71.43%	0%	28.57%
Set about	0%	0%	0%

With regard to the 10 less frequently used PVs, most of the 10 less frequently used PVs had both semantic and syntactic misuse. One PV, *'go along'*, had 100% inappropriate usage in both semantic and syntactic. *'fill in'*, *'give out'*, *'put off'*, and *'close down'* also had inappropriate usage in both semantic and syntactic but in the proportion of 20% - 50%. This gives us an indication that most of the 10 less frequently used PVs are misused semantically and syntactically.

When considering the prevalence of syntactic versus semantic misuse, the majority of errors were associated with meaning; for instance, *'give out, fill in, put off'*, displayed semantic misuse rates ranging between 50% and 80%. In contrast, *'put in'* stands out as the only PV with a predominant syntactic misuse, representing 71.43% of its errors.

From this analysis, it is evident that both semantic and syntactic misuse of PVs were the only prominent types of errors. If learners committed an error related to meaning, it often coincided with a syntactic error, and vice versa. Furthermore, errors tied to meaning emerged as the second most common error type, where learners incorrectly applied PVs from a semantic standpoint but used them correctly in terms of syntax. The results also suggest that intermediate Arab learners of English might face challenges in employing the less frequently used PVs to convey the intended meaning.

6.6.1 Closer Investigation of Semantic Errors

Some semantic errors made by intermediate Arab EFL learners were found in EFCAMDAT. These errors revolve around inappropriate choices of PVs to convey suitable meanings given the contexts. These semantic errors could be classified into the following types:

1- Wrong use of PVs - single verbs could be used.

In this type of error, learners tended to use PVs in positions where single verbs would have been more appropriate given the context.

Example 1

I jumped there and unfortunately I missed my glasses I tried to **find it out** but no lucks .

Here, the learner used the PV '*find out*' with the object '*it*' to refer to a plural noun '*pair of glasses*'. The object is located correctly even though it should be plural; however, the PV '*find out*' is used inappropriately in this sentence as the learner is trying to locate their lost glasses. The PV '*find out*' is usually used to mean to discover information, facts, or the truth about something. Therefore, in this context, the learner could have used other accurate alternatives, such as the single verb '*find*' to represent the appropriate meaning for the context. The sentence would be: '*I jumped there, and unfortunately, I missed my glasses. I tried to find them, but no luck.*'.

2- Wrong use of PVs – semantically incompatible.

Usually in this type of error, the learners produced weak sentences in which the chosen PV did not deliver the required meaning.

Example 2

It was really terrible , and the building was damaged and destroyed , my father and his family back then were creaking and squeaking , the earthquake stopped and **went back** then.after it finished .

In the above example, the learner used the wrong PV '*went back*' to express that the earthquake started again after it stopped. In other words, the earthquake had a brief lull before resuming. In the context of an earthquake, the learner could use another PV e.g., '*start back up*' to express that the shaking resumed after a brief pause or stop. The phrase could be modified to be '*the earthquake stopped and started back up again*'.

3- Wrong choice of particles.

Learners tended to use the correct verb but selected an incorrect particle. Often this particle is possible, but it forms another PV, thus conveying a different meaning.

Example 3

After that , the firemen arrived and **put off** the fire .

According to the context, it seems that the learner meant to use the PV '*put out*', but the incorrect choice of particle changes the meaning to '*discourage*'. Usually, the particle '*off*' conveys the sense of something no longer existing or functioning. Thus, the arbitrary relationship between the PV's components led the students to misuse the PV.

4- Wrong choice of verbs.

Another error learners fall into is using a correct particle but choosing an incorrect verb, which results in producing another PV that might be different from the intended one to use.

Example 4

In addition to what we have mentioned before each manger is responsible about his team satisfaction and the members **go along** with each other

Here, the learner used the PV '*go along*' to refer to having a friendly relationship with someone or being on good terms with each other. The particle '*along*' has been used correctly, but the use of the wrong verb '*go*' instead of '*get*' resulted in producing another PV that does not really suit the context.

6.6.2 Closer Investigation of Syntactic Errors

Learners tended to avoid applying the necessary grammatical rules to PVs, such as consistency of the verb tense, subject-verb agreement, and incomplete objects, which produced incorrect and incomplete sentences. The following examples extracted from the EFCAMDAT illustrate how some intermediate Arab learners dealt with PVs syntactically.

Examples 5&6

Firstly , you should determine how many time you will **going out** for shopping .

Isabella could n't sleep that night , so she **go out** and met John

The lack of verb tense consistency and subject-verb agreement are obvious in the above examples. It appears that learners either omitted essential grammatical elements from the PVs, resulting in poorly constructed sentences, or inappropriately applied grammatical elements, e.g, ‘*ing*’ with PVs that follow auxiliary verbs e.g., ‘*will*’, and ‘*would*’. Moreover, in some instances, the learners produced incomplete sentences, as in the following example:

Example 7

Another disadvantage is that its uncommon to old people **to go back** school but I 'm sure that will change soon .

The student produced a meaningful sentence with the correct usage of the PV, but the missing proposition ‘*to*’ contributed to producing an incomplete sentence.

6.7 EFCAMDAT: Summary of the Findings

The main aim of the study was to investigate the actual use of EPVs by Arab EFL learners. The results of the descriptive statistics for the intermediate Arab learners' use of 20 EPVs revealed that the learners did not use many PVs in their writings. A comparison of the use of the 10 most and 10 least frequent PVs showed that the learners used the 10 most frequent PVs more frequently and more correctly than the 10 less frequent PVs. Furthermore, construction₀ appeared to be the learners' preferred choice instead of construction₁. This finding supports previous studies, which claimed that intermediate L2 learners preferred the use of construction₀. Moreover, the study's results also revealed that intermediate learners did not make any mistakes with object placement in PVs, but they did misuse PVs in terms of other semantic and syntactic aspects. The main semantic error was the learners' use of inappropriate PVs in context, either choosing an incorrect PV, or selecting a wrong particle or verb to form a PV. In addition, the learners used PVs in contexts in which single verbs were more appropriate. In terms of syntactic errors, the learners made many grammatical errors, such as the lack of tense consistency with the PVs and incorrect subject-verb agreement. These results of the error analysis are in agreement with those obtained by Creel (2022) in which Arab native speakers tend to use inappropriate particle with the verb and use a PV instead of a single verb.

These findings contribute to expand our comprehension of the challenges faced by intermediate Arab EFL learners in handling PVs. They also confirm earlier claims regarding the tendency of EFL learners to avoid using PVs. Moreover, these results emphasise the necessity for developing novel approaches to enhance the acquisition of PVs among Arab EFL learners.

7. Chapter 7: Classroom Intervention Study

7.1 Introduction

This chapter describes the methodological basis for the classroom intervention study conducted in this research project. As mentioned in the previous chapters, this study aims to assess the effectiveness of using corpus-based activities on Saudi EFL learners' acquisition of PVs. It also seeks to identify the influence of explicit and implicit instruction through corpus-based activities. The following research questions are formulated to achieve the research aim.

Q2: What is the effect of corpus-based activities on enhancing intermediate Saudi EFL learners' acquisition of PVs?

Sub-question 1: Which of the two groups (the traditional approach or the explicit corpus-based approach) demonstrates better learning and retention of PVs on the delayed post-test (after 28 days)?

Q3: What is the effect of the explicit use of corpus-based activities and implicit use of corpus-based activities on EFL learners' acquisition of PVs?

Sub-question 1: Which of the two modes of DDL learning (explicit corpus-based or implicit corpus-based) exhibits better retention of PVs on the delayed post-test (after a period of 28 days)?

This chapter provides detailed information about the research design, participants, and the preparation stage for the data collection, which includes developing PV material for the traditional group, explicit DDL group, and implicit DDL group. In addition to designing research instruments

for collecting the required data, it also discusses the pilot study, the data collection procedure adopted to answer the above research questions, and the research's ethical considerations.

7.2 Research Design

Experimental research designs have been used to investigate cause-and-effect relationships within the field of education for many years (Cook et al., 1979). This approach is used to determine whether a treatment and its outcome are causally related. Through the deliberate manipulation of variables and systematic comparison of groups, experimental studies allow researchers to discern whether changes in the outcome can be attributed to the treatment itself or whether alternative factors might play a role.

Researchers typically use either quasi-experiments or true experiments in experimental research designs (Cook et al., 2002). There are differences between these two types of experiments. One of the crucial differences is that true experimental designs assign participants randomly to groups, and it is usually conducted under controlled laboratory conditions. On the other hand, quasi-experimental designs are generally conducted under natural conditions and do not involve a random assignment of participants, which means participants are divided into experimental and control groups based on their choice or according to particular criteria followed by the researcher besides random assignment.

This research adopts a quasi-experimental research approach to evaluate the effectiveness of corpus-based activities on Saudi intermediate EFL learners' acquisition of PVs and to explore how different approaches to DDL learning influence learners' acquisition. Experimental research seeks to find whether there is a relationship between independent and dependent variables. The independent variable in this study is the teaching method, whether it is (a) the traditional PV learning through dictionaries (b) explicit corpus-based PV learning, (c) implicit corpus-based PV

learning (c). The dependent variable is the learners' acquisition of PVs, which is measured through recording their performance on a pre-test, a post-test and a delayed post-test.

There are several reasons behind the choice of the quasi-experimental approach. This study took place at Imam Mohammed Ibn Saud University in Saudi Arabia, with 80 students enrolled in their listening and speaking course at the Department of English Language and Literature. Because students were already assigned to groups, it was impossible to create new groups consisting of randomly allocated participants, which may disturb the natural process of learning and could raise ethical considerations. However, to introduce an aspect of randomization, three out of the six groups were randomly selected and assigned an independent variable randomly. Two of these classes were randomly assigned as the experimental group, and the remaining class we used as the control group. The control group was taught English PVs through dictionaries adopting the traditional approach of learning in the Saudi context; experimental group 1 was taught PVs through corpus-based activities following the explicit approach and will be referred to as Explicit DDL group; experimental group 2 was taught PVs implicitly and will be referred to as Implicit DDL group.

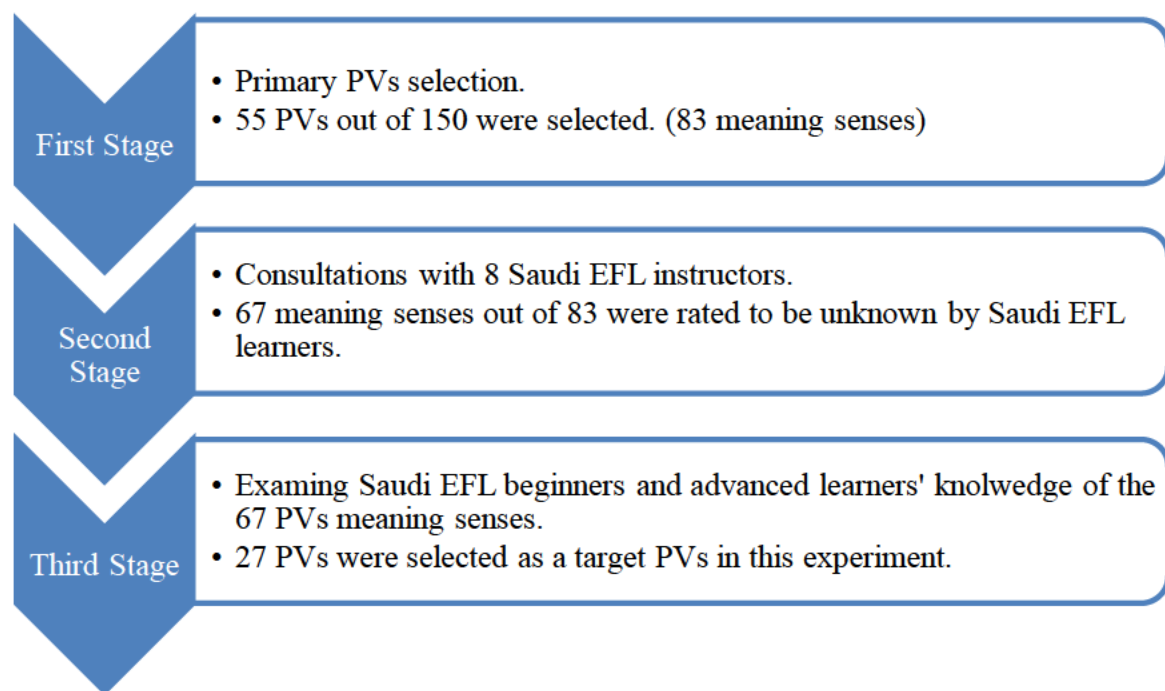
7.3 Classroom Material Development

Developing classroom materials for the control and experimental groups was an essential step in addressing the research questions. These materials had been prepared during the preliminary materials development phase that preceded the actual classroom intervention study. The progression of crafting the classroom activities encompassed several distinct stages. It commenced with the careful selection of target primary PVs for learning. Subsequently, the focus shifted towards the design of classroom activities centred around these PVs. Finally, the final step of this process entailed conducting pilot tests for the newly designed activities.

7.3.1 Identifying the Target PVs

Besides the fact that PVs are extremely common in English, they are also known for their polysemous nature (Gardner & Davies, 2007). An important question is raised here: Which PVs and meaning senses are valuable for EFL learners to learn among thousands of PVs available in English? If EFL instructors consider teaching their learners PVs according to the frequency feature, various lists are available (Gardner & Davies, 2007; Liu, 2011). However, these lists often neglect the polysemy feature of PVs and do not include it in their analysis. Garnier and Schmitt (2015) addressed this gap by adopting Liu's (2011) frequency list to develop the PHrasal VERb Pedagogical (PhaVE) List, which designed specifically for pedagogical purposes. This list aimed to collect the most frequently used PVs and give information about the meaning senses of each PV. The main aim of PHaVE list is to help learners and teachers focus on the most frequent meaningful senses of the most frequently used PVs in English.

Based on the results of the most recent corpus studies of PV frequency and further studies conducted to identify the most frequent meanings of the PVs, the PHaVE list will be used in as a basis for selecting PVs for students to learn during this study. The PhaVE List comprises 150 PVs, each encompassing between one to four meaning senses. It was too demanding for EFL learners to learn all of these PVs and their different meanings during a short period of time, i.e., one semester. Thus, certain PVs and their meaning senses were chosen from this list for participants to learn during this experiment. The selection process unfolded across three distinct stages, as depicted in Figure 4.

Figure 4*Target PVs Selection Procedure*

The first stage was the primary selection process which was based on two dimensions. The first dimension revolved around the syntactic attributes of PVs, i.e., whether they were classified as intransitive, transitive separable, or transitive inseparable PVs. The aim of this dimension was to assemble a selection of PVs distinguished by various syntactic structures rather than relying on a single syntactic type. The second dimension entailed considering the absence of the chosen PVs from the curriculum of high school English books that are taught in governmental schools across Saudi Arabia. However, it was unreasonable to depend only on examining government high school books because some students studied at private schools and were taught with different book series. Thus, conducting an exploratory study on Saudi EFL learners' knowledge of PVs was a necessity. Three Saudi EFL instructors were consulted to determine the PVs that are predominantly unfamiliar to Saudi EFL learners. As a result of the first stage, 55 PVs

and their 83 meaning senses that are syntactically and semantically varied were chosen for further selection.

The second stage aimed to confirm the initial PVs selection that are likely to be unfamiliar to Saudi intermediate EFL learners. A survey on Google Forms was designed for Saudi EFL instructors to rate the 83 meaning senses of the PVs. Participants were prompted to gauge the anticipated familiarity levels of these meanings among Saudi EFL learners at the first-year university level, employing a Likert scale ranging from 1 (highly familiar) to 5 (extremely unfamiliar). Eight Saudi EFL instructors who had at least 4 years of experience in teaching 1st-year university students completed this survey. The results revealed that 67 PV meanings were rated to be unfamiliar by Saudi intermediate EFL learners. Thus, there was a need for a further selection of PVs to teach learners in the classroom intervention study.

The third stage took place because the 67 meaning senses were still a large input in one semester. Thus, based on instructors' ratings of the PVs unfamiliarity by Saudi EFL learners at the intermediate level, the most unfamiliar PVs meanings, were used to create a productive test on Google Forms for Saudi EFL learners who were one level lower or one level higher than the main study target participant's level. By incorporating learners from a wider proficiency range, the intention was to uncover a broader array of challenges linked to PV comprehension from different proficiency levels. This productive test aimed to examine learners' knowledge of the 67 PV's meanings senses. Part of the productive test was adapted from Garnier and Schmitt's (2016), which covers only 50 PVs out of 150 PVs listed in the PHaVE List (Garnier & Schmitt, 2015). Thus, Garnier and Schmitt's (2016) test did not include the selected 67 meanings senses. It covers only 28 of the 67 selected meanings senses. To have a test that covers all the selected PVs, the 39 remaining PVs that were not listed in Garnier and Schmitt's productive test were added to the

productive test by following the same format used in the original test. 15 students who were at a higher level than the target participants of the main study and 15 students who were at a lower level completed the productive PVs test. The results from both groups were compared to predict which PVs might have the most challenging meanings for Saudi intermediate EFL learners. Based on the test results, the syntactic features of the PVs, and the results of the exploratory corpus-based study conducted in this project ([chapter 6](#)) which highlight that learners' usage of the least frequently used PVs in English are not just less known by intermediate Saudi EFL learners but are also more prone to misuse, a strategic choice was made in designing the material for the classroom intervention by mostly selecting PVs which ranked 40 or higher to design the activities for learners. The reasoning is that these PVs are likely unfamiliar to the learners and highly misused, which will make the learning material valuable. As a result, 27 PVs, which are listed in the PHaVE List, and their meaning senses were selected to be taught to learners in this experiment (see [Appendix A](#)).

7.3.2 PVs Distribution Across Worksheets

The control 'traditional' group and the two experimental groups (explicit DDL group and implicit DDL group) were provided with identical sets of PVs. The 27 selected PVs were used in developing the classroom materials for the three groups. The distribution of these PVs was organized across six worksheets, categorized based on the resemblance between the verbs or particles. Each activity within these worksheets encompassed a range of 3 to 5 PVs, thereby ensuring a comprehensive coverage of the selected PVs. The cumulative count of meaning senses within each worksheet ranged from 8 to 13. Notably, the initial worksheet featured 3 PVs accompanied by 8 meaning senses, with subsequent worksheets witnessing an increment in these numbers. By commencing with a slightly lower count of meaning senses, learners are provided

with an initial exposure to the content in a gradual manner, enabling them to become accustomed to the format and tasks.

Table 13 lists the distribution of the 27 PVs among the worksheets and the total meaning senses in each worksheet. According to this distribution, 6 PVs worksheets will be presented to participants of the control and experimental groups in this experiment.

Table 13

Distribution of the Target PVs and the Total of Meaning Senses in each Worksheet

Worksheet No.	Target PVs	Total of Meaning Senses in Each Worksheet
1	Put off Put out Put up	8
2	Set out Set off Set about take up take out	11
3	Turn around Turn up Turn over Fill out Fill in	10
4	Come off Go off Get off Look around Come around	13

Table 13 Continued

Worksheet No.	Target PVs	Total of Meaning Senses in Each Worksheet
5	Throw out Rule out Make out Give out	9
6	Bring up Wind up Hold up Catch up Pull up	8

7.3.3. Resources Used to Build up the Activities

Resources are needed to effectively construct and develop the material required for the control group, as well as both the explicit DDL group and implicit DDL group participating in this experiment. In developing activities for the control group, all PVs, along with their associated senses, were retrieved from a dictionary. The online Oxford learner's dictionaries (<https://www.oxfordlearnersdictionaries.com>) were chosen to be used as a primary resource for designing the classroom activities for the control group. This choice was motivated by the dictionary's status as a widely recognized and extensively used dictionary among Saudi EFL learners.

For the experimental groups, where concordances were used to build the activities, English Web corpus 2020 (enTenTen20) accessed through the online corpus tool Sketch Engine (Kilgariff et al., 2014) was used to retrieve the concordances. It was chosen among other available corpora due to its large size and the nature of its texts. The compilation process involved extracting English text from online sources up until the year 2020, which generally generated easy language concordances for EFL learners to understand and comprehend. Moreover, enTenTen20 consists of 38 billion words, which offers a variety of concordances to select the most suitable PV

concordances for the target participants. In the selection procedure, two criteria were taken into consideration: cultural variation and participants' proficiency level. When retrieving the PV concordances, priority was given to those that demonstrated cultural relevance to the Saudi culture. Additionally, in the selection of concordances, no modifications were made to the vocabulary; rather, instances were meticulously chosen that organically aligned with the participants' designated proficiency levels, thereby ensuring the linguistic complexity corresponded appropriately with their comprehension capacities.

7.3.4 Process of Developing Classroom Activities

There are several steps followed in designing activities for control and experimental groups. This section outlines the procedures employed in designing the classroom activities for the control group, explicit DDL group, and implicit DDL group.

7.3.4.1 Designing the Classroom Activities for the Control Group. For the control group, each worksheet began with a list of the target PVs and their meaning senses retrieved from the online Oxford learner's dictionaries. For instance, the PVs 'put off', 'put out', and 'put up' were the target PVs for worksheet 1. The worksheet began with a list of the target meanings of the PV 'put off' followed by the target meaning senses of 'put out' and 'put up'. The PV 'put off' has two target meanings, which are 'to delay something for a later time or date' or 'to cause an intense feeling of dislike'. I started by retrieving these two target-meaning senses of 'put off' and listed them on worksheet one. Figure 5 shows how 'put off' is presented in worksheet number 1 in the control group activity.

Figure 5

The PV 'put off' in the Control Group Activity

put off *phrasal verb*

put somebody ↔ off

★ to cancel a meeting or an arrangement that you have made with somebody

- *It's too late to put them off now.*
- *She put him off with the excuse that she had too much work to do.*

put something ↔ off

★ to change something to a later time or date

SYNONYM **postpone, delay**

- *We've had to put off our wedding until September.*
- **put off doing something** *He keeps putting off going to the dentist.*

★ to make somebody dislike somebody/something or not trust them/it

- *She's very clever but her manner does tend to put people off.*
- *Don't be put off by how it looks—it tastes delicious.*

SEE ALSO **off-putting**

After listing all the target PVs and meaning senses, learners were presented with two questions. The first question required learners to write down the Arabic definitions for each meaning sense of the targeted PVs. The underlying intention of this question was twofold: to emulate the grammar-translation method commonly employed within the Saudi context, and to direct the attention of Saudi EFL learners towards the explicit meanings of the chosen PVs.

The second question tasked learners with listing the meanings of the PVs in scenarios where an object is required and can be positioned either after the particle or between the verb and the particle. This query was aimed at drawing learners' attention to the syntactic intricacies

associated with the PVs. All 6 worksheets for the control group followed a unified outline and structure, ensuring consistency and cohesion in their design (see [Appendix B](#)).

7.3.4.2 Designing the Classroom Activities for the DDL Groups. To design the worksheets for the DDL groups, concordances of the target PVs and their respective meaning senses were extracted from the English Web Corpus 2020 (enTenTen20), which was accessed through the Sketch Engine corpus tool. The concordance tool was used to search for the target PV's meaning senses by typing each PV into the basic search box in Sketch Engine. Thousands of concordance lines, each with various meanings, structures, and settings, appeared for each PV search.

To assemble a collection of concordance lines well-suited for constructing the corpus-based activities, a thorough review process was undertaken. I reviewed all the concordance lines corresponding to each PV search. The aim was to identify the concordance lines that were mostly suitable for the learners' proficiency level and culture, while effectively conveying the desired meanings of the target PVs. Following this, the selected concordance lines were downloaded from Sketch Engine in Excel file format. This approach was followed for all the target 27 PVs and their meaning senses.

After the concordance lines retrieval stage, I worked on designing the activities for the explicit and implicit DDL groups. The consistent distribution of PVs across the worksheets, as previously elaborated (refer to sub-[section 7.3.2](#)), and implemented in the creation of classroom activities for the control group, was likewise employed in formulating activities for the DDL groups. For instance, in the initial worksheet designated for the explicit and implicit DDL groups, the PVs 'put off,' 'put out,' and 'put up' were targeted. I listed the retrieved concordance lines that

convey the target meaning senses for these PVs in a Word document to start designing the worksheets.

In corpus-based learning material for the explicit DDL group, concordance lines are displayed in the Key-Word-in-Context (KWIC) format, and the same concordances were presented in a full-sentence format for the implicit DDL group. In the (KWIC) format, the search words are highlighted and placed in the middle of the concordance line, and all the concordances are aligned vertically (see an example in Figure 6). However, in the full-sentence concordance lines format, the search words are not highlighted, and they are presented in a regular sentence format, and the sentences are not aligned vertically (See an example in Figure 7).

Figure 6

An Example of Concordance Lines in KWIC Format

	left	KWIC	right
1	I graduated in 2015, since then I've got a lot of experience and was always	putting off	completing a master's due to the funding
2	A lot of people want a high-quality machine, but they're	put off	by the prices. We at AE Sewing Machines have a solution for this problem.
3	The bad weather	put everyone off	this week – there were no volunteers in the garden!
4	I'm a freshman in a most difficult school in town and I can't	put studying off	, not even for a week. Can you give me a few tips on

Figure 7

An Example of Concordance Lines in Full-sentence Format

1	I graduated in 2015, since then I've got a lot of experience and was always putting off completing a master's due to the funding and other roles popping up at the time of enrollment which caused me to drop out and start working on this shop _____
2	A lot of people want a high-quality machine, but they're put off by the prices. We at AE Sewing Machines have a solution for this problem. _____
3	The bad weather put everyone off this week – there were no volunteers in the garden! _____
4	I'm a freshman in a most difficult school in town and I can't put studying off, not even for a week. Can you give me a few tips on _____

In the explicit DDL group, a few questions were given to participants, such as matching the concordance lines or filling in the blanks (refer back to [Chapter 3, Section 3.5.1](#)). The primary objective of these questions was to direct learners' attention towards both the forms and meanings

of the PVs. However, in the implicit DDL group, no questions were used to draw learners' attention to either the PVs or their forms and meanings. In other words, the focus was solely on doing one task, which was reading the concordance lines and completing the sentence as an open-speaking exercise. Notably, this approach did not involve any deliberate focus on the PVs, their meanings, or their forms. Sentence expansion task as in the form of speaking exercises were specifically chosen because of the nature of the classroom in which the activities will be conducted, a speaking classroom. The explicit corpus-based activities can be found in [Appendix C](#), and correspondingly, the implicit corpus-based activities can be found in [Appendix D](#).

7.4 Instruments for Data Collection

In order to collect the required data and answer the research questions, four additional instruments were used in the data collection process during the data collection phase. These instruments encompassed a background information questionnaire, a teacher's evaluation questionnaire, a pre post-test, and a delayed post-test.

7.4.1 Questionnaires

A background information questionnaire (refer to [Appendix E](#)) was used as the initial data-collecting tool to gather some basic information about learners' daily use of English language and the extent of their exposure to it over the years. This phase involved the collection of personal details (e.g., age and country of birth), as well as participants' engagement and experience with English (number of years of learning English, scores in Standardized Test of English Proficiency (STEP), etc.). The objective of obtaining these data was twofold: firstly, to characterize the participants of this study based on their backgrounds, and secondly, to ascertain the English language proficiency level of each participant, thereby enabling initial meaningful comparisons between the three randomly selected groups. The completion of the Background Information

Questionnaire was contingent upon learners' agreement, as evidenced by their signing of the consent form. Participants completed the background information sheet questionnaire after signing the consent form and before the start of the study.

A teacher's evaluation questionnaire (see [Appendix F](#)) was employed, with an EFL teacher assuming the role of evaluator. This questionnaire aimed to assess both the instructor's performance in teaching the three groups in addition to learners' interaction during the learning sessions. This questionnaire was divided into two distinct sections. The primary segment centred on evaluating the researcher's efficacy and consistency as a language instructor across the three groups. Specific areas under assessment included the researcher's classroom preparedness, confidence in utilizing the provided teaching materials, the lucidity of instructional delivery, responsiveness to students' queries, and the levels of enthusiasm and engagement demonstrated in the teaching process. In contrast, the secondary section focused on appraising the learners during the PV lessons, encompassing dimensions such as their enthusiasm, engagement, motivation, anxiety, boredom, and overall positivity. Table 14 below illustrates the questionnaire sections and components.

Table 14

Classroom Evaluating Questionnaire

On a scale from 1 to 5, where 1 represents a low rating, and 5 represents a high rating, please provide your assessment of the extent to which this statement accurately describes the situation.

Part A: Evaluating the teacher

- 1- The teacher is prepared for the class.
 - 2- The teacher is confident about the material she is teaching.
 - 3- The teacher's instructions are clear and specific.
 - 4- The teacher tries to involve all the students in the activity.
-

Table 14 Continued

On a scale from 1 to 5, where 1 represents a low rating, and 5 represents a high rating, please provide your assessment of the extent to which this statement accurately describes the situation.

- 5- The teacher is helpful in addressing students' questions.
- 6- The teacher is enthusiastic about teaching.
- 7- The teacher is engaged in teaching.
- 8- The teacher seems to be bored.
- 9- The teacher seems anxious about teaching.
- 10- The teacher creates a positive atmosphere in the classroom.

Part B: Evaluating the students

- 1- The students are enthusiastic while doing the activities.
 - 2- The students are engaged while doing the activities.
 - 3- The students are motivated to do the activities.
 - 4- The students seem to be clear about what they have to do with the activities.
 - 5- The students seem bored.
 - 6- The students seem anxious.
 - 7- The activities create a positive atmosphere for the students.
-

In order to maintain a high level of objectivity, an EFL teacher working in the same institution was invited to be an observer in the classrooms and to complete the questionnaire. It is worth noting that the EFL teacher's presence and participation were encouraged to be spontaneous and unannounced, allowing for a genuine and unbiased assessment of the teaching and learning environment.

7.4.2 Testing and Retesting Instrument

The objective of employing the pretest-posttest design is to explore the effect of corpus-based activities on Saudi EFL learners' acquisition of PVs, and how different approaches of learning, i.e., implicit and explicit corpus-based learning, influence EFL learners' knowledge of

PVs. A test-retest approach that involves giving the same participants the same instrument at different times was adopted to ensure instrument reliability (Sanders, 2019). This approach would result in producing accurate outcomes rather than using another version of tests, which could be easier or more difficult than the initial test and would produce falsely high or falsely low gains.

Therefore, in the context of this experiment, the same assessment test was given to the participants in all groups before and after the exposure to PV learning. However, there was one difference between the tests, which was the order in which the items were placed. This change in the order of the items was done to reduce a possible memory effect. However, the potential memory effect was minimal already because the learners never received the correct answers at any stage, and they worked through a large number of PVs during the training, making it very hard to recall which items exactly were part of the pre-test.

According to the above, the pre-test was used as a tool to measure the outcome of learners' knowledge of PVs prior to the exposure to the target PVs. Each group had the same test to measure learners' existing knowledge of a range of PVs senses. The same test was used as a post and delayed test after the treatment occurred to determine the extent to which the PVs had influenced participants after a short and long period of time.

7.4.2.1 Designing the Pre-post and Delayed Test. The assessment was administered online through Qualtrics to measure learners' knowledge of PVs. It consisted of 3 parts, and each part aimed to measure different types of linguistic features of PVs. The first part was a timed grammaticality judgment task (GJT) where learners were asked to decide whether a sentence that involves a PV was correct or incorrect. In other words, learners had to judge whether the particle or the object was placed in the sentence correctly or not. This grammaticality judgment task consisted of 10 grammatical usages of PVs and another 10 ungrammatical usages of PVs, and

learners were given 33 seconds to give their judgment. These 33 seconds were determined after piloting the test with 17 native speakers who spent, on average, 16.5 seconds judging each sentence. Therefore, intermediate EFL learners were given double time (33 seconds) to make sure that they had a reasonable time to answer the questions and would not be under pressure to guess. Figure 8 is an illustrative example of how the grammaticality judgment task (GJT) was presented.

Figure 8

An Example of Grammaticality Judgment Task

She brought her children up under very difficult circumstances.

correct

☐

incorrect

☐

24



The second part of the test was a drag-and-drop question. This question aimed to measure learners' knowledge of PV form and meaning. The challenge in this question was twofold: the first was that learners had to select the correct particle, and the second was to pick the correct particle and place it in the correct blank to complete the sentence. 17 sentences were given to learners, and each sentence had a missing particle. Definitions of each missing PV were given to learners in brackets to help learners drag and drop the correct particle to complete the sentence. An example of the drag-and-drop question is illustrated in Figure 9.

Figure 9
An Example of the Drag-and-drop Task

She set (1) _____ to discover the truth (2) _____ behind the story. (began with a definite purpose)

Items

EMPTY

in

out

down

on

up

about

(1)

(2)

The third part of this test was filling in the blank with the correct verb to complete the PV. This question aimed to measure learners' knowledge of PV meanings. To answer this question, learners were required to choose a suitable verb from a given list to complete the sentence. A total of 15 sentences were provided to participants, each accompanied by corresponding definitions, intended to facilitate learners' accurate determination of the requisite verb to seamlessly complete the PV structure and thereby generate a coherent and meaningful sentence. A representative instance of the sentence completion question is visually presented in Figure 10 for reference.

Figure 10*An Example of Filling in the Blank Task*

catch – go – come – turn – bring – get – stand

Last Monday, Sara _ _ _ _ _ up to the meeting half an hour late.
 (arrived, appeared)



Most of the sentences utilized in the pre-post and delayed test were drawn from the PHaVE list (Garnier & Schmitt, 2015). It was important to ensure that the vocabulary employed in these sentences was suitably aligned with the intermediate proficiency level of the target learners of this study. Thus, I reviewed each word, cross-referencing their designated proficiency levels based on the Cambridge University Press & Assessment (n.d). I omitted one high proficiency word that was unnecessary from one sentence and substituted 2 difficult words, which were ranked at C1 or above, with words suitable for lower proficiency levels. Specifically, I removed the term 'Subsequently' from one sentence, and in two other separate sentences, I replaced 'Incredibly' and 'Poorly'—both classified as C1-level words—with 'successfully' and 'badly'. These replacement words hold classifications of B2 and A2 as per their proficiency levels. A link to the final version of the test used for data collection is provided in [Appendix \(G\)](#).

The decision to create this specific form of testing stemmed from the need to address the prevalent issues learners faced with PVs, as discussed in [Chapter 6](#). The exploratory corpus-based study brought to light the main semantic challenge for Arab intermediate EFL learners, i.e., they often select unsuitable PVs by choosing the correct verb with the wrong particle, or conversely, the correct particle with the wrong verb. In direct response to these findings, I designed a pre-posttest tailored to assess these particular errors. This test compels learners to engage with exercises that test their ability to pair the correct particle with a given verb, the right verb with a given particle and to judge on the grammaticality of PVs in sentences.

7.5 The Pilot Study

Conducting a pilot study plays a crucial role in research by enabling the validation of methodology and identification of potential issues before the full-scale study, thereby ensuring the robustness and reliability of the research findings (Van Teijlingen & Hundley, 2001). Although pilot studies do not guarantee the success of the main studies, they do increase the chances of success. They play a crucial role in evaluating the study design and instruments, while also, identifying potential practical obstacles within the research procedure. Piloting studies on a bigger scale affords a valuable preview of the prospective implications for large-scale investigations.

As part of this research project's framework, a two-stage pilot study was conducted. This involved the assessment of both pre-posttest activities and corpus-based exercises by EFL instructors and EFL learners. The primary aim was to evaluate the feasibility and acceptability of the developed materials and tests. This assessment was undertaken in advance of their comprehensive integration into the main study.

7.5.1 Piloting the Study With EFL Instructors

The first stage of piloting the study involved presenting the designed pre-posttest and the corpus-based activities to EFL instructors to seek their feedback about the designed materials and tests. A total of 17 native speakers of English who had 2-15 years of experience in English language teaching, mostly with Saudi learners, were given the test and the corpus-based activities and were asked to evaluate the designed materials from their perspective. The feedback from these participants was highly valuable. They recommended removing some concordance lines from some activities as they might be vague for intermediate EFL learners. Moreover, the participants suggested removing some question items, simplifying some words, and rephrasing some of the test questions. All suggestions provided by participants were carefully reviewed and incorporated into the study materials and tests because of their vast experience in EFL education. This pilot study with EFL teachers also accomplished another goal. It aimed to determine how long it took EFL teachers to complete each question on the test. This was important because it gave an estimate of how long it may take EFL learners to finish the test. In order to schedule and manage the test-taking process in the study properly and ensure that the test duration is acceptable and doable for the target audience of EFL learners, after accounting for the differences in proficiency and familiarity with the language between the EFL instructors and the learners.

7.5.2 Piloting the Study With EFL Learners

The second stage was carried out in a classroom with students whose proficiency level was similar to that of the primary study's target participants. 26 Saudi female students in their first year of English major studies participated, and their proficiency was categorized as intermediate based on the Common European Framework of Reference for Languages (CEFR). This pilot study took place in the first semester of the academic year 2021 – 2022 with the help of some language

instructors at a university in Riyadh, Saudi Arabia. The participants of the pilot study were given the test to make sure that they understood the tasks correctly and that the target questions were suitable for their proficiency level. Their answers were analysed carefully, and some editing was done according to this examination e.g., learners faced difficulty in understanding the second question, the drag-and-drop task. This was mainly because the initial instructions for this task were not phrased clearly enough for learners. As a result, the question was reformulated to ensure the instructions were articulated in a way that was easier to understand. To enhance clarity further, a supplementary video was added, which visually illustrated the step-by-step process of addressing the drag-and-drop task. The added instructional video can be accessed through this link: <https://drive.google.com/file/d/1yaLbc5uTG9USPHSbE5eULKWrHC9UX6zI/view?usp=sharing>.

Following these revisions, the refined test was given to another 8 EFL learners to assess the usefulness of the instructional video in clarifying the misunderstanding. This proactive step was undertaken to ensure that the introduced video indeed served its purpose of enhancing clarity and comprehension among the learners. This action was taken as a preliminary measure before incorporating the video into the primary research study. All of the 8 EFL learners who were exposed to the test after editing demonstrated an understanding of completing the drag-and-drop task.

Regarding the corpus-based activities, students were presented with these tasks and then asked to identify any barriers or complications they faced while working on them. The vast majority of students stated that these activities differed from the typical tasks they were accustomed to due to the nature of concordance lines. Nevertheless, following their initial interaction with the activity, they gradually became accustomed to its novel structure.

It is worth highlighting that all the EFL learners who were involved in the pilot study were intentionally excluded from taking part in the subsequent main trial. This strategic measure was undertaken as a safeguard to prevent any inadvertent impact on research integrity and to ensure the purity of the main trial's outcomes.

7.6 Main Study

This section is dedicated to providing an in-depth overview of the main study conducted within the framework of this research project. It comprehensively explores various key aspects, including an insightful analysis of the research site, an overview of the participants who actively engaged in the study, a detailed account of the ethical approval secured to ensure research integrity, and an elaboration of the procedures employed for data collection.

7.6.1 The Context of the Research Site

The research context of this study was the Department of English Language and Literature at Imam Mohammad Ibn Saud Islamic University (IMSIU). IMSIU is one of the oldest and largest public universities in Saudi Arabia, renowned for its extensive range of academic programs and disciplines. The university provides diverse educational opportunities, including undergraduate, postgraduate, and diploma programs across various disciplines and fields of study. According to the latest available statistical data, the year 2021 witnessed an enrollment of over 75,227 students at IMSIU, spanning different educational majors and levels of learning. Students are distributed over the main campus of IMSIU, which is based in the capital city of Saudi Arabia, Riyadh, and another small campus at Al-Ahsa Governorate in the Saudi Eastern Province.

IMSIU has at least 70 institutes inside and outside the Kingdom of Saudi Arabia to teach Arabic to non-native speakers, a number of research centres, and a variety of colleges. It has at least 16 colleges, including engineering, medicine, computer and information sciences, sciences,

economics, administrative sciences, social sciences, Arabic language, languages and translation, media and communication, and many others. As a typical educational setting in Saudi Arabia, each college has two branches, one for males and another for females, and both are based on the main campus in Riyadh and in Al-Ahsa branch.

The choice of this specific context, amidst numerous potential sites, stems from the fact that the researcher is an academic faculty member within the College of Languages and Translation at IMSIU. This proximity to the academic environment facilitated deeper insights and a comprehensive understanding of the research context.

7.6.1.1 College of Languages and Translation. The College of Languages and Translation at IMSIU has one English language department known as the Department of English Language and Literature. Similar to the other academic units within IMSIU, this department offers both undergraduate and postgraduate programs. However, the primary concentration of this project is directed toward the undergraduate programs, as they constitute the focal point of interest. The Bachelor of Arts in English is one of the very well-known programs offered by the College of Languages and Translation at IMSIU.

As part of the Bachelor of Arts in English program at IMSIU, the Department of English Language and Literature adheres to several overarching objectives. One of the foremost and initial aims of this program is to equip students with the foundational core skills—namely speaking, listening, reading, and writing—in the English language. This will enable learners to attain mastery of the language and effectively communicate with English speakers. In other words, the program is designed to prepare students for success in various professional fields by endowing them with the requisite language proficiency levels (IMAMU College of Languages and Translations, n.d).

Enrollment in the Department of English Language and Literature follows specific criteria to ensure that students possess the necessary proficiency and aptitude for their studies. One of the central benchmarks set by the department is attaining a minimum score of 60 in the Standardized Test for English Proficiency (STEP) or its equivalent. The STEP test, thoughtfully designed, acts as a reliable barometer of a student's English skills. Specifically, a score of 60 on the STEP mirrors an IELTS band score of 4, which also corresponds to the B1 level of the Common European Framework of Reference for Languages (CEFR) standards. This mandatory criterion underscores the department's commitment to maintaining a high academic standard and ensuring students have the foundational skills needed for success in English Language and Literature.

To fulfill the objectives of the English language bachelor's degree program, students are required to complete the program's study plan, which encompasses 8 levels totaling 141 credit hours across the entire program. Each class session, lasting for 50 minutes, provides a platform for instructors to deliver their lectures. The first starting levels, Level 1 and Level 2, mainly focus on introducing learners to the 4 core skills of the English language and helping learners boost their ability to communicate effectively with others in English.

7.6.2 Ethical Approval

Ethical approval to conduct this study was obtained from the Humanities and Social Sciences Ethical Review Committee at the University of Birmingham on July 23, 2021 (see [Appendix H](#)). To recruit participants, official permission to collect data was obtained from the Department of English Language and Literature at Imam Mohammad Ibn Saud Islamic University on October 26, 2021, and from the Language and Translation faculty board on November 1, 2021.

After that, on 27 January 2022, I approached the students enrolled in the (ENG113) listening and speaking course during the second semester of the academic year 2021-2022. I

explained to the students the idea behind the project, their right to voluntary participation, the confidentiality of their participation, the security of data, and their right to withdraw from the project at any time during the study or within a two-week period following the data collection without encountering any consequences or penalties. To ensure that the students completely understood the idea behind the research project and to obtain valid consent, students were presented with two versions of the information sheet and the consent form. The original version was in the English language, and the other version was translated into the participants' mother tongue (Arabic). Consent forms and information sheets were collected electronically via Qualtrics; participants were given the option to choose which version to give consent to (refer to [Appendix D](#)).

7.6.3 Participants of the Main Study

This research took place in the Department of English Language and Translation at Imam Mohammad Ibn Saud Islamic University in Riyadh, Saudi Arabia. The participants of this study were Saudi female first-year English major students enrolled in the Department of English Language and Translation. The rationale behind selecting these participants is multifaceted.

First, all participants were female due to the gender-segregated nature of the Saudi educational system in public schools and universities. This precluded the possibility of a female researcher directly accessing the male section for data collection, given cultural norms. Second, IMSIU stands as one of Saudi Arabia's largest public universities, boasting a considerable enrollment of students. Third, it was important to have a sample of participants with the motivation and passion for learning English, as the students in the Department of English Language who have decided to choose the English major to pursue their higher education. This will facilitate the contribution to the research's objectives. Fourth, the researcher herself serves as an EFL instructor

within the Department of English Language and Translation; thus, it was easier to gain access to this organization for the data collection with full access to the buildings, facilities, and classrooms, alongside complete collaboration from department heads and instructors.

The participants across all groups fell within the 18 to 24 years old age range. Within this demographic, all the participants were Saudi female EFL students who were born in Saudi Arabia, except one student who was born in Russia, and another in the United States. Most of the students speak only English in addition to their mother tongue (Arabic). Seven students indicated that they speak languages other than Arabic and English; three students claimed that they speak Korean, two students speak Turkish, and two students speak Japanese. A small number of students, particularly 10, reported that they studied in native English-speaking countries such as the United Kingdom, United States, and Canada for at least one year of their lives. According to all participants' STEP scores, all participants were assessed to be at the B1 proficiency level, thus, having been born abroad or having lived abroad did not have a significant influence on their English proficiency level compared with their peers. Additionally, upon examining the distribution of students with diverse linguistic backgrounds, it was observed that they were randomly allocated across the groups: four resided in the control group, three in the explicit experimental group, and three in the implicit experimental group. Such a balanced distribution ensures that these students did not add any unintended biases to the study's results.

Three groups of students on the (ENG113) listening and speaking course in the 2nd semester of the academic year 2021-2022 were randomly selected. The choice of the listening and speaking course was intentional because learning PVs was a crucial element of the course objectives, and the course itself was mandatory. This focus on PVs was underscored by their significance in enhancing EFL learners' speaking proficiency to approximate that of native speakers.

Consequently, it was convenient and practical to select a listening and speaking course rather than other courses because it offers the learners an opportunity to learn PVs in an environment that would directly benefit them and would also contribute to this study.

Each of the three groups consisted of 26-28 students, and the groups were randomly assigned to one of the three learning methodologies (traditional learning, Explicit DDL learning, Implicit DDL learning). 26 students were in group number 344 and treated as a control group. Learners in this group were assigned to learn English PVs through dictionaries adopting the traditional approach of learning, i.e., the traditional learning approach used in the Saudi context, which is built on the grammar-translation method.

Meanwhile, section 343 comprised 28 students and served as experimental group 1. In this group, learners embarked on their PV journey through the explicit use of corpus-based activities. Furthermore, section 345 assumed the role of experimental group 2, comprising 26 students. Participants in this group were introduced to PVs implicitly by engaging in activities involving reading concordance lines and subsequently undertaking concordance-based speaking exercises.

Based on the composition of students in the three groups, 80 Saudi female students with an intermediate proficiency level, B1 as aligned with the Common European Framework of Reference for Languages (CEFR), were actively engaged in this study. However, the data of 4 participants were removed in the data analysis procedure due to their failure to attend all sessions or their withdrawal from the course before completing the post-tests. Consequently, comprehensive analysis was conducted on the data of 76 participants in total: 25 students within the traditional group, 26 students in the Explicit DDL group, and 25 students forming the implicit DDL group. Table 15 below illustrates the final number of participants in each group.

Table 15*The Total Number of Participants in Each Group*

	Control Traditional Group	Explicit DDL Group	Implicit DDL Group
Number of Participants	25	26	25

The participants in the three groups were considered equivalent based on the College of English Language and Translation enrollment criteria, which also be confirmed in the pre-test results of the three groups (see [Chapter 8](#)).

7.6.4 Main Study Data Collection Procedures

The study commenced in the middle of January 2022, in line with the beginning of the 2nd semester of the academic 2021 – 2022 year, according to the Saudi academic calendar. Upon arrival to collect data on the 16th of January 2022, a meeting was convened involving the language instructors of the (ENG113) listening and speaking course, as well as the head of the female section within the Department of English Language and Translation. This gathering facilitated discussions concerning the data collection procedures, ethical considerations, and the frequency of PV lessons each week. As a result of this meeting, three classes of the (ENG113) course were randomly selected for participation, and a consensus was reached that PV lectures would be held on a weekly basis, specifically every Sunday. These lectures were designed to span 50 minutes, aligning with the standard duration of lectures within the Department of English Language and Translation. The entire experimental phase encompassed 3 months. To conduct the study and collect the required data, this study went through four phases illustrated in Figure 11.

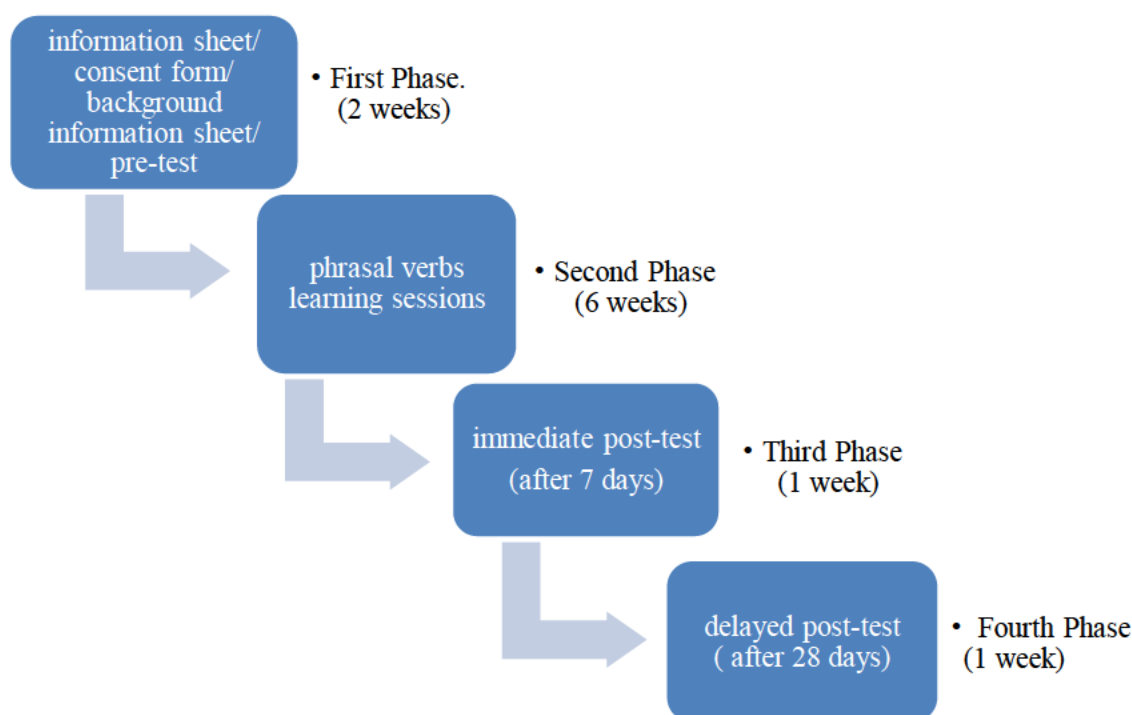
Figure 11*Data Collection Phases*

Figure 11 shows the phases and timeline for the entire experiment. The initiation point of the data collection was marked by the first phase, where participants were presented with the information sheet, consent form, and background information sheet in the first week. Subsequently, in the second week of this phase, all learners in all groups underwent the pre-test to assess their prior knowledge of PVs before any intervention and treatment. Transitioning to the subsequent phase, the commencement of sessions focused on PV learning took place. In the control group, the instruction of PVs followed conventional Saudi teaching methods. In contrast, both the explicit DDL Group and implicit DDL group within the experimental groups engaged in corpus-based activities that adhered to either implicit or explicit instructional approaches. This stage extended over 6 weeks, encompassing one session for each group every week, during which learners engaged with pre-prepared materials. During the third phase, an immediate post-test was

administered to all groups of participants to assess their knowledge following the treatment. Moving on to the fourth phase, a delayed post-test was conducted to gauge their retention of knowledge over a longer period of time after the treatment. The immediate post-test was administered seven days after the conclusion of the last PV learning session. Subsequently, the delayed post-tests were administered to participants 21 days after the immediate post-test, corresponding to a total of 28 days after the final PV learning session.

To provide a more detailed insight into the data collection process, the initiation of the classroom intervention studies first lecture took place on the 23rd of January 2022. During these initial lectures, every student within the three groups scanned a barcode by using their mobile phone, which directed them to Arabic and English versions of the information sheet and the consent form designed online on Qualtrics. All students had the chance to read the information sheet and the consent form in their preferred language. All participants were offered the opportunity to pose questions or seek clarifications before providing their consent. The questions raised by the learners were limited in number and typically centred around concerns regarding the possible disclosure of their names or identities in the research outcomes. However, each of these inquiries was diligently addressed, ensuring that all participants across the three classes felt fully informed and comfortable with the study's objectives and procedures. Following this, all learners in the 3 groups gave their final consent to participate in the study. Subsequently, within the same lecture and subsequent to obtaining the participants' consent, learners proceeded to complete the background information sheet. This sheet aided in gathering essential demographic and contextual information from the participants, enriching the dataset with valuable insights. Thus, the initial lecture marked the crucial first step in the data collection process, setting the stage for the subsequent phases of the study.

The 2nd lecture was in the following week, on the 30th of January 2022. During this session, all participants across the three groups participated in the pre-test. Learners scanned a barcode on their phones which took them to the pre-test designed on Qualtrics. The entire duration of the lecture, spanning 50 minutes, was allocated for completing the test. In order to discourage participants from rushing through the test, it was emphasized that no one would be allowed to leave the class until the lecture concluded. Anticipating the possibility of some participants finishing the test early, additional reading activities were prepared. All of the learners successfully completed the test on time, nearly before the end of the lecture, and there was no need to use the extra activities.

From the 6th of February to the 20th of March 2022, with the exception of the 13th of March, which coincided with the spring break in Saudi universities, successive weekly sessions were conducted. In these sessions, I engaged participants in PV instruction using the classroom activities that I had prepared. During this period, in each 50-minute lecture, learners in all groups were presented with one worksheet weekly. As presented in [Chapter 4, Section 4.4](#), prior experimental research indicates that longer intervals between practice sessions are more beneficial for L2 retention than shorter gaps. Thus, in designing the current classroom intervention study, the once-weekly session schedule aimed to provide a spacing gap that suggests optimal long-term retention through mechanisms of memory consolidation. This weekly spacing not only aligned with findings that longer intervals enhance durable learning but also fitted into realistic constraints of educational contexts. The lesson dates and the target PVs are listed in the following Table 16.

Table 16*Phrasal Verbs Lesson Schedule*

Worksheet No.	Target PVs	Lesson Date
1	put off put out put up	6 February 2022
2	set out set off set about	13 February 2022
	take up take out	
3	turn around turn up turn over fill out fill in	20 February 2022
4	come off go off get off look around come around	27 February 2022
5	throw out rule out make out give out	6 March 2022
6	bring up wind up hold up catch up pull up	20 March 2022

During this phase of PV learning, three students experienced Covid-19 infections: one student from the Explicit DDL group and two students from the control group. Due to their illness, they missed one class. After their recovery, I provided them with copies of the missed worksheets to work on at home, and they were offered the opportunity to seek clarification if needed.

Interestingly, none of the learners had inquiries about the worksheets, expressing that they found them comprehensible and manageable.

Furthermore, within this phase, I extended an invitation to a colleague from the Department of English Language and Translation to observe the PV learning sessions for all three groups and evaluate the teaching process and participants' engagement during the classroom sessions. Her attendance was flexible and unannounced, allowing her to choose a suitable week within her schedule. She was invited due to her availability on Sundays, which were less occupied in her teaching schedule compared to other colleagues. This Saudi EFL instructor, who has nine years of experience as an EFL teacher at the Department of English Language and Literature, attended one lesson for each of the three groups on the 27th of February, participating in three 50-minute lectures. During these sessions, she received a teacher's evaluation questionnaire to assess the instructor and learners' interactions throughout the learning process.

On March 27th, 2022, which was the week immediately following the final learning session, participants across all groups completed their immediate post-test. However, two participants had withdrawn from the Listening and Speaking course, and therefore did not take the post-test. Reaching these individuals to conduct the post-test proved to be difficult, ultimately leading to the exclusion of their pre-test data from the data analysis process.

During the final lecture, on April 17th, all participants from the three groups participated in the delayed post-test. This delayed test occurred 28 days after the last learning session and 21 days after the immediate post-test. With the completion of the delayed post-test by the participants, the data collection process reached its conclusion.

7.7 Conclusion

This chapter has outlined the methodological framework employed in this project to gather the necessary data for addressing the research questions. It has described the research design, research site, and participants, the preparation stage for the data collection, which involved designing the classroom activities, and the instruments used for data collection. It also described the pilot study and the data collection procedure of the main study. The following chapter will outline the statistical methods employed to analyse the gathered data, and it will also cover the interpretation of the study's correlational analysis.

8. Chapter 8: Data Analysis and Results

8.1 Introduction

The comprehensive analysis of the quantitative data derived from the control group, DDL explicit experimental group, and DDL implicit experimental group, conducted across three phases of testing (pre-test, immediate post-test, and delayed post-test), is crucial for tackling the research queries and assessing the proposed hypotheses. Moreover, this chapter delineates the procedures undertaken to analyse the collected data. Furthermore, it elucidates the rationale underlying the selection of specific statistical models employed to comprehensively address the research questions and effectively evaluate the proposed hypotheses.

To provide a clear and detailed overview of the steps of the data analysis process used, this chapter is divided into two main sections. The first section aims to present and discuss the pre-statistical analysis stage, which mainly includes reporting the results of the classroom evaluation questionnaire, data cleaning and preparation, and examining the baseline of each group's participants' prior knowledge of PVs. The second section of this chapter aims to present the type of analytical model and procedure used to answer the research questions and test the hypotheses. The chapter concludes by presenting and interpreting the findings of the data analysis.

8.2 Pre- statistical Analysis Stage

Statistical models are designed to capture the relationships between variables in a dataset and to make predictions or inferences based on those relationships. In the context of data analysis, proper data preparation is fundamental to executing statistical analyses. This phase ensures that the data is suitably cleaned and readied for subsequent analysis.

Within the scope of this project, the pre-statistical analysis stage is marked by a series of steps. These steps encompass the scoring of participants' tests, data cleaning, and the meticulous preparation of data for subsequent analysis. Additionally, this stage encompasses the computation

of a one-way ANOVA (analysis of variance) on the pre-test outcomes across all groups. The purpose of the ANOVA is to establish a baseline pertaining to participants' prior knowledge of PVs before entering the learning phase. The following part discusses in detail these steps undertaken prior to the primary statistical analysis and gives reasons behind the choice of conducting such procedures.

8.2.1 Interpreting the Classroom Evaluation Questionnaire

EFL teacher classroom evaluation questionnaire provides insights into the teacher's performance in different learning classrooms. An EFL teacher, with 9 years of experience, conducted teacher and learner evaluations across the three groups. These evaluations took place on February 27, 2022. The EFL teacher attended one lecture for each group, and each lecture lasted for approximately 50 minutes. To uphold objectivity, the EFL teacher decided to attend these lectures without providing advance notice, minimizing any potential alterations to the classroom atmosphere, instructional delivery, or student behavior. Table 17 shows the results of the teacher's evaluation for each group.

Table 17*Results of Classroom Evaluation Questionnaire*

On a scale from 1 to 5, where 1 represents a low rating, and 5 represents a high rating, please provide your assessment of the extent to which this statement accurately describes the situation.				
Part A: Evaluating the teacher				
		Control Group	Explicit Group	Implicit Group
1-	The teacher is prepared for the class.	5	5	5
2-	The teacher is confident about the material she is teaching.	5	5	5
3-	The teacher’s instructions are clear and specific.	5	5	5
4-	The teacher tries to involve all the students in the activity.	4	4	4
5-	The teacher is helpful in addressing students’ questions.	5	5	5
6-	The teacher is enthusiastic about teaching.	4	5	5
7-	The teacher is engaged in teaching.	5	5	5
8-	The teacher seems to be bored.	2	1	2
9-	The teacher seems anxious about teaching.	1	1	1
10-	The teacher creates a positive atmosphere in the classroom.	4	5	5
Part B: Evaluating the students				
1-	The students are enthusiastic while doing the activities.	3	4	4
2-	The students are engaged while doing the activities.	4	4	4
3-	The students are motivated to do the activities.	4	4	4
4-	The students seem to be clear about what they have to do with the activities.	5	5	5
5-	The students seem bored.	1	2	1
6-	The students seem anxious.	1	1	1
7-	The activities create a positive atmosphere for the students.	4	3	5

The EFL teacher assessment outcomes, as outlined in Table 17, offer valuable insights into the comparative evaluation of the teacher's performance and student engagement within the three instructional groups: Control, Explicit, and Implicit. These evaluations were conducted on a scale from 1 to 5, where 1 signifies a low rating and 5 indicates a high rating.

In Part A of the evaluation questionnaire, which focuses on assessing the teacher's performance, almost all three groups have consistent ratings across various dimensions. The teacher's preparedness for class, confidence in the material, and clear instructional communication all received top ratings of 5 for each group. Moreover, the teacher's proactive effort to engage all students in activities was evident, with consistent scores of 4 across the groups. Furthermore, the teacher's helpfulness in addressing student questions and the teacher's engagement in teaching were highly rated as 5 for all groups. Low scores of 1-2 indicated the teacher did not appear bored or anxious during the teaching sessions. The teacher's ability to generate enthusiasm and a positive classroom atmosphere was rated slightly lower for the Control group, compared to scores of 5 for the Explicit and Implicit groups; this might be due to the type of material used in the classroom.

In Part B of the observers' evaluation of students' performance across the three instructional groups revealed noteworthy insights into the dynamics of student participation during the classrooms. The levels of enthusiasm exhibited by students during activities displayed consistent trends, with the Explicit and Implicit groups rating this dimension slightly higher than the Control group, indicating a relatively uniform and positive engagement atmosphere. Similarly, student engagement throughout the activities showcased a harmonious perspective, as all three groups were assigned a rating of 4, underscoring a shared perception of students' active involvement and participation. Likewise, evaluations of student motivation exhibited congruent patterns, suggesting that irrespective of the instructional approach, students exhibited comparable

levels of motivation in engaging with the learning tasks. Notably, students' clear comprehension of activity instructions received unanimous high scores of 5 across all groups, signifying an effective communication of task requirements. While minimal differences surfaced in perceptions of student boredom and anxiety, these distinctions remained relatively consistent among the groups. Interestingly, the observer attributed the Implicit group the highest rating, a 5 out of 5, for the creation of a positive atmosphere during activities, potentially implying that the implicit instructional approach played a role in fostering an especially favourable ambience. In contrast, the Explicit and Control groups, while still awarded positive scores, indicated a slightly less positive atmosphere.

Overall, the observers' ratings of the teacher and students were almost consistent between the three groups, which underscores the teacher's effectiveness in preparation, teaching, creating a positive learning atmosphere, and engaging students. This uniformity in ratings signifies the maintenance of the classroom environment consistently, irrespective of the pedagogical approach employed.

8.2.2 Scoring Participants' Tests

As explained in the previous chapter, this experiment adopted the pre-posttest design as an instrument for the evaluation of the effectivity of the intervention. This design involved administering three tests: pre-test, post-test, and delayed test, across three distinct participant groups: control, explicit DDL experimental, and implicit DDL experimental. These tests were designed and presented to participants via the Qualtrics platform. Thus, gathered data was extracted directly from Qualtrics and saved in spreadsheet format.

A total of 9 spreadsheets (3 pre-tests, 3 post-tests, 3 delayed post-tests) were available for scoring by giving a value of each answer, either correct or incorrect. It was important to establish

clear and consistent grading criteria for evaluating participants' responses across all tests and all groups. In other words, all of the pre-, post-, and delayed post-tests of all groups followed the same scoring criteria and methodology. The general scoring criteria were one point for each correct answer and zero points for incorrect responses or if the answer was not provided by the participant. This consistent criterion was applied to all 9 tests.

In the first task, participants were asked to evaluate the grammaticality of sentences. They were required to ascertain whether each sentence was correct or not. Among the provided sentences, some were constructed with appropriate syntactic use of PVs, while others contained syntactical errors in the placement of the PV objects. Participants were presented with each sentence and prompted to choose between two options: 'correct' or 'incorrect'. Participants were awarded one mark for selecting the accurate answer while receiving zero marks for incorrect answers or leaving the response field empty.

To illustrate, consider the sentence, 'She brought her children up under very difficult circumstances'. The accurate assessment of this sentence is that it is indeed correct. If students select the option affirming the correctness of the sentence, they are awarded one point. However, if students judge the sentence to be incorrect or opt to leave the question unanswered, they receive zero points.

For the second question, participants had to drag and drop the correct particle to complete the PV in the sentence. One option accurately corresponded to the correct completion of the PV, within a list of provided particles. Participants were awarded one point for each instance in which they correctly chose and employed the appropriate particle to complete the sentence. Conversely, an incorrect particle selection resulted in zero points being assigned for that specific choice.

For example, consider the sentence: 'she set ____ to discover the truth ____ behind the story'. Within this sentence, students were tasked with selecting a particle from the list of provided options to complete the PV in a manner that conveys the concept of 'began with a definite purpose'. If a student chose the particle 'out' and placed it after the verb 'set', they would be awarded one point.

In the third question, participants were required to choose a verb from a list and write it down to complete the PV in a given sentence. In cases where the students successfully selected the accurate verb, they were awarded one mark. It is crucial to note that this scoring criterion remained unaffected by any potential misspelling of the chosen verb. On the other hand, if students chose an incorrect verb, their response was marked as zero.

To clarify the marking criteria for the third question, consider the provided sentence along with the words enclosed in parentheses: 'Last Monday, Sara ____ up to the meeting half an hour late. (arrived, appeared).' Accompanied by a selection of verbs such as (come, turn, go), students were tasked with selecting a suitable verb that would appropriately fulfill the sentence's intent to convey either the notion of 'arrive' or 'appear'. In instances where a student chose the verb 'turn' to complete the sentence, they were credited with one mark, irrespective of any potential spelling errors in the chosen verb.

By the end of the scoring the 1st, 2nd, and 3rd tasks, 42 points were given to participants if they answered all the test questions correctly. Following the primary scoring stage, an additional measure was undertaken to ensure the reliability of the scoring procedure. In this effort, a random selection encompassing 50% of the pre-post and delayed tests completed by participants across the three groups was subjected to scoring by a second marker. This second marker is a Saudi EFL teacher with three years of teaching experience.

The results of scoring half of the tests, equivalent to 114 pre-post and delayed tests (38 tests of each type of test), revealed an inter-rater reliability rate of 100%. In other words, there is no difference between the initial scoring and the scoring of a second marker of 50% of randomly selected tests, and both the initial scorer and the second marker arrived at the same score for each test which suggests that the scoring process was consistent and reliable. After following the same criteria in scoring the pre-post and delayed tests and checking the reliability of the scoring by a second marker, the datasets were ready for further cleaning and preparation.

8.2.3 Data Cleaning and Preparation

The process of transforming and cleaning raw data into a format that can be easily analysed is an essential process before conducting a statistical analysis. There are a few steps followed in this research project to ensure that data is accurate, complete, consistent, and free from errors that may affect the results. The data cleaning and preparation stage is important because the quality and shape of the data used for analysis directly impact the validity and reliability of the results.

It is imperative to underscore the importance of adapting the data into a suitable format compatible with the targeted data analysis programming software. In this research, the chosen data analysis tools were R and RStudio version 4.0.2 (R Core Team, 2020). The seamless alignment of data format and software not only facilitates the analysis but also contributes to the robustness and accuracy of the findings.

In this stage, each participant in each group was assigned an ID number, which was used instead of their names, to make sure that each individual participant completed the three tests (pre-post and delayed test). As a result of this, a total of 4 participants' pre-tests were removed at this stage because participants did not complete either their post or delayed tests. More specifically, the pre-tests of 2 participants from the DDL explicit experimental group, 1 participant from the

control group, and another 1 participant from the DDL implicit experimental group were removed from the dataset.

Another aspect that was given special attention in the data cleaning stage is the duplicate tests among the participants' responses. As explained in the previous chapter, participants were required to scan barcodes using their phones to access the tests. In the data-cleaning stage, it became clear that there were 2 participants who had scanned either the pre or post-test barcode twice. The Qualtrics platform recorded every single scan of the barcode even though the test was not completed and submitted as a response. As a result of this scenario, two recorded tests were found-for the same participant. However, it was evident that one of the duplicate tests had been left incomplete; only the initial segment of the test, which required participants to provide their names, had been filled out. By contrast, the other record from the same participant was fully completed. Consequently, in light of this situation, the decision was made to remove the incomplete tests from the datasets. This step was taken to ensure the integrity and accuracy of the data.

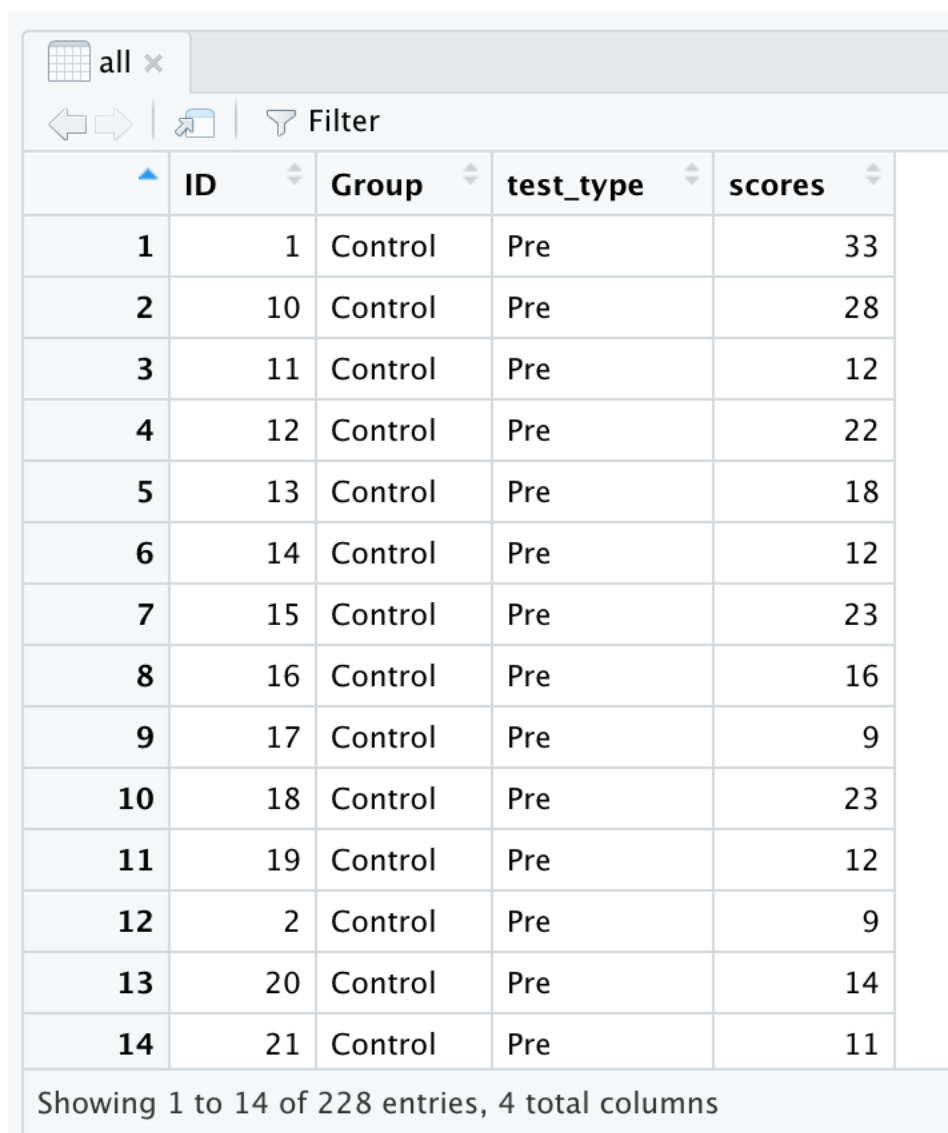
Then, a few further steps were conducted by using RStudio version 4.0.2 (R Core Team, 2020) to prepare data for running the actual statistical model. The datasets of each group were merged into one spreadsheet. So, instead of having 3 datasets (pre, post, delayed) for each group, each group has one dataset that contains the results of the three types of tests. A new variable, which is 'test type', was added to the dataset to distinguish between the score and type of test. Moreover, another new variable, 'group' was added for each dataset using each group name to identify which observation belongs to which group. The three test scores in the main dataset were transformed from wide to long format. In data analysis, the terms 'wide' and 'long' formats refer to two different ways of organizing and presenting data. In the 'wide' format, each subject or

entity has multiple measurements or attributes represented in various columns; it is comparable to having a broad spreadsheet where each individual might have separate columns for different test scores or attributes. Conversely, the 'long' format consolidates this by placing these measurements in a vertical manner, typically resulting in fewer columns but more rows. Instead of multiple columns for different tests or time points, there is typically a singular column indicating the type or time point of the measurement and another noting the values. This transformation from wide to long is often undertaken because the 'long' format can be more conducive to certain types of statistical analyses, data visualizations, and streamlined data management. The structure facilitates a more organized approach to repeated measures and time-series analyses and ensures that the data is in a more standardized form for processing and interpretation.

This transformation results in a dataset that has four variables: ID, group, test type, and score. The test type variable contains the different types of tests (pre, post, and delayed), the group variable contains the name of the group (control, explicit, implicit), and the 'score' variable contains the corresponding test scores. The reshaped dataset is useful for further analysis and visualization tasks, such as comparing the test scores between the different groups and test types. Figure 12 shows the first few lines of the datasheet.

Figure 12

The First Few Lines of the Datasheet After Reshaping



	ID	Group	test_type	scores
1	1	Control	Pre	33
2	10	Control	Pre	28
3	11	Control	Pre	12
4	12	Control	Pre	22
5	13	Control	Pre	18
6	14	Control	Pre	12
7	15	Control	Pre	23
8	16	Control	Pre	16
9	17	Control	Pre	9
10	18	Control	Pre	23
11	19	Control	Pre	12
12	2	Control	Pre	9
13	20	Control	Pre	14
14	21	Control	Pre	11

Showing 1 to 14 of 228 entries, 4 total columns

By the end of this cleaning and preparing stage, the datasets were ready for statistical analysis to find answers to the research questions.

8.3 Examining Participants PV Prior Knowledge

Participants' initial knowledge about PVs was evaluated prior to the implementation of any interventions in order to establish a baseline to measure the potential impact of the interventions on their knowledge levels. This pre-intervention assessment helps to gauge the effectiveness of the

interventions in enhancing participants' knowledge of PVs. Participants in all groups were from the same population and studied at the same university, department, and program level, which requires an entrance-level English score of 60 on the STEP test. However, there might be some external variables that might affect their performance even though all participants are from the same population. Thus, it was essential to confirm the assumption that participants are almost on the same proficiency level for the target structure, PVs, by giving them pre-tests to gather information about their knowledge. Analysing the pre-test results is crucial before proceeding with additional statistical models to determine if there's a statistically significant difference in participants' performance on the post-tests.

This statistical analysis will help in establishing the baseline differences between groups and confirm whether there are pre-existing differences in participants' knowledge, which will result in producing appropriate outcome measures for the study and increasing the generalizability of the findings. In other words, if participants in all groups have similar PV knowledge at the beginning of the study and before conducting the intervention study, it is more likely that any differences in post-test scores are due to the intervention rather than other factors. To achieve this goal, descriptive statistics, in addition to a one-way ANOVA test, were computed to test the null hypothesis, which states that there is no significant difference in the means of pre-test scores between the control and the two experimental groups.

8.3.1 Pre-tests Descriptive Statistics

A summary of descriptive statistics provides a quick and concise overview of key information about a dataset. It is usually used to understand the central tendency of the data, assess variability, and compare datasets. Descriptive statistics, such as mean, standard deviation, and median, are crucial measures used to describe the characteristics of a dataset. The descriptive

statistics were conducted using the ‘dplyr’ package in R (Wickham et al., 2021) to analyse the pre-test scores of three groups (control group, explicit experimental, implicit experimental) by grouping the pre-test dataset based on the group variable and test type. The result of this output consisted of the count, mean, median, and standard deviation of the pre-test scores variable within each group. Table 18 shows the results of the descriptive statistics of the pre-test dataset.

Table 18

Descriptive Statistics of the Pre-test Dataset

<i>Group</i>	<i>Count</i>	<i>Mean</i>	<i>Median</i>	<i>SD</i>
Control	25	17.2	15	6.80
Explicit	26	17.3	17	3.96
Implicit	25	17.3	17	6.03

Table 18 summarizes the descriptive statistics of all groups' pre-test results. The count for each group was 25 participants for the control group, 26 for the explicit DDL experimental, and 25 participants for the implicit DDL experimental group. The mean, which represents the average of the scores and is a measure of central tendency, was calculated for each group's pre-test scores. The results showed that the means of pre-test scores were comparable across the three groups. The control group had a mean score of (17.2), the explicit DDL experimental group with a mean score of (17.3), and the implicit DDL experimental group had a mean score of (17.3).

On the other hand, the standard deviation, which indicates the degree to which the scores are spread out from the mean, was examined. The results revealed that the standard deviation of pre-test scores varied across the groups, with the explicit experimental group having the smallest standard deviation of (3.96), followed by the control group with a standard deviation of (6.80), and the implicit experimental group with a standard deviation of (6.03).

Furthermore, the median, which represents the middle value of the ordered scores in a dataset, was also analysed to identify any outliers that may skew the mean. The median pre-test scores were similar across all groups, in which the control group had a median score of (15), the explicit experimental group with a median score of (17), and the implicit experimental group with a median score of (17). Overall, these descriptive statistics provide insight into the distribution of pre-test scores for the control group, explicit experimental, and implicit experimental group and highlight the variability and central tendency of the pre-test scores, which can inform future analyses and interpretations.

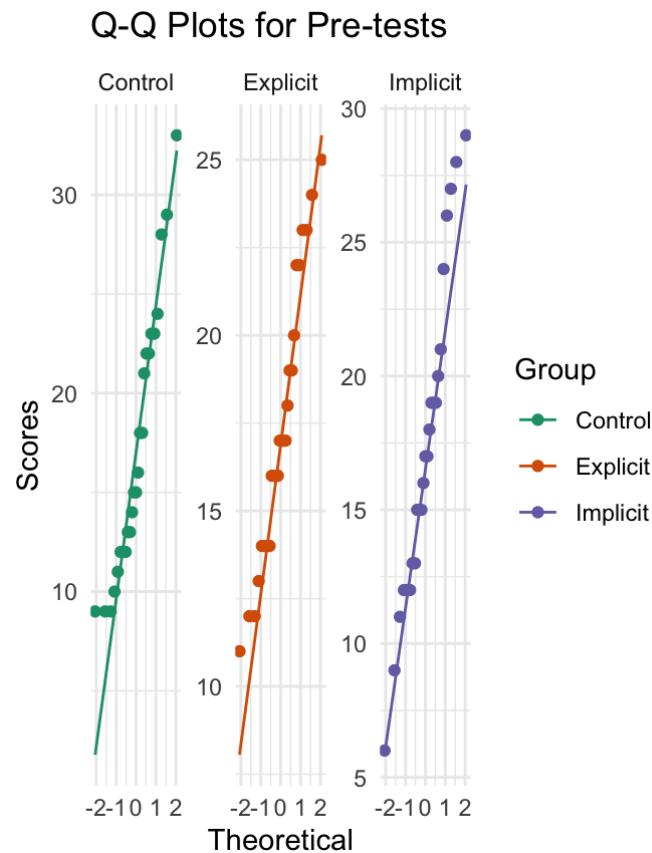
8.3.2 One-way ANOVA Assumptions

The one-way ANOVA test is a widely used statistical test for comparing means across multiple groups. It was selected here because the continuous dependent variable is the pre-test scores, and the categorical independent variable is three group types, whether it is the control group, explicit experimental group, or implicit experimental group. Before conducting the statistical analysis, it was important to check the model's assumptions to ensure the validity of the analysis.

The first assumption checked was the assumption of normality, where the dependent variable, participants' scores in the pre-test, must be normally distributed without any extreme outliers. This assumption was initially tested through visual inspection tools such as Q-Q plots and boxplots to generate a visual representation of the data. Figure 13 presents Q-Q plots for the pre-tests results of the control group, explicit experimental group, and implicit experimental group.

Figure 13

Q-Q Plot for the Control, Explicit Experimental, and Implicit Experimental Pre-tests Results



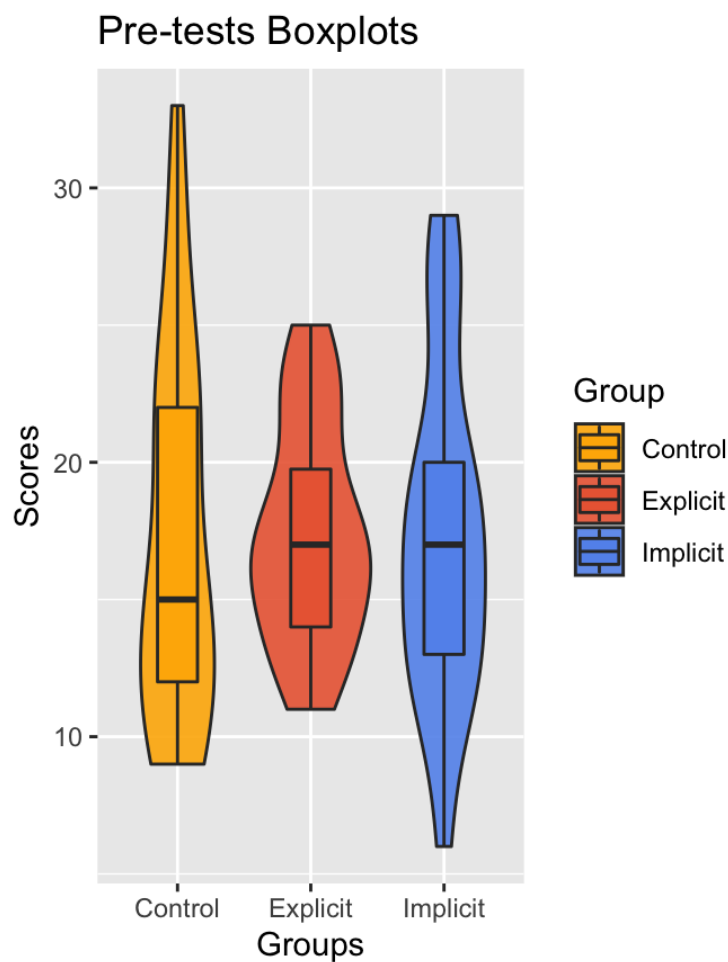
A dataset's univariate normality is determined by the points on the normal QQ plot. When that data is plotted on a Q-Q plot, normally distributed data appear roughly as a straight line, although the ends of that plot generally might deviate from the straight line. A huge deviation from the reference line indicates that the data is not normally distributed. The visualization of the Q-Q plot in Figure 13 showed that the data points almost line up to match the base distribution. This would give an indication that the data are approximately normally distributed, and no extreme outliers showed in plotting the pre-test results of the three groups (control, explicit, and implicit). Moreover, the visualization of the Q-Q plots gave us an opportunity to assess the homogeneity of

variance assumption. The Q-Q plot displayed a roughly straight line, suggesting that the assumption of homogeneity of variance is likely met.

Another type of visualization used on this dataset to display distributions is the boxplot. Figure 14 below displays boxplots of pre-test scores for the control group, explicit experimental group, and implicit experimental group.

Figure 14

Boxplot for the Control, Explicit, and Implicit Groups Pre-tests Results



The horizontal axis represents the group variable, while the vertical axis represents the pre-test score on a scale from 0 to 42. Each box represents the interquartile range (IQR), which contains

the middle 50% of the data, with the line inside the box indicating the median score. The whiskers extend from the box to the minimum and maximum values that are not considered outliers, which are usually represented by dots outside the whiskers. Overall, the distributions appear to be fairly symmetric, with no major skewness evident. The boxplot provides a useful visualization of the pre-test scores for each group, allowing for easy comparison of central tendency, variability, and skewness. The higher median scores appear to align with explicit experimental and implicit experimental, which may indicate that these two groups performed better on the pre-test overall.

While these graphical methods are helpful in assessing the normality and homogeneity of a sample, they do not offer definitive proof that the normality or homogeneity assumption is accurate (Yap & Sim, 2011). Thus, normality distribution tests were applied to confirm the initial visual representation. Shapiro-Wilk and Anderson-Darling tests are among the most powerful normality tests (Yap & Sim, 2011). Thus, these normality distribution tests were used to determine whether a sample of data is likely to come from a normally distributed population. Both tests are statistical tests that aim to test normality; however, the Shapiro-Wilk test is used to test if the data comes from a normal distribution with any mean and variance, while the Anderson-Darling test is used to test if the data comes from a specific distribution (e.g., normal, exponential, etc.). It is often a good idea to use multiple tests and compare their results to get a more comprehensive understanding of the normality of the data; therefore, these two normal distribution tests were computed on the pre-tests datasets. Table 19 shows the results of the Shapiro-Wilk and Anderson-Darling tests on the pre-test results of the control group, explicit experimental group, and implicit experimental group.

Table 19

The Results of Statistical Normality Tests on the Pre-tests of the Control, Explicit and Implicit Groups

Pre-tests Statistical Normality Tests			
	Control	Explicit	Implicit
Shapiro-Wilk test	p-value = 0.06314	p-value = 0.2433	p-value = 0.4828
Anderson-Darling test	p-value = 0.08523	p-value = 0.2243	p-value = 0.4062

The results of the Shapiro-Wilk test and the Anderson-Darling test showed that the pre-tests of all three groups (control, explicit, and implicit) were normally distributed. The Shapiro-Wilk test indicated that the data in all three groups did not deviate significantly from a normal distribution (Control: $p = 0.06314$; Explicit: $p\text{-value} = 0.2433$; Implicit: $p\text{-value} = 0.4828$). Similarly, the Anderson-Darling test shows no significant deviations from normality (Control: $p = 0.08523$; Explicit: $p\text{-value} = 0.2243$; Implicit: $p\text{-value} = 0.4062$). Since the p-values in the output of all the results are greater than (0.05), the conclusion was drawn that the data is normally distributed, which confirms the initial Q-Q plot visual representation and interpretation.

In order to confirm the initial Q-Q plot visual representation that the pre-tests result of datasets control, explicit experimental and implicit experimental groups have no outliers. The R function ‘identify_outliers’ in the ‘rstatix’ package (Kassambara, 2021) was applied to the pre-test scores of all three groups, and the results indicated that no extreme outliers were detected.

Moreover, the Levene test was applied to assess the homogeneity of variance and confirm the initial visual interpretation regarding the assumption of equal variance among multiple groups. ‘leveneTest’ function in the ‘car’ package (Fox & Weisberg, 2019) was used to perform this analysis on the dataset, checking for homogeneity of variance across the groups. The null hypothesis of Levene's test states that any p-value less than or equal to 0.05 is an indication that the assumption of equal variances has been violated. The output of the ‘leveneTest’ function on

the pre-tests scores of the control group, explicit experimental group, and implicit experimental group showed that the p-value is 0.06833, which is greater than the typical significance level of 0.05. This suggests that there is no significant difference in variance among these datasets, and the assumption of homogeneity of variance in the results of the pre-test among the control group, explicit experimental group, and implicit experimental group is met.

According to the above, it can be concluded that all of the assumptions of the one-way ANOVA Test have been met. First, the normality assumption has been met where the pre-test scores for the control group, explicit experimental group, and implicit experimental group appear to be normally distributed according to the results of Shapiro-Wilk and Anderson-Darling normality tests and based on the visual inspection using Q-Q plots and boxplots. Second, the homogeneity of variance assumption has been met as the variances of the pre-test scores for each group are approximately equal, as shown by Levene's test. Therefore, based on these findings, it is appropriate to proceed with running the ANOVA test to analyse the potential differences between the results of the pre-tests among the control group, explicit experimental group, and implicit experimental group.

8.3.3 One-way ANOVA Test for the Pre-tests

One-way ANOVA is a statistical method used to test for significant differences between the means of three or more groups. It has been applied here to the pre-test results to determine significant differences in the means across the three groups, which are control, explicit DDL experimental, and implicit DDL experimental. After checking the assumptions of ANOVA tests, the dataset is ready for computing ANOVA and testing the hypothesis. The null hypothesis states that there is no significant difference in the mean scores of the three groups on the pre-test, whereas the alternative hypothesis states that there is a significant difference in the mean scores of the three

groups on the pre-test. The ‘aov’ function built in R was used to test the hypotheses and determine the extent of difference between all groups’ pre-test results if there is any. Table 20 presents the results of the one-way ANOVA analysis, which revealed that the group type was not a significant predictor of pre-test scores, $F(0.002) = 0$, $p = 0.998$. The very small F value and large p-value indicate there are no significant differences between the groups in terms of the outcome variable. This suggests that the majority of the variability in pre-test scores was due to random error rather than differences between the groups.

Table 20

One-Way ANOVA Test Results of the Effect of Groups in the Pre-test

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Group	2	0.2	0.08	0.002	0.998
Residuals	73	2373	32.52		

The output of one-way ANOVA shows that there is no statistically significant difference between participants in the control group, explicit experimental group, and implicit experimental group pre-test results. This output confirms the initial assumption that the participants are on the same proficiency level at the start of the intervention, and there is no significant difference between their initial PV knowledge, which ensures that all groups are equivalent. This constitutes a valid baseline for future comparisons between different methods of learning, which will help in answering research questions rigorously and reliably.

8.4 Data Analysis Stage

The data analysis stage of this study seeks to employ statistical models to find the effect of different approaches to teaching on learners’ knowledge of PVs in the long and short term. The datasets of the control group, the DDL explicit experimental group, and the DDL implicit experimental group, which involved the results of three types of tests (pre, post, and delayed tests),

were used in the analysis stage. This stage starts by presenting descriptive statistics of the dataset, followed by applying the target statistical model to answer the research questions.

8.4.1 Descriptive Statistics of Datasets

Descriptive statistics are an essential tool for summarizing and generally interpreting data. The dataset is shaped in a nested or hierarchical structure because the group type has three sub-categories which are control, explicit and implicit. This means that each observation in the dataset belongs to one of the three subcategories, and the subcategories themselves are grouped under the main category of the group type. Also, the test type has three sub-categories which are pre-test, post-test, and delayed test. Each observation in the dataset has a score for each of these subcategories, and the subcategories themselves are nested under the main category of the test type. This nesting suggests that the dataset is organized hierarchically, with each individual belonging to a specific group and taking all three types of tests.

Table 21 presents the results of the descriptive statistics of the control group, the DDL explicit experimental group, and the DDL implicit experimental group for three different tests (Pre, Post, and Delayed).

Table 21

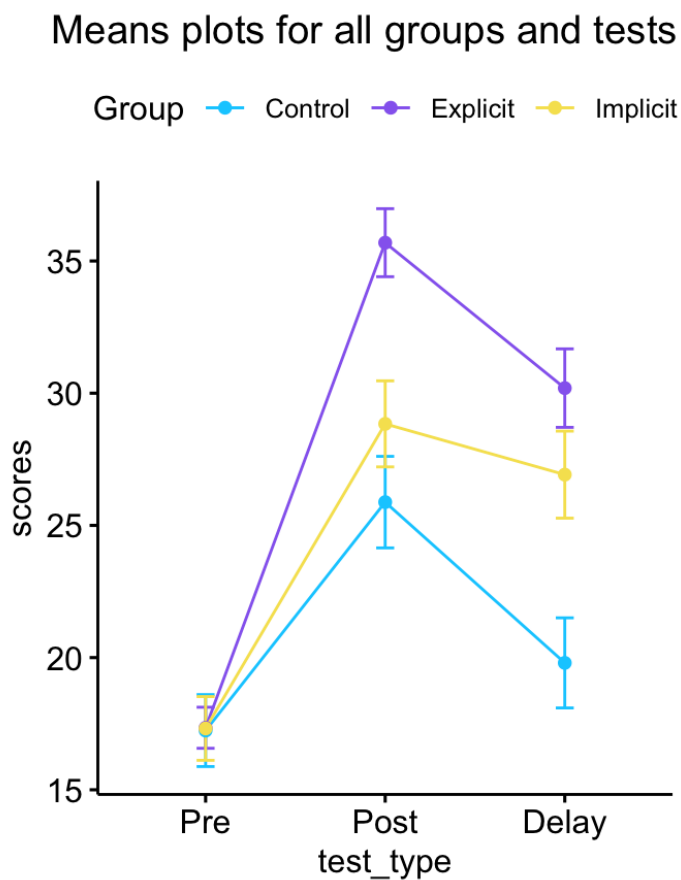
Descriptive Statistics of all Groups and Tests

Group	Test Type	Count	Mean	Median	SD
Control	Pre	25	17.2	15	6.80
	Post	25	25.9	26	8.66
	Delayed	25	19.8	20	8.52
Explicit	Pre	26	17.3	17	3.95
	Post	26	35.6	34.5	6.56
	Delayed	26	30.1	30.5	7.57
Implicit	Pre	25	17.3	17	6.02
	Post	25	28.8	27	8.14
	Delayed	25	26.9	26	8.24

Recall that all three groups have similar mean scores on the pre-test (ranging from 17.2 to 17.3), which indicate that they started at a similar baseline level (see also examining participants' PV prior knowledge [section 8.3](#)). The mean scores for post and delayed -tests are higher than the pre-test scores for all groups, which suggests improvement in all participants' scores after the intervention. However, the mean scores for each test type vary between the groups. The means plot in Figure 15 below is given to visually represent the mean values of three groups (Control, Explicit, Implicit) across three different types of tests (Pre, Post, and Delayed). The plot allows for an easy comparison of the mean values summarized in the descriptive statistical analyses.

Figure 15

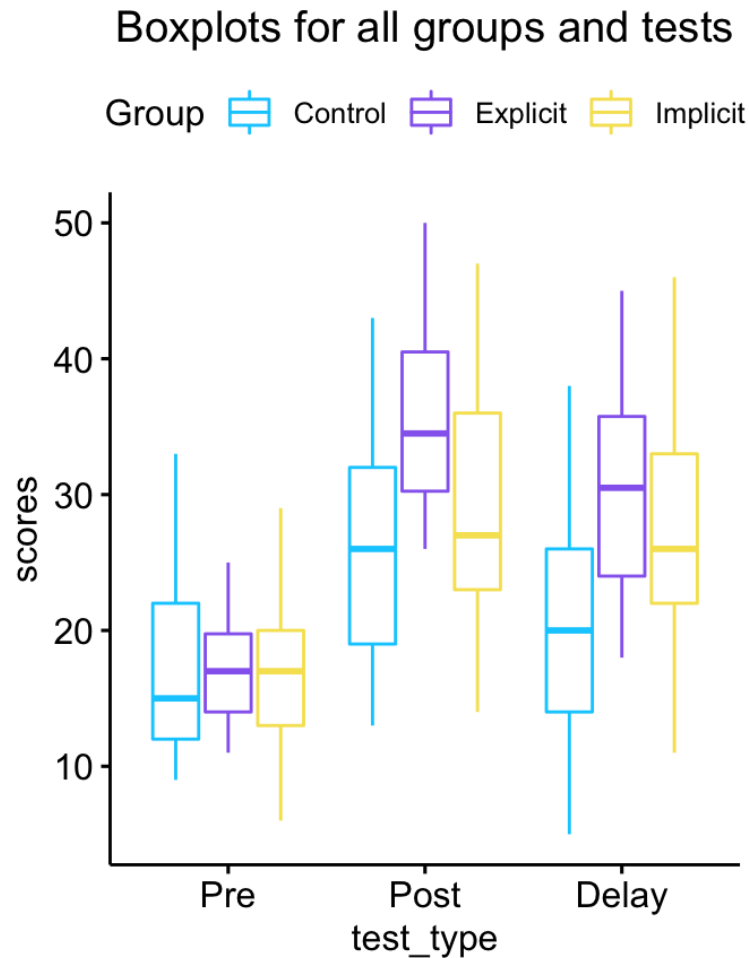
Means Plots for all Groups and Tests



The means plot above shows us that the post-test scores have a higher mean compared to the pre and delayed test scores across all the groups. On the post-test, the mean score for the explicit experimental group ($M = 35.6$) is much higher than the mean scores for both the control group ($M = 25.9$) and the implicit experimental group ($M = 28.8$). The highest mean scores for the delayed are obtained by the explicit experimental group ($M = 30.1$) followed by the implicit experimental group ($M = 26.9$), while the control group has a considerably lower mean delayed test score ($M = 19.8$).

A comparison of the median scores presented in Table 21 also indicates an improvement in the scores after the intervention for all groups, with the median scores for delayed and post-tests generally higher than the pre-test scores across all groups. However, the delayed and post-tests median scores vary between the groups, with the control group having the lowest median delayed test score ($Mdn = 20$), while the explicit experimental group ($Mdn = 30.5$) has the highest median delayed test scores, and the implicit experimental group falls between ($Mdn = 26$). On the post-test, the highest median score is for the explicit experimental group ($Mdn = 34.5$), and similar median scores are found in the control group ($Mdn = 26$) and the implicit experimental group ($Mdn = 27$).

Moreover, the standard deviations for the delayed and post-tests were generally similar across the groups but recall that the standard deviations for the pre-test varied more widely (ranging from 3.95 to 6.80). This could suggest that the groups had different levels of variability in their performance before the intervention, and this was evened out during the intervention. The boxplots in Figure 16 present a visual illustration of the distribution of the dataset by highlighting differences in variability between groups and tests, which helps in identifying skewness and outliers in the dataset.

Figure 16*Boxplots for all Groups and Tests*

The boxplot shown above provides insights into the distribution of pre, post, and delayed scores across the control group, the explicit experimental group, and the implicit experimental group. It is evident from the boxplots that there are no outliers present in any of the groups and tests. In addition, the majority of the boxplots seem to follow a normal distribution pattern. Nevertheless, certain deviations are notable. In other words, there are some exceptions to this pattern in which the boxplot for the pre-test scores of the control group is slightly skewed to the top. This skewness suggests that there is a higher concentration of data points i.e., scores, above

the median than would be typically observed in a perfectly symmetrical, normal distribution, indicating a slight elevation compared to a typical normal distribution. The boxplots for the post-test scores of the explicit experimental group and the implicit experimental group, as well as the delayed test scores of the implicit experimental group, are also slightly skewed to the top, indicating that the scores are higher than what would be expected for a normal distribution. The presence of such skewness could have implications for the subsequent statistical analysis, as many statistical techniques assume a normal distribution of the data. As a precautionary measure, it would be prudent to further assess the normality of the dataset. Thus, there is a need to double-check the normality of the dataset by visual inspection of Q-Q plots and by computing statistical normality tests (See [section 8.4.2](#) below).

Overall, the descriptive statistics of the control group, the DDL explicit experimental group, and the DDL implicit experimental group for three different tests (Pre, Post, and Delayed) suggest that the explicit experimental group performed better than the other two groups (control group and implicit groups), particularly on the delayed and post-tests, indicating that the intervention might be more effective for this group.

8.4.2 Regression Assumptions

Regression analysis is a statistical technique used to model the relationship between one or more independent variables and a dependent variable. Before conducting a regression analysis, it is crucial to ensure that the assumptions underlying the model are met, as these assumptions impact the reliability and validity of the results. There are various approaches used to measure how well the regression model fits the dataset. Both visual representation and statistical normality tests were used to check the normality and linearity of the dataset.

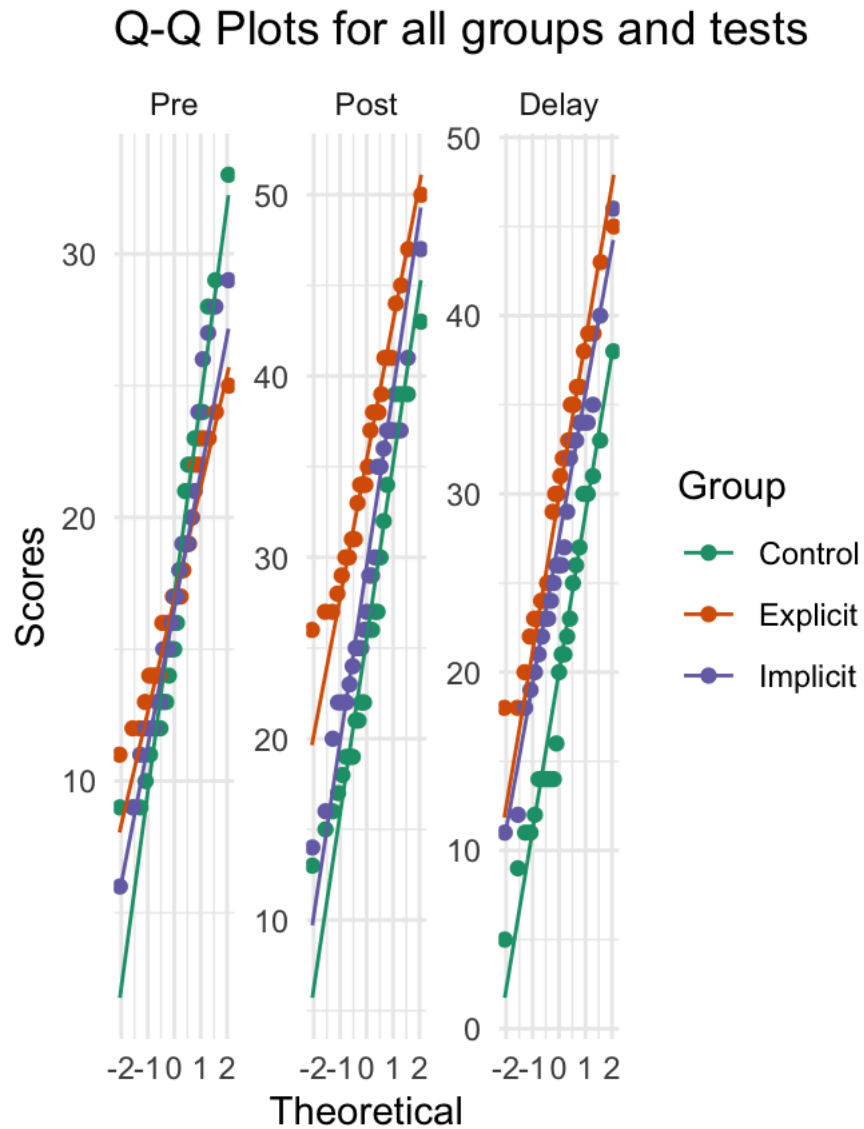
Figure 17*Q-Q Plot for all Groups and Tests Results*

Figure 17 above shows a Q-Q plot clearly showing the distribution of each test type (pre, post, delayed) among the control group, the explicit experimental group, and the implicit experimental group. In general, pre, post, and delayed scores seem to be normally distributed in

control, explicit and implicit groups with a limited number of points that deviate at the ends of the plots from the straight line, which more likely does not influence the normality of the dataset.

To confirm the Q-Q plot interpretation and examine whether the few deviating points influence the normality of the test. The Shapiro-Wilk and Anderson-Darling tests were employed as statistical methods to assess the normality of the distribution in a given dataset. These tests help determine whether the observed data originate from a population that follows a normal distribution. This verification is crucial when planning to apply a mixed-effects linear regression model. This is because mixed-effects linear regression, like many other statistical models, assumes that the residuals (or errors) are normally distributed. Non-compliance with this assumption can undermine the validity of the model's estimates and conclusions. Therefore, confirming the normality of the dataset upfront helps in ensuring that the assumptions of the mixed-effects linear regression are met, leading to more reliable and interpretable outcomes.

Table 22

The Results of Statistical Normality Tests on all types of tests of the Control, Explicit and Implicit Groups

Group	Test Type	Shapiro-Wilk P-value	Anderson-Darling P- value
Control	Pre	0.063	0.085
	Post	0.113	0.104
	Delayed	0.346	0.170
Explicit	Pre	0.243	0.224
	Post	0.433	0.563
	Delayed	0.537	0.564
Implicit	Pre	0.482	0.406
	Post	0.485	0.232
	Delayed	0.835	0.650

As can be seen from Table 22, none of the p-values from the Shapiro-Wilk and Anderson-Darling tests are smaller than 0.05. Within the context of the control group, the pre-test displayed

p-values of 0.063 for the Shapiro-Wilk test and 0.085 for the Anderson-Darling test. The post-test revealed respective p-values of 0.113 and 0.104. Meanwhile, the delayed test produced a Shapiro-Wilk p-value of 0.346, accompanied by an Anderson-Darling p-value of 0.170.

Focusing on the explicit group, the pre, post, and delayed tests yielded corresponding Shapiro-Wilk p-values of 0.243, 0.433, and 0.537, whereas, in the Anderson-Darling test, the p-values were 0.224, 0.563, and 0.564 for pre, post, and delayed tests.

In the implicit group, the pre-test showed p-values of 0.482 in the Shapiro-Wilk test and 0.406 in the Anderson-Darling test. For the post-test, the p-values were 0.485 in the Shapiro-Wilk test and 0.232 in the Anderson-Darling test. Lastly, the delayed test yielded a Shapiro-Wilk p-value of 0.835 and an Anderson-Darling p-value of 0.650.

Even though these tests are very sensitive to deviations, the results do not reveal a strong value to reject the null hypothesis, and it can be concluded that there is not enough evidence to suggest that the sample does not come from a normal distribution. This indicates that the pre, post, and delayed tests datasets of the control group, the explicit experimental group, and the implicit experimental group are normally distributed. Therefore, the assumption of normality is met for all groups and test types, which gives an indication that parametric tests might be suitable to apply in further analysis.

Furthermore, the homoscedasticity of variance assumption, which refers to the assumption that the variance of the residuals in a model is constant across all levels of the predictors, is tested visually by plotting the fitted values and residuals in two conditions, i.e., when scores are predicted or explained by the test type and group and when the relationship between scores, test type, and groups is not just additive but also includes an interaction effect. Figure 18 shows residuals vs. fitted values of these two conditions.

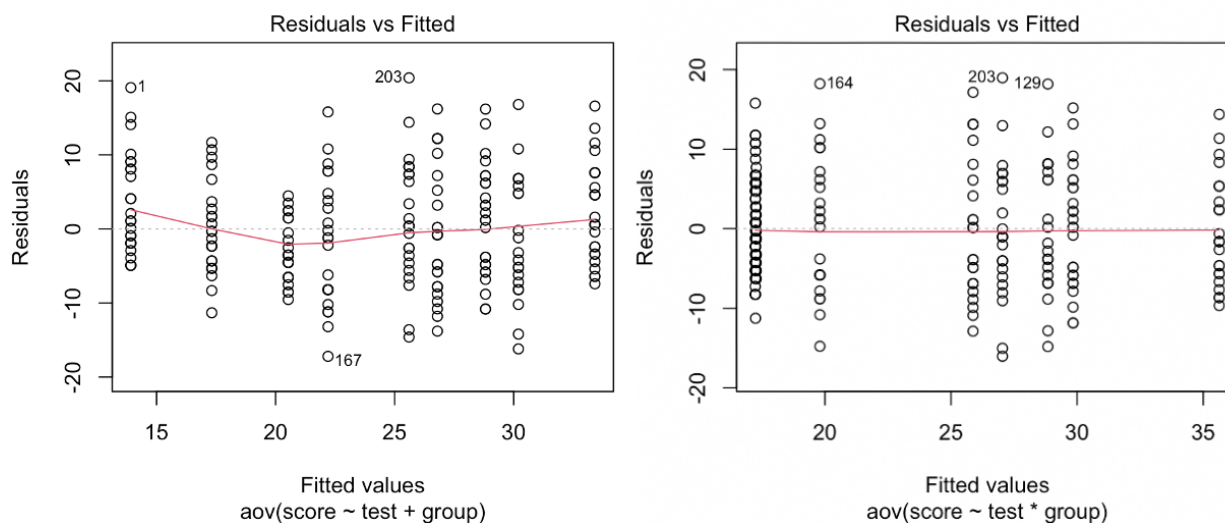
Figure 18*Residuals vs. Fitted Values for Model Assessments*

Figure 18 displays two scatter plots titled 'Residuals vs Fitted', which are commonly used to evaluate the assumption of homoscedasticity in linear models. On the left, the plot represents residuals against fitted values for a model with predictors 'test' and 'group'. Similarly, on the right, the plot represents residuals against fitted values, but for a model that includes an interaction term between 'test' and 'group'. For both plots, the x-axis, labelled 'Fitted values', ranges approximately from 15 to 35. The y-axis, labelled 'Residuals', spans from roughly -20 to 20. A horizontal dashed red line is depicted on each graph, indicating the zero-residual line. The above residuals vs. fitted plots show that most of the observations are randomly distributed around the dashed line, as expected, indicating that the homogeneity of variance assumption for residuals is approximately met. Thus, the dataset seems suitable for running the main model to find answers to the research questions.

Accounting for the sample size of this study's dataset, Jenkins and Quintana-Ascencio (2020) provide recommendations for determining adequate sample sizes for regression analyses based on the variability within the dataset being analysed. Jenkins and Quintana-Ascencio (2020)

suggest that for data with low variance, sample sizes of 8 or more is sufficient to generate reliable statistical inferences. However, they advocate for larger samples of 25 or more per group for regression modeling with high variance data, to ensure accurate and reliable results from regression analysis. This recommendation is based on their findings that low variance data allow for clearer and more consistent identification of data patterns with smaller sample sizes, whereas high variance data require larger samples to stabilize inferences and identify patterns effectively. Based on Jenkins and Quintana-Ascencio's guidelines and considering the variance in the dataset, the sample sizes of each group in the context of current study, being 25 and 26 participants, appear to be appropriate for running a mixed effect linear regression model. This sample size is adequate to capture the variability in the data and should allow for reliable and robust statistical analysis.

8.4.3 Mixed Effect Linear Regression

Mixed-effect linear regression, which is also known as multilevel or hierarchical linear regression, is a complex statistical method that is used to model data that have a nested or hierarchical structure. The data in a mixed-effect model may be collected from different groups or clusters, and the observations within each group may be correlated with each other. Mixed-effects linear regression was used to answer the research questions in this project after checking the descriptive statistics and the model's main assumptions. It is computed on the dataset to explore the effect of corpus-based activities on enhancing Saudi EFL learners' acquisition of phrasal verbs and find the influence of explicit phrasal verb learning through DDL and implicit phrasal verbs learning through DDL on long and short-term retention. This will be done by examining the difference between the control group, the DDL explicit experimental group, and the DDL implicit experimental group participants' performance in pre, post, and delayed tests.

In a mixed-effect linear regression model, there are both fixed and random effects, and the model estimates the effects of both. Fixed effects are variables that are explicitly included in the model and are assumed to have a systematic effect on the outcome variable. These variables are usually categorical (e.g., groups) or continuous (e.g., income) and are typically observed or manipulated in the study. In other words, fixed effects are variables that are believed to have a direct causal relationship with the outcome variable. In this study, there are the group type (control, explicit, implicit), the time where the test took place (pre-test, post-test, delayed-test), and the interaction between group and time. The group fixed effect would estimate differences between the control and each experiment group. The time-fixed effect would estimate changes between each testing occasion. The interaction term allows differences in trajectories over time between groups. On the other hand, random effects represent sources of variability in the outcome variable that cannot be explained by fixed effects. These sources of variability are assumed to be random and uncorrelated with the fixed effects. Random effects are usually modeled as random intercepts or slopes, and they are often used to account for within-group or within-subject variability.

A mixed-effect linear regression model compares and predicts the correlation and strength of the relationship between a dependent variable and one or more independent variables when there are correlated observations or repeated measures within the data (Levshina, 2015). This model has several advantages over other traditional statistical models. It has gained popularity in experimental research as an alternative to repeated-measures ANOVA analyses. It can provide more accurate estimates of the variance components in the data, which can be useful for predicting future observations or making comparisons within and between groups. ANOVAs have the limitation of not providing information about the size or direction of an effect, i.e., they do not

provide individual coefficient estimates for each predictor that show growth or trajectory, even if they can be used to determine whether an effect is significant.

8.4.3.1 Model Specification. A mixed-effect linear regression model was used in this research project to check the impact of exposure to 3 different types of learning approaches (control, explicit, and implicit) on participants' short and long-term knowledge of PVs. The dependent variable is the participants' scores, and the independent categorical variables include the group type and test type i.e., time of the test. The participants' ID is included as a random effect to account for repeated measures within individuals. Regression analysis model the relationship between the test scores in the type of tests and the method used for learning PVs.

As explained previously in the data cleaning and preparation stage, the dataset consists of 4 columns which are participants' ID, group type (control, explicit, implicit), test type (pre, post, delayed), and their scores which are numeric. According to this dataset, the rows hold the individual items or subjects, whereas the columns contain the variables.

The model equation of the mixed effect linear regression model without interaction can be written as:

$$\text{Score} = \beta_0 + \beta_1(\text{test type}) + \beta_2(\text{Group}) + b_0(\text{ID}) + \varepsilon$$

Where β_0 represents the intercept, which is the predicted value of Score when all of the predictor variables (test type, Group, and ID) are set to zero. β_1 and β_2 represent the fixed effects of the test type and Group, in which these coefficients represent the average effect of the Test type and Group variables on the Score outcome across all participants in the study. Respectively, b_0 represents the random effect of ID, which accounts for individual variation in Score that is not explained by the other independent variables, and ε represents the error term (also known as the residual), which represents the variability in the Score outcome that is not accounted for by the independent

variables in the model. The error term captures all other factors that may influence the Score outcome but are not included in the model.

Another model equation of the mixed effect linear regression model written after adding interaction be written as:

$$\text{Score} = \beta_0 + \beta_1(\text{test type}) + \beta_2(\text{Group}) + \beta_3(\text{test type} \times \text{Group}) + b_0(\text{ID}) + \varepsilon$$

Here, the interaction term β_3 (test type \times Group) was added, which represents the combined effect of test type and Group on the dependent variable Score. In other words, it represents the difference in scores between all groups for each level of test_type. This term allows us to examine whether the effect of test type on Score differs across levels of Group, and vice versa.

In general, a mixed-effect linear regression model can be used to predict the scores based on the values of the independent variables, which are test type and groups, and to test the significance of the relationships between the independent variables and the dependent variable.

8.4.3.2 Model Implementation and Results. There are various packages and functions available to fit the mixed-effect linear regression model. lme4 (Bates et al., 2015) package in the statistical environment R (R Core Team, 2020) is widely used in experimental research to perform a linear mixed effects model analysis. As explained in the previous section, two model equations were proposed. One without interaction, model 1, and another one with (test type \times Group), model 2.

8.4.3.2.1 Model 1: Mixed Effect Linear Regression Without Interaction. To fit the model to the dataset, scores were included as the dependent variable, and group and test type were added as fixed effects, categorical independent variables. Participants' IDs were used as a random effect. The model specification was as follows: $\text{scores} \sim \text{test_type} + \text{Group} + (1|\text{ID})$. The model will estimate the fixed effects of group, test type, and their main effects on the dependent variable

(scores). The model will also estimate the random effects of individual participants (ID) on the dependent variable. This model assumes that the effect of group and test type on the dependent variable is additive and does not depend on each other. In other words, the effect of group type on scores is the same across all levels of test type, and the effect of test type on scores is the same across all levels of group types. Table 23 shows the results of Model 1, which is the mixed effects linear regression model without interaction.

Table 23

Model 1: The Mixed Effects Linear Regression Model Without an Interaction Term

Fixed effects:					
	<i>Est.</i>	Std. Error	<i>df</i>	<i>t-value</i>	<i>p-value</i>
(Intercept)	13.819	1.235	87.564	11.188	<0.001
test_type Post	12.908	1.068	194.719	12.084	<0.001
test_type Delay	8.395	1.068	194.719	7.859	<0.001
Group Explicit	6.991	1.077	199.951	6.489	<0.001
Group Implicit	3.902	1.089	199.001	3.584	0.000
Random effects:					
Group	Variance	<i>Std.Dev.</i>			
ID (Intercept)	14.83	3.851			
Residual	43.36	6.585			
Number of observations: 228; number of groups: ID, 27					
REML criterion at convergence: 1528.9					

The linear mixed effects model was used to evaluate the effect of two categorical predictors, test type and group, on scores while accounting for the nested structure of the data. The model was fitted with random intercepts for each participant ID to account for the correlation between repeated measurements from the same individuals. The overall model fit was good, with a REML BOBYQA optimizer criterion of 1528.9. The intercept represents the estimated value of the outcome variable (scores) when both the test type and group variables are at their reference levels (test_type = Pre and Group = Control). It essentially represents the baseline score before any effects of different test types or groups are taken into account. The intercept of the model was

13.82, with a 95% confidence interval of [11.38, 16.25] and a significant t-value of 11.19 ($p < .001$).

The effects of the post-test and delayed test were both statistically significant and positive, with beta coefficients of 12.91 and 8.39, 95% confidence intervals of [10.80, 15.01] and [6.29, 10.50], and significant t-values of 12.08 and 7.86, respectively (both $p < .001$). The corresponding standardized betas were 1.35 and 0.88, with 95% confidence intervals of [1.13, 1.57] and [0.66, 1.09].

Similarly, the effects of the Explicit group and the Implicit group were both statistically significant and positive, with beta coefficients of 6.99 and 3.90, 95% confidence intervals of [4.87, 9.11] and [1.76, 6.05], and significant t-values of 6.49 and 3.58, respectively (both $p < .001$). The corresponding standardized betas were 0.73 and 0.41, with 95% confidence intervals of [0.51, 0.95] and [0.18, 0.63].

The random effects estimates showed that the variability in scores between individuals (as captured by the random intercepts for (ID) was 14.83, with a standard deviation of 3.851. The variability in scores within individuals (as captured by the residual variance) was 43.36, with a standard deviation of 6.585. The inclusion of a random effect in a linear mixed model can improve the accuracy of the estimates and help to account for the complex structure of the data. It can also provide insight into the sources of variability in the outcome variable.

Overall, the model represents a useful tool for understanding the relationship between scores, test type, and group. These results suggest that the test type and group variables have significant effects on participants' scores, that the post-test was higher than the delayed-test and that explicit DDL approach was higher than implicit DDL approach.

8.4.3.2.2 Model 2: Mixed Effect Linear Regression With Interaction. In model 2, an interaction term was added to the model 1 formula to examine whether the effect of one independent variable (e.g., test type) on the dependent variable (e.g., scores) depends on the level of another independent variable (e.g., group) and vice versa. In other words, the model will estimate the fixed effects of the group, test type, their main effects on the dependent variable, and the interaction effect between the group and test type. With the exclusion of the interaction, the assumption is that the effects of group and test type on scores are independent of each other. The inclusion of the interaction term in a mixed-effect linear regression model allows for a more nuanced understanding of the relationships between the independent and dependent variables. The model specification was as follows: $\text{scores} \sim \text{test_type} + \text{Group} + \text{test_type} * \text{Group} + (1 | \text{ID})$.

Table 24

Model 2: The Mixed Effects Linear Regression Model with an Interaction Term

Fixed effects:					
	<i>Est.</i>	Std. Error	<i>df</i>	<i>t- value</i>	<i>p-value</i>
(Intercept)	17.1789	1.4691	138.7394	11.693	< 0.0000000000000002 ***
test_type Post	8.6400	1.7698	190.8585	4.882	0.00000221 ***
test_type Delay	2.5600	1.7698	190.8585	1.447	0.149672
Group Explicit	0.3422	1.7599	192.5113	0.194	0.846057
Group Implicit	0.6178	1.7774	192.1674	0.348	0.728524
test_typePost:GroupExplicit	9.7062	2.4786	190.8585	3.916	0.000125 ***
test_typeDelay:GroupExplicit	10.2862	2.4786	190.8585	4.150	0.00005006 ***
test_typePost:GroupImplicit	2.8800	2.5028	190.8585	1.151	0.251296
test_typeDelay:GroupImplicit	7.0400	2.5028	190.8585	2.813	0.005425 **
Random effects:					
Group	Variance	<i>Std.Dev.</i>			
ID (Intercept)	15.53	3.940			
Residual	3.940	6.257			
Number of obs: 228, groups: ID, 27					
REML criterion at convergence: 1491.5					

Table 24 shows a summary output from the linear mixed effect model, with the response variable being 'Scores'. The model includes fixed effects for 'test type' (categorical variable with levels 'Post' and 'Delay'), 'Group' (categorical variable with levels 'Explicit' and 'Implicit'), and their interaction. The model also includes a random effect for 'ID', which indicates that the observations are clustered within each individual participant. The REML criterion at convergence is a measure of model fit, with lower values indicating better fit. In this case, the REML criterion at convergence is 1491.5, which suggests that the model fits the data reasonably well. The intercept of the model was 17.1789, with a standard error of 1.4691, a t-value of 11.693, and a highly significant p-value of less than 0.0000000000000002, indicating that the intercept estimate is significantly different from zero.

To determine whether the implicit or explicit group performed better compared to the control group in each test, we can look at the coefficients for the interaction terms between the test type and group variables in the fixed effects table. Specifically, we can focus on the estimates for the interaction terms involving the implicit and explicit groups and compare them to the estimate for the control group.

The interaction effect shows that participants in the explicit group had significantly higher scores in the post-test (Est. = 9.71, SE = 2.48, $p < 0.01$) and the delayed test (Est. = 10.29, SE = 2.48, $p < 0.001$) compared to the control group. Participants in the implicit group had higher scores in the delayed test (Est. = 7.04, SE = 2.50, $p < 0.05$) compared to the control group but did not differ significantly in the post-test from the control group ($p > 0.05$).

The random effects section of the output provides information about the variability of the intercept across participants (ID) and the residual error. Specifically, the output in Table 22 shows that the random intercept has a variance of 15.53 and a standard deviation of 3.94, indicating that

there is substantial variability in participants' baseline scores. The residual error has a variance of 39.15 and a standard deviation of 6.26, which indicates that there is still a significant amount of variability in scores that is not explained by the fixed effects in the model.

To gain a better understanding of the difference between the implicit group and the explicit group, releveling was conducted on Model 2, mixed effect linear regression with interaction, by changing the reference category of the categorical variable.

By using `relevel()`, which is a built-in R function, the reference or baseline category of a categorical variable in the regression model was changed to be the explicit group instead of the control group. The same model specification used to run Model 2, mixed effect linear regression with interaction, was applied to run after the releveling: `scores ~ test_type + Group + test_type*Group + (1|ID)`. Table 23 shows the output of Model 2 after releveling.

Table 25

The Results of Releveling Model 2

Fixed effects:					
	<i>Est.</i>	<i>Std. Error</i>	<i>df</i>	<i>t-value</i>	<i>p-value</i>
(Intercept)	17.5211	1.4448	134.8797	12.127	< 0.0000000000000002 ***
test_type Post	18.3462	1.7354	190.8585	10.572	< 0.0000000000000002 ***
test_type Delay	12.8462	1.7354	190.8585	7.402	0.000000000000416 ***
Group Control	-0.3422	1.7599	192.5113	-0.194	0.846057
Group Implicit	0.2757	1.7634	193.0517	0.156	0.875941
test_typePost:GroupControl	-9.7062	2.4786	190.8585	-3.916	0.000125 ***
test_typeDelay:GroupControl	-10.2862	2.4786	190.8585	-4.150	0.00005006274139 ***
test_typePost:GroupImplicit	-6.8262	2.4786	190.8585	-2.754	0.006457 **
test_typeDelay:GroupImplicit	-3.2462	2.4786	190.8585	-1.310	0.191889

Table 25 Continued

Random effects:		
Group	Variance	Std.Dev.
ID (Intercept)	15.53	3.940
Residual	39.15	6.257

Number of obs: 228, groups: ID, 27
REML criterion at convergence: 1491.5

Table 25 shows a summary of the linear mixed effect model 2 output after releveling the baseline factor to be the explicit group. The study found significant interaction effects between the group and test type. The first interaction effect is between the Control Group and Post-test in which the result is statistically significant and negative, with a beta coefficient of -9.71, a 95% confidence interval ranging from -14.59 to -4.82, and a t-value of -3.92, indicating a high level of significance ($p < .001$). The standardized beta coefficient (Std. beta) is -1.01, with a 95% confidence interval of [-1.52, -0.50]. This interaction effect suggests that the Control Group has a significant negative impact on the Post-test. On the other hand, the interaction effect between the Control Group and Delay test is also statistically significant and negative, with a beta coefficient of -10.29, a 95% confidence interval ranging from -15.17 to -5.40, and a t-value of -4.15 ($p < .001$). The standardized beta coefficient is -1.07, with a 95% confidence interval of [-1.58, -0.56]. This interaction effect indicates that the Control Group has a significant negative impact on the Delay test.

The interaction effect between the Implicit Group and Post-test is statistically significant and negative, with a beta coefficient of -6.83, a 95% confidence interval ranging from -11.71 to -1.94, and a t-value of -2.75 ($p = 0.006$). The standardized beta coefficient is -0.71, with a 95% confidence interval of [-1.22, -0.20]. However, the interaction effect between the Implicit group and the Delayed test is statistically non-significant and negative, with a beta coefficient of -3.25, a 95% confidence interval ranging from -8.13 to 1.64, and a t-value of -1.31 ($p = 0.192$). The

standardized beta coefficient is -0.34, with a 95% confidence interval of [-0.85, 0.17]. This interaction effect indicates that the Implicit group does not have a significant impact on the Delay test type.

The estimated variance of the random intercepts for the ID is 15.53, which corresponds to a standard deviation of 3.940. This suggests that there is significant variability in the outcome variable that is associated with the different IDs, which is not accounted for by the fixed effects in the model. Moreover, the estimated variance of the residual term is 39.15, which corresponds to a standard deviation of 6.257. This represents the unexplained variability in the outcome variable after accounting for the random intercepts and any fixed effects in the model.

8.5 Summary of Results and Conclusion

The study used a mixed-effects linear regression analysis to evaluate the impact of corpus-based activities on the acquisition of PVs by EFL learners. The statistical analysis revealed that, in general, there is a positive effect of PV learning through the traditional approach, the DDL explicit approach, and the DDL implicit approach.

It was clear from the analyses that in both the immediate post-test and the delayed post-test assessment that the explicit DDL experimental group performed better than the control group. In contrast, the implicit DDL experimental group did not manifest a statistically significant distinction in the immediate post-test when compared with the control group, but it did exhibit a marked improvement in the delayed post-test results. Furthermore, when the outcomes of the immediate and delayed post-tests result of the implicit and explicit DDL experimental groups were analysed side by side, a discernible disparity emerged in the immediate post-test results in favour of the explicit DDL group rather than the implicit DDL group. This disparity, however, was absent in the delayed post-test assessments.

In summary, the study's mixed effects linear regression analysis revealed that corpus-based activities had a positive influence on EFL learners' acquisition of PVs. In assessing pedagogical methodologies, the study revealed that the explicit instructional DDL approach offered an advantage in short-term PV retention compared to its implicit counterpart. From a wider perspective, both the implicit and explicit instructional DDL strategies demonstrated superior efficacy in fostering long-term retention, particularly in contrast to traditional learning paradigms.

9. Chapter 9: Discussion

9.1 Introduction

This study investigated whether using DDL in the form of corpus-based activities would be an effective approach to learning PVs compared with traditional learning approaches such as the use of grammar-translation methods. This study also explored how, within a DDL framework, implicit and explicit instructions influence PV learning through corpus-based activities and examined the impact of these approaches on learners' ability to use PVs after a short and extended period of time.

DDL is a language learning approach that has redefined the landscape of language learning and teaching. Originally proposed as a response to the limitations of traditional language instruction methods, DDL introduces a dynamic and engaging way of learning by utilizing real-world language data. It bridges the gap between theoretical language rules and the practical usage of language in authentic contexts, offering learners the opportunity to explore and understand language patterns, structures, and nuances that are naturally embedded in written and spoken texts. As discussed earlier in the review of the literature, the DDL approach has been used and studied for decades and has shown its effectiveness in learning different language aspects such as collocations, phrases, and grammatical structures.

DDL has proven to be highly beneficial in language education. By aligning learning and teaching with real-world language usage, educators can make their instruction more relevant and effective. However, while the validity of implicit and explicit learning and instruction have been established, their specific application as instructional components within the DDL framework remains unexplored.

This chapter discusses the results of the classroom intervention study in relation to previous research presented in the literature review to establish a comprehensive understanding of the

findings and their implications for DDL and language learning and instruction. By situating the current research within the broader scholarly discourse, we can examine the consistency or divergence of the results with earlier reported findings, identify areas of agreement or contradiction, and contribute to the existing knowledge base. To achieve this goal, the chapter is organized according to the research's main questions and sub-questions.

9.2 Summary of the Results

Female intermediate Saudi EFL learners studied a set of PVs through the traditional learning approach, an explicit corpus-based approach, or an implicit corpus-based approach. All learners' knowledge was tested at the start of the intervention, as well as after the intervention, at two different points in time: 7 days as an immediate post-test and 28 days as a delayed post-test. Learners' performances across the three groups were compared with each other to establish the influence of each approach of learning on intermediate Saudi EFL learners' acquisition of PVs.

The statistical analysis of the pre, immediate post, and delayed post-test results revealed that all three approaches, traditional learning and implicit and explicit learning through corpus-based activities, have a significant positive effect on EFL learners' ability to acquire a set of PVs. First of all, the results of the statistical analysis of the pre-test results show that there is no statistically significant difference between learners' pre-tests results; thus, learners in all groups had similar levels of PVs knowledge before the treatment started. This finding allows a direct comparison between the three groups' immediate and delayed post-tests to find answers to the research's main and sub-questions.

The result of the immediate post-test analysis shows that explicit learning through corpus-based activities is more effective in enhancing short-term PV usage compared with implicit learning through corpus-based activities and the traditional approach to PV learning. In other

words, intermediate Saudi EFL learners in the DDL explicit learning group clearly show a larger improvement in their ability to use PVs after 7 days compared with the traditional group and the DDL implicit learning group. Intermediate Saudi EFL learners who underwent traditional learning demonstrated a similar significant improvement in their short-term PV usage ability as those in the DDL implicit learning.

On the other hand, the statistical analysis of delayed post-tests indicates that implicit and explicit approaches to learning through corpus-based activities have a more positive effect on long-term PV usage compared with the traditional approach to PV learning. Intermediate Saudi EFL learners who learned through the implicit corpus-based protocol or through the explicit corpus-based protocol show a clear improvement in their ability to long-term PVs usage compared with the intermediate Saudi EFL learners who learned PVs by adopting the traditional approach. In other words, the delayed post-test results show no statistically significant difference between intermediate Saudi EFL learners in the DDL explicit learning group and those in the DDL implicit group. Both groups displayed marked improvement in their ability to recall learned PVs 28 days after instruction compared to the traditional group.

These results show that the explicit corpus-based approach has a greater influence on short and long-term PVs retention compared with the implicit corpus-based approach and traditional approach to learning. However, the superior effect of the explicit corpus-based approach at one-week post-testing attenuates at four weeks post-testing, and the implicit corpus-based approach joins the explicit corpus-based approach in showing its efficacy in the long-term ability of PVs retention.

9.3 Discussion Relating to Each Research Question

The main objective of this research was to provide insightful answers to two primary research questions, each paired with a corresponding sub-question. The following part is dedicated to analyzing and interpreting the findings in relation to each research question and sub-question while also establishing connections with the existing body of literature. By linking the findings to prior research and discussions, a comprehensive understanding of the study's contributions to the field can be achieved. The subsequent subsections provide an overview of the key findings for each research question and sub-question and discuss their implications within the context of the relevant literature.

9.3.1 Research Question 2

‘What is the effect of corpus-based activities on enhancing intermediate Saudi EFL learners’ acquisition of PVs?’ is the main research question addressed in this study. It aims to examine the impact of corpus-based activities on enhancing intermediate Saudi EFL learners’ acquisition of PVs after 7 days of learning. Traditional learning and teaching practices are frequently used in Saudi EFL classrooms. Thus, DDL is suggested as a possible foreign language learning approach to improve Saudi EFL students' proficiency in mastering PVs.

By comparing the pre and post-test outcomes of participants who received PV instruction through both the traditional learning approach used in Saudi EFL classrooms and the explicit corpus-based approach, the results indicate a noteworthy enhancement in the average scores of learners who engaged in the explicit corpus-based approach, surpassing those who underwent traditional PV instruction. The results suggest that the use of corpus-based activities for learning to use PVs can be a helpful approach that has a positive effect on Saudi intermediate EFL learners’ performance.

The findings of the experiment seem to constitute support for Hypothesis I, which suggests that the use of corpus-based activities in learning and teaching EFL learners PVs results in superior acquisition compared with traditional learning approaches used in EFL classrooms in the Saudi context. This affirmation was grounded in the unique strengths of DDL, which immerses learners in authentic language data, fosters active engagement, and personalizes the learning experience, as opposed to traditional approaches that often lack these features. The analysis of the current study finds evidence for the effectiveness of corpus-based activities among intermediate Saudi EFL learners' acquisition of PVs. The results are in accordance with many experiments reported in the literature that document the effectiveness of DDL as an approach to enhance EFL learners' learning (see also the meta-analysis studies conducted by Boulton and Cobb (2017) and Lee et al. (2019)).

As discussed in [Chapter 3](#), no empirical studies have been conducted to explore the effectiveness of using corpus-based activities or the DDL approach to learn PVs in Saudi contexts or among Arab EFL learners. However, the results of this study are consistent with what has been found in previous experimental and quasi-experimental studies conducted to examine the influence of the DDL approach on learning PVs in different language contexts such as Iranian (Sarab & Kardoust, 2014), French (Boulton, 2008), Turkish (Girgin, 2019) and (Özbay & Özer, 2017), and Japanese (Troy & Millar, 2019). All previous studies have been conducted among EFL learners from different L1 backgrounds, drawn from various language families, such as Indo-European, each of which has its unique language structure. However, this study was conducted among EFL learners whose L1 comes from a Semitic language family, that has a different language structure. The result of this study plays a role in confirming the reliability of the previous findings regardless

on the influence of L1 system and it also approves the efficacy of the DDL approach among intermediate Saudi EFL learners learning PVs.

As mentioned in [Chapter 2](#), within numerous Saudi EFL classrooms, traditional pedagogical approaches serve as the foundation for learning and instruction in which learners are passive recipients of information, primarily relying on teachers and textbooks as a source of information. These pedagogical practices have been said to limit Saudi EFL learners' active participation and might hinder their language acquisition. However, with the use of corpus-based activities, there are interactive and student-centred strategies that clearly foster learner autonomy by allowing EFL learners to take ownership of their learning. Corpus-based activities allow learners to make choices and participate in decision-making processes that actively involve learners in their language development and result in producing active EFL learners. Moreover, the fact that corpus-based activities are built from authentic contexts retrieved from corpora contributes to creating a meaningful learning experience for EFL learners and enables them to connect with the content and engage actively in learning. Thus, the implementation of the DDL approach within Saudi contexts could serve to address the limitations inherent in existing EFL learning and teaching practices in Saudi Arabia. The utilization of the DDL approach within Saudi contexts effectively responds to the calls for change in Saudi EFL pedagogical practices, which involves exposing learners to authentic language (Albiladi, 2022; Alqahtani, 2019), and changing learning practices to be learner-centred approaches to enhance learners' autonomy (Alqahtani, 2019; Alrabai, 2019).

Overall, the use of corpus-based activities to teach intermediate Saudi EFL learners PVs offers significant advantages in enhancing PVs' learning outcomes. The results of this study provide a notable contribution to the current knowledge base in the field by providing additional

empirical support for the effectiveness of DDL approaches to language learning. Additionally, the results of this study add to the growing body of literature in this area and enhance our understanding of the benefits derived from employing DDL techniques for English PVs learning and teaching. The findings also open an avenue for new approaches to learning and teaching PVs to intermediate Arab EFL learners who commonly encounter challenges in acquiring PVs due to their complex nature and the absence of PVs in their first language. The successful implementation of the DDL approach in the form of corpus-based activities to learn and teach English PVs in Saudi EFL classrooms presents a promising new approach to learning PVs that can potentially replace traditional teaching and learning methods used in Saudi EFL classrooms which results in enhancing the quality of learning in Saudi contexts and booting Saudi EFL learners' proficiency level.

9.3.1.1 Q1- Sub-question. This sub-question seeks to determine which of the two groups, those exposed to the traditional learning approach or those engaged in the explicit corpus-based approach, demonstrates superior learning and retention of PVs in the delayed post-test, which was conducted after a duration of twenty-eight days; that is, we are looking at the long-term effects of their learning. By investigating the delayed post-test outcomes of these two distinct groups, valuable insights can be gained into the effectiveness of both approaches in facilitating PV learning and usage over a long period of time (twenty-eight days after the last learning session). This comparison shows that explicit corpus-based learning is more effective for long-term usage of PVs than the traditional learning approach, in which learners in the explicit corpus-based approach group scored significantly higher on the delayed post-test than learners who studied through the traditional approach. This result confirms Hypothesis I of this sub-question which states that Saudi

EFL learners in the corpus-based group would retain more of the PVs learned after a long period than learners who joined the traditional group.

In the previous DDL experimental studies conducted on EFL learners for the acquisition of PVs, there is a range of timing intervals for post-tests in various studies. Different researchers may choose different time intervals based on their research goals and the nature of the intervention or treatment. This variation in timing intervals allows for exploring the effects of different time frames on learning outcomes and provides a more comprehensive understanding of the learning process. Boulton (2008) gave EFL learners an immediate post-test which took place in the same session after the DDL approach implemented in session for EFL learners to learn two PVs, '*pick up and look up*'. Özbay and Özer (2017) opted for a delayed post-test two weeks after the final practice and assessment periods without including an immediate post-test. Similarly, Troy and Millar (2019) administered their post-test one week after the treatment, also without a delayed test. Girgin (2019) followed a similar approach, with the post-test taking place approximately 14 days after the instruction, again without a delayed test. Finally, Sarab and Kardoust (2014) conducted an immediate post-test soon after the completion of the DDL activities, and a delayed post-test was conducted nearly five weeks (35 days) after the immediate post-test.

The only study that implemented a delayed post-test to explore the effect of PVs learning through the use of the DDL approach was conducted by Sarab and Kardoust (2014). The aim of this study was to compare the effectiveness of the DDL method and traditional methods for teaching PVs to seventeen male Iranian low-intermediate learners of English as a foreign language. A t-test was used as a statistical analysis to compare the means of the two groups in a delayed post-test, and results showed that the group taught using a corpus-based DDL model had a significantly higher mean score than the group taught using dictionary definitions. The t-value for the delayed

post-test was 3.90 with a p-value of .001, indicating that the mean difference between the two groups (dictionary definitions group $M=30.06$ and DDL group $M=36.65$) was statistically significant in favor of the DDL group. This suggests that the DDL approach was more effective in improving delayed comprehension of PVs compared with the traditional approach to PVs learning.

The results of Sarab and Kardoust (2014) empirical study are consistent with the findings of the current study. The 28-day interval for the delayed post-test in the current study examined EFL learners' ability to retain and apply the acquired knowledge over a more extended period which allows for a more comprehensive understanding of the long-term effects of the DDL treatment on the acquisition and retention of the PVs among Saudi EFL learners. The results of the current study show that the explicit use of DDL corpus-based activities has a positive influence on intermediate EFL learners' ability to achieve long-term usage of PVs compared with the traditional learning approach.

The findings enrich our current understanding by highlighting the differential impacts of traditional educational approaches and the explicit corpus-based approach concerning PV acquisition over extended durations. By incorporating delayed post-tests, this research provides a deeper insight into students' capacity for long-term retention, setting it apart from studies that solely relied on immediate post-test evaluations.

9.3.2 Research Question 3

‘What is the effect of the explicit use of corpus-based activities and implicit use of corpus-based activities on EFL learners’ acquisition of PVs?’ is the second main research question addressed in this research project. This question investigates the impact of explicit and implicit use of corpus-based activities by EFL learners to learn PVs. Hypothesis I of this question suggests

that EFL learners in the explicit corpus-based group would acquire PVs better than learners who were in the implicit corpus-based group. This assumption was built upon the previous experimental studies that were conducted to investigate the influence of explicit and implicit instruction in the second language context. A series of insightful meta-analysis studies highlight the potency of explicit instruction over implicit instruction in second language instruction (Goo et al., 2015; Norris & Ortega, 2000).

The findings of the post-tests comparison between EFL learners' results who received explicit corpus-based activities and implicit corpus-based activities revealed a significant improvement in EFL learners' knowledge who received explicit corpus-based PVs activities compared with the PVs knowledge of EFL learners who learned PVs implicitly through corpus-based activities. The result shows that the explicit use of corpus-based activities for learning PVs generates a stronger positive influence on learners' performance after 7 days of the last learning session than its implicit counterpart. This result is largely consistent with previous research discussed in the literature, which investigated the effect of explicit and implicit instruction on EFL context and learning different language aspects. The findings of the current study, which suggest that explicit instruction is more effective than implicit instruction, are in line with the results of Norris and Ortega's (2000) meta-analysis study that examined the effects of implicit and explicit instruction on second language learning. Moreover, another meta-analysis study conducted by Spada and Tomita (2010) to determine the influence of implicit and explicit instruction on learning simple and complex English grammatical forms showed that the use of explicit instructions demonstrated a larger effect size in comparison to implicit instruction regardless of any length of the time intervals between the learning session and the tests. Moreover, the findings reported in our current study align with those of a meta-analysis conducted by Li (2010), which examined the

effect of implicit and explicit corrective feedback on SLA learners. The findings of the meta-analysis study indicated that the explicit application of corrective feedback yielded significantly larger effect sizes on immediate tests, which were administered seven days after the intervention, compared to implicit corrective feedback instructions. However, contrary to the pattern mentioned above, contrasting findings were observed in the meta-analysis study conducted by Goo et al. (2015). In a broader context, their study revealed that explicit instruction and implicit instruction yielded similar influence on L2 learning in immediate post-tests, which were administered within a timeframe of 0-7 days.

While the implicit and explicit instructions in earlier meta-analysis studies targeted various language aspects and were implemented in different situations, the results of the current study are generally consistent with and in line with those findings. The current study corroborates, as evidenced after a 7-day period following the last learning session, that explicit corpus-based activities have a significantly larger positive effect on Saudi intermediate EFL learners' PVs learning compared with the implicit PVs learning through corpus-based activities. This observed advantage of explicit instruction within the current study can potentially be attributed to the cognitive processes it triggers among learners. In the explicit DDL instruction group, learners' heightened awareness of the learning process, intention to learn, and focused attention on the learning target (PVs) likely played a crucial role. This conscious engagement might foster a deliberate focus on the specific language elements and facilitate a deeper understanding of their usage and meaning. Such intention-driven learning can lead to more systematic processing of linguistic information, contributing to improved usage and application of the target language structures.

9.3.2.1 Sub-question. The aim of this sub-question is to investigate and determine which of the two modes of DDL learning, namely the explicit corpus-based instruction or the implicit corpus-based instruction, exhibits higher retention of PVs in the delayed post-test (after a period of twenty-eight days). By carefully examining and comparing the outcomes of the delayed test results between the two distinct groups, valuable insights can be obtained regarding the respective effectiveness of each group in facilitating PV learning and longer-term retention.

A comparative examination of the study's data indicated that both explicit corpus-based learning and implicit corpus-based learning significantly impact the acquisition of PVs among intermediate EFL learners after a 28-day learning period. This finding deviates from the initial hypothesis, Hypothesis I, of this sub-question, which predicted that the explicit corpus-based group would demonstrate greater retention of PVs over an extended duration compared to the implicit corpus-based group. This hypothesis was built based on the results of several meta-analysis studies, which combined the results of multiple experimental and quasi-experimental scientific studies to examine the influence of implicit and explicit instruction on learning languages Norris and Ortega (2000), Spada and Tomita (2010), Li (2010) and Goo et al., (2015).

As presented in the review of the literature, [Chapter 4](#), Norris and Ortega's (2000) findings revealed that explicit instruction has a greater effect on L2 learning than implicit instruction, irrespective of any intervening controlling variables such as the length of learning and post-test time. Spada and Tomita (2010) meta-analysis indicated that regardless of the complexity of the English grammatical forms and the timing of the test, explicit L2 instructions resulted in larger effect sizes than implicit L2 instructions in learning complex and simple English grammatical forms. Moreover, Li's (2010) meta-analysis found that the effect of corrective feedback among L2 learners in the form of explicit instructions is larger than the effect of implicit corrective feedback

forms on post-tests results which took place after 7 days to 29 days after the intervention. However, the influence of implicit corrective feedback is larger than that of explicit corrective feedback after 30 days of the instruction. Goo et al. (2015) revealed that after 8 to 29 days of the treatment, both instructions had a positive effect on L2 learning; particularly, the implicit instruction had a medium effect size in comparison with the explicit instruction's large effect size. However, after 30 days of L2 learning, the explicit instruction showed a medium to large effect size, whereas the implicit instruction showed a small effect size.

The results of the previous meta-analysis contradict each other in determining the influence of implicit and explicit instructions on long-term learning. However, it is worth noting that the meta-analysis study conducted by Goo et al. (2015) stands as the sole research endeavor to date that provides a meticulous meta-analysis of the influence of explicit and implicit instruction on second language (L2) learning within different ranges of time frames. This particular study uniquely focuses on comparing the effects of different instructional approaches over 8 to 29 days as a defined duration, which covers the specific time frame utilized in our current study; the delayed test took place after 28 days of the last learning session. The inclusion of the 8 to 29-day time frame in both studies enhances the relevance and applicability of our findings and the meta-analysis findings. Goo et al. (2015) claimed that after 8 to 29 days of learning, explicit instruction has a large effect size, whereas implicit instruction has a medium effect on L2 learning. In contrast to the findings of Goo et al. (2015), the current study revealed that after 28 days of the last PVs learning session, DDL explicit and implicit instructions were found to have a similar influence on L2 learners' acquisition of PVs.

It is essential to highlight that none of the experimental and quasi-experimental studies involved in previously conducted meta-analyses applied implicit and explicit instruction learning

through concordance lines extracted from a corpus, which might influence the results of these types of instruction on short and long-term learning abilities. In other words, the specific focus on DDL approaches and PVs in the current study may contribute to the variation in results. Different language components or learning contexts might exhibit varying effects of explicit and implicit instruction. It is possible that for DDL-based learning, both explicit and implicit DDL approaches are equally effective after 28 days. In this context, language is learned through exposure to and interaction with authentic language use in real-world contexts, which may strongly influence the type of instruction and long-term learning. Explicit DDL instruction solidifies understanding, which can aid in recalling and applying language knowledge. Meanwhile, implicit DDL learning enhances adaptability and fluency by fostering an intuitive grasp of language usage.

Despite the extensive efforts made to identify studies with similar results to be able to make direct comparisons, it was difficult to find such comparable studies within the available literature. Given this constraint, we resorted to discussing the 2nd question and its sub-question by relying on meta-analysis studies that examined related research questions or utilized similar methodologies i.e., experimental research and implicit and explicit instruction. While this alternative approach provides valuable insights from a broader pool of evidence, it is important to acknowledge that the inclusion of meta-analyses introduces certain limitations, such as potential variations in study design, heterogeneity across included studies, and potential bias inherent to the original meta-analysis process. Nonetheless, drawing upon these similar meta-analysis studies offers a means to contextualize our findings within the existing body of research and gain additional perspectives on the topic.

9.4 Conclusion

The results of using corpus-based activities in the Saudi context to enhance intermediate EFL learners' acquisition of PVs have shown its effectiveness compared with the traditional learning approaches used in Saudi classrooms in the short and longer terms of usage. The results of this study coincide with what was illustrated in the Literature Review in Chapter 3, where the DDL approach was found to be effective in improving EFL learners' overall language proficiency, including their grasp of PVs.

On the other hand, the investigation into the comparative impact of explicit and implicit modes of the DDL approach on the acquisition of PVs by EFL learners, with a focus on short-term and longer-term retention, reveals that the explicit use of corpus-based activities shows a superior influence on the ability of intermediate Saudi EFL learners to retain the learned PVs after a period of 7 days following the final learning session. Nevertheless, after a more extended duration of 28 days, no discernible distinction was observed between the two modes of learning in learners' capacity to retain the acquired PVs. The delayed post-test findings of this study do not align entirely with the previous research literature. As presented in Chapter 4, most meta-analysis studies show that explicit instruction has a larger influence on L2 learners' abilities regardless of different variables, such as the timing of the tests or the target L2 element. However, this study suggests that there is no difference between implicit and explicit modes of DDL learning after a longer period of time, particularly 28 days. This difference in the results might be attributed to several variables. One of the primary factors is integrating implicit instruction with DDL as an approach to learning. DDL emphasizes student interaction with genuine language datasets, often in the form of concordance lines, encouraging learners to identify patterns, collocations, and structures autonomously. This method aligns with implicit learning, where learners acquire knowledge

subconsciously through exposure and interaction. In DDL, students may not always be explicitly told the rules of the language, but by analyzing real-world text data, they begin to recognize and understand these rules through exposure implicitly. Additionally, the spacing interval implemented in the study design plays a significant role. As discussed in Chapter 4, the efficacy of spaced repetition in enhancing memory retention is well-documented. Research in SLA has highlighted the importance of spacing in memory retention. Spaced learning, where information is studied at intervals, is often more effective than massed learning. This spacing allows for better long-term retention, especially relevant when considering the retention of L2. Moreover, this study followed a classroom-based experimental approach which offers a more authentic representation of the learning process. Furthermore, the type of statistical analysis used in these meta-analysis studies deserves special attention. Different statistical methodologies can interpret the same data in varying ways which might be the case in this study. To sum up, there are various factors that might explain the difference between the results of previous meta-analysis studies and the current study results on the effect of implicit DDL instruction on long-term retention. Primarily, the relationship between DDL and implicit instruction, reinforced by the principles of spaced repetition, has shown an influence on memory and language acquisition, which emphasizes the need for further exploration in SLA research on the influence of DDL and implicit instruction on language learning.

10. Chapter 10: Conclusion

10.1 Introduction

The concluding chapter of this dissertation commences with a comprehensive summary of the main aspects of the research. First is a concise overview of the classroom intervention study, including its objectives, research questions, methodology, and key findings. This brief summary serves as a foundation for the subsequent sections that establish a contextual understanding of the study's significance and lay the groundwork for further exploration.

This chapter also addresses the theoretical implications of the study by placing the findings in the context of existing theoretical frameworks in the field. Through this analysis, the connections and potential discrepancies between these results and existing theories are explored, contributing to the advancement of theoretical knowledge. In addition to the theoretical implications, this chapter discusses the pedagogical implications of the study, which centre around practical applications of the findings in educational settings. This section thoroughly examines the ways in which the results can be translated into enhancing EFL acquisition and proficiency through the implementation of specific teaching practices, instructional strategies, and curriculum design. By illuminating effective approaches and strategies derived from the study's findings, this section aims to provide insights for EFL instructors and material developers with evidence-based recommendations to optimize EFL PV learning outcomes.

Furthermore, this concluding chapter takes into account the study's limitations and potential criticisms, demonstrating careful consideration of these aspects. It specifically focuses on identifying areas where enhancements could have been made in the research. Moreover, the chapter acknowledges any inherent limitations pertaining to the generalizability of the findings or constraints encountered during the research process. The study's credibility and scholarly integrity is meant to be bolstered by the open and transparent addressing of these limitations. Additionally

provided are suggestions for future studies based on these findings and limitations. These recommendations highlight areas that require further investigation, and ways to refine and expand upon the current research are recommended. The main objective of these suggestions is to contribute to the ongoing scholarly debate and encourage further exploration in the field.

10.2 Brief Summary of the Study

As is the case with many EFL learners, Saudi EFL learners face several challenges in dealing with PVs and thus tend to avoid using them (see [Chapters 2](#) and [5](#) for details). There are several reasons for this avoidance, including the inherent syntactic and semantic complexity of PVs and the influence of the learners' L1, the Arabic language, which does not have PVs. Added to this, there is the influence of EFL learning and teaching practices in the Saudi context, which are based on traditional approaches to teaching EFL. The challenging characteristics associated with PVs are difficult to resolve under the umbrella of traditional EFL learning approaches. To overcome the challenges faced by Arab EFL learners in using PVs, we explored innovative learning approaches for creating an environment that encourages active engagement and practice with these linguistic structures. Thus, DDL, as a learning approach, is proposed as a resource to considerably lighten the burden for Saudi EFL students in effectively learning PVs. Also, a comprehensive analysis was conducted regarding the influence of explicit and implicit language instructions on the DDL approach. This analysis was prompted by the necessity to identify the most appropriate and efficient pedagogical techniques within the DDL framework, aiming to amplify the acquisition of PVs among Saudi EFL learners and consequently optimize the outcomes of EFL learning.

The current study aimed to examine the effects of corpus-based activities on enhancing Saudi EFL learners' acquisition of challenging morphological structures, in this case, PVs. It also aimed to examine the influence of different modes of language instruction, explicit and implicit, on learning. Learners' short-term and long-term retention gains were taken into consideration while examining these effects. This research project sought to find answers to the following questions and sub-questions:

Q2: What is the effect of corpus-based activities on enhancing intermediate Saudi EFL learners' acquisition of PVs?

- Which of the two groups (the traditional approach or the explicit corpus-based approach) demonstrates better learning and retention of PVs on the delayed post-test (after 28 days)?

Q3: What is the effect of the explicit use of corpus-based activities and implicit use of corpus-based activities on EFL learners' acquisition of PVs?

- Which of the two modes of DDL learning (explicit corpus-based or implicit corpus-based) exhibits better retention of PVs on the delayed post-test (after a period of 28 days)?

To answer these questions, 76 female Saudi intermediate EFL learners were randomly assigned to three groups and taught a selection of 27 PVs using one of the three approaches to learning. Group (1) was taught using one of the traditional EFL learning approaches used in Saudi classrooms. Learners had access to dictionary English definitions for each PV and carried out PV translations into Arabic. Group (2) learned through the explicit use of corpus-based activities in

which EFL learners were exposed to concordances with PVs and carried out corpus-based activities such as determining the meanings of the PVs from context or completing concordances with a suitable PV. Group (3) learned the same set of PVs through the implicit use of corpus-based activities. EFL learners were exposed to a set of concordance lines, but their attention was not drawn to the PVs. The learners were asked to read each concordance line and complete it by adding their own responses at the end of each line. The completion was in the form of an open question, which encouraged users to provide their own subjective and elaborate responses rather than providing a simple one-word or one-sentence answer.

EFL learners' knowledge of the selected PVs was tested three times during the experiment. The first was a pre-test that took place before the intervention study commenced, serving as a baseline measure of learners' prior PV knowledge. The second was a post-test administered 7 days after the last learning session to examine learners' short-term retention. Finally, the third test was conducted 28 days after the last learning session to assess learners' long-term retention of the learned PVs.

The findings obtained from a mixed-effects linear regression analysis revealed that in both the short and long term, the explicit use of corpus-based activities was more effective at enhancing the Saudi EFL learners' acquisition of PVs than the traditional learning approach. Additionally, the explicit use of corpus-based activities demonstrated a significant distinction in short-term retention of PVs when compared to the implicit use of such activities. However, no notable difference was observed in long-term retention between the explicit and implicit use of corpus-based activities.

10.3 Significance of the Study

The present study provides a contribution to the knowledge and practice of employing corpus-based activities in the context of EFL in Saudi Arabia, as well as in the more specific area of learning among EFL students. To the best of the author's knowledge, this is the first study conducted in Saudi Arabia regarding corpus-based activities for enhancing Saudi EFL learners' acquisition of PVs. This dissertation attempts to bridge the conceptual gap in which the DDL approach, particularly corpus-based activity, was designed to enhance Saudi EFL learners' knowledge of PVs for short- and long-term retention. Also, the findings of the study contribute to the limited empirical literature on DDL research in the Saudi Arabian context. As clarified in Chapter 2 (section 2.4), *Saudi Vision 2030* presents ambitious plans to shift from an economy heavily reliant on oil revenues to a knowledge-centric one. This vision built progressive strategies to advance various sectors, particularly emphasizing education, healthcare, tourism, and recreation. Given the global prominence of English, especially in business, trade, and tourism, it becomes paramount to bolster the proficiency of Saudi EFL learners to be able to achieve part of *Saudi Vision 2030* goals. Furthermore, the vision asserts several educational objectives, such as enhancing the learning environment, curriculum, and instructional methodologies. The insights from this classroom intervention study align closely with the broad educational aspirations of *Saudi Vision 2030*. The research findings suggest that DDL might serve as an effective strategy to revitalize the Saudi educational landscape, offering innovative pedagogical methods distinct from traditional learning and teaching practices, which can enhance the Saudi educational system and the learning outcome.

A contribution was also made to understanding the influence of implicit and explicit instruction on PV learning using corpus-based activities. It provides additional detail about the

connection between corpus-based PV learning and the type of instructional EFL learning by exploring the effects of these two modes of learning on EFL learners' short- and long-term PV retention. These results add to the body of literature on the influence of explicit and implicit EFL instruction, particularly for the DDL approach and activities built from a corpus.

In terms of contributions to practice, this research offers practical solutions for PV mastery using the DDL approach, arising from the issues that motivated the selection of PVs as a focal point of study in the broader context of language acquisition (as detailed in Chapters 2 and 3). The DDL approach was employed in this research in order to better understand the perceived and actual effects of corpus-based activities on Saudi intermediate EFL students' learning, particularly to support their learning of PVs. This opens a new avenue for Saudi EFL students to enhance learning outcomes, which will influence their EFL proficiency levels. This is not limited to Saudi EFL learners but is also applicable to EFL learners in general and their instructors. The corpus-based activities used in this study could be further employed in EFL classrooms to facilitate the process of teaching and learning PVs.

Overall, this study's significance lies in its potential to fill a gap in the literature, offer practical insights, advance theoretical frameworks, and stimulate further research in the field. The findings have the potential to create positive changes in EFL learning and teaching practices and contribute to the overall understanding of approaches that enhance EFL learners' acquisition of PVs. The following sections discuss in detail the possible theoretical and pedagogical implications of this study's results.

10.3.1 Theoretical Implications

The theoretical implications of this study's results are manifold. In part, the theoretical implications are associated with the theories of the DDL approach, as well as theories associated

with explicit and implicit language instruction. The following sub-sections provide a comprehensive discussion of these two theoretical foundations.

10.3.1.1 The Data-driven Learning Approach. The findings of this study support the effectiveness of corpus-based activities for enhancing PV acquisition as compared with traditional learning approaches. This aligns with theoretical SLA and learning frameworks emphasizing the importance of using authentic language, exposing students to real-life language samples, promoting learner autonomy, and employing inductive learning.

SLA is a complex process that has been explored through various theoretical perspectives. One is the usage-based theory, which posits that language learning is rooted in exposure to authentic language use. As collections of real-world language examples, corpora serve as valuable resources for this framework (Crosthwaite & Schweinberger, 2021). The DDL approach proposes that language learning is most effective when learners are exposed to authentic language samples. By engaging learners with corpus-based activities, which provide real-life language exemplars, the DDL approach permits observation of how words, PVs, and grammatical structures are employed in context. This exposure to authentic language helps learners develop a deeper understanding of language patterns, including the use of PVs.

Another theoretical aspect of the DDL approach is its focus on learner autonomy and inductive learning. Constructivism emphasizes that learners are active participants in their own learning process. Within the context of L2 acquisition, this theory suggests that learners actively construct their knowledge by engaging with the language in meaningful ways. When utilizing corpora, learners are not passive recipients of information but, rather, are active discoverers (Boulton & Cobb, 2017; O’Keeffe, 2021). Through their interactions with the corpus and material built from corpora, learners engage in cognitive processes that involve identifying patterns, making

connections, and formulating hypotheses about language usage. Instructors act as facilitators, assisting learners in effectively navigating the concordance lines and encouraging them to draw insights from their discoveries.

By using corpus-based activities, learners are empowered to independently explore language resources, discover patterns, and analyse language data to find answers to their learning questions. This autonomy promotes active engagement, self-discovery, and critical thinking, enabling learners to take ownership of their language learning process. For instance, in corpus-based tasks, such as reading the concordances and guessing the meaning of the key word in context, learners are presented with concordance lines, which display a target PV in the surrounding context. Students are encouraged to scrutinize the context and the neighbouring words to deduce the likely meaning of the target word or phrase. By relying on the actual usage of the word in authentic language examples, learners are compelled to analyse the context and develop a deeper understanding of usage nuances and semantic variations. Another example of corpus-based activities is filling in the KWIC to complete the concordance. This activity involves incomplete concordance lines, with the target PV omitted. Learners are tasked with inserting the missing target PV into the concordance lines while maintaining coherence and accuracy. This exercise encourages learners to engage deeply with the contextual information and apply their comprehension of the target word's usage. By actively participating in the construction of complete concordance lines, learners enhance their ability to effectively contextualize PVs.

Engaging in these activities not only fosters a sense of ownership over the language learning process but also empowers learners to decipher word meanings through authentic language usage, cultivating their ability to independently dissect intricate linguistic nuances. This active involvement nurtures critical thinking and analytical skills, steering learners away from

reliance on traditional instruction and towards direct interaction with language data. As they directly engage with authentic examples, learners cultivate their language intuition and autonomy, moving beyond the passive reception of information and becoming active contributors to their linguistic development. Moreover, these exercises prompt learners to take the initiative in making informed decisions rooted in their own language comprehension. This autonomy, in turn, encourages the internalization of language mechanisms, leading to a profound grasp of how words and phrases integrate into real-world contexts. Through active participation in completing concordance lines, learners foster a proactive mindset, fortify essential language skills, and progressively enhance their self-reliance throughout their learning journey.

Overall, the DDL approach offers learners a theoretical foundation that emphasizes authentic use, exposure, and learner autonomy. By integrating these theoretical principles, the DDL approach provides EFL learners with a framework for meaningfully engaging with PVs to discover PV patterns and develop a deeper understanding of PV usage. This theoretical underpinning enhances the effectiveness of the DDL approach in supporting language acquisition and proficiency among EFL learners. Such insights can inform the development of more effective language teaching methodologies and materials, benefiting EFL learners in Saudi Arabia and beyond.

10.3.1.2 Explicit and Implicit Modes of the DDL Approach. Contributing to the understanding of the effects of explicit and implicit modes of instruction on the DDL approach in PV acquisition, these results indicate that explicit instruction using corpus-based activities creates superior short-term retention of PVs compared to implicit corpus-based instruction. This finding aligns with theories that highlight the benefits of explicit instruction in promoting EFL learning of language elements. By providing explicit explanations and guidance on language patterns and

usage, the explicit mode of the DDL approach supports learners in developing awareness of PVs. Explicit instruction guides learners' attention towards specific aspects of language, grammar, and structure. This brings those elements to the forefront of learners' consciousness, enabling them to recognize patterns, rules, and nuances that are essential for effective language use. By explicitly highlighting these details, learners become more attuned to the mechanics of language, fostering a deeper understanding. This explicit instruction could enhance learners' understanding and facilitate the transfer of knowledge to their language production and comprehension.

These results support the early theory of the noticing hypothesis (Schmidt, 1990), which posits that learners must notice linguistic features before they can internalize and use them proficiently. This hypothesis suggests that learners need to consciously notice linguistic features in the inputs they encounter for effective acquisition to take place. Explicit instruction plays a crucial role in helping learners notice specific language components, such as verb tenses, sentence structures, or PVs. By directing learners' attention to these features, explicit instruction enables them to consciously process these elements and eventually incorporate them into their language skills.

However, the absence of a significant difference between explicit and implicit modes in longer term retention suggests that implicit learning processes may play a role in the consolidation and maintenance of PV knowledge over time. This challenges the notion that explicit instruction always has a sustained advantage in language learning. The findings call for a deeper exploration of the interplay between explicit and implicit learning mechanisms and their long-term effects on PV acquisition via corpus-based activities.

Implicit instruction underscores the effectiveness of learning through experience and immersion. By immersing learners in real-world contexts, these theories align with the notion that

individuals can naturally acquire language aspects by participating and engaging with their environment. This supports Krashen's (1982) monitor model, which states that language acquisition is an unconscious process that emerges through exposure to input, not through explicit teaching of rules. Implicit instruction could be linked with usage-based theories because it reflects the natural way language is acquired through exposure. Learners acquire language implicitly by engaging in authentic language, imitating native speakers and internalizing patterns without formal instruction. In other words, as learners engage with PVs, they might unconsciously acquire patterns and meanings, leading gradually to proficiency with using and understanding PVs.

The divergence of this study's results from previous research regarding the superiority of explicit instruction highlights the complexity of instructional factors and their influence on language learning outcomes. It also underscores the need for more nuanced investigations that consider contextual factors, such as the implementation of the DDL approach, the learning environment, and the specific nature of the target-language elements.

Overall, the theoretical implications of this study contribute to the refinement and expansion of existing theories in language acquisition. They shed light on the effectiveness of corpus-based activities compared to traditional learning approaches, the different roles of explicit and implicit instructional modes in the DDL approach, and the influence of these modes in EFL learners' acquisition of PVs. These implications call for further research to explore the underlying mechanisms and contextual variables that impact the efficacy of different instructional approaches to DDL.

10.3.2 Pedagogical Implications

The findings of this study have several pedagogical implications. Recognizing the practical implications of these research outcomes and examining the pedagogical implications are crucial

for language educators and curriculum designers to shape effective language learning methodologies that enhance PV acquisition and overall language proficiency among EFL learners.

One of the notable pedagogical implications is that the integration of corpus-based activities in Saudi EFL classrooms can measurably enhance learners' acquisition of PVs. Corpus-based activities have been shown to be more effective than traditional learning approaches at enhancing short- and long-term retention of acquired PVs. This highlights the importance of integrating authentic language use and exposure into instruction methods, allowing learners to encounter PVs in meaningful contexts. As discussed in [Chapter 3](#), the DDL approach offers learners the opportunity to encounter authentic instances of PV usage, enabling them to observe how these combinations of words are used in real-life contexts. By exposing learners to authentic language samples, EFL instructors can help them develop a deeper understanding of PVs and their appropriate usage. Corpus-based activities not only promote learner autonomy by enabling students to explore language resources and discover PVs independently, but they also provide a platform for EFL learners to solve language-related problems on their own. By engaging in corpus-based activities, learners can actively navigate through language data, analyse patterns, and find solutions to linguistic challenges, fostering a sense of ownership and problem-solving skills in their language learning journey.

Multiple methods can be utilized to effectively incorporate the obtained results into educational materials to enhance the quality and relevance of pedagogical content and facilitate improved learning outcomes. Corpus-based activities might be implemented directly into Saudi EFL classrooms by instructors who can develop their own activities according to their learners' needs. Also, material designers and textbook developers could integrate corpus-based activities

into EFL textbooks to expose learners to real-life examples of PV usage, fostering a deeper understanding of these multi-word units.

The finding that explicit instruction exhibits superiority in short-term retention ability implies that raising intermediate EFL learners' awareness and providing some level of explanation when learning PVs via corpus-based activities can be advantageous. Explicit corpus-based instruction involves drawing learners' attention and awareness to the target feature being learned. Explicit instruction allows learners to understand the structure and meaning of PVs by directing their attention to PVs, offering ample opportunities for reinforcement. EFL instructors can draw learners' attention to the verb–particle combinations, their meanings, and how they function in different contexts. They can also guide learners through practice exercises that focus on PV usage and comprehension. Through this explicit instruction, EFL learners develop a deeper understanding of the specific aspects of PVs, enabling them to use these language structures more accurately and confidently.

The findings of this study also suggest that the explicit and implicit modes of instruction can be equally effective at facilitating long-term retention of PVs. While explicit instruction entails directing learners' attention, implicit instruction emphasizes exposure to PVs in meaningful and authentic contexts without explicitly focusing on that specific language item. According to this study's findings, these methods produce comparable results in terms of long-term PV retention. This pedagogical implication highlights the flexibility and adaptability of different DDL instructional practices for long-term PV retention. EFL instructors and curriculum developers can choose either explicit or implicit DDL instruction, which can then be tailored to a variety of factors. These factors include teaching preferences, learner characteristics, and the specific learning context. By considering aspects such as learners' language proficiency levels, prior knowledge,

and individual learning styles, EFL instructors and curriculum developers can make informed decisions regarding the selection of explicit or implicit DDL instruction.

Overall, the pedagogical implications of this study's findings offer contributions to the advancement of effective language learning approaches to enhance EFL learners' PV acquisition.

10.4 Limitations and Possible Criticism of the Study

It is commonly accepted that all research studies have constraints and limitations, and this research project is not an exception, despite efforts made to ensure methodological rigour. There are several limitations that can impact the validity, generalizability, and reliability of the findings. These arise from various aspects and can be classified as either limitations related to the data collection site and sample characteristics, or limitations related to data collection methods.

10.4.1 Limitations Associated With the Data Collection Site and Sample Characteristics

Generalization of the findings can be limited due to the characteristics and context of the sample, and an identifiable constraint of this study pertains to the comparatively modest sample size. Despite concerted efforts to enlist the greatest possible number of participants, the sample size was ultimately restricted to 76 individuals divided into three groups. This limitation arose primarily from the extensive ramifications of the global COVID-19 pandemic. The data collection process took place in actual EFL classrooms immediately after the resumption of in-person schooling, which still had stringent constraints. The difficulty in accessing additional classrooms and the reduced number of learners per class contributed to the challenge of augmenting the sample size.

Another limitation of this study was the inclusion of only female participants due to the cultural restrictions discussed in [Chapter 7](#). While this decision might control for potential gender differences in the outcome variable, it also limits the generalizability of findings to male

populations. Also, this study focused on intermediate EFL learners in Saudi Arabia; therefore, the results may not be generalizable to learners at different English proficiency levels. However, the findings from this study may have potential implications for other similar EFL settings.

10.4.2 Limitations Associated With the Data Collection Methods

Understanding and acknowledging the limitations associated with research design, particularly data collection methods, is crucial for accurately interpreting the results and drawing valid conclusions. One of the limitations of the research method used in this classroom intervention study is its exclusive reliance on quantitative data. The emphasis placed on quantitative approaches, which primarily involve the use of numerical data, may restrict the comprehensive exploration and understanding of the research phenomenon. The quasi-experimental study conducted in this Ph.D. project solely examined learning gains through pre-tests and delayed post-tests without investigating the learners' perceptions of how different modes of learning affected their acquisition of PVs.

Furthermore, it was advisable to develop an instrument to measure the implicit DDL group's learners' perspectives during the process of implicit PV instruction. One of the main objectives of this study was to compare the impacts of explicit and implicit instruction on corpus-based activities. In order to ensure that learners in the implicit DDL group were unaware of the focus on PVs, learners would have to be asked to provide feedback on whether they noticed any specific patterns while engaging in the activity. This qualitative data could potentially provide some kind of evidence indicating that learners' awareness of the PVs was not heightened during the activity. Nonetheless, it is worth noting that throughout this classroom intervention study, no queries or inquiries were raised by any participants in the implicit DDL group regarding any particular PVs.

Moreover, the delayed post-test in this study occurred 28 days after the last learning session, which may present some limitations on evaluating long-term retention of PV usage. A 28-day gap between the last learning session and the delayed post-test might not be sufficient to capture the true long-term effects of the learning intervention. A longer gap might provide a more accurate assessment of long-term knowledge retention and provide more accurate estimates of when the material needs to be revisited.

By recognizing the above-discussed limitations, researchers can take steps to mitigate their impacts and provide a more nuanced interpretation of the study's outcomes. Ultimately, understanding and transparently discussing these limitations contribute to the overall advancement of knowledge in the field and facilitate future research.

10.5 Suggestions for Future Studies

The findings of this study provided insights into the effectiveness of corpus-based activities at enhancing Saudi EFL learners' acquisition of PVs and the impact of explicit and implicit instruction on the use of these activities. However, several areas warrant further exploration and investigation to enhance the findings of this research and the existing literature in this field. This section presents suggestions for future studies that build upon the current study's findings and address additional aspects that have not yet been fully examined. By addressing these areas, future research can contribute to a more comprehensive understanding of the potential benefits and implications of corpus-based activities for enhancing Saudi learners' acquisition of EFL and understanding the impact of explicit and implicit instruction on corpus-based activities.

The study's findings pertain specifically to the acquisition of PVs among female Saudi intermediate EFL learners. It is important to exercise caution when generalizing these results to other linguistic features, learning contexts, or learner proficiency levels and populations. To ensure

the validity and reliability of these findings, further research is warranted. Such studies should aim to confirm and extend this study's findings by exploring various language components beyond PVs and considering different learner variables that may influence the acquisition process. For instance, considering other gender, proficiency levels, and individual differences among learners, such as cognitive abilities, motivations, and learning styles, valuable insights could be gained into the influence of the DDL learning approach and the differential effects of explicit and implicit DDL learning. In future studies, it is crucial to emphasize the importance of EFL teachers' active participation in research, particularly in initiatives such as DDL. This involvement is key to bridging the gap between theoretical frameworks and practical application, enhancing the overall quality of education, and ensuring that teaching strategies are both effective and finely tuned to the diverse needs of learners.

Another suggestion for further studies that may enhance the findings of this study is incorporating qualitative research methods, such as interviews. Qualitative data can provide deeper insights into learners' perceptions, attitudes, and experiences with the DDL approach in an EFL context. This qualitative data can complement the quantitative findings and offer a richer understanding of the effectiveness and validity of the instructional approaches.

Moreover, to confirm that learners in an implicit DDL group are unaware of the PV combinations and that their learning process was entirely implicit, it might be useful to collect other types of quantitative data. For instance, eye-tracking could be used to assess implicit instruction and learners' awareness of PVs by analyzing where and how people move their eyes while reading concordance lines, researchers can gain insights into implicit cognitive processes, such as attention, through fixation duration, i.e., how long the eye remains stationary on a particular point of interest. This might give an insight into whether learners were aware of PVs in the implicit

DDL group. Researchers can also compare eye movement patterns during tasks involving explicit DDL instruction (with conscious effort and awareness) versus those involving implicit DDL instruction to better understand the differences in cognitive processing. Eye tracking provides objective data that does not rely on subjective interpretation or participant self-reporting as in interviews.

It would also be advantageous to examine different time frames, particularly including extended delayed post-test intervals, in studying the long-term effects of the DDL approach and the use of implicit and explicit corpus-based activities on PV retention. Extended delayed post-test intervals longer than 28 days offer opportunities to examine the long-term effects of the DDL approach and the use of implicit and explicit corpus-based activities on retention. Longer intervals provide insights into the durability and practical application of acquired knowledge, allowing researchers to assess the effectiveness of learning interventions in a more valid manner.

10.6 Final Thoughts

The challenge of mastering PVs for EFL learners has been a longstanding concern in the field of English language learning. This study has shed light on the struggles faced by Saudi EFL learners in using PVs and has explored potential approaches and techniques for facilitating their acquisition of EFL.

This study is influenced by the Saudi educational context, where Arabic, the native language of the learners, significantly differs from English in PV usage, posing additional challenges for Arab EFL learners. These challenges are further compounded by a dominance of traditional educational approaches over interactive learning approaches, coupled with limited exposure to authentic English language usage both inside and outside the classroom. The classroom intervention undertaken in this study explored potential learning approaches for English

PV. A pre-posttest instrument was used to compare the traditional learning approach to the more modern approach, which is the DDL, under two distinct instructional methods - explicit and implicit. The findings were insightful: while traditional methodologies held their ground, the explicit DDL approach was promising, indicating its promising potential in enhancing both immediate and longer-term PV retention. These findings align with the global trend in DDL research that supports the effectiveness of explicit DDL approaches for language learning. In particular, these results are in line with similar empirical studies conducted in various cultural contexts, e.g., France, Iran, Turkey, and Japan, for teaching English PVs. The notable success of explicit DDL strategies in promoting immediate and long-term retention of PVs among Saudi learners mirrors the findings from diverse educational settings, indicating that DDL methodologies are applicable in learning PVs.

The research also complements the limited body of work on DDL in the Saudi context, which is mainly focused on vocabulary learning and writing improvement rather than PV. While these studies did not specifically address PVs, they demonstrated the effectiveness of the DDL approach in Saudi contexts. In comparing the results of this study with other DDL studies conducted in the Saudi context, the findings show the general success of DDL approaches over traditional methods and highlight a consistent trend toward the effectiveness of DDL in enhancing various aspects of language acquisition, including PVs among Saudi learners.

These benefits are mirrored in the Saudi context despite the unique challenges posed by the educational system's traditional leanings and the limited exposure to English outside the classroom. The use of DDL has been shown to significantly benefit Saudi learners by providing exposure to authentic language use, fostering independent learning skills, and enhancing linguistic intuition. The integration of DDL in the Saudi context marks a significant shift towards more

engaging and effective language learning strategies, which is in line with the educational reforms under *Saudi Vision 2030*. The potential for using DDL in Saudi Arabia and similar contexts is significant, but its successful implementation requires overcoming barriers usually linked to the DDL approach in general, such as ensuring that teachers receive adequate training in DDL techniques and providing teachers with open access to corpora, and corpus tools.

Interestingly, the results of this study also revealed that implicit DDL instruction, though not outshining the explicit method in immediate post-tests, demonstrated its significance in ensuring longer-term retention. This observation hints at the possibility that both explicit and implicit DDL approach's effects on long-term retention might be more profound than initially perceived. According to the results of this project, teachers can incorporate DDL in ways aligned with their own instructional style, whether more implicit or explicit. This will likely make DDL a versatile resource for teachers to enhance PV instruction using varying techniques tailored to their learners. Given its adaptability, DDL stands out as a powerful approach that can be adopted by teachers and learners across diverse contexts, teaching philosophies, and approaches to learning.

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Appendix A: List of Phrasal Verbs selected from the PHaVE List (Garnier & Schmitt, 2015) for the Classroom Intervention Study

4. TAKE OUT

1. Remove STH/SB from somewhere (container or abstract whole) (50.5%)

He tore open the envelope and **took out** a few bills.

2. Invite to a recreational place or social event (13.5%)

You should **take her out** to this new Chinese restaurant.

3. Obtain an official document or service from an authority (12.5%)

I had to **take out** a loan to cover all my expenses.

38. HOLD UP

1. Hold STH in a high position (e.g. above one's waist or head), so it can be seen or reached (54%)

The professor **held up** the picture so everyone could see it.

2. Remain strong or in a fairly good condition after a bad period or the wear of time (person, business, device) (14%)

These are really old shoes but they're **holding up** quite well.

3. Delay or prevent the progression of STH/SB (11.5%)

We were **held up** by heavy traffic.

40. TURN AROUND

1. Move so as to face in the opposite direction (67.5%)

She **turned around** and walked out the door.

2. Make STH become better or more successful than it previously was (economy, business) (24.5%)

People have stopped believing the President could **turn around** the economy.

41. TAKE UP

1. Use a particular amount of space, time or effort (25.5%)

The rewriting of the document **took up** a whole afternoon.

2. Discuss or deal with (issue, idea, matter) (17.5%)

The Senate will **take up** the issue tomorrow.

3. Start doing a particular job or activity, esp. for pleasure (10.5%)

He **took up** gardening last year.

43. PUT UP

1. Display or attach STH (e.g. to a wall) so it can be seen (23%)

They **put up** a few posters on the wall.

2. (+ *with*) Be willing to accept STH unpleasant or not desirable; tolerate (19%)

I won't **put up** with your bad behaviour for much longer.

3. Build or place STH somewhere (18%)

They're **putting up** a new fence after the previous one fell apart.

45. BRING UP

1. Raise for discussion or consideration (59.5%)

I didn't think he would **bring up** the subject.

2. Care for/be responsible for a child until it becomes an adult (17.5%)

She **brought up** her children under very difficult circumstances.

51. PUT OUT

1. Make STH known or accessible to the public (information, products) (47%)

Police have **put out** a warning about thieves in the area.

2. Stop STH from burning or shining (14%)

The fire has finally been **put out**.

3. Place STH somewhere in order for it to be seen or used (10%)

I've **put out** some glasses and a bottle of wine.

52. LOOK AROUND

1. Examine a place or one's surroundings so as to view what it might contain or look for a particular thing (100%)

They entered the shop and **looked around** but nobody was there.

53. CATCH UP

1. (*Be/Get caught up*) Become involved in STH which prevents SB from making progress or moving forward (26%)

He is very busy and always **caught up** in his work.

2. Reach SB that is ahead by walking, running, or driving faster (18%)

She was running so fast that it was impossible to **catch up** with her.

3. Reach the same level or standard as SB who is more advanced (14%)

They made considerable improvements, which makes it hard for us to **catch up**.

56. GET OFF

1. Go away from, leave (train, bus, aircraft, lift) (54%)

You need to take the bus and **get off** at the third stop.

2. (*Get off to a ... start*) Begin something in a certain way (12.5%)

The team has **got off** to a good start this season.

3. Manage to avoid serious trouble or consequences (esp. legal punishment) (12%)

It's not right that he could commit such a crime and **get off** so easily.

60. GO OFF

1. Go somewhere, esp. for a particular purpose (44.5%)

He decided to **go off** to college.

2. Emit a loud noise or sudden light as a signal or warning (22%)

Let's hope the alarm doesn't **go off**.

3. Explode (bomb) or be fired (gun) (14%)

They could hear bombs **going off** at a distance.

63. PULL UP

1. Stop or cause a vehicle to stop (47%)

A van **pulled up** in front of them.

2. Move STH/SB from a lower position to a higher one; lift from the ground (35.5%)

She **pulled up** her scarf to cover her cold face.

64. SET OUT

1. Start doing or working on STH, esp. with a particular goal in mind (42.5%)

I **set out** to discover the truth behind the story. (set out to do sth)

2. Start a journey (26.5%)

We **set out** for San Francisco on the following day.

3. Explain or present STH clearly, esp. officially and in writing (16%)

The official recommendations were **set out** in the document.

67. TURN OVER

1. Surrender possession or control to SB/STH (esp. in authority) (59.5%)

The policeman **turned over** the criminal to the jail guard.

2. Change position so that the other side is facing towards the outside or the top, or another direction (34%)

Put the chicken on the grill and **turn it over** a few times.

69. WIND UP

1. End up in a particular situation, condition or place, esp. an unpleasant one (87%)

They **wound up** having to pay off his debts.

70. TURN UP

1. Yield; be (or make STH be) found, discovered, or noticed (48%)

The search **turned up** solid evidence against him.

2. Increase the volume or level of STH (21.5%)

I really like this song; could you **turn up** the radio?

3. Arrive or make an appearance somewhere (14%)

He **turned up** to the meeting half an hour late.

85. THROW OUT

1. Refuse to accept or consider (esp. by people of authority) (29%)

The president attempted to have the death penalty **thrown out**.

2. Put STH in a rubbish bin (25.5%)

He **threw out** a dozen empty boxes that were piled up in the room.

3. Make SB leave a place, activity or organization, esp. forcibly and unexpectedly (21%)

Several students were caught cheating and subsequently **thrown out** of school.

101. SET OFF

1. Start on a trip or journey (30.5%)

We will finish packing and **set off** in the morning.

2. Cause a device to explode, or a signal to start, esp. by accident (27.5%)

He accidentally **set off** my car alarm.

3. Make STH happen or emerge, esp. without intending to (25.5%)

Employees started to protest, **setting off** a dispute over workers' rights.

104. MAKE OUT

1. See or hear with difficulty (60.5%)

I could barely **make out** his face in the dark.

2. Represent as being a particular way, esp. falsely (11%)

He was innocent, but the media **made him out** to be a criminal.

3. (*Make it out*) Deal with a difficult situation successfully (10.5%)

We were lucky to **make it out** of the war alive.

121. FILL OUT

1. Complete a form or official document (81.5 %)

We had to **fill out** a dozen forms in total.

123. RULE OUT

1. Exclude STH as a possibility, plausible cause or explanation (93.5%)

They **ruled out** the possibility of a mass murder.

132. COME OFF

1. Become detached or removed from a larger whole (34%)

The button is **coming off** my shirt.

2. Appear or seem to be a particular way (24.5%)

He was tired and not prepared, and so **came off** poorly in the interview.

3. Be finished with STH; have completed STH (17.5%)

The team just **came off** an incredibly successful season.

140. COME AROUND

1. Come in the area near STH/SB (45%)

He **came around** to my room and kissed me goodnight.

2. (+ *to*) Convert to an opinion or decision (22%)

I believe she will **come around** to our way of thinking eventually.

3. Happen again as a regular event, at its usual time (10%)

You'll have to wait until summer **comes around**.

141. FILL IN

1. (+ *for*) Do SB's work temporarily because they cannot or will not do it themselves (31%)

I had to **fill in** for her yesterday because she was ill.

2. (+ *on*) Give SB extra or missing information they want or need (29.5%)

She **filled in** Carol **in** on the plan.

3. Put material or substance into STH in order to make it full or complete (19%)

All the remaining holes had to be **filled in** with concrete.

142. GIVE OUT

1. Give to each of a large number of people (40%)

The committee **gave out** more than 100 copies in the last meeting.

2. Make known openly or publicly (33.5%)

You should be more careful and not **give out** your phone number so easily.

3. Collapse/fail; stop functioning properly (heart, knees) (11.5%)

At 95 years of age, her heart finally **gave out**.

146. PUT OFF

1. Delay until a later time or date (68%)

Now that I had more free time, there was no excuse to **put off** exercising any longer.

2. Cause to feel intense dislike (27.5%)

The bad smell **put** everyone **off**.

150. SET ABOUT

1. Begin a course of action, usually with a specific purpose/objective in mind (97%)

We **set about** laying the table before our guests arrived.

Appendix B: PVs Worksheets for the Traditional Group

Worksheet 1

Name: _____

Section: _____

Read the following definitions taken from Oxford Learner's Dictionaries, then answer the questions below.

put off *phrasal verb*

put somebody ↔ off

★ to cancel a meeting or an arrangement that you have made with somebody

- *It's too late to put them off now.*
- *She put him off with the excuse that she had too much work to do.*

put something ↔ off

★ to change something to a later time or date

SYNONYM **postpone**, **delay**

- *We've had to put off our wedding until September.*
- **put off doing something** *He keeps putting off going to the dentist.*

★ to make somebody dislike somebody/something or not trust them/it

- *She's very clever but her manner does tend to put people off.*
- *Don't be put off by how it looks—it tastes delicious.*

SEE ALSO **off-putting**

put out *phrasal verb*

put something ↔ out

★ to take something out of your house and leave it, for example for somebody to collect

- *(British English) to put the rubbish out*
- *(North American English) to put the garbage/trash out*

★ to place something where it will be noticed and used

- *Have you put out clean towels for the guests?*

★ to stop something from burning or shining

- *to put out a candle/cigarette/light*

★ to publish or broadcast something

- *Police have put out a description of the man they wish to question.*

put up *phrasal verb*

put something ↔ up

★  B1 to build something or place something somewhere

- *to put up a building/fence/memorial/tent*

SYNONYMS AT **build**

★  B1 to fix something in a place where it will be seen

SYNONYM **display**

- *to put up a notice*

★ to raise something or put it in a higher position

- *to put up a flag*
- *She's put her hair up.*

put up with somebody/something

★ to accept somebody/something that is annoying, unpleasant, etc. without complaining

SYNONYM **tolerate**

- *I don't know how she puts up with him.*
- *I'm not going to put up with their smoking any longer.*

1. Write down Arabic definitions for each meaning of ‘put off’, ‘put out’ and ‘put up’.
Compare your answers with your partner.

Put off	Put out	Put up

2. Can you figure out what does this sign \leftrightarrow means?
3. List the meanings of the phrasal verbs where it's possible to change the place of the object.

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Worksheet 2

Name: _____

Section: _____

Read the following definitions taken from Oxford Learner's Dictionaries, then answer the questions below

set off *phrasal verb*

set something ↔ off


- ★ to make a bomb, etc. explode
 - *A gang of boys were setting off fireworks in the street.*
- ★ to make an alarm start ringing
 - *Opening this door will set off the alarm.*
- ★ to start a process or series of events
 - *Panic on the stock market set off a wave of selling.*

set off

- ★ to begin a journey
 - *We set off for London just after ten.*

set out *phrasal verb*

set out

- ★  B2 to leave a place and begin a journey
 - *They set out on the last stage of their journey.*
- ★ to begin a job, task, etc. with a particular aim or goal
 - *She set out to break the world record.*
 - *They succeeded in what they set out to do.*

set something ↔ out

- ★ to arrange or display things
 - *Her work is always very well set out.*
- ★ to present ideas, facts, etc. in an organized way, in speech or writing
 - *He set out his objections to the plan.*
 - *She set out the reasons for her resignation in a long letter.*

set about *phrasal verb*

set about something | set about doing something

★ [no passive] to start doing something

- *She set about the business of cleaning the house.*
- *We need to set about finding a solution.*

- 1. Write down in Arabic the different meanings of ‘set off’, ‘set out’ and ‘set about’.
Compare your answers with your partner.**

set off	set out	set about

- 2. List the meanings of the phrasal verbs where it’s possible to change the place of the object \leftrightarrow .**

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take up *phrasal verb*

take up something



★ to fill or use an amount of space or time

- *The table takes up too much room.*
- *I won't take up any more of your time.*
- *Her time is fully taken up with writing.*

take something ↔ up

★ to learn or start to do something, especially for pleasure

- *They've taken up golf.*
- *She has taken up (= started to learn to play) the oboe.*

★ to start or begin something such as a job

- *He takes up his duties next week.*

take out *phrasal verb*

- ★ to go to a restaurant, theatre, club, etc. with somebody you have invited

take something ↔ out

- ★ to obtain an official document or service
- to *take out an insurance policy/a mortgage/a loan*
 - to *take out an ad in a newspaper*

1. Write down Arabic definitions for the different meanings of ‘take up’, and ‘take out’.

Take up	Take out

2. List the meanings of the phrasal verbs where it's possible to change the place of the object.

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Worksheet 3

Name: _____

Section: _____

Read the following definitions taken from the Oxford Learner's Dictionaries, then answer the questions below

turn around *phrasal verb*

turn around | turn somebody/something around

(also **turn round**, **turn somebody/something round** *especially in British English*)

★ to change position or direction so as to face the other way; to make somebody/something do this

- *Turn around and let me look at your back.*
- *I turned my chair around to face the fire.*

turn around | turn something ↔ around

(also **turn round**, **turn something ↔ round** *especially in British English*)

★ if a business, economy, etc. **turns around** or somebody **turns it around**, it starts being successful after it has been unsuccessful for a time


RELATED NOUN **turnaround**

turn up *phrasal verb*

turn up

- ★ to be found, especially by chance, after being lost
 - *Don't worry about the letter—I'm sure it'll turn up.*
- ★ (of a person) to arrive
 - *We arranged to meet at 7.30, but she never turned up.*

turn something ↔ up

- ★  to increase the sound, heat, etc. of a piece of equipment
 - *Could you turn the TV up?*
 - + **adj.** *The music was turned up loud.*

turn over *phrasal verb*

turn over

- ★ to change position so that the other side is facing towards the outside or the top
 - *If you turn over you might find it easier to get to sleep.*
 - *The car skidded and turned over.*
 - *(figurative) The smell made my stomach turn over (= made me feel sick).*

turn somebody ↔ over to somebody

- ★ to deliver somebody to the control or care of somebody else, especially somebody in authority
 - *Customs officials turned the man over to the police.*

1. Write down Arabic definitions for the different meanings of ‘turn around, ‘turn up’ and ‘turn over’.

Turn around	Turn up	Turn over

2. List the meanings of the phrasal verbs where it’s possible to change the place of the object ←→.

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fill in *phrasal verb*

fill in (for somebody)

- ★ to do somebody's job for a short time while they are not there

fill somebody in (on something)

- ★ to tell somebody about something that has happened

fill out *phrasal verb*

fill something ↔ out

- ★ *(especially North American English)*

*(British English usually **fill something in**)*

to complete a form, etc. by writing information on it

- *to fill out an application form*
- *To order, fill out the coupon on p54.*

1. Write down Arabic definitions for the different meanings of ‘turn around,’ ‘turn up’ and ‘turn over’.

Fill in	Fill out

2. List the meanings of the phrasal verbs where it’s possible to change the place of the object \leftrightarrow .

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Worksheet 4

Name: _____

Section: _____

Read the following definitions taken from Oxford Learner's Dictionaries, then answer the questions below.

come off *phrasal verb*

come off

★ **come off well, badly, etc.** (*especially British English, informal*) to be successful/not successful in a fight, contest, etc.

- *I thought they came off very well in the debate.*

come off (something)

★ to become separated from something

- *When I tried to lift the jug, the handle came off in my hand.*
- *A button had come off my coat.*

★ (*informal*) to take place; to happen

- *Did the trip to Rome ever come off?*

★ *(informal)* (of a plan, etc.) to be successful; to have the intended effect or result

- *They had wanted it to be a surprise but the plan didn't come off.*

go off *phrasal verb*

go off

★  B2 to leave a place, especially in order to do something

- *She went off to get a drink.*

★  B2 to be fired; to explode

- *The gun went off by accident.*
- *The bomb went off in a crowded street.*

★  B2 if an alarm, etc. **goes off**, it makes a sudden loud noise

★  B2 if a light, the electricity, etc. **goes off**, it stops working

- *Suddenly the lights went off.*
- *The heating goes off at night.*

get off *phrasal verb*

get off | get somebody off

★ to leave a place or start a journey; to help somebody do this

- *We got off straight after breakfast.*
- *He got the children off to school.*

get off (with something) | get somebody off (with something)

★ to receive no or almost no punishment; to help somebody do this

- *He was lucky to get off with a small fine.*
- *A good lawyer might be able to get you off.*

1. Write down Arabic definitions for each meaning of ‘come off’, ‘go off’ and ‘get off’.

Compare your answers with your partner.

Come off	Go off	Get off

2. List the meanings of the phrasal verbs where it’s possible to change the place of the object ↔.

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come around *phrasal verb*

come around

★ (of a date or a regular event) to happen again

- *My birthday seems to come around more quickly every year.*

come around (to...)

(also **come round (to...)** especially in British English)

★ to come to a place, especially somebody's house, to visit for a short time

- *Do come around and see us some time.*

come around (to something)

(also **come round (to something)** especially in British English)

★ to change your mood or your opinion

- *He'll never come around to my way of thinking.*

look around phrasal verb

look around (something)

(also **look round (something)** especially in British English)

★ to visit a place or building, walking around it to see what is there

- *Let's look around the town this afternoon.*

1. Write down Arabic definitions for the different meanings of ‘come around’, and ‘look around’.

Come around	Look around

2. List the meanings of the phrasal verbs where it's possible to change the place of the object ←→.

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Worksheet 5**Name:** _____**Section:** _____

Read the following definitions taken from Oxford Learner's Dictionaries, then answer the questions below.

throw out *phrasal verb*

throw somebody ↔ out (of...)

★ to force somebody to leave a place

- *You'll be thrown out if you don't pay the rent.*

★ to decide not to accept a proposal, an idea, etc.

★ (*also* **throw something ↔ away**) to get rid of something that you no longer want

rule out *phrasal verb*

rule somebody/something ↔ out

★ **rule somebody/something out (as something)** to state that something is not possible or that somebody/something is not suitable

SYNONYM **exclude**

- *Police have not ruled out the possibility that the man was murdered.*
- *The proposed solution was ruled out as too expensive.*
- *This theory cannot be ruled out altogether.*

give out *phrasal verb*

give out

★ to stop working

- *One of the plane's engines gave out in mid-air.*
- *Her legs gave out and she collapsed.*

give something ↔ out

★ to give something to a lot of people

- *The teacher gave out the exam papers.*

make out *phrasal verb*

make out

★ (*informal*) used to ask if somebody managed well or was successful in a particular situation

- *How did he make out while his wife was away?*

make somebody/something ↔ out

★ to manage to see somebody/something or read or hear something

SYNONYM **distinguish**

- *I could just make out a figure in the darkness.*
- **make out what, who, etc...** *I could hear voices but I couldn't make out what they were saying.*

SYNONYMS AT **identify**

★ to say that something is true when it may not be

SYNONYM **claim**

- *She's not as rich as people make out.*
- **make out that...** *He made out that he had been robbed.*
- **make somebody/something out to be/do something** *She makes herself out to be smarter than she really is.*

1. Write down Arabic definitions for each meaning of ' throw out', 'rule out', 'give out' and 'make out'.

Compare your answers with your partner.

throw out	rule out	give out	make out

2. List the meanings of the phrasal verbs where it's possible to change the place of the object ↔.

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Worksheet 6

Name: _____

Section: _____

Read the following definitions taken from Oxford Learner's Dictionaries, then answer the questions below.

bring up *phrasal verb*

bring somebody ↔ up

★  B2 [often passive] to care for a child, teaching him or her how to behave, etc.

SYNONYM **raise**

- *She brought up five children.*
- *He was brought up by his aunt.*
- *a well/badly brought up child*
- **bring somebody up to do something** *They were brought up to (= taught as children to) respect authority.*
- **bring somebody up (as) something** *I was brought up (as) a Catholic.*

RELATED NOUN **upbringing**

bring something ↔ up

★ to mention a subject or start to talk about it

SYNONYM **raise**

- *Bring it up at the meeting.*

wind up *phrasal verb*

wind up

- ★ *(informal)* (of a person) to find yourself in a particular place or situation
 - *I always said he would wind up in prison.*
 - **wind up doing something** *We eventually wound up staying in a little hotel a few miles from town.*
 - + **adj.** *If you take risks like that you'll wind up dead.*

catch up *phrasal verb*

catch up (with somebody)

(British English also catch somebody up)

- ★ to reach somebody who is ahead by going faster
 - *Go on ahead. I'll catch up with you.*
 - *I'll catch you up.*
- ★ to reach the same level or standard as somebody who was better or more advanced
 - *After missing a term through illness, he had to work hard to catch up with the others.*

be/get caught up in something

- ★ to become involved in something, especially when you do not want to be
 - *Innocent passers-by got caught up in the riots.*

hold up *phrasal verb*

hold up

- ★ to remain strong and working effectively
 - *She's holding up well under the pressure.*

hold somebody/something ↔ up [often passive]

- ★ to support somebody/something and stop them from falling
- ★ to delay or block the movement or progress of somebody/something
 - *An accident is holding up traffic.*
 - *The project was held up by various legal problems.*

pull up *phrasal verb*

pull up

- ★ (of a vehicle or its driver) to stop
 - *He pulled up at the traffic lights.*

1. Write down Arabic definitions for each meaning of ‘bring up, ‘wind up’ ‘catch up’ ‘pull up’ and ‘hold up’.

Compare your answers with your partner.

Bring up	Wind up	Catch up	Hold up	Pull up

2. List the meanings of the phrasal verbs where it’s possible to change the place of the object ←→.

.....

.....

.....

.....

Appendix C: PVs Worksheets for the Explicit DDL Group

Worksheet 1

Name: _____

Section: _____

- I. Read the following sentences taken from the English Web corpus 2020 (enTenTen20), then answer the questions below.

	left	KWIC	right
1	I graduated in 2015, since then I've got a lot of experience and was always	putting off	completing a master's due to the funding
2	A lot of people want a high-quality machine, but they're	put off	by the prices. We at AE Sewing Machines have a solution for this problem.
3	The bad weather	put everyone off	this week – there were no volunteers in the garden!
4	I'm a freshman in a most difficult school in town and I can't	put studying off	, not even for a week. Can you give me a few tips on
5	About 11.30pm on Thursday. Firefighters	put out	the fire about two and a half hours later, with the blaze damaging the garage
6	Neighbors reported fire department had	put fire out	at about 3 a.m. City investigators said there was evidence of
7	I had just about given up on having the article published. As a final option, I would	put the article out	on the web myself, through email groups and
8	This is an excellent platform to	put out	contests, write detailed articles and comments that connect you to your followers. Also, Facebook is a great place to
9	If you want to sit at the pool, wake up early. People	put out	towels everywhere and never show up.
10	How to attract birds to your garden naturally instead of	putting food out	for birds in your gardens? plant indigenous plants that produce flowers, fruits

11	You don't have a right to	put posters up	anywhere you like, and there is a risk they will get pulled down. We have permission to put
12	I was not one of those kids who	put up	pictures of rock stars, actors, actresses and models against their bedroom walls.
13	In business we come across <u>bullies</u> but we really do not have to	put up	with bad behaviour. I remember when I was an employee telephoning a client, someone
14	I <u>actually had</u> more laboratory space. Then, after a while, they	put up	a new building on campus called the Manufacturing Research Center. I got a really nice lab
15	Farmers and ranchers	put fences up	primarily to keep their animals where they want them. The fence defines the boundary of where it is

1. Write down definitions for the different meanings of ‘put out’, ‘put off’ and ‘put up’

Put off	Put out	Put up

2. Do ‘put off’, ‘put out’ and ‘put up’ in the above sentences have objects? If yes, underline them.

3. Can we change the positions of these objects to produce grammatical sentences with the same meanings?

Compare your answers with your partner.

Worksheet 2

Name: _____

Section: _____

- I. 1. In the following sentences taken from the English Web corpus 2020 (enTenTen20), the keywords (KWIC) 'set out', 'set about', and 'set off' have been removed. Can you put them back to the right contexts?

	left	KWIC	right
1	I see you are editing the Biography section. I am sure you have spoken to Paul before	_____	to do this, as he mostly wrote the current draft.
2	Thank you so much for the information you have sent me. I wasn't expecting it so quickly. I will	_____	printing it out and reading
3	After leaving Alexandria, we	_____	for Dubai, which is over 9 days of sea travel away. Right <u>now</u> we are in the middle of the Red Sea
4	A bedwetting alarm has a sensor attached to an alarm. If the sensor gets wet, it	___ the alarm ___	and wakes your child up. You can also get vibrating alarms for children who
5	She learned very fast once you firmly	___ the rules ___	for her. When I brought her <u>home</u> I immediately took her
6	Plan your arrival and departure routes before	_____	, because buses and underground trains can get very crowded on the day of the carnival.
7	This website uses cookies to improve your experience. By accepting you agree to the terms and conditions	_____	in our privacy statement.
8	Earthquake hit Japan	_____	a small tsunami.
9	A woman takes her son to a toyshop where he starts playing with a girl. The girl accidentally	_____	an alarm and runs out into the road. The boy's mother tries to save <u>her</u> but they are both

2. What part of speech do we have after the KWIC of sentences 1, 2 and 3?
3. In sentences 4 and 5, can we change the position of 'the alarm' and 'the rule' to produce grammatical sentences with the same meanings?
4. Do the KWIC of sentences 6,7,8 and 9 have objects, if yes underline them. Can we change the position of these objects to produce grammatical sentences with the same meanings?

Compare your answers with your partner.

- II. 1. In the following sentences taken from the English Web corpus 2020 (enTenTen20), the context after the KWIC have come out in the wrong order. Can you put them back in right order so that the left part matches the right part? Write a number in the brackets () at the end of each context to show which ending goes with each beginning.

For more clarification, look at the following example:

No.	left	KWIC	right	
1	Is there any way I can see which files are	taking up	my books arranging them around me	(2)
2	I opened my backpack and	take out	all this space? If it's necessary to allocate more space to my	(1)

No.	left	KWIC	right	
1	now I won't be able to go home to China – I'll	take up	a loan to purchase a used vehicle	()
2	<u>Sylenne</u> is also incredibly good at acting, having studied drama and	take acting up	to buy food for your <u>children</u> , and paying up front for a holiday.	()
3	Depending on the delivery mode, the course can	take up	for dinner? or bought them a gift	()
4	Have you ever	taken your friends out	Arabic. My goal is to master 10 languages, in addition to Chinese and English	()
5	I have a client that has recently incorporated. He	took out	to three years to complete. During this period,	()
6	There's a world of difference from	taking a loan out	as a hobby before becoming	()

2. Do 'take up' and 'take out' in the above sentences have objects? if yes, underline them.

3. Can we change the position of these objects to produce the same meaningful and grammatical sentences?

Worksheet 3

Name: _____

Section: _____

- I. Read the following sentences taken from the English Web corpus 2020 (enTenTen20), then answer the questions below.**

No.	Left	KWIC	Right
1	Shortly after this reduction, the market	turned around	and there were 25 basis point increases
2	He was part of the management team that successfully	turned the business around	, and managed the sale of the company
3	I was walking to my car, she called out to me. When I	turned around	, she said,
4	If you get sleepy while driving, you can help stay awake by	turning up	the radio or opening the window
5	On the way home, I rolled down the car windows,	turned the radio up	loud, and sang along with the music
6	Thank you to everyone who	turned up	to our open day last week.
7	A google search will	turn up	many sets of solutions to problems
8	On Sundays, he would simply	turn over	the managing job to someone else
9	After 27 years running the company, he	turned the management over	to other family members and moved to Florida
10	Add the chicken, and fry until lightly browned on one side. While it is frying, chop the onions <u>fairly finely</u> .	turn over	the <u>chicken</u> , and add the onions to the pan. Fry gently for about
11	I read the first page, and didn't	turn the book over	to read the back cover until

1. Write down definitions for the different meanings of ‘turn around’, ‘turn up’ and ‘turn over’

turn around	turn up	turn over

2. Do ‘turn around’, ‘turn up’ and ‘turn over’ in the above sentences have objects? If yes, underline them.
3. Can we change the position of these objects to produce grammatical sentences with the same meanings?

- II. 1. In the following sentences taken from the English Web corpus 2020 (enTenTen20), the context after the KWIC have come out in the wrong order. Can you put them back in right order so that the left part matches the right part? Write a number in the brackets () at the end of each context to show which ending goes with each beginning.

No.	Left	KWIC	Right
1	Do not wait anymore and contact us today to get that assistance you are searching for. All it requires is	filling this form out	on the history of the house. ()
2	If you have a question or require further information, please	fill out	for you and then email us to let us know ()
3	What should I do if I <u>have to</u> cancel my talk? First, try to find a colleague who can	fill in	and our representative will contact you ()
4	The next-door <u>neighbour</u> was outside and	filled me in	the form below and we will be in touch shortly ()

2. Do 'fill in' and 'fill out' in the above sentences have objects? if yes, underline them.

3. Can we change the position of these objects to produce grammatical sentences with the same meanings?

Worksheet 4

Name: _____

Section: _____

- I. Read the following sentences taken from the English Web corpus 2020 (enTenTen20), then answer the questions below.

	left	KWIC	right
1	He clearly feels that he	came off	well in their last meeting and wants to try it again.
2	I should leave everything to you, and it will	come off	just as you planned.
3	The wind was blowing and then all that cotton with the seeds in it was	coming off	the tree, and the cotton was shimmering in the sun as it went by.
4	I think she was tired and meandered in her response and	came off	badly. I am not saying she is stupid; I am saying she is <u>careless</u> , she should learn to
5	The first day here has been largely unsuccessful, not	getting off	to a great start. I got here <u>pretty late</u> in the afternoon because of
6	Who is she and can he	get her off	this case?
7	I am surprised by the number of people	getting off	the train with me. There are a few tourists, who head towards
8	It was cold outside the sheets this morning when the alarm	went off	at 6:00 am. I always set my alarm to ring one and a half hours before
9	After breakfast, we all got dressed and	went off	to the shopping mall.
10	They really know how to throw a party too. The fireworks were	going off	throughout most of the night.

1. Write down definitions for the different meanings of ‘come off’, ‘get off’ and ‘go off’.

come off	get off	go off

- 2. Do ‘come off’, ‘get off’ and ‘go off’ in the above sentences have objects? If yes, underline them.**
- 3. Can we change the positions of these objects to produce grammatical sentences with the same meanings?**

II. 1. In the following sentences taken from the English Web corpus 2020 (enTenTen20), the context after the KWIC have come out in the wrong order. Can you put them back in right order so that the left part matches the right part? Write a number in the green brackets () at the end of each context to show which ending goes with each beginning.

No.	left	KWIC	right	
1	We were thinking about buying a flat for some time now. We were	looking around	to our way of thinking because we're sure our way is the only right way	()
2	I have been out in the garden	looking around	I relax by shopping	()
3	It is amazing how far technology has advanced. When the weekend	comes around	to see what everything looks like.	()
4	The waitress	came around	and searching for a good place.	()
5	We want the other person to	come around	and wrote down their order and brought them their drinks	()

2. Do 'look around in' and 'come around' in the above sentences have objects? if yes, underline them.

3. Can we change the positions of these objects to produce grammatical sentences with the same meanings?

Compare your answers with your partner.

Worksheet 5

Name: _____

Section: _____

- I. Read the following sentences taken from the English Web corpus 2020 (enTenTen20), then answer the questions below.

	left	KWIC	right
1	If you bought any expensive or large items, don't	throw the boxes out	until the day trash is scheduled to be removed.
2	My two good friends who got COVID have gotten out of quarantine. Apparently one of them went to	throw out	the garbage and wasn't wearing a mask,
3	Players who break these rules will be	thrown out	of the game.
4	The salary given to the employee is only 10000 per month and it is a trainee position. They can	throw the employee out	of the company at any time
5	He remained in prison the entire time. The first judge	threw the case out	because it was too vague
6	At trial the judge	threw out	the blood test because it was obtained without a warrant.
7	They must assume the quiz will be "open book" and also cannot	rule out	the possibility that students might "share" information
8	Detectives have not	ruled her out	as a suspect in her son's death
9	She looked up at him, trying to	make his face out	of the darkness.
10	He walks slowly closer until I can finally	make out	his features. He looks familiar
11	I don't remember how the days passed, but I remember spending two weeks at the hospital. She	made it out	alive and with a better understanding of

12	She is a very nice, kind, loving woman. He	made her out	to be a horrible mother
13	Most importantly, do not	give out	your personal information over the phone, no matter who the caller says they represent.
14	My Advice is: <u>Dont!</u>	give your personal information out	to any person or other entity that you don't trust
15	He took a few steps closer, before his knees	gave out	and he fell to the floor.

1. Write down definitions for the different meanings of ' throw out', 'rule out', 'make out' and 'give out'

Throw out	Rule out	Make out	Give out

2. Do ' throw out', 'rule out', 'make out' and 'give out' in the above sentences have objects? If yes, underline them.

3. Can we change the positions of these objects to produce grammatical sentences with the same meanings?

Worksheet 6

Name: _____

Section: _____

1. 1. In the above sentences taken from English Web corpus 2020 (enTenTen20), the keywords (KWIC) '*bring up*', '*wind up*', '*catch up*', '*pull up*' and '*hold up*' have been removed. Can you put them back to the right contexts?

	left	KWIC	right
1	She explained that she has	_____	more than 35 children, only two of whom are her own.
2	A member of the audience	_____	a good point, which is that using <u>these kind of tools</u> is at least
3	After my support group last Thursday, it just got me thinking. Someone	___ a question ___	and I guess I never thought about it.
4	We moved here because it's the best place to	___ children ___	they can walk to the shops on their own, to school
5	I lost my job, my dorm room and thus a place to live and	_____	homeless on the streets of New York. Watching people
6	A few months after the accident my legs decided to quit working and I	_____	in a wheelchair for 6 months
7	They were	_____	by weather for over 3 hours due to a very strong headwind
8	I have had these boots for 5-10 years and they are	_____	well. I haven't needed
9	Apologies for not writing to you earlier as I have been	_____	in office work due to the short holiday

10	Now that we have reconnected, I have	___ her ___	with everything that happened to me in the past years
11	I fell behind and it became very hard to	_____	on what I had missed while being ill
12	I just saw a kid this morning, a little kid who was no more than three feet high, running to	_____	with his mother. He approaches this big plastic garbage
13	A car with two middle aged men	_____	and parked beside mine.
14	He went over to the sink and ran the water,	_____	his sleeves and obsessively washing his hands and wrists.
15	She quickly sat up on the couch and	___ the blanket ___	from the floor, draping it around her body.

2. Do the above KWIC have objects? If yes, underline them.

3. Can we change the position of these objects to produce the same meaningful and grammatical sentences?

Compare your answers with your partner.

Appendix D: PVs Worksheets for the Implicit DDL Group

Worksheet 1

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from the English Web corpus 2020 (enTenTen20). Complete each one as if you are the original speaker of the sentence.

The first one is done for you.

1	I graduated in 2015, since then I've got a lot of experience and was always putting off completing a master's due to the funding and __ other roles popping up at the time of enrollment which caused me to drop out and start working on this shop _____
2	A lot of people want a high-quality machine, but they're put off by the prices. We at AE Sewing Machines have a solution for this problem. _____
3	The bad weather put everyone off this week – there were no volunteers in the garden! _____
4	I'm a freshman in a most difficult school in town and I can't put studying off, not even for a week. Can you give me a few tips on _____
5	About 11.30pm on Thursday. Firefighters put out the fire about two and a half hours later, with the blaze damaging the garage, and destroying the furniture and _____
6	Neighbors reported fire department had put fire out at about 3 a.m. City investigators said there was evidence of _____
7	I had just about given up on having the article published. As a final option, I would put the article out on the web myself, through email groups and _____

8	This is an excellent platform to put out contests, write detailed articles and comments that connect you to your followers. Also, Facebook is a great place to _____
9	If you want to sit at the pool, wake up early. People put out towels everywhere and never show up. _____
10	How to attract birds to your garden naturally instead of putting food out for birds in your gardens? plant indigenous plants that produce flowers, fruits _____
11	You don't have a right to put posters up anywhere you like, and there is a risk they will get pulled down. We have permission to put _____
12	I was not one of those kids who put up pictures of rock stars, actors, actresses and models against their bedroom walls. _____
13	In business we come across <u>bullies</u> but we really do not have to put up with bad <u>behaviour</u> . I remember when I was an employee telephoning a client, someone _____
14	I <u>actually had</u> more laboratory space. Then, after a while, they put up a new building on campus called the Manufacturing Research Center. I got a <u>really nice</u> lab at that particular location, with _____
15	Farmers and ranchers put fences up primarily to keep their animals where they want them. The fence defines the boundary of where it is OK for the animals _____

Worksheet 2

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from English Web corpus 2020 (enTenTen20). Then, complete each one as if you are the original speaker of the sentence.

Block A:

1	I see you are editing the Biography section. I am sure you have spoken to Paul before setting <u>out to</u> do this, as he mostly wrote the current draft. _____
2	Thank you so much for the information you have sent me. I wasn't expecting it so quickly. I will set about printing it out and reading _____
3	After leaving Alexandria, we set out for Dubai, which is over 9 days of sea travel away. Right <u>now</u> we are in the middle of the Red Sea _____
4	A bedwetting alarm has a sensor attached to an alarm. If the sensor gets wet, it sets the alarm off and wakes your child up. You can also get vibrating alarms for children who _____
5	She learned very fast once you firmly set the rules out for her. When I brought her <u>home</u> I immediately took her _____
6	Plan your arrival and departure routes before setting off, because buses and underground trains can get very crowded on the day of the carnival. _____
7	This website uses cookies to improve your experience. By accepting you agree to the terms and conditions set out in our privacy statement. _____
8	Earthquake hit Japan setting off a small tsunami. _____
9	A woman takes her son to a toyshop where he starts playing with a girl. The girl accidentally sets off an alarm and runs out into the road. The boy's mother tries to save <u>her</u> but they are both _____

Block B:

1	now I won't be able to go home to China -- I'll take up Arabic. My goal is to master 10 languages, in addition to Chinese and English _____
2	<u>Sylenne</u> is also incredibly good at acting, having studied drama and take acting up as a hobby before becoming a _____
3	Depending on the delivery mode, the course can take up to three years to complete. During this period, _____
4	Have you ever taken your friends out for dinner? or bought them a gift _____
5	I have a client that has recently incorporated. He took out a loan to purchase a used vehicle _____
6	There's a world of difference from taking a loan out to buy food for your <u>children, and</u> paying up front for a holiday. _____

Worksheet 3

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from English Web corpus 2020 (enTenTen20). Then, complete each one as if you are the original speaker of the sentence.

Block A:

1	Shortly after this reduction, the market turned around and there were 25 basis point increases _____
2	He was part of the management team that successfully turned the business around, and managed the sale of the company _____
3	I was walking to my car, she called out to me. When I turned around, she said, _____
4	If you get sleepy while driving, you can help stay awake by turning up the radio or opening the window _____
5	On the way home, I rolled down the car windows, turned the radio up loud, and sang along with the music _____
6	Thank you to everyone who turned up to our open day last week. _____
7	A google search will turn up many sets of solutions to problems _____
8	On Sundays, he would simply turn over the managing job to someone else _____

9	After 27 years running the company, he turned the management over to other family members and moved to Florida _____
10	Add the chicken, and fry until lightly browned on one side. While it is frying, chop the onions fairly finely turn over the chicken, and add the onions to the pan. Fry gently for about _____
11	I read the first page, and didn't turn the book over to read the back cover until _____

Block B:

1	Do not wait anymore and contact us today to get that assistance you are searching for. All it requires is filling this form out and our representative will contact you _____
2	If you have a question or require further information, please fill out the form below and we will be in touch shortly. _____
3	What should I do if I have to cancel my talk? First, try to find a colleague who can fill in for you and then email us to let us know _____
4	The next-door neighbour was outside and filled me in on the history of the house. _____

Worksheet 4

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from English Web corpus 2020 (enTenTen20). Then, complete each one as if you are the original speaker of the sentence.

Block A:

1	He clearly feels that he came off well in their last meeting and wants to try it again. _____
2	I should leave everything to <u>you</u> and it will come off just as you planned. _____
3	The wind was blowing and then all that cotton with the seeds in it was coming <u>off the</u> tree, and the cotton was shimmering in the sun as it went by.
4	I think she was tired and meandered in her response and came <u>off badly</u> . I am not saying she is <u>stupid</u> , I am saying she is careless, she should learn to _____
5	The first day here has been largely unsuccessful, not getting off to a great start. I got here <u>pretty late</u> in the afternoon because of _____
6	Who is she and can he get her off this case? _____
7	I am surprised by the number of people getting off the train with me. There are a few tourists, who head <u>towards</u> _____
8	It was cold outside the sheets this morning when the alarm went off at 6:00 am. I always set my alarm to ring one and a half hours before _____
9	After breakfast, we all got dressed and went off to the shopping mall. _____
10	They really know how to throw a party too. The fireworks were going off throughout most of the night. _____

Block B:

1	We were thinking about buying a flat for some time now. We were looking around and searching for a good place. _____
2	I have been out in the garden looking around to see what everything looks like. _____
3	It is amazing how far technology has advanced. When the weekend comes <u>around</u> I might be able to _____
4	The waitress came around and wrote down their order and brought them their drinks _____
5	We want the other person to come around to our way of thinking because we're sure our way is the only right way _____

Worksheet 5

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from English Web corpus 2020 (enTenTen20). Then, complete each one as if you are the original speaker of the sentence.

1	If you bought any expensive or large items, don't throw the boxes out until the day trash is scheduled to be removed. _____
2	My two good friends who got COVID have gotten out of quarantine. Apparently one of them went to throw out the garbage and wasn't wearing a mask, _____
3	Players who break these rules will be thrown out of the game. _____
4	The salary given to the employee is only 10000 per month and it is a trainee position. They can throw the employee out of the company at any time _____
5	He remained in prison the entire time. The first judge threw the case out because it was too vague _____
6	At trial the judge threw out the blood test because it was obtained without a warrant. _____
7	They must assume the quiz will be "open book" and also cannot rule out the possibility that students might "share" information _____
8	Detectives have not ruled her out as a suspect in her son's death _____
9	She looked up at him, trying to make his face out of the darkness. _____
10	I don't remember how the days passed, but I remember spending two weeks at the hospital. She made it out alive and with a better understanding of _____
11	She is a very nice, kind, loving woman. He made her out to be a horrible mother _____

12	He walks slowly closer until I can finally make out his features. He looks familiar _____
13	Most importantly, do not give out your personal information over the phone, no matter who the caller says they represent. _____
14	My Advice is: <u>Dont!</u> give your personal information out to any person or other entity that you don't trust _____
15	He took a few steps closer, before his knees gave out and he fell to the floor. _____

Worksheet 6

Name: _____

Section: _____

Speaking activity: Read the following sentences taken from English Web corpus 2020 (enTenTen20). Then, complete each one as if you are the original speaker of the sentence.

1	She explained that she has brought up more than 35 children, only two of whom are her own. _____
2	A member of the audience brought up a good point, which is that using <u>these kind of tools</u> is at least _____
3	After my support group last Thursday, it just got me thinking. Someone brought a question up and I guess I never thought about it. _____
4	We moved here because it's the best place to bring children up. They can walk to the shops on their own, to school _____
5	I lost my job, my dorm room and thus a place to live and wound up homeless on the streets of New York. Watching people _____
6	A few months after the accident my legs decided to quit working and I wound up in a wheelchair for 6 months _____
7	They were held up by weather for over 3 hours due to a very strong headwind _____
8	I have had these boots for 5-10 years and they are holding up well. I haven't needed _____
9	Apologies for not writing to you earlier as I have been caught up in office work due to the short holiday _____
10	Now that we have reconnected, I have caught her up with everything that happened to me in the past years _____
11	I fell behind and it became very hard to catch up on what I had missed while being ill _____

12	I just saw a kid this morning, a little kid who was no more than three feet high, running to catch up with his mother. He approaches this big plastic garbage
13	A car with two middle aged men pulled up and parked beside mine. _____
14	He went over to the sink and ran the water, pulling up his sleeves and obsessively washing his hands and wrists. _____
15	She quickly sat up on the couch and pulled the blanket up from the floor, draping it around her body. _____

Appendix E: Background Information Questionnaire

Qualtrics link:

https://bham.qualtrics.com/jfe/form/SV_4JDUDHpZBldcLRA

Barcode:



Appendix F: Classroom Evaluation Questionnaire

This questionnaire is for EFL instructors to evaluate EFL teachers and students during EFL lessons.

Before you start the questionnaire, would you please indicate your years of experience as an EFL Teacher? _____

Part A: Evaluating the teacher

To what extent:

1- The teacher is prepared for the class.

1	2	3	4	5
Not prepared				well-prepared

2- The teacher is confident about the material she is teaching.

1	2	3	4	5
Unconfident				very confident

3- The teacher's instructions are clear and specific.

1	2	3	4	5	
very clear					Unclear

4- The teacher tries to involve all the students in the activity.

1	2	3	4	5
Not at all				clearly yes

5- The teacher is helpful in addressing students' questions.

1	2	3	4	5	Unhelpful
very helpful					

6- The teacher is enthusiastic about teaching.

1	2	3	4	5
Not enthusiastic				extremely enthusiastic

7- The teacher is engaged in teaching.

1	2	3	4	5
Not engaged				extremely engaged

8- The teacher seems to be bored.

1	2	3	4	5
Not bored				extremely bored

9- The teacher seems anxious about teaching.

1**2****3****4****5****Not anxious at all****extremely anxious**

10- The teacher creates a positive atmosphere in the classroom.

1**2****3****4****5****Negative atmosphere****positive atmosphere**

Part B: Evaluating the students

To what extent:

1- The students are enthusiastic while doing the activities.

1

2

3

4

5

Not enthusiastic

extremely enthusiastic

2- The students are engaged while doing the activities.

1

2

3

4

5

Not engaged

extremely engaged

3- The students are motivated to do the activities.

1

2

3

4

5

Not motivated

extremely motivated

4- The students seem to be clear about what they have to do with the activities.

1

2

3

4

5

Not clear

very clear

5- The students seem bored.

1	2	3	4	5
Not bored			extremely bored	

6- The students seem anxious.

1	2	3	4	5
Not anxious at all			extremely anxious	

7- The activities create a positive atmosphere for the students.

1	2	3	4	5
Negative atmosphere			positive atmosphere	

Write comments below if there are any

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Thank you!

Appendix G: Testing and Retesting Instrument

Pre and post-test used for data collection:

Test link:

https://bham.qualtrics.com/jfe/form/SV_b8SsVHrwnEP18Kq

Test barcode:



Appendix H: Ethical Approval

Application for Ethical Review ERN_21-0983



Samantha Waldron (Research Support Services)

To: Dagmar Divjak (Modern Languages)

Cc: Paul Thompson (Department of English Language and Applied Linguistics); Sadeem Ibn Alameer (PhD Dept Eng Lang + App Lin FT)

Fri 7/23/2021 1:31 PM

Dear Professor Divjak

Re: "The Effect of Corpus Activities on EFL Learners' Acquisition of Phrasal Verbs"
Application for Ethical Review ERN_21-0983

Thank you for your application for ethical review for the above project, which was reviewed by the Humanities and Social Sciences Ethical Review Committee.

On behalf of the Committee, I confirm that this study now has full ethical approval.

I would like to remind you that any substantive changes to the nature of the study as described in the Application for Ethical Review, and/or any adverse events occurring during the study should be promptly brought to the Committee's attention by the Principal Investigator and may necessitate further ethical review.

Please also ensure that the relevant requirements within the University's Code of Practice for Research and the information and guidance provided on the University's ethics webpages (available at <https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Links-and-Resources.aspx>) are adhered to and referred to in any future applications for ethical review. It is now a requirement on the revised application form (<https://intranet.birmingham.ac.uk/finance/accounting/Research-Support-Group/Research-Ethics/Ethical-Review-Forms.aspx>) to confirm that this guidance has been consulted and is understood, and that it has been taken into account when completing your application for ethical review.

Please be aware that whilst Health and Safety (H&S) issues may be considered during the ethical review process, you are still required to follow the University's guidance on H&S and to ensure that H&S risk assessments have been carried out as appropriate. For further information about this, please contact your School H&S representative or the University's H&S Unit at healthandsafety@contacts.bham.ac.uk.

Kind regards,

Ms Sam Waldron (she/her)
 Research Ethics Officer
 Research Support Group

Appendix I: Information Sheet and Consent Form

Qualtrics link:

https://bham.qualtrics.com/jfe/form/SV_6flr2YBta7sVwYS

Barcode:

