



**The Effects of Data-Driven Learning on Intermediate Language Learners' Use of  
Metadiscourse Markers in Argumentative Essay Writing (A Quasi-Experimental Study)**

Thesis Submitted in accordance with the requirements of the University of Liverpool for the  
degree of Doctor in Philosophy by

**Reem Saleh Alrashidi**

April 2022



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<b>STUDENT NUMBER</b>	<b>200626776</b>
<b>SCHOOL/INSTITUTE</b>	<b>School of the Arts/ Department of English</b>
<b>TITLE OF WORK</b>	<b>The Effects of Data-Driven Learning on Intermediate Language Learners' Use of Metadiscourse Markers in Argumentative Essay Writing (A Quasi- Experimental Study)</b>

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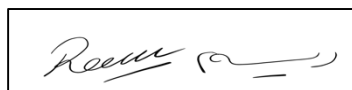
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"وَقُلْ رَبِّ زِدْنِي عِلْمًا"

سورة طه، آية رقم 114.

‘And say, “My Lord, increase me in knowledge”’

Chapter of Taha, Verse 114.

## **Abstract**

Recent years have witnessed increased research employing corpus applications in language pedagogy. Two main kinds of corpus applications exist in language pedagogy: indirect and direct. While the indirect use of corpus applications refers to corpus-based studies informing the syllabus design and material, the direct use of corpus applications, called data-driven learning (DDL), enables language teachers and learners to work with corpora in the classroom (Römer, 2011). Although research on DDL frequently investigates its effects on the use of metadiscourse markers by advanced language learners, scarce experimental research has examined its effects on the use of metadiscourse markers by intermediate language learners. Thus, this study investigates the influence of DDL intervention on the frequency of using metadiscourse markers by intermediate language learners. The study was conducted on 49 intermediate language learners with different L1 background studies in language centres worldwide. The quasi-experimental research approach relies on an experimental group exposed to DDL intervention and a control group as a basis for the experiment. The quantitative data are from three sources: (1) the participants' writing test scores over three periods (pretest, immediate posttest, and delayed posttest), representing their performance; (2) the participants' frequency of using metadiscourse markers over these three periods; and (3) a questionnaire completed by the experimental group. Qualitative data were collected by interviewing the experimental group to obtain their feedback after their DDL experience. The participants' test scores for the three tests were analysed using a two-way repeated-measure analysis of variance test. Their frequency of using metadiscourse markers over the three tests was analysed using corpus linguistics tools and manual analysis. The evaluation of DDL by the experimental group was analysed with NVivo software for the interviews and with percentages for the questionnaire. The results indicate that DDL positively

affects the written performance of the experimental group and their frequency of using metadiscourse markers while writing. Statistically significant differences indicate that the experimental group achieved higher test scores than the control group. In addition, the participants demonstrated variety in employing metadiscourse markers in their written essays. The feedback from the experimental group regarding DDL indicated satisfaction with this experience. These results contributed to the direct corpus application in language pedagogy.

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**List of Commonly Used Corpora and their Abbreviations in the study**

BAWE	British Academic Written English.
COCA	Corpus of Contemporary American English.
ICLE	International Corpus of Learner English.
LOCNESS	Louvain Corpus of Native English Essays.
MICASE	Michigan Corpus of Academic Spoken English.
MICUSP	Michigan Corpus of Upper-Level Students Papers.

## Chapter 1 Introduction

### 1.0 Overview

This thesis reports on research into the effects of the data-driven learning (DDL) approach on developing the written performance of intermediate-level language learners. The main aim of the research is to compare the writing production of language learners exposed to DDL intervention (the experimental group) with learners not exposed to DDL (the control group) regarding using metadiscourse markers in their writing. The intervention, which included the *International Corpus of Learner English (ICLE)* and a local-learner corpus, relied on drawing the learners' conscious attention to the target forms of metadiscourse markers using corpus tools that aid in the implementation of the DDL approach (based on Schmidt's [1990, 1995, 2001] noticing hypothesis and Swain's [1985, 2005] output hypothesis).

This study conducted an experimental research design that worked with two groups of English language learners to examine the influence of DDL intervention on the use of metadiscourse markers by language learners. These two groups of language learners are divided into experimental and control groups. They had the same instruction except for the experimental group, which was exposed to the DDL intervention. The experimental research procedures took seven weeks and involved three time periods: the pretest, immediate posttest after DDL intervention, and delayed posttest. The effects of DDL intervention were measured by examining the participants' written performance (i.e. test scores) and their frequency of using metadiscourse markers in their writing over the three periods. In addition, the experimental group provided their evaluation of the DDL intervention based on their experience. The group participants' written production over the three tests and the experimental group's evaluation of DDL comprised the

quantitative and qualitative data that were manipulated, examined, analysed and discussed to answer the research questions in this thesis.

The following section explains how the main concepts of the research, DDL and metadiscourse markers fit together in the thesis structure. This section is followed by an overview presenting the research gap and research questions. The final section provides the thesis organisation.

### **1.1 Background of the Study**

Over the last few decades, corpus tools have revolutionised linguistics and second language acquisition research (Römer, 2011). Learner-corpus research is an example of integrating the principles of corpora with second language instruction to employ direct and indirect corpus applications in language pedagogy to analyse and improve learners' language. Corpora comprise naturally occurring attested data; thus, they 'expose language learners to authentic examples rather than invented ones' (Flowerdew, 2012, p. 208). These examples provide 'a richer language learning experience in the foreign language environment (Dodd, 1997, p. 131), reinforcing their performance. Additionally, learner language is a valuable source for activities that focus on error analysis, where the learners' attention is guided to note erroneous patterns in their production (Gablasova et al., 2019). For example, Walsh (2010) and Chambers (2015) suggested comparing learners' production with a native speaker's production. Cotos (2014) implemented that suggestion and found that language learners who compared their writings to the productions of native speakers as model samples achieved better results than language learners who were exposed only to written samples of native speakers.

The corpus applications in language pedagogy are classified as indirect application, which is a hands-on corpus for researchers, and direct application, which is a hands-on corpus

for teachers and learners (Römer, 2011). The DDL approach, which corresponds to a direct application, aims to engage language learners ‘to explore regularities of patterning in the target language’ (Johns & King, 1991, p. iii). Corpus linguistics tools can be employed in the language classroom by applying linguistic analytical procedures as pedagogically relevant tools. These tools aim to raise learners’ awareness and sensitivity to language patterns by enhancing language learning strategies (O’Keeffe, 2021). Reinforcing the independent acquisition of language knowledge (lexis, grammatical construction and collocation) is the pedagogical core of DDL, as it encourages learners in inductive processes ‘to discover patterns of language’ (O’Keeffe, 2021, p. 1). It provides sufficient affordances for teachers to create discovery-oriented and autonomous learning opportunities for their students (Chambers, 2010). It further encourages language learners to master their inductive learning strategies by providing them direct access to the data (Gilquin & Granger, 2010) and allowing them to develop learning skills, such as noticing, reasoning and comparison (O’Sullivan, 2007).

## **1.2 Context of the Study**

Language centres worldwide offer various English language programmes with different proficiency levels and purposes to students who aim to join universities that use the English language, such as those in the United Kingdom (UK). Language centres aim to improve the four language skills (reading, writing, listening and speaking) of students for academic purposes and increase their awareness of the academic culture and conventions of universities that use the English language in teaching. Providing a certified language test, such as the International English Language Testing System IELTS or Testing of English as a Foreign Language TOEFL, with a specific band score is required to admit international students whose first language is not English. Some would argue that pre-sessional courses, which are short, intensive academic

programmes offered by some universities to degree holders to improve their English, can do the same job for international students. This means that international students are required to achieve a specific band score to receive an unconditional offer to study at universities that use the English language in teaching. For example, international students who aim to study law at the University of Newcastle are required to achieve 6.5 on the IELTS test (listening 5.5, reading 5.5, writing 6, speaking 5.5) or equivalent in any language test such as the TOEFL ([www.ncl.ac.uk](http://www.ncl.ac.uk)). If a student could not achieve the required score, he or she needs to either retake the language test to obtain the required score or join the pre-session course at the University of Newcastle (6–10 weeks) that can exempt the student from retaking another language test. Even though the pre-session programme is a path that enables the students to progress into the academic major programme, the students are enrolled in these pre-session courses based on the results they achieve in a certified language test such as IELTS or TOEFL. That is, if the student is required to have a score of 6.5 on the IELTS test and he achieves 6, he will join the 6-week pre-session program, whereas if his score is 5.5, the 10-week programme will be provided. This shows the importance of language proficiency tests, as they reflect the language level the student needs for their study in such universities.

In academic writing pedagogy, the proper employment of metadiscourse markers is an aspect of cohesion and coherence in academic writing, as these markers can ‘guide a receiver’s perception of a text using a range of devices that explicitly organize text, engage readers and signals writer’s attitudes to both their material and their audience’ (Hyland, 2015, p. 2). For example, on the IELTS writing test, cohesion and coherence comprise the main part of the evaluation criteria for assessing candidates’ performance (see Appendix XIII). Therefore, IELTS preparation classes in language centres consider the criteria of cohesion and coherence.



The use of metadiscourse markers varies from one language to another, and languages do not have identical sets of cohesive devices; thus, language learners face difficulties in applying these devices in their academic writing, creating a problematic area in their language output (Altenberg & Tapper, 1998). The efficient application of cohesive devices in writing depends on a shared knowledge of the writing discipline, that is highly problematic for language learners who lack cultural insight and familiarity with the genre (Aijmer, 2002). Hence, ‘pedagogical practices and materials used in the teaching of source use and their effect on students’ development of rhetorical awareness and ability to use sources effectively also deserve further research’ (Petric, 2012, p. 115).

Language learners often use metadiscourse markers incorrectly (Hyland, 2005, 2016), negatively affecting their writing quality (Boulton, 2009; Cotos, 2014). Because they employ metadiscourse markers in their writing differently from their native English-speaking counterparts and often fail to express their ideas in the way they intend, this causes contextualised, incoherent and inappropriate writing (Hyland, 2005). Thus, Hyland (2005) recommended using a concordance program, an example of a corpus application in language teaching to provide suitable materials to explain targeted metadiscourse markers and raise the learners’ awareness of their appropriate use.

Corpora have a relationship with language teaching (Leńko-Szymańska & Boulton, 2015), and two major kinds of corpus applications exist in language pedagogy: indirect and direct use of corpora in language teaching (Leech, 1997). The indirect use of corpora includes situations in which language learners receive the findings of corpus investigations relying on ‘the mediation of reference works and teaching materials’ (Leńko-Szymańska & Boulton, 2015, p. 2). In contrast, the direct use of corpora encourages the language learners to exploit corpus data

themselves to analyse these data and learn the language (Leńko-Szymańska & Boulton, 2015). The integration of corpus consultation in the language classroom enables language learners to interact with one or more corpora to develop their second language skill performance (Boulton & Pérez-Paredes, 2014), promote hypothesis formation and test it under their teacher's supervision (Smart, 2014), develop the use of target items (Huang, 2014), improve the specific discipline of academic writing (Chang, 2014), and promote the effective use of rhetorical devices (Henry, 2007).

The DDL approach, which is considered a direct use of corpus application in language pedagogy, allows language learners to consult corpus data directly or through previously prepared materials to answer questions about language (Boulton, 2021). It corresponds to Hyland's (2005) recommendation of using concordance programs that enable language learners to focus on target metadiscourse markers and raise their awareness about their appropriate use. In addition to the concordance lines that DDL can provide to demonstrate the appropriate use of target metadiscourse markers, it explains 'the prevalent use of frequency data, which might include the learners' overuse or underuse of lexical or grammatical forms or an analysis of the frequency of error forms' (Barlow, 2005, p. 335). Through exposure to language use, the cognitive mechanisms of learners make sense of the frequencies and regularities of the forms they experience (O'Keeffe, 2021).

### **1.3 Research Gap**

This PhD research aims to build on the current literature relevant to the effects of the DDL approach on using metadiscourse markers in academic writing by language learners. Although various studies have been conducted in the fields of DDL (Boulton & Cobb, 2017; Boulton & Pérez-Paredes, 2014; Lee et al., 2019) and metadiscourse markers (Bax et al., 2019;

Larsen-Walker, 2017), the need for this study stems from two points. First, the literature on the DDL intervention that aids second language acquisition has primarily focused on English native-speaker corpora to examine its effects on language learners' productive skills (Gilquin et al., 2007; Huang, 2014). Second, these native-speaker corpora for target language exposure were mostly provided for advanced-level language learners (Crosthwaite & Jiang, 2017; Huang, 2014; Larsen-Walker, 2017).

Although the studies agree with Johansson (2009) that language learners are central in the second language classroom, the corpora used in these studies do not reflect the difficulties that language learners may face because they only use model samples derived from native speaker corpora (Gilquin et al., 2007). Therefore, Mukherjee and Rohrbach (2006) recommended considering a local-learner corpus to address the specific linguistic issues of a particular group of learners. Cotos (2014) employed the local-learner corpus and a native-speaker corpus, and the results were positive. In the same vein, Garner (2013) used two existing corpora: The *Corpus of Contemporary American English (COCA)*, a native-speaker corpus, and the *Michigan Corpus of Upper-Level Student Paper (MICUSP)*, a nonnative-speaker corpus. Though these two studies considered the learner corpus to be a research and teaching tool, Cotos's study was applied to advanced-level language learners, although she used a local-learner corpus. Garner's study involved intermediate-level participants and used native and nonnative corpora but did not include a local-learner corpus.

Native-speaker corpora are helpful resources (Cotos, 2014) and have positive effects on advanced learners, according to various studies (Akeel, 2016; Chang, 2014; Crosthwaite & Jiang, 2017), yet these types of corpora require caution in use with intermediate-level language learners (Boulton, 2009). The DDL activities derived from native-speaker corpora require more

modifications to be suitable for lower-level learners, decreasing their authenticity and becoming invented activities. Therefore, this study aims to employ the *ICLE*, an existing corpus of advanced learners of English, to provide authentic resources for intermediate language learners. The *ICLE* is incorporated with a local-learner corpus to present DDL activities that suit their level.

This study aims to contribute to the noticing hypothesis ‘that claims that “Learners’ acquisition of linguistic input is more likely to increase if their attention is drawn to salient linguistic features”’ (Flowerdew, 2012, p. 216). Osborne (2004) proposed ‘the learner corpus approach, which is believed to draw learner’s attention to problematic areas in their own collective production’ (p. 253). This approach supports the output hypothesis: ‘under some circumstances, the activity of producing the target language may promote second language learners to consciously recognize some of their linguistic problems, it may bring to their attention something they need to discover about their L2’ (Swain, 1995, p. 126). Corpus-based materials are ideal tools to underpin a conscious focus on form and meaning (Flowerdew, 2012).

#### **1.4 Research Questions**

The main aim of this study concerns the comparison of the effects of a DDL intervention on the use of metadiscourse markers in the academic writing of two groups of intermediate-level language learners. This comparison can be made by measuring and comparing their writing performance over three periods. The pretest represents the initial procedure and ensures that the two groups of participants have a balanced, similar writing performance. Next, the immediate posttest refers to the stage after implementing the DDL intervention in the experimental group. Finally, the delayed posttest is the last step of testing the participants’ writing performance. The research questions are as follows:

RQ 1. Does DDL intervention that focuses on the appropriate use of metadiscourse markers develop the written performance of B1 (intermediate level) language learners?

This question examines whether implementing DDL intervention in a language classroom can support normal language instruction, leading to developing the learners' writing quality. Statistical analyses of learners' pretests, immediate posttests and delayed posttests were used to measure the efficiency of the DDL intervention on the learners' writing performance.

RQ 2. Do participants in the experimental group employ metadiscourse markers in their argumentative essay writing with the same frequency and variety as participants in the control group after the DDL intervention?

The second research question focuses on the learners' frequency of using metadiscourse markers over the three periods. The comparison of the three tests stems from the need to determine whether the DDL intervention can raise the learners' awareness and affect their frequency of using metadiscourse markers, which is related to their overuse or underuse of metadiscourse markers. In the quantitative corpus-based analysis, frequencies and statistical analyses of the three tests are used to examine the effect of the DDL intervention on the learners' frequency of using metadiscourse markers in their writing production.

RQ 3. How do the experimental group participants evaluate their experience with the DDL intervention in terms of its positive and negative sides?

The third research question examines the learners' feedback based on their experience with the DDL intervention through a questionnaire and interviews. The statistical analysis is used to analyse the questionnaire, which measures the learners' attitudinal responses, whereas the thematic approach is used to analyse their interviews.

## **1.5 Outline of the Chapters**

This thesis is organised into six chapters. Chapter 1 presents the introduction and background information on the research topic. It explains the significance of the research and introduces the research questions. Chapter 2 provides illustrations and details on metadiscourse markers and the DDL approach and places them within a theoretical framework in the field of second language acquisition. Each section in Chapter 2 summarises the main ideas and findings. In addition, Chapter 3 considers the study methodology, covering the study design, participants, research instruments and procedures. It presents the measures for validity and reliability and the ethical considerations. Then, Chapter 4 presents the pilot study to test the research instruments and the feasibility of implementing DDL for intermediate-level language learners. Chapter 5 covers the procedures, data collection, and data processing of the main study. Next, Chapter 6 introduces the results and data analysis to answer the research questions. Chapter 7 discusses the results by relating them to the previous research and analysing them in light of the theoretical and pedagogical implications. Finally, Chapter 8 addresses the research conclusion and provides recommendations for future research.

## Chapter 2 Literature Review

### 2.0 Introduction

This chapter reviews the literature associated with the main areas of this study. These areas are the DDL, metadiscourse markers, academic writing, and two theories: the output and noticing hypotheses. Section 1 begins with a definition of the term '*corpus linguistics*' to illustrate its function, features, and applications in language pedagogy. The details of corpus applications in language pedagogy are necessary to explain the DDL approach. Section 2 discusses the DDL approach by considering its definition and utility in language classrooms. It also considers the limitations of the DDL approach and the modifications suggested by scholars to overcome these limitations. Section 3 opens with the concept of 'metadiscourse', and definitions provided by scholars who view it from different perspectives. It focuses on the essential role of metadiscourse in academic writing by highlighting writer-reader interaction, as this study views writing as a social act. It also presents the chronological order of the taxonomies designed by scholars for metadiscourse markers. This chronological order aims to present the positive sides and limitations of these taxonomies and justify selecting a specific taxonomy in the methodology chapter. It views the relationship between the term '*metadiscourse*' and language pedagogy by considering obstacles that impede language learners' appropriate use of metadiscourse markers in their writing. In addition, it considers the importance of raising the learners' awareness of these obstacles to overcome them. Section 4 discusses the term '*academic writing*' by considering its definition, its features, and the two main perspectives that are provided by Tribble (1996, 2009) in the United Kingdom and the United States regarding academic writing programs. The classification of the two main approaches by Tribble (1996, 2009) will be considered in discussing the argumentative essay as a mode of academic writing.

Section 5 involves the theoretical framework underpinning this study. It begins with a discussion on the output hypothesis, followed by its functions in the instructed second language acquisition (SLA) field, and explains the findings of various studies on metadiscourse markers in light of the output hypothesis. This section also illustrates the noticing hypothesis, its principles, and its relationship with the output hypothesis. This relationship leads to considering important concepts in the theoretical framework, such as the explicit/implicit continuum and guided induction. This theoretical framework informs the design of the DDL activities and their implementation.

Section 6 reviews the empirical findings from previous research on DDL on the use of cohesive devices by language learners in second-language writing pedagogy follows. The rationale and focus of this thesis are discussed in Section 7. The key points are summarised at the end of each section, and the chapter ends with a summary.

## **2.1 Corpus Linguistics and Language Pedagogy**

The term *corpus linguistics* and its relationship to language pedagogy must be provided to understand what is meant by DDL. Understanding the basics of corpus linguistics is vital for facilitating and applying the DDL intervention as tools of corpus-based analysis will be used in designing DDL activities (more details will come in section 3.2.1). A considerable amount of literature has been published on writing pedagogy. These studies have focused on writing from different perspectives, such as teacher feedback on language learners' writing in second and foreign language contexts (Krashen, 1985; Leki, 1990), explicit and implicit instruction in second language writing pedagogy (Doughty, 2003; Takahashi, 2001), and the influence of computer-assisted language-learning software on language learners' spoken and written output (Chapelle, 1998, 2009).



Since the 1980s, interest in using computer tools for language education has grown (Conrad, 1999). In the 1990s, corpus-driven materials pointed to implications for language education and research (Granger, 1998; Hyland, 2004; Römer, 2011). Since the mid-1980s, the interest in corpora, corpus tools and corpus evidence has revolutionised linguistic research, affecting second language learning and teaching (Römer, 2011). In recent years, corpus-based approaches to language education have received a great deal of interest, although applications in this area are still not extensive (Flowerdew, 2011). Corpus-driven materials, such as DDL, can be effective and beneficial for language learners to acquire vocabulary (Garner, 2013; Lin, 2008). Thus, it is important to explain the concept of *corpus linguistics*, corpus linguistic tools and their analytical features, limitations, and indirect and direct applications of corpus linguistics in language teaching to situate the crucial role of corpus applications in the second language writing pedagogy, particularly in using metadiscourse markers in writing.

### **2.1.1 What Is Meant by ‘Corpus Linguistics’?**

‘The word “corpus”, corpora for plural, derives from the Latin word for body’ (Baker & McEnery, 2015, p. 1). ‘Corpus linguistics is a method of using computers to assist in the study of language, since the sheer size of the corpus often defies manual human analysis within any sensible timeframe’ (McEnery & Hardie, 2012, p. 2). This method is based on utilizing electronic collections of naturally occurring texts which analyse language from different perspective (Granger, 2002).

### **2.1.2 Features of Corpus Linguistics**

There are various characteristics of corpus linguistics because it contains considerable natural linguistic data (McEnery & Hardie, 2012). The essential features include investigating patterns in lexis, grammar, semantics, pragmatics and textual features in a well-organised and

established manner due to the potential techniques that a corpus provides (Flowerdew, 2011). Furthermore, the massive corpus data are electronically stored and computer-readable; thus, corpus software programs, such as AntConc and Wordsmith, can rearrange, reorder and store these data in specific ways based on the researcher's aims and experience and the demands of their studies (Hunston, 2002).

Although corpus software programs do not involve new language information, they offer 'a new perspective on the familiar' (Hunston, 2002, p. 3). Researchers can provide clear and better descriptions of language because they can analyse 'large quantities of language and uncover patterns of usage which our intuitive sense about language may miss' (Jones & Waller, 2015, p. 9). Corpus software programs enable researchers to undertake qualitative and quantitative data analyses rapidly and reliably (McEnery & Hardie, 2012). These programs process data from a corpus to provide information on frequency, phraseology and collocations (Hunston, 2002).

Corpus features lead to a diverse range of uses based on the researcher's aims. For example, translators use these features to compare and contrast different corpora of two distinct languages to examine the use of translation equivalents in these languages (Flowerdew, 2001). In second language teaching, corpus linguistics offers invaluable resources to language researchers, teachers and students (Hymes, 1992; Römer, 2011).

### **2.1.3 Information from Corpus Linguistics that Serve Language Pedagogy**

Corpus linguistics can provide various types of information, such as words and phrases, grammatical patterns, semantic and pragmatic features, and textual properties (Flowerdew, 2011, p. 329). Being aware of these features can facilitate teaching language items and provide input

for reference materials (Hyland, 2016). The main concepts used in language pedagogy are as follows:

1. Word frequency refers to word lists organised alphabetically or by frequency. These words are used in conjunction with a concordancer that can extend the meanings of a word or phrase (Flowerdew, 2011). Word frequency enables a researcher to compare two or more corpora to make statistical calculations to discover significant differences in frequencies between corpora (Scott & Tribble, 2006). In language pedagogy, frequency information is essential 'in helping to prioritize what to teach' (Flowerdew, 2011, p. 330), which is a required criterion in designing syllabi and language teaching materials.
2. Collocation 'is concerned with how words typically occur or do not occur together' (Flowerdew, 2011, p. 331). An example of a collocation is given by Hunston (2002) for the word *shed*, which collocates with such words as *high*, *tears*, *garden*, *jobs*, *blood*, *cents*, *image*, *pounds*, *staff*, *skin* and *clothes*. Each collocation has a distinct meaning. The collocation *shed blood* means to lose blood, whereas *shed pounds* means to lose weight.
3. Colligation 'refers to how lexical words are associated with particular grammatical words or categories' (Flowerdew, 2011, p. 331). For example, the word *head* has colligations with *of*, *over*, *on*, *back* and *off*. These colligations affect the word meaning; for example, *head of the department* means the leader of a department, whereas to *put one's head back* refers to moving one's head backwards (Hunston, 2002).
4. Semantic preference is concerned with classifying collocates into specific groups based on their semantic relations, such as words related to a particular genre or lexical sets with synonymy, antonymy and so on (Flowerdew, 2011).

5. Semantic prosody focuses on meaning that does not belong to a single word but instead to the overall phrase (Hunston, 2002). In particular, ‘it usually refers to a word that is typically used in a particular environment, such that the word takes on connotations from that environment’ (Hunston, 2002, p. 14). Stubbs (2004) stated that the word *cause* is typically collocated with negative words, such as *cause of death* and *cause an accident*, creating a negative semantic prosody. In contrast, the word *provide* is typically collocated with positive words, such as *provide an opportunity* and *provide care*, which have a positive semantic prosody.
6. Register and genre: Research into corpus linguistics has demonstrated that patterns vary across registers and genres (Flowerdew, 2011). In a study by Biber and Conrad (2001), the 12 most frequent lexical verbs were examined (*say, get, go, know, think, see, make, come, take, want, give* and *mean*) in a corpus involving 20 million words derived from four registers: conversation, fiction, newspaper language and academic prose. The results revealed that these verbs represent 45% of all verbs in conversational language and 11% in academic prose, demonstrating that verbs are unequally distributed among the four registers.

#### **2.1.4 Applications of Corpora in Instructed Second Language Acquisition Research**

With corpus linguistics, new knowledge on the behaviour of lexis, grammar, semantics, and pragmatic and textual features has been released, suggesting that new facts about language are infinite ‘because corpus linguistics is based on the theory that language varies according to context across space and time’ (Flowerdew, 2011, p. 329). This point strengthens the role of using corpora in teaching language because no dictionary can fully describe the language in the way that corpora can. Further, educationalists, language teachers and learners can identify

regularities in the language with corpora that they cannot find in texts (Flowerdew, 2011). The applications of corpora in second language teaching involve two main parts, as presented in Figure 2.1. First, the corpus tools refer to the ‘actual text collection and software packages for corpus access .... and secondly, the corpus methods, that is, the analytical techniques that are used when we work with corpus data’ (Römer, 2011, p. 206).

**Figure 2. 1** Corpus Applications in Language Pedagogy by Römer (2011, p. 207).

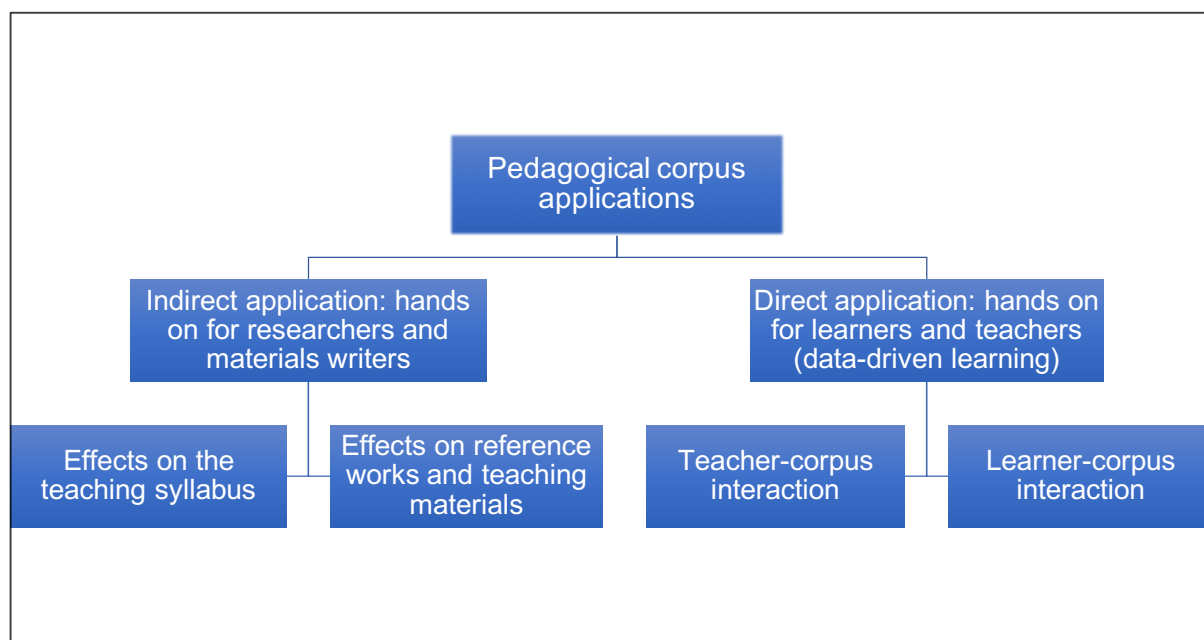


Figure 2.1 illustrates that the different types of direct and indirect applications rely on corpus methods and tools (Römer, 2011). In contrast, the indirect applications of corpora can be used in designing and developing dictionaries and grammar and pedagogic reference materials (Flowerdew, 2011). Thus, the corpus-based investigations can provide a firm basis for both linguistic description and language input on the applied side to support language learning (Barlow, 1996). The indirect application considers the syllabus design and reference work in teaching materials. The design of a language-teaching syllabus emphasises student encounters in

real-life communicative situations (Römer, 2011). It relies on criteria, such as the frequency of occurrences, range, availability, coverage and learnability, to include specific linguistic items in the syllabus (Kennedy, 1998).

The Collins *COBUILD English Language Dictionary* (Sinclair, 1989) was one of the first applications in this area. Later, Sinclair (1990) presented Collins' *COBUILD English Grammar*, based on corpus-driven grammar. This work was followed in 1999 by Longman's *Grammar of Spoken and Written English*, designed by Biber et al. (1999), and then Carter and McCarthy (2006) released the *Cambridge Grammar of English*. Regarding the design of pedagogic materials, Collins has published a series of COBUILD English guides that focus on specific linguistic features, such as *Linking Words* by Chalker (1996) and *The Lexical Syllabus: A New Approach to Language Teaching* by Willis (1990). These compilations are evidence of the benefits of employing corpora to design references and improve other references for better comprehension.

Furthermore, the indirect application of corpora in language pedagogy considers applied corpus research that examines and compares the distribution of language items and patterns in general reference corpora with the same items in teaching materials (Römer, 2011). These studies usually focus on the frequent occurrence of linguistic features that cause difficulties for language learners. Researchers, such as Conrad (2004) and Römer (2004, 2005), have found that mismatches occur between naturally occurring German and English and the type of English language taught using models in teaching materials. This mismatch occurs due to misrepresenting the function and contextual English patterns in EFL teaching materials used in German schools (Römer, 2011). Therefore, corpus-based studies can assist researchers in testing and evaluating language textbooks.

Nonetheless, the direct application of corpora can assist language learners in academic writing (Flowerdew, 2011). In the direct approach, language learners and teachers can use corpora and concordance tools (Römer, 2011). ‘Confront the learners as directly as possible with the data, and make the learner a linguistic researcher’ (Johns, 2002, p. 108). This method involves the ‘interaction that occurs between the learner and the corpus or in a more controlled way between the teacher and the corpus [and] is widely known under the label Data Driven Learning’ (Römer, 2011, p. 211). In the forthcoming section, DDL will be presented.

### **Summary**

The previous section presents the definition of *corpus linguistics* and examines its advantages in analysing a large volume of linguistic data. It also explores the benefits of corpus tools, such as frequencies and concordances, in language pedagogy. Corpus linguistics not only facilitates language teaching but also provides authentic input for language materials. Indirect and direct applications of corpora in language pedagogy are explained. This study aims to examine the influence of DDL on learners’ written performance; thus, the discussion on the relationship between corpus linguistics and language pedagogy is necessary because corpus tools are required to implement DDL in a language classroom.

### **2.2 What is Data-Driven Learning?**

The term *DDL* was first introduced by Johns (1991), who defined it as ‘the attempt to cut out the middleman as far as possible and to give the learner direct access to the data’ (p. 30). He also used the term *discovery learning* to refer to DDL (Baker et al., 2006) because it enables language learners to be researchers or language detectives by engaging them in autonomous and active learning while exploring and analysing authentic data (Johns, 1991). The rules are not overtly taught to language learners because they can detect patterns of multiple language

examples by investigating corpora (Boulton, 2010). In addition, DDL can promote an impressive array of cognitive skills, including ‘predicting, observing, noticing, thinking, reasoning, analyzing, interpreting, reflecting, exploring, making inferences (inductively or deductively), focusing, guessing, comparing, differentiating, theorizing, hypothesizing, and verifying’ (O’Sullivan, 2007, p. 277). In this way, the learner’s autonomy and linguistic awareness are increased due to exploring naturally occurring language and discovering patterns (Boulton, 2010).

Moreover, DDL refers to ‘the use in the classroom of computer-generated concordances to get students to explore regularities of patterning in the target language and the development of activities and exercises’ (Johns & King, 1991, p. iii). It is an inductive style enabling students to observe the various patterns of the target language and find generalisations about the language form and use (Johns, 1991). In the DDL approach, the students become language researchers who examine linguistic evidence to reach their conclusions, becoming active learners rather than passive receivers (Granger, 2012). Concordance lines can be defined as ‘a word list with context for each word’ (Cobb, 1999, p. 347), enabling language learners to increase the breadth and depth of their knowledge more quickly than through traditional methods (Granger, 2012).

The implementation of the DDL approach in a language classroom requires familiarising language teachers and learners with three important areas of corpus linguistics that are listed by Leech (1997): teaching about, teaching to exploit, and exploiting to teach. Knowing these areas is vital as it facilitates the direct corpus application in language classrooms whereby DDL relies on corpus data that appears in the form of computer concordances, frequency lists, clusters, and distributions (Cotos, 2014). Therefore, language teachers should have a background in these three areas so that they can design and implement DDL activities for their learners.



1. Teaching about: This area refers to corpus linguistics being taught as an academic module. Similar to courses, such as discourse analysis and phonetics, provided to students who study for a linguistics degree, corpus linguistics is also taught as a course in a linguistics degree. This academic course has theoretical and practical sides. The theoretical side involves areas of the history of corpus linguistics and its data and methods of investigation, whereas the practical side encourages students to apply hands-on learning. Students familiarise themselves with the corpus software applications, such as AntConc and Wordsmith, understand the investigation techniques and carry out practical exercises. Moreover, this area can be taught in workshops during a specific period for individuals interested in corpora or those aiming for professional development. The Future Learn website, in association with Lancaster University, offers online courses in corpus linguistics taught by Dr Tony McEnery and Valcav Brezina (<https://www.futurelearn.com>). They provide a practical introduction to corpus linguistics and a methodology for researchers in social sciences and humanities.
2. Teaching to exploit: This area focuses on the role of language learners in the classroom. For these learners to explore corpora in the classroom to achieve lesson targets, they must first understand the basic principles of corpus tools and learn the terms related to corpus analysis, such as frequency, concordances and keyword lists. The corpus-based activities must be designed according to their needs and proficiency levels to appropriately implement the concept of *hands-on learning* (Cobb & Boulton, 2015). When they understand the necessary hands-on know-how to exploit the corpora, they can make generalisations from the provided data (Leech, 1997). This area is under the teachers' supervision, and corpus-based activities and learning tasks can begin with controlled

activities. Teachers decide ahead of time and prepare appropriate data to be converted into focused instructions and closed answers that aim for predetermined production (Cobb & Boulton, 2015). During this process, teachers take the role of advisor or facilitator rather than authoritative figures (Leech, 1997), which is related to the next point, and examples are provided later to demonstrate this relationship.

3. Exploiting to teach: This area emphasises the teachers' role to make selective use of corpora to derive activities that support language-teaching approaches. To implement the point of *teaching to exploit* successfully, language teachers must familiarise themselves with corpus tools and know-how to derive linguistic targets from either native or nonnative corpora (Leech, 1997). As this point is related to the previous area, teachers can consult corpus data directly for language teaching use to select the most appropriate texts that suit their learners' needs. For example, AntConc is a free corpus software that enables language teachers to enter text that can be returned with colour-coded items based on the frequency of each word in the *British National Corpus*. This information can help teachers determine which items are required for their learners (Cobb, 2007; Cobb & Boulton, 2015).

The three areas listed by Leech (1997) agree with Figure 2.1, particularly in the direct use of corpora in language pedagogy. The first and second areas focus on the student's role as they access corpora to explore data, whereas the third area refers to the teachers' use of corpora for language teaching. However, the first and second areas might be considered challenging for intermediate- and elementary-level language learners because these areas demand their attention to computer skills to work with the corpora software and their attention to language learning (Römer, 2011). Therefore, the third area enables language teachers to provide activities that invite their learners to 'obtain, organise and study real language data' (Leech, 1997, p. 10). Also,

this area will be considered when discussing samples of DDL activities, and more details are provided in Chapelle's evaluation system in Table 2.1.

### 2.2.1 Samples of DDL activities

Teachers can use corpus data to provide beneficial authentic language resources they can, also, 'select typical language samples to complement or replace the invented language examples often found in teaching materials' (Gavioli, 2005, p. 7) or choose design-focused controlled exercises, such as gap-filling activities (Tribble & Jones, 1997). Bennett (2010) provided examples for the teachers to derive concordance lines for the signal words *then* and *though* from the *Michigan Corpus of Academic Spoken English*, as presented in Figures 2.2 and 2.3.

**Figure 2. 2** Concordancing Lines for the Metadiscourse Marker *then* from the Michigan Corpus of Academic Spoken English, cited in Bennett (2010, p. 60).

t about getting people out at different ages, you'd have higher bonuses for younger people. mokay but	then	there's a question about should you be indifferent about getting rid of people at different ages? an
young children so, a-as a rule i i try to get home, at a decent hour so we have meals, and uh, and	then	play with my kids, and um my wife and i make an honest attempt to get 'em to bed by nine o'clock, uh
a, (bis toxins) to make sure they're flavored the right way. they made like, this, great tomato but	then	they used this but they used
sort of um, connection with that body anymore. he remembers that his brain is back in Houston, and	then	he sort of i- reidentifies himself with the brain. he starts thinking okay, i must be that brain. an
mhm. um and	then	you can say, um well m- maybe not n- maybe not down to the last detail, um that_you n- maybe not i
re Heidi just put eighty-four nineteen on one line and drop twelve sixty-three down to the next line	then	put the results over to the right of there.
solute power. but, before he's ordained anything, he can do it anyway. Sherlock.	then	notes the fears that go with the claim that God's power has no bounds and I quote. mankind, judge of

**Figure 2. 3** Concordancing Lines for the Metadiscourse Marker *Though* from the Michigan Corpus of Academic Spoken English, cited in Bennett (2010, p. 60).

yeah...it happens everyone once in a while. (haven't heard it lately	though	) what stops it?
mhm. right.	though	he does say that, that there is no, hostile undertone in, in the way they they look at them.
o, that will make it more likely, that we get, away with it, that we enable our, plant to grow even	though	it's pusing the, envelope of the limits of hardiness of cold tolerance. now we can take a page, out
h. i think thr- the difference between three and five is kind of, difficult. i men, his i- his idea	though	is that, in um, where your point of view, three is, you are wherever you think you are. so, if you t
yes. okay, let me ask you a question. well before i ask you this question	though	, for this problem for this particular problem, in addition to what we just talked about that i woul
y that the way that the, the words being chosen the means of expressing these feelings, they feel as	though	they've been there many many many many times. an-
it, oh it di- it didn't	though	i would do it. but if it doesn't,

Based on the above concordance lines, the activity starts. Language learners in this activity are engaged in discussion with the teacher and peers regarding the signal words *then* and *though*. Typically, corpus data that appear in the form of computer concordances, frequency lists, clusters, and distributions are analysed by learners to explain the different uses of patterns in the second language (Cotos, 2014). They work together with peers or in groups to determine the function of each word by noticing, analysing, and comparing the concordance lines. In this case, 'like a researcher, the learner has to form preliminary hypotheses based on intuition or scanty evidence, those hypotheses then have to be tested and rejected or refined against further evidence and finally integrated with an overall model' (Johns, 1988, p. 14). Once they discover the function of these signals, the teacher can test their conclusions using a gap-filling activity, as depicted in Figure 2.4.

**Figure 2. 4** Sample Questions on Gap-Filling for the metadiscourse markers then and though by Bennett (2010, p. 61)

<b>Gap-Fill Activity</b>	
<i>Read the sentences. Fill in the blanks with “then” or “though”.</i>	
1.	Its great period of expansion, ..... doesn't actually happen until later, after the Erie Canal goes in, in 1825, which connects it to the interior markets of the great lakes.
2.	when he chose a profession, he became first a doctor, and ..... a scholar practicing medicine, and a scholar of Japanese.
3.	The first thing I did is try to do a regression equation figuring that it might work. Turns out, ....., it doesn't.
4.	You could score yourself if you want to, ..... I'll collect it, and present you with the aggregate data after spring break.

Therefore, Boulton (2010) suggested that it is unnecessary for language classrooms to have computers because the required data from the corpora can be printed out for students, allowing them to analyse, discover, and search for the required information. This suggestion is consistent with the third area where teachers can prepare the target linguistics and derive data from corpora.

Johns (1991) argued that the teacher's role must change to assist the language learner in making generalisations about language use based on corpus examples. The teacher in a traditional language classroom presents rules to learners, provides examples for illustration, and guides them in practice. Conversely, DDL reverses these roles so that 'the task of the learner is [to] work backwards and to recover the rules from the examples' (Johns, 1991, p. 2).

The above discussion corresponds with Chapelle's evaluation criteria (2001), which comprise judgmental questions to evaluate computer-assisted language learning (CALL) resources, as listed in Table 2.1. These criteria can also be used to evaluate DDL activities.

**Table 2. 1** Questions for Judgmental Analysis of Computer-assisted Language Learning (CALL) Appropriateness by Chapelle (2001, p. 59).

<b>Qualities</b>	<b>Questions</b>
<b>Language-Learning Potential</b>	Do task conditions present sufficient opportunity for beneficial focus on form?
<b>Learner Fit</b>	Is the difficulty level of the target linguistic forms appropriate for the learners to increase their language ability? Is the task appropriate for learners with the characteristics of the intended learners?
<b>Meaning Focus</b>	Is the learners' attention directed primarily towards the meaning of the language?
<b>Authenticity</b>	Is there a strong correspondence between the CALL task and the second language tasks of interest to learners outside the classroom? Will the learners be able to see the connection between the CALL task and tasks outside the classroom?
<b>Impact</b>	Will the learners learn about the target language and strategies for language learning through the use of the task? Will instructors observe sound second language pedagogical practices using the task? Will both learners and teachers have a positive learning experience with technology through the task?
<b>Practicality</b>	Are hardware, software, and personnel resources sufficient to allow the CALL task to succeed?

The first and third criteria depend on the linguistic targets relating DDL activities to Chapelle's evaluation system. Whether the lesson targets aim for a focus on forms or a focus on form, the corpus data score highly in these two areas (Chambers, 2015), as the concordance lines can serve both aims. The concordance lines can provide several examples of the linguistic target if the target considers the form, or they can provide the linguistic target in a real context if the target considers the meaning.

The second criterion refers to the cautious selection of data derived from corpora for DDL intervention to suit the learners' needs and abilities. As authenticity 'refers to materials that are often thought to contain more realistic and natural examples of language use than those found in textbooks and other specially developed teaching materials' (Richards & Schmidt, 2002, p.

42), a very large number of DDL studies have relied on native corpora to derive data for DDL activities.

The impact criterion is based on the learners' experience interacting and working with DDL intervention. The DDL approach highly considers raising the learners' awareness to develop their performance; thus, this can achieve positive attitudes in learners.

The last criterion, practicality, refers to the time available to teachers and learners to obtain the required skills for corpus consultation and analysis (Chambers, 2015). It also refers to the flexibility of implementing DDL, as it can be based on either computers or papers for instructional settings that lack computer-equipped classrooms (see Section 2.2.3).

Most DDL activities encourage negotiation, interactivity, and interaction in the classroom because language learners can access their errors and compare them with correct examples presented by the teacher (Meunier, 2002). Though various perspectives regarding DDL exist, it is commonly believed that it is a unique technique for facilitating classroom language teaching in terms of raising language awareness (Hawkins, 1984). Although certain research has revealed that concordance-based exercises are more effective than traditional teaching strategies (Granger, 2009; Meunier, 2002), such as strategies that rely on explicit deduction, DDL exercises should be treated with caution (Xu, 2016). Teachers should carefully edit concordance exercises to help their learners find relevant features (Granger & Tribble, 1998), especially for learners with lower proficiency. 'If vast quantities of information are thrown at learners, there is a considerable risk that DDL activities can become time-consuming and frustrating for [them]' (Granger & Tribble, 1998, p. 209).

### 2.2.2 Limitations of Data Driven Learning

Boulton (2010) argued that some barriers related to DDL exist, which are primarily concerned with implementation rather than the nature of its techniques. Such scholars as Johns (1997), Tian (2005), Granath (2009) and Cobb and Boulton (2015) have considered that implementations of DDL work demand substantial training on the part of language teachers and learners, which takes time and effort. Teachers must familiarise themselves and students with corpus tools. They should also be able to design concordance exercises that suit the learners' proficiency levels across the corpus to deal with collocations and language patterns (Römer, 2011). Learners need assistance to understand what is meant by a corpus and why it is beneficial for language learning. They also require familiarisation with concordances and which language items can be found in the software or previously prepared concordance materials (Smart, 2014). Novice learners may use alternative pedagogical resources, such as dictionaries based on corpora, instead of DDL because training language learners in small groups for working with and developing corpora requires computer use, software and techniques. Thus, while it might be useful in computer laboratories supported by experts (Turnbull & Burston, 1998; Vyatkina, 2016), it is difficult in some EFL/ESL classes not equipped with computers and technical support (Yoon & Hirvela, 2004).

Although 'advanced students definitely benefit from working with corpora' (Granath, 2009, p. 59), the benefits obtained by elementary-level students are unclear because most concordances derived from large collections comprise native-speaker corpora, such as conversations, newspaper and research articles or novels, and may involve complex sentences and unknown vocabulary that can be difficult for novice learners to comprehend (Boulton &



Cobb, 2017; Römer, 2011). Native-speaker corpora are intrinsically beneficial and helpful in second language acquisition (Johansson, 2009).

However, they should not be the only resource or criterion for language-teaching materials and syllabus designs because ‘they give no indication of what is difficult for learners’ (Granger et al., 2009, p. 253). Hsieh and Liou (2008) included nonnative-speaker data in one lesson, which raised their students’ awareness by providing the opportunity to compare native- and nonnative-speaker writing samples using rhetorical features. They found that the ‘students attributed greater value to knowing how the published writers tended to write ... than to knowing the common mistakes the novice writers tended to make’ (Hsieh & Liou, 2008, p. 41). This confirms Granger’s (2002) recommendation to expose language learners to both native- and nonnative-speaker data to enable them to note the difference between the two groups and emulate expert writers.

### **2.2.3 Modifications to Manage Data-Driven Learning Limitations**

Among the different views of the features and limitations of DDL, Mauranen (2004) asserted, ‘to make a serious contribution to language teaching, corpora must be adopted by ordinary teachers and learners in ordinary classrooms’ (p. 208). Gabrielatos (2005) noted that most early studies of DDL examined the so-called hard version, where learners use online corpora for language searches with minimal guidance from teachers. This version is infeasible for all instructional settings (Vyatkina, 2016). Consequently, various modifications were added to convert the hard version of DDL to softer (easier) versions (Mukherjee, 2006), relying on the employed medium (computer- or paper-based DDL), the task difficulty level (e.g. open-ended or controlled), and an emphasis on variable or fixed rules (Vyatkina, 2016). As this section discussed some issues that may face the implementation of computer-based DDL, some reasons

can explain the feasibility of paper-based DDL, which can be an alternative option for computer-based DDL in some cases.

Although corpus software can show different types of analysis such as concordances and frequencies on the screen, it does not inform the user whether the outcome involves errors or not, which may cause a problem for learners with lower levels as they may make incorrect inferences (Gilquin & Granger, 2010). Therefore, the previously prepared paper-based DDL activities that are based on careful selection would be better than computer-based DDL, because the selection relied on including concordances that only involve the correct use of the target language and excluding any incorrect use. Also, careful selection means exploiting DDL activities that suit the learners' level and their needs. Such scholars as Boulton (2010) and Vyatkina (2016) studied paper-based DDL intervention, the softer version of DDL, the 'Cline' instead of computer-based DDL, where learners work with concordance lines previously selected and printed by the teachers. The results indicated positive effects on the learners' performance. Paper-based DDL suits both lower and higher proficiency levels (Yoon & Jo, 2014).

Boulton (2008, 2009, 2010, 2012) conducted systematic research on paper-based DDL on English language learners with lower proficiency. Boulton found that DDL facilitated learning certain targets that were usually considered impermeable for English language learners with lower proficiency.

Similarly, Vyatkina (2016) applied an experimental study to examine the efficiency of DDL intervention in teaching collocations for adult German language learners with lower proficiency. Her study focused on 'verb-preposition collocations' as an example of a difficult linguistic target facing language learners (Nesselhauf, 2004). Vyatkina (2016) examined the effectiveness of paper-based DDL in teaching verb-preposition collocations to participants

exposed to DDL intervention in addition to the normal class instruction. These participants achieved better results than those who were not exposed to DDL.

Paper-based DDL can save time, effort, and money. Since the implementation of computer-based DDL needs a computer lab, this requires a budget for resources, including computers for the teacher and the language learners, corpora, and software (Gilquin & Granger, 2010). These resources require a technical support team to follow up on the computers and deal with any faults or repairs. Regarding corpora and software, not all of them are free of charge, which means that users have to pay fees to utilise these corpora and software. Also, teachers and language learners need training programmes to understand how to work with corpora and software (Mukherjee, 2006), which require time, effort, and money. With these expenses, not all language classes can afford the required budget for computer-based DDL, while paper-based DDL can achieve the objectives of computer-based DDL with fewer expenses. Through the previously prepared paper-based DDL, a language teacher can utilise the corpora and software on one computer to select the required materials to design a paper-based DDL that suits the learners' needs. The previously prepared materials can be printed out so that the teacher can exploit them with the learners.

In a quantitative study, Boulton (2012) examined the effects of a computer-based DDL intervention compared with a paper-based DDL intervention. The findings did not indicate any significant differences in the effectiveness of these techniques. Thus, DDL at different levels of practice requires carefully designed and scaffolding activities, whether computer- or paper-based, that assist learners in discovering linguistic target items by working with real language samples, corresponding to Smart's (2014, p. 186) two proposed essential features of DDL:

- Real language data are used as sources of language-learning materials or reference resources.
- Learning activities are student-centred and focus on language discovery.

Boulton (2010) demonstrated with a quantitative analysis that most DDL studies produced significant gains in learner knowledge of the L2 English target, such as phrasal verbs and connectors. The efficiency of the DDL method was on par with, or sometimes even better than, the conventional rule-based method because paper-based DDL is more feasible for ordinary pedagogical settings (Vyatkina, 2016). Based on Sections 2.2.2 and 2.2.3, it can be concluded that paper-based DDL would be more feasible when working with language learners with lower levels. Since the participants of my study are learners with intermediate levels, the paper-based DDL will be used (more details will come in Section 3.2.1).

### **Summary**

This section explains the concept of DDL and its various utilities in second language acquisition research and pedagogy. It presents samples of DDL activities to raise language learners' awareness by encouraging their cognitive skills, such as noticing, analysing, comparing, and hypnotising. This section also focuses on Chapelle's (2001) judgement criteria to evaluate the DDL approach in instructed second language acquisition.

This section also considers the difficulties facing language teachers and learners while implementing DDL, such as equipping classes with computers and providing substantial training for both language teachers and learners, which takes time and effort. Therefore, Boulton (2010), Vyatkina (2016), and Yoon and Jo (2014) suggested modifications to facilitate implementing DDL in classes with various levels of language learners with less effort and time. The coming section will provide a detailed discussion about metadiscourse markers, as this study will

examine the effect of DDL intervention on the appropriate use of metadiscourse markers by language learners.

### **2.3 What is Metadiscourse?**

Awareness of the concept of *metadiscourse* is not recent; Williams (1981) defined the term as ‘Metadiscourse is writing about writing’ (p. 211). The definition implies that two levels appear during writing: the first level refers to the propositional (informational) content, as the ideational function in Halliday’s list, whereas the other level refers to metadiscourse (interpersonal and textual functions) that enables writers to organise, classify, interpret, evaluate and react to such materials (Williams, 1981).

Schiffrin (1980) presented a slightly different definition of metadiscourse from Williams: ‘the author’s linguistic and rhetorical manifestation in the text to bracket the discourse organization and the expressive implications of what is being said’ (p. 231). In the same vein, Crismore et al. (1993) developed the definition ‘linguistic material in texts, written or spoken, which does not add anything to the propositional content but that is intended to help the listener or reader organize, interpret and evaluate the information given’ (p. 40). It can be seen that these definitions reveal a clear separation between propositional content with a primary role in spoken or written language and metadiscourse, which plays a secondary role (Hyland, 2005). This definition corresponds to Vande Kopple’s (2002) viewpoint, which states, ‘on one level, we expand ideational material. On the levels of metadiscourse, we do not expand ideational material but help our readers connect, organize, interpret, evaluate and develop attitudes towards that materials’ (p. 93).

Hyland (2005) argued that the separation of metadiscourse from the level of meaning is wrong because texts are communicative procedures that demand integration of both

propositional and metadiscoursal elements, and they do not work independently. Scholars who have studied metadiscourse from different perspectives, such as casual conversation (Schiffrin, 1980), school texts (Crismore, 1984) and persuasive and argumentative discourse (Hyland, 1998, 2016), have been influenced by Halliday's view: 'Metadiscourse is an umbrella term to include a heterogeneous array of features which help to interpret material in a way preferred by the writer and with regard to the understandings and values of a particular discourse community' (Hyland, 1998, p. 157). This view shows the readers the relationship between different parts of a text and how they are best interpreted, and it enables the writers to express their attitudes regarding the content of a text (Hyland, 2005; Namnik, 2016).

Furthermore, from a functional standpoint, the best way to examine metadiscourse is through the functions it performs in a text (Hyland, 2005; Waller, 2015). The two following sentences are examples presented by Hyland (2005) to prove that the word 'then' functions as metadiscourse in Sentence (a), whereas it does not in Sentence (b):

- a) 'I want to agree about the date, **then** we can talk about the venue' (p. 25).
- b) 'I was waiting an hour **then** he told me that the train had already left' (p. 25).

In Sentence (a), the word refers to a sequence of progress in the speech, whereas in Sentence (b), it presents how events occurred in time. This multifunctional aspect of metadiscourse highlights the need to view metadiscourse as a linguistic, rhetorical and pragmatic phenomenon. Hyland (2005) asserted that 'we cannot simply read off particular linguistic features as metadiscourse, but have to identify the strategies that speakers and writers are using in producing those features at a particular point in the discourse' (p. 25). This suggests that propositional information is organised in coherent and convincing ways for the readers (Hyland, 2004). Therefore, metadiscourse deserves to be studied in its own right because it is an important

aspect of human communication (Mauranen, 2010) that demands the careful awareness of speakers and writers to identify the function of a word within a particular text (Hyland, 2005) to employ the metadiscourse elements successfully.

Hyland (2005) suggested that no simple criteria exist for identifying metadiscourse; therefore, writers can consider it an open category for adding new items according to their needs within the contexts. Metadiscourse studies focus on explicit textual devices, and this emphasis is explicitly an essential criterion of metadiscourse for practical, textual and rhetorical identification purposes. Thus, Hyland and Tse (2004, p. 39) listed three principles of metadiscourse:

1. Metadiscourse is distinct from propositional aspects of discourse.
2. Metadiscourse refers to the aspects of texts that embody writer–reader interaction.
3. Metadiscourse distinguishes relations external to the text from those that are internal.

### **Key Principle 1. Metadiscourse is distinct from propositional aspects of discourse**

Throughout the various definitions provided by scholars, such as Williams (1981), Vandekopple (1985) and Crismore et al. (1993), the definitions present a clear distinction between metadiscourse and propositional content. In general, propositional content refers to thought or actors, or the content discusses affairs in the world outside the text (Hyland & Tse, 2004). This distinction corresponds with Halliday's (1994) statement that 'propositional material is something that can be argued about, affirmed, denied, doubted, insisted upon, qualified, tempered, regretted and so on' (p. 70). Because academic writers aim to inform and persuade their readers about their activities, the propositional content is strongly concerned with internal arguments and its reader (Hyland, 2005). This focus confirms the essential role of metadiscourse

in supporting propositional content because it ‘is the means by which proposition is made coherent, intelligible and persuasive to a particular audience’ (Hyland, 2005, p. 39).

Although the distinction between metadiscourse and propositional content is required for some purposes, such as exploring metadiscourse elements (markers) in academic writing, this distinction should not be taken too far, as ‘it is integral to [the] process of communication not mere commentary on proposition’ (Hyland, 2005, p. 41). The word *distinct* does not suggest separation or consider the propositional content primary, whereas metadiscourse is secondary because they are integrated (Hyland & Tse, 2004).

**Key Principle 2. Metadiscourse refers to aspects of texts that embody writer–reader interaction**

This principle relies on the interaction between writers and their audience, ‘the people who will read what you have written’ (Oshima & Hogue, 1991, p. 20), to achieve successful communication. ‘There is an intimate relationship between discourse practices and the social organization of disciplinary communities, and that these communities crucially influence the ways that the writers typically argue and engage with their readers’ (Hyland, 2004, p. 240).

The writer’s awareness of self and of readers directly affects selecting explicit signalling and relationships between elements of an argument (Thompson, 2001) because ‘knowing the audience will help the writer to reach his/her goal of communicating clearly and effectively’ (Oshima & Hogue, 1991, p. 20). ‘Effective writing involves developing an awareness of the audience and an ability to reflect and exploit that awareness in the way the text is written’ (Thompson, 2001, p. 58). ‘When writers focus on audience, they have greater insights into which concepts are common and ground and which must be explained and supported ... metadiscourse



allows writers to address their audience and engage them in developing dialogue' (Intaraprawat & Steffensen, 1995, p. 254).

### **Key Principle 3. Metadiscourse distinguishes internal and external relations**

This principle considers the interpersonal and propositional items in a text to distinguish their primary function in discourse. This distinction represents an internal and external reference (Hyland, 2005). Cohesive devices, for example, can connect steps in an exposition (internal reference) to organise the discourse in an argument or connect activities outside the text to present 'experiences' in a series of events (external reference; Martin, 1992).

Based on the views discussed above, in this study, metadiscourse can be defined as 'the cover term for self-reflective expressions used to negotiate interactional meanings in a text, assisting the writer (or the speaker) to express a view point and engage with readers as member of a particular community' (Hyland, 2005, p. 37). It links the macro-level of text development, referring to the organised text to achieve its purpose, to the micro-level, referring to different functions performed by linguistic components (Waller, 2015). This link represents the metadiscourse markers that 'are the linguistic exponents through which the different functions of the text are carried out' (Waller, 2015, p. 81).

#### **2.3.1 Significance of Metadiscourse in Academic Writing**

The focus on the concept of *metadiscourse* is raised in research on composition, reading, rhetoric and text structure (Hyland, 2005). Such studies from different disciplines have demonstrated the importance of metadiscourse in casual conversation (Schiffrin, 1980), school textbooks (Crismore, 1984), postgraduate dissertations and theses (Bunton, 1999; Kawase, 2015) and company annual reports (Hyland, 1998). This importance is because of its beneficial role in facilitating communication, supporting a position, increasing readability and building a

relationship with the audience (Hyland, 2005). '[I]ts significance lies in the role it plays in explicating a context for interpretation and suggesting one way which acts of communication define and maintain social groups' (Hyland, 2004, p. 136).

Writing is a cognitive process (Cheng & Steffensen, 1996) that requires a clear message to be conveyed from the writer to the reader by constructing grammatical sentences and cohesive text through cohesive devices that signal logical relations and guide readers to make sense of the text (Hamed, 2014; Heino, 2010). This message considers language use to be a social and communicative engagement that involves a producer (the writer) and a receiver (the reader) who work together through the medium of the text to achieve the main goal of writing: 'we write to be read' (Cheng & Steffensen, 1996, p. 152).

Because writing is a social act involving interaction between a writer and reader, the writer must establish and maintain a relationship with the reader to present convincing text (Rasti, 2011). This interactive relationship is vital and involves writers/speakers and their audience in reciprocal acts of comprehension because the acts of meaning, either in writing or speaking, are engaged to demonstrate the interests, positions, perspectives and values of those who enact them (Hyland, 2005). Therefore, metadiscourse shows the mutual processes of communication between the writer and the reader that can facilitate the exchange of information in addition to the writer's personalities, attitudes, and assumptions (Hyland, 2005). This can be related to the view of writer-reader interaction expressed by Thompson (2001). He suggests that proficient writers should be able to predict the information that their readers may need while reading a text and anticipate their questions or reactions to what is written, as texts are based on a series of written responses to previously predicted reactions. This interaction implies that writers must develop an awareness of their readers' needs, comprehension abilities, and reactions to the

text (Thompson, 2001). However, it is not guaranteed that the real-world reader would show the expected response to the texts that are written for them (Thompson, 2001); therefore, speaking of the ‘reader-in-the-text’ is more useful (Thompson & Thetela, 1995).

In written texts, two main types of interaction exist: interactive and interactional (Thompson, 2001; Thompson & Thetela, 1995). The interactive aspects refer to the writer’s awareness of the audience’s reactions and needs, which primarily consider the flow of information to guide the readers through the content of the text, while the interactional aspects aim to engage the readers in the arguments of the text by allowing the writers to overtly conduct the interaction with their audience (Thompson, 2001).

Based on the two functional aspects above, the writer can interact with the readers to guide them through the text (interactive) and engage them in the text (interactional). These two aspects are ‘essentially two sides of the same coin’ (Thompson, 2001, p. 59). Furthermore, rather than simply molding the text interactively to fit the readers, writers may choose at any point to bring their management of the unfolding of the text to the surface and to engage themselves and readers explicitly in the process: in these cases, the text acts out the organizing interactionally instead of just embodying it. (Thompson, 2001, p. 61)

With metadiscourse, writer–reader interaction can be formally realised in the text (Rasti, 2011). Therefore, proficient writers employ predictable text patterns associated with lexical signals to guide their readers’ expectations of the text development and progression (Thompson, 2001), implying that ‘the writer has to conduct his interaction by enacting the roles of both participants’ (Widdowson, 1984, p. 59). This writer–reader interaction can be related to cohesion and coherence in writing, as it considers the writer’s flow of ideas by guiding and engaging the reader in the argument.

Since the 1970s, researchers have studied cohesion and coherence in writing under different labels, such as conjunctions by Halliday and Hasan (1976); metatalk by Schiffrin (1980); metatext by Mauranen (1993); linking adverbials by Biber et al. (1999) and metadiscourse by various researchers, such as Bax et al. (2019); Crismore et al. (1993); Hyland (2005, 2016); Mauranen (2010) and Vande Kopple (1985). Although diverse scholars from different perspectives define the various terms of cohesive devices, they share the three basic functions of language listed by Halliday (1973) as follows:

1. Ideational (informational) function: It 'functions as a mean[s] of expression of our experience, both of external world and of the inner world of our consciousness' (p. 57).

This function refers to information related to the level of meaning and aims to convey the content or information to the reader from the writer (Williams, 1981). It corresponds with the 'propositional content' notion, focusing on the perception of the world and our consciousness (Hyland, 2005). The following extract is derived from Brown and Ford (2014, p. 114) to present an example of a scientific extract about atoms; all the cohesive devices in this extract were removed to show the content only:

All atoms are electrically neutral. They contain charged particles known as protons and electrons. The number of protons (+) is equal to the number of electrons (-). Their charges cancel each other out. The positively charged protons, located within the nucleus of the atom, are not transferred during chemical reactions. Electrons, positioned outside the nucleus, are less tightly held, and outer electrons, known as valence electrons, can be transferred when atoms react together.

The above extract focuses on the informational function, which is the atom structure. The same extract will be used to explain the following function.

2. Interpersonal function: ‘It represents the expression of our personalities and personal feelings on the one hand, and forms of interaction and social interplay with other participants in the communication situation on the other hand’ (Halliday, 1973, p. 58). This function refers to the language the writer uses to encode interaction with the readers, engage with them and express their feelings (Hyland, 2005). The same extract about the atoms in the previous point by Brown and Ford (2014) is used as it shows how the cohesive devices transformed the sentence to present the interpersonal function as follows:

All atoms are electrically neutral, even though they contain charged particles known as protons and electrons. This is because the number of protons (+) is equal to the number of electrons (-), and so their charges cancel each other out. The positively charged protons, located within the nucleus of the atom, are not transferred during chemical reaction. Electrons, however, positioned outside the nucleus, are less tightly held and outer electrons, known as valence electrons, can be transferred when atoms react together. When this happens, the atom is no longer neutral, but instead carries an electric charge and is called an ion. The charge on the ion which forms is therefore determined by how many electrons are lost or gained (Brown and Ford, 2014 p. 114).

In this extract, it can be noticed that cohesive devices are used to present the scientific material in a narrative style. The first information in the extract, that *atoms are electrically neutral*, is supported by a reason using the device ‘*because*’ to explain the neutrality of atoms. Then, the information is elaborated by providing some details about the *protons*, which have the positive charges, and the *electrons*, which have the negative charges, in contrastive sentences using the device ‘*however*’ to address the opposition between two things, protons and electrons,

that exist together, which results in neutrality for an atom. The extract ends by giving the reader the assumption that if the atoms react together, neutrality will no longer exist as the number of electrons may either increase or decrease. The use of cohesive devices and the underlying assumption show the interactive process between the reader and the writer.

3. Textual function: This function represents the language that the writer uses to provide organised and coherent text to facilitate the flow of ideas, feelings and attitudes (Hyland, 2005). 'It is the component that enables the speaker to organize what he is saying in such a way that it makes sense in content and fulfils its function as a message' (Halliday, 1973, p. 58). Hyland (2005) presented an example of the camera manual book to demonstrate this function as follows, 'First, select the picture and double click on it. Second, click on the arrow buttons to go forward or backward. Finally, click "OK" on the operation panel to return to the previous display' (p. 47). The underlined cohesive devices provide an example of how specific steps can be processed in a particular organised way to help the reader follow the writer's instructions (Hyland, 2005).

### **Summary**

The previous section presents definitions of the term *metadiscourse* by various scholars, focusing on the three main principles of metadiscourse suggested by Hyland and Tse (2004). The section also discusses the importance of metadiscourse in writing by considering two main types of interaction: interactive and interactional. These types are related to the writer–reader interaction, as writing is viewed as a social activity in this research. Diverse researchers view the ideas of cohesion and coherence with different labels, yet they share the three language functions Halliday proposed (1973). The following section discusses the different taxonomies of metadiscourse markers.

### 2.3.2 Metadiscourse Markers and Schemes

Several definitions of the concept of *metadiscourse* result in many models (schemes) that classify metadiscourse elements (markers) in specific categorisations (Ädel, 2006). It is important to define the term *metadiscourse markers* because these markers are divided into specific categories in the schemes designed by researchers. *Metadiscourse marker* refers to linguistic expressions that carry out two major functions in written or spoken texts (examples are provided in the taxonomies in this section). The first function considers the textual level that ‘provide[s] cohesion between the ideas of the texts to indicate conjunctive and/or additive, adverbial, casual and temporal relationships in the text’ (Schiffrin et al., 2003, p. 55). Such relationships aim to organise propositional information to be coherent and convincing to the perceived audience (Hyland, 2004, p. 12). The second function focuses on the interpersonal level that indicates the attitudes of the writer/speaker towards ‘the subject matter of the text or to the text itself’ (Bax et al., 2019, p. 3). These functions of metadiscourse markers correspond to the two levels of cohesion in any written text at the micro and macro levels. The former level refers to the linguistic function of the cohesive devices that connect sentences or paragraphs, whereas the latter represents the text development in which the organisation flows to achieve its purpose (Waller, 2015).

Harris (1959) identified metadiscourse markers, regarding them as parts of the text with secondary importance. Nevertheless, this view lacks a clear distinction between primary and secondary importance because the interrelation between the ideational, interactional and textual elements reveals that secondary elements can affect the writer’s aim of the text and act of communication (Waller, 2015).

Later, Vande Kopple (1985) designed a classification scheme of metadiscourse divided into textual and interpersonal categories. Textual metadiscourse demonstrates how individual propositions are linked and related to form cohesive and coherent text to make sense with other textual elements. In contrast, interpersonal metadiscourse enables writers to express their personalities and reactions towards the propositional content and customise the interaction they aim for with their readers. This classification involves seven categories of metadiscourse markers, as described in Figure 2.5 below.



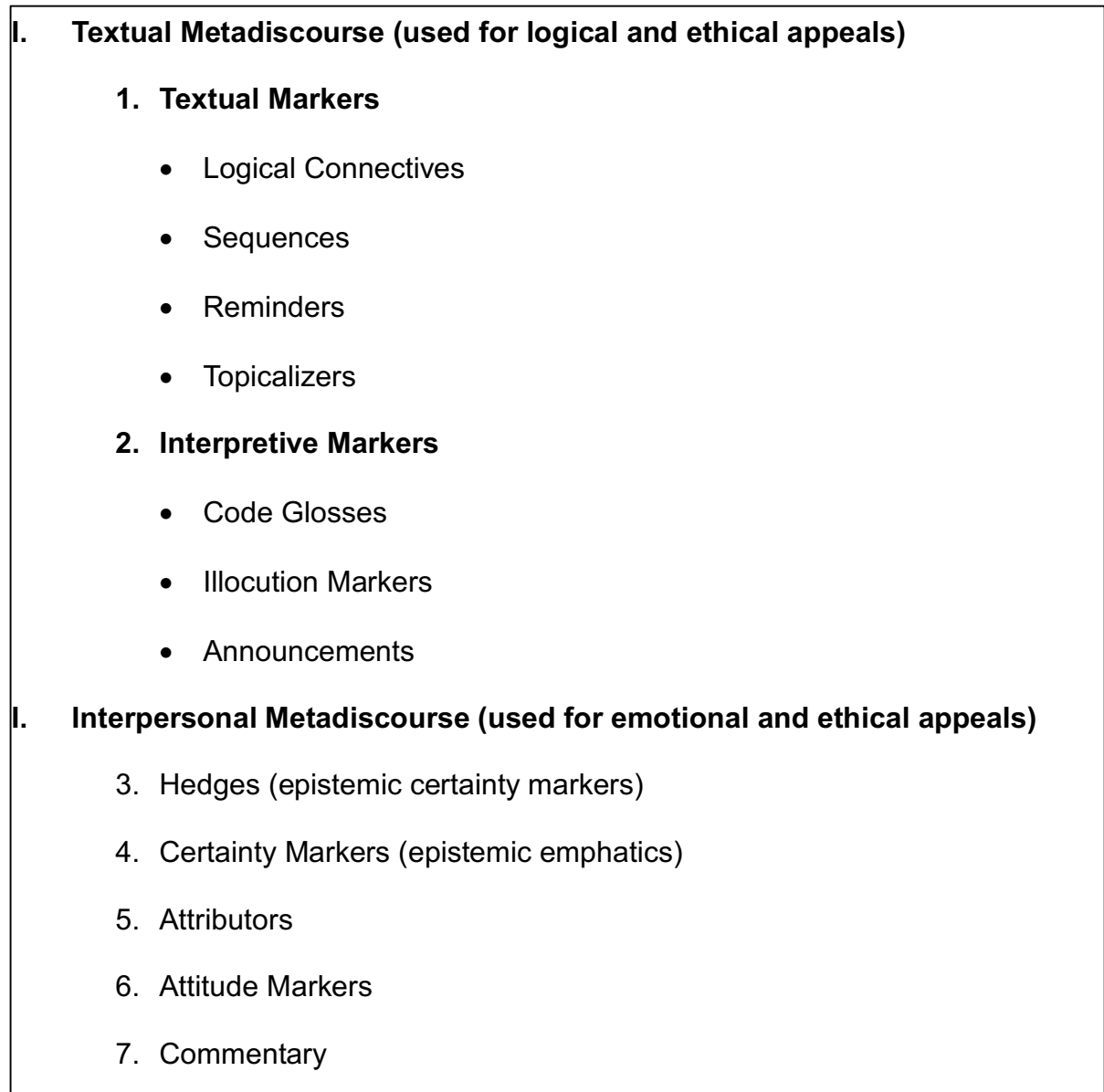
**Figure 2. 5** Classification system for Metadiscourse Marker Taxonomy by Vande Kopple (1985, pp.82-92).

<b>Textual Metadiscourse</b>
<p>1. <b>Text Connectives:</b> help readers recognize how texts are organized, and how different parts of the text are connected to each other functionally or semantically (<i>e.g. first, next, however, but</i>).</p>
<p>2. <b>Code Glosses:</b> help readers grasp and interpret the meanings of words and phrases (<i>e.g. X means Y</i>).</p>
<p>3. <b>Illocution Markers:</b> make explicit what speech act is being performed at certain points in texts (<i>e.g. to sum up, to give an example</i>).</p>
<p>4. <b>Narrators:</b> let readers know who said or wrote something (<i>e.g. according to X</i>).</p>
<b>Interpersonal Metadiscourse</b>
<p>1. <b>Validity Markers:</b> assess the truth-value of the propositional content and show the author's degree of commitment to that assessment, i.e. hedges (<i>e.g. might, perhaps</i>), emphatics (<i>e.g. clearly, obviously</i>), attributors (<i>e.g. according to X</i>), which are used to guide readers to judge or respect the truth-value of the propositional content as the author wishes.</p>
<p>2. <b>Attitude Markers:</b> are used to reveal the writer's attitude towards the propositional content (<i>e.g. surprisingly, it is fortunate that</i>).</p>
<p>3. <b>Commentaries:</b> draw readers into an impact dialogue with the author (<i>e.g. you</i></p>

Many researchers, such as Crismore and Farnsworth (1990) and Intaraprawat and Steffensen (1995), have used Vande Kopple's classification model to analyse metadiscourse

markers. However, this model has drawbacks that cause difficulties when applied in practice. For example, distinguishing narrators and attributors can be misleading in academic writing that uses citation to form a variety of rhetorical functions (Hyland, 2005). According to Vande Kopple's model, citations under the validity marker category offer propositional warrants to meet conventions of precedence (narrators), yet they can provide a narrative context for the research (Berkenkotter & Huckin, 1995). Furthermore, 'It is not entirely clear how far either the analyst or the reader can determine which function may be intended' (Hyland, 2005, p. 33). Consequently, some researchers, such as Nash (1992) and Vande Kopple (2002) himself, have modified the model. Crismore et al. (1993) provided a developed model of Vande Kopple's classification (Figure 2.6).

**Figure 2. 6** Modified Classification System for Metadiscourse Markers Taxonomy by Crismore et al. (1993, p. 47).



After comparing these two models, the two major categories, textual and interpersonal metadiscourse, remained the same. The narrator marker category was dropped, whereas other markers, such as code glosses and illocution markers, were moved to the interpersonal marker category. The textual metadiscourse category organises discourse, whereas the interpersonal metadiscourse category better interprets the writer's meaning and strategy (Crismore et al.,

1993). Crismore et al. (1993) stated, 'Linguistic material in texts, written or spoken which does not add anything to the propositional content but that is intended to help the listener or the reader organize, interpret and evaluate the information given' (p. 40). Notwithstanding, the statement confirms Crismore and Farnsworth's (1990) argument that advocates a clear separation between propositional content as primary discourse and metadiscourse as secondary discourse. Their separation is undermined 'by simultaneously admitting the propositional function as a part of metadiscourse' (Hyland, 2005, p. 20).

Therefore, Hyland's (2005) taxonomy of 'interpersonal mode of metadiscourse' is built on the previous models of metadiscourse designed by such researchers as Vande Kopple (1985), Crismore et al. (1993), and Hyland (1998, 2004) himself. It is based on the functional approach that considers metadiscourse a method used by writers to refer to the text, writer and reader. It was derived from Thompson's (2001) distinction between interactive and interpersonal resources that organise and evaluate interaction features (Hyland & Tse, 2004). Table 2.2 is followed by an explanation of its categories supported by examples.

**Table 2. 2** Hyland's (2005, p. 49) Taxonomy of Interpersonal Model of Metadiscourse

<b>Category</b>	<b>Function</b>	<b>Examples</b>
<b>Interactive</b>	<b>Help guide the reader through the text</b>	<b>Resources</b>
Transitions	Express relations between main clauses	In addition; but; and
Frame markers	Refer to discourse acts, sequences or stages	Finally; to conclude my purpose is
Endophoric markers	Refer to information in other parts of the text	Noted above; see Fig.; in Section 2
Evidentials	Refer to information in other texts	According to X; Z states
Code glosses	Elaborate propositional meanings	Namely; e.g.; such as
<b>Interactional</b>	<b>Involve the reader in the text</b>	<b>Resources</b>
Hedges	Withhold commitment and open dialogue	Might; perhaps; possible; about
Boosters	Emphasise certainty or close dialogue	In fact; definitely; it is clear that
Attitudes markers	Express the writer's attitude toward the proposition	Unfortunately, I agree
Self-mentions	Explicit reference to the authors	I; we; my; me; our
Engagement markers	Explicitly build a relationship with readers	Consider; note; you can see that

### **Categories of Metadiscourse Markers in Hyland's Taxonomy**

The following subsections illustrate the categories of metadiscourse markers in Hyland's (2005) scheme and present their functions in writing.

#### ***A. Interactive Category***

Interactive metadiscourse markers refer to the writer's awareness of the anticipated audience to deal successfully with their knowledge, interest in rhetorical expectations and processing abilities (Hyland, 2005). This awareness enables the writer to organise and construct the propositional content to establish the writer's interpretation

explicitly (Hyland, 2004). These markers ‘help the writer to signpost the structure of the unfolding text and to signal the structural link between the various parts of the developing argument’ (Burneikaitė, 2008, p. 39). This category is divided into five subsections.

### 1. *Transition Markers*

These markers refer to the conjunctions and adverbial phrases that signal additive (*and* and *moreover*), causative (*thus* and *therefore*) and contrastive (*however* and *in contrast*) relations from the writer’s perspective to connect discourse (Hyland & Tse, 2004). Furthermore, Hyland (2005) asserted that for the reader to interpret the links between ideas, metadiscourse markers must signal the internal role of the discourse rather than the outside world. Hyland adopted Martin and Rose’s (2003) table (Table 2.3) to distinguish between the internal and external roles of transition markers.

**Table 2.3** External and Internal Roles of Transitions by Martin and Rose (2003, p. 127)

<b>Relation</b>	<b>External</b>	<b>Internal</b>
<b>Addition</b>	Adding activities including chronological sequencing	Adding arguments
<b>Comparison</b>	Comparing and contrasting events, things and qualities	Comparing and contrasting arguments and evidence
<b>Consequence</b>	Explaining why and how things happen	Drawing conclusions or countering arguments

While many scholars, such as Vande Kopple (1985) and Crismore et al. (1993), have considered these markers to be ‘straightforward and unproblematic’ because they carry out a textual function, Hyland and Tse (2004) drew attention to the problematic functions of these same markers. They argued that these textual markers (connectives and logical markers) can perform interactions between a writer and

readers to develop an argument. More precisely, they supported this argument with different academic extracts to illustrate how a transition marker can be multifunctional, as in the following example: ‘A parametric estimation technique using global optimization is introduced for the output space partition. **But we first** discuss the optimization technology in the next section’ (an extract from EE PhD; Hyland & Tse, 2004, p. 136).

The contrastive marker *but* signals ‘incompatibility between information in different discourse units’ (Biber et al., 1999, p. 878), yet it was used in this extract to inform readers that there is a need to discuss the ‘*optimization technology*’. This usage implies that the conjunction *but* is interactionally motivated to contribute to the creation and maintenance of shifting interpersonal orientation (Hyland & Tse, 2004). In addition, the writer can use the linker *first* to present the enumeration of pieces of information in order (Biber et al., 1999), but it was used to pave the way for the discussion. In Table 2.1, the marker *first* has an external role, not an internal role. These two examples explain the problematic functions of transition markers.

This problem explains why Hyland (2005) employed the third key concept of metadiscourse in designing the metadiscourse taxonomy. The writer and reader must carefully consider the text to distinguish between the external and internal roles of a multifunctional marker.

## 2. *Frame Markers*

These markers ‘are references to text boundaries or elements of schematic text structure’ (Hyland & Tse, 2004, p. 168). They carry out different functions that can

shape the framing information about the text, which is illustrated by Hyland (2005) as follows:

- Signaling additive or enumerative relations in a text (*first, next, then* and *at the same time*);
- Labelling text stages (*to summarise* and *by way of introduction*);
- Announcing discourse goals (*the purpose of this paper is* and *I argue here*); and
- Indicating topic shifts (*turning now to* and *well*).

Both transitions and frame markers appeared in previous taxonomies under the textual marker category.

### 3. *Endophoric Markers*

These refer to the other parts of the text, such as *see Section 5* or *as illustrated in Figure 2*. These markers can draw the reader's attention to additional ideational material that enables them to uncover the writer's meaning, facilitating comprehension and guiding them in the argument discussion to achieve the preferred interpretation (Hyland, 2005).

### 4. *Evidentials*

These carry out a function similar to endophoric markers by relying on the attribution of propositional content to an outside source in the current situation, such as *according to X* and *Y quotes that* (Hyland & Tse, 2004). This suggests that writers use external sources of information to strengthen their arguments and guide their readers' interpretations (Hyland, 2005). However, if a writer wants to use evidentials by citing other authors' quotations regarding a propositional content, he must distinguish his attitudes from the cited quotations (Hyland, 2005).



## 5. Code Glosses

These markers enable the reader to uncover the writer's meaning by providing additional information in other ways, such as 'rephrasing, explaining or elaborating on what has been said' (Hyland, 2005, p. 52). 'They can be signaled by fairly explicit phrase (*e.g. for example, in other words*) or more subtly (*or*)' (Waller, 2015, p. 93).

### **B. Interactional Category**

While interactive category markers, which are discussed above, deal with explicit markers to present the writers' preferred interpretations, interactional category markers engage the readers in the argument by altering them to the writer's stance towards the propositional information and the readers as well (Hyland, 2005). 'Metadiscourse is essentially evaluative and engaging, influencing the degree of intimacy, the expression of attitude, epistemic judgements and commitments and the degree of reader involvement' (Hyland & Tse, 2004, p. 168). This category is divided into five subsections.

#### 1. Hedges

These markers are devices, such as *might* or *possibly*, that express the writer's reluctance to provide propositional information categorically (e.g. *approximately, almost, about, perhaps, seems* and *maybe*; Hyland, 2004). They refer to the relation between a writer and readers by addressing the degree of probability of a statement, which requires that writers be cautious in defining their relationships with their research community and carefully express their ideas (Hyland, 1994). This explains the importance of using these markers in academic writing because writers can present cautious, modest and plausible claims that can be diplomatically negotiated when referring to colleagues' work (Hyland, 1994).

## 2. *Boosters*

Unlike the hedge markers, Hyland (1999) defined boosters as devices, such as *clearly* or *obviously*, that express certainty to assert the force of propositions by closing down other possible alternatives that construct a mutual understanding of trust and agreement between writers and readers (e.g. *in fact*, *clearly* and *undoubtedly*). Hyland (2005) highlighted that the balance in using hedges and boosters is crucial because it offers writers the opportunity to express respect for readers by presenting different degrees of commitment and alternatives to the content.

## 3. *Attitude Markers*

These markers are devices (e.g. *unfortunately*, *prefer* and *appropriate*) used by writers to express their appraisal of the propositional information by conveying different expressions, such as surprise, agreement, importance, obligation and so on (Hyland & Tse, 2004). These markers direct the readers' response because of the writers' anticipation of their readers (Waller, 2015).

## 4. *Self-mention Markers*

These markers, such as *I*, *me*, *mine*, *we* and *our*, refer to 'the extent of the author presence in terms of first-person pronouns and possessives' (Hyland, 2004, p. 140). The absence or presence of such markers is related to the writer's conscious decision to adopt a specific view and contextual authorial identity (Hyland, 2001).

## 5. *Engagement Markers*

These markers explicitly address the reader (Waller, 2015). They either direct the readers' attention or involve them as participants in the text using second-person

pronouns (e.g. *you* and *your*), imperatives (e.g. *consider*) or a question form (e.g. *Why does it occur in this type of class?*) (Hyland, 2001; Hyland & Tse, 2004).

Many scholars have adopted Hyland's (2005) taxonomy, such as Bax et al. (2019), Hyland (2009), Rasti (2011) and Waller (2015). Most studies that have applied Hyland's taxonomy have focused on the written language. Thus, Ädel (2010) proposed a taxonomy of metadiscourse in spoken and written academic English (Figure 2.7).

**Figure 2. 7** Ädel's (2010, p. 83) Taxonomy of Metadiscourse in Spoken and Written Academic English.

Metatext	<ul style="list-style-type: none"> <li>• <b>Metalinguistic Comments</b></li> <li>• Repairing</li> <li>• Reformulating</li> <li>• Commenting on linguistic form/meaning</li> <li>• Clarifying</li> <li>• Managing terminology</li> <li>• <b>Discourse Organisation</b></li> <li>• Introducing topics</li> <li>• Delimiting topics</li> <li>• Adding to topics</li> <li>• Concluding topics</li> <li>• Marking asides</li> <li>• Enumerating</li> <li>• Endophoric marking</li> <li>• Previewing</li> <li>• Reviewing</li> <li>• Contextualising</li> <li>• <b>Speech Act Labels</b></li> <li>• Arguing</li> <li>• Exemplifying</li> </ul>
Audience	<ul style="list-style-type: none"> <li>• Other speech act labelling</li> <li>• <b>References to the Audience</b></li> <li>• Managing comprehension/channel</li> <li>• Managing audience discipline</li> <li>• Anticipating the audience's response</li> <li>• Managing the message</li> <li>• Imagining scenarios</li> </ul>

Ädel's (2010) taxonomy involves two orientations: the 'metatext' related to the code/discourse and the 'audience interaction' related to the audience. Twenty-three discourse functions are classified into four categories: metalinguistic comments, discourse organisation, speech and labels and references to the audience. Ädel employed two corpora to provide examples for her taxonomy: the *Michigan Corpus of Academic Spoken English*, a spoken corpus providing spoken examples, and the *MICUSP*, a corpus providing written examples (Table 2.4).

**Table 2. 4** Discourse Functions of Ädel's (2010, pp. 84-88) Taxonomy and Samples from Spoken and Written Corpora

<b>Discourse Function</b>	<b>Role</b>	<b>Spoken Example</b>	<b>Written Example</b>
<b>Repairing</b>	Refers to alterations to correct a preceding statement	<i>Uh... maybe I should've said the possibility...</i>	-
<b>Reformulating</b>	Refers to alternative expressions because of the added value of expansion	<i>If you'll allow me just, rephrase it a little...</i>	<i>either necessary truths or necessary falsehoods</i>
<b>Commenting on linguistic form/meaning</b>	Metalinguistic references to linguistic form, word choice or meaning	<i>now, what do we have going on in the Spanish?</i>	<i>To put it in Fregean language, we can therefore say that</i>
<b>Clarifying</b>	Considers the audience, as it involves examples of the addresser wishing to specify what he or she is saying) to avoid misunderstanding	<i>I'm not claiming uh that they know every...</i>	<i>Again, I do not mean to say that...</i>
<b>Managing terminology</b>	Providing definitions for the concepts that refer to a phenomenon	<i>term which we'll use quite a bit, which we might as well define now, is that if...</i>	<i>When we use the term Creole in this paper, we will be using the following definition: ...</i>
<b>Introducing topic</b>	Opens the topic	<i>what we're gonna do, in, today's lecture, is...</i>	<i>In this paper, I explore the relationship between</i>
<b>Delimiting topic</b>	States how the topic is constrained	<i>We're not gonna deal with all eight here</i>	<i>is outside the scope of this paper, I have restricted my discussion to a few of the most common...</i>
<b>Adding to topic</b>	Comments on the addition of a topic	<i>uh i should add too that that uh, Ueda Akinari was known as a contemporary of Motoori Norinaga</i>	<i>We might add that their oppressors, equally maligned by the privileges they...</i>
<b>Concluding topic</b>	Closes the topic	<i>okay. so we've now talked in detail about the first two steps</i>	<i>We conclude that our results are consistent with the hypothesis that...</i>

<b>Discourse Function</b>	<b>Role</b>	<b>Spoken Example</b>	<b>Written Example</b>
<b>Marking asides</b>	Opens or closes a ‘topic sidetrack’	<i>and now um, actually i want to do a little aside here...</i>	-
<b>Enumerating</b>	Shows how specific parts of the discourse are ordered in relation to each other.	<i>and we’re gonna talk about mutations first</i>	<i>n the following section I will present this objection followed by...</i>
<b>Endophoric marking</b>	Points to a specific location in the discourse	<i>okay so if you look at question number one, uh in your handout...</i>	<i>From these map points, we see that the proper gene order is...</i>
<b>Previewing</b>	Points forward in the discourse	<i>and um the second question which we’ll examine in the in the second hour...</i>	<i>In Section 5, I evaluate the predictions Cole &amp; Hermon’s analysis makes with respect to...</i>
<b>Reviewing</b>	Points backwards in the discourse	<i>uh we ended last time uh with...</i>	<i>We have seen two different arguments purporting to show how...</i>
<b>Contextualising</b>	Comments on the situation of writing or speaking and contains traces of the production of the discourse	<i>okay let’s uh, we’re doing pretty well on time so let’s...</i>	<i>Larson does not go into great detail on this and I will not do so here either.</i>
<b>Arguing</b>	Stresses the action of arguing for or against an issue	<i>I was arguing to you that the different...</i>	<i>I argue that there are three ways in which...</i>
<b>Exemplifying</b>	Introduces an example	<i>these people were, part of that group of painters uh we’re talking Helen Frankenthaler Grace Hartigan</i>	<i>I will use the embezzlement example to examine answers with respect to...</i>
<b>Other speech act labelling</b>	Refers to speech acts that are not sufficiently frequent—at least not in the present data set—to have their own label as suggested	<i>That’s the only hint I’m gonna give you for that question, um...</i>	<i>and I am suggesting that...</i>
<b>Managing comprehension/channel</b>	Ensures that the addresser and addressees are ‘on the same page’	<i>...more compact digital you know what i mean?</i>	-

<b>Discourse Function</b>	<b>Role</b>	<b>Spoken Example</b>	<b>Written Example</b>
<b>Managing audience discipline</b>	When the audience is directly addressed and typically instructed to do something	<i>alright, can i get your attention please?</i>	-
<b>Anticipating the audience's response</b>	Predicts the audience's reaction to what is said	<i>you guys'll probably, end up thinking... that I'm a twisted bastard for for uh for giving the...</i>	<i>You might still think that...</i>
<b>Managing the message</b>	Emphasises the core message in what is being conveyed	<i>Hat's a very powerful theory but what i want you to remember is...</i>	<i>I hope that the reader has arrived at similar positions after reading this paper.</i>
<b>Imagining scenarios</b>	Asks the audience to see something from a specific perspective	<i>We'll give this guy a name we'll call him A. and let's say, there's...</i>	<i>Suppose I say that it is wrong for me to steal some money, by which I mean I ought not...</i>

By relating Ädel's (2010) taxonomy to the three basic language functions by Halliday (1973), some discourse functions as the managing terminology in the categories of commenting on linguistic form/meaning, arguing, exemplifying and other speech act labelling could be related to Halliday's (1973) ideal function of language, as the speaker or writer aims to provide reasons and examples to support the main point of discussion. The category *references to the audience* has an interpersonal function because it presents items to engage the reader or listener in a discussion with the writer or speaker. Last, the discourse organisation category refers to the textual function, as it involves elements that can guide the reader or listener to follow the ideas of a writer or a speaker. Although Ädel's taxonomy was designed to compare spoken and written metadiscourse, her taxonomy focuses more on academic speech research, such as that by Ädel (2012) and Feak (2013), who employed the taxonomy to analyse spoken language.

## **Summary**

The previous section presents various taxonomies designed by scholars regarding metadiscourse markers. Each taxonomy was related to the three language functions presented by Halliday (1973). These taxonomies were presented in chronological order, focusing on their advantages and drawbacks. This chronological order provided the evolution of the taxonomies designed before Hyland's (2005) taxonomy. In addition, it presented a taxonomy proposed by Ädel (2010) that considers metadiscourse markers to compare spoken and written language. The section ends with the justification of using Hyland's (2005) taxonomy for this study. The following section considers the relationship between metadiscourse and language pedagogy because this study considers the use of metadiscourse markers by language learners.

### **2.3.3 Metadiscourse and Language Pedagogy**

As various research has been conducted to study metadiscourse from different perspectives, the language pedagogical setting is one of these perspectives. The appropriate use of metadiscourse markers can efficiently contribute to comprehension, resulting in good language learning and native-speaker student writing (Intaraprawat & Steffensen, 1995) because it 'comprises an essential element of persuasive and argumentative discourse' (Hyland, 2005, p. 5). Metadiscourse offers teachers a useful way of assisting students towards control over disciplinary sensitive writing practice. As writers engage with their topic and their readers, exploration by students of metadiscourse in their own and published writing can offer assistance for learning about appropriate ways to convey attitude, mark structure and engage with readers. (Hyland, 2004, p. 140)

This research aims to study metadiscourse marker use by language learners, particularly regarding their writing skills in the instructed language pedagogy context. Thus, the relationship



between metadiscourse and writing pedagogy must be examined. ‘The significance of metadiscourse is gradually becoming recognized in language teaching, but until recently was largely neglected as teachers focused instead on content: how speakers and writers conveyed their ideas’ (Hyland, 2005, p. 175).

This focus explains why second language (L2) writers produce texts that are generally shorter, less cohesive, and less fluent with more errors (Purves, 1988). In addition, ‘L2 writing is statically, rhetorically and linguistically different in important ways from L1 writing’ (Silva, 1993, p. 669), which causes struggles in language learners in fleshing out a mental image for their readers (Hyland, 2005; Silva, 1993). Systematically, students of different L1 backgrounds develop their ideas differently (Kaplan, 1966). In writing a paragraph in English, L1 Arabic students produced parallel coordinate clauses. Asian writers, such as Chinese students, employed the indirect approach to present the point at the end of the text. French, Spanish and Russian speakers used extraneous material in the introduction far more than English speakers (Kaplan, 1966).

The use of metadiscourse markers by a second language writer is unclear (Bax et al., 2019) because research has revealed different results that require attention. For example, Ferris (1994) claimed that a direct correlation exists between the number of cohesive devices used and the second language proficiency level. She examined 160 essays written by English language learners with different L1 backgrounds (Arabic, Chinese, Japanese, and Spanish) and different proficiency levels. The findings indicated that high proficiency writers use more cohesive devices than low proficiency writers. Similarly, Liu and Braine (2005) studied 50 essays by Chinese English foreign language (EFL) writers and found a strong positive correlation between the second language writing proficiency level and the prevalence of cohesive devices.

In contrast, Modhish (2012) examined 50 English essays written by Yemeni EFL (L1 Arabic) undergraduate students at Taiz University to analyse their use of cohesive devices. He found that the participants overused elaborative markers, followed by inferential, contrastive, causative, and topic-related markers, according to Fraser's (1993) taxonomy. In addition, no strong positive correlation existed between the participants' writing quality and the total number of cohesive devices in their written text. Modhish (2012) concluded that participants extensively used the markers *and*, *also*, *so*, and *but* due to their frequent appearance in the students' textbooks and classroom instructions. Thus, the language learners require adequate exposure to such linguistic items to use the markers appropriately.

#### **2.3.4 Factors Influencing Metadiscourse Marker Use by Language Learners**

In this regard, 'an awareness of the variety of devices acquired from second language teaching led many writers to overuse them and sometimes misuse them' (Field & Oi, 1992, p. 27). These errors of overusing, underusing, and misusing metadiscourse markers in writing by language learners are obstacles that may impede their language progress. Overusing a metadiscourse marker refers to the extensive employment of the marker while leaving the other alternatives that can do the same function; conversely, underusing a metadiscourse marker means the confined use of the marker. Typically, researchers use frequencies to examine the frequent use of metadiscourse markers in the participants' productions or texts. This means that the overuse and underuse of metadiscourse markers in research can be related to the quantitative analysis part. The misuse of a metadiscourse marker refers to the incorrect use of a marker, and researchers use qualitative analysis to examine the inappropriate use of the targeted markers in the participants' production.

Burneikaitė (2008) listed three primary factors that may affect language learners in using metadiscourse markers appropriately in their writing:

- linguistic-cultural background,
- traditional institutional practice, and
- individual writer style.

### ***1. Linguistic-cultural background***

The linguistic and cultural differences between languages affect language learners' productive skills, both spoken and written (Kaplan, 1966). Cultural conventions for writing affect the use of metadiscourse markers (Ädel, 2006). These conventions are a specific type of L1 interference in a foreign language, which was defined by Chesterman (1998) as 'a native language structure ... tend[ing] to be transferred in foreign language performance and thus produce errors' (p. 42). Hyland (2003) stated, 'research suggests that schemata of L2 students differ from those of L1 writers in their preferred ways of organizing ideas, and these cultural preconceptions may hinder effective communication' (p. 45).

Mauranen (1993) pointed out that writing habits are influenced by culture because writing is a cultural object, and the writer's cultural background influences the use of metadiscourse markers. In her contrastive study, she compared and contrasted English academic texts written by Anglo-American and Finnish economists. The results revealed that the Finnish writers used metadiscourse markers less than Anglo-American writers because the Finnish culture and educational system considered metadiscourse superfluous and a sign of poor writing (Intaraprawat & Steffensen, 1995). Furthermore, the Anglo-American writers highly focused on guiding their readers in the text to show their presence, confirming the view of the writer's responsibility to interact with the reader (Hyland, 2005; Thompson, 2001). In contrast, the

Finnish writers considered the reader's role more demanding. Thus, achieving a successful communication process was more important (Mauranen, 1993).

In the same vein, Bäcklund (1998) studied the use of metadiscourse markers in English academic texts written by English and Swedish writers and found that they have similar extents. The only difference was that English writers addressed the reader 12% more often than Swedish writers. These results correspond with Hind's (1987) typology, which divides languages into the following categories:

- **Writer-responsible:** Readers expect the writer to provide most of the propositional structure required for a clear, well-organised text, as in the English language culture (Hyland, 2003).
- **Reader-responsible:** Readers must search for the hidden meaning, as in Chinese and German cultures (Clyne, 1987), because they 'expect to supply significant inferencing' (Ädel, 2006, p. 149).

Therefore, in the English language culture, good writers can achieve clarity in their writing by using signposts (metadiscourse markers) to help their readers through their arguments because these markers explicitly serve to organise the text and comment on it. Nevertheless, L2 writers from more reader-responsible cultures may not notice the significance of metadiscourse (Hyland, 2003). Writers from different language and cultural backgrounds may avoid using metadiscourse in English writing because they assume that too much use of metadiscourse markers would insult their readers' perception (Ädel, 2006).

While Mauranen (1993) and Bäcklund (1998) suggested that nonnative English writers use fewer metadiscourse markers, other studies have found the opposite. For example, Darweesh and Kadhim (2016) investigated English essays written by Iraqi (L1 Arabic) EFL undergraduate

students to analyse the problems they face when using cohesive devices in academic writing. The findings revealed that students misused certain conjunctions, such as *whether* instead of *however* and *even* instead of *even if*, because these students could not distinguish between the semantics of different adversative conjunctions. Furthermore, they employed redundant additives to join simple sentences. These findings support a study by Hamed (2014), who examined the use of conjunctions as ‘cohesive devices’ in argumentative essays written by Libyan undergraduate students (L1 Arabic) majoring in English at Omar Al-Mukhtar University. He analysed 32 argumentative essays utilizing Halliday and Hasan’s (1976) taxonomy and found that contrastive, additive, and resultative connectors are problematic for the participants. For example, the connector ‘on the other hand’ appeared seven times, but it was misused six times because the students’ writing did not show any contrastive relations between the sentences. Instead, they used the connector to present different ideas. In the negative transfer of L1 Arabic, “and’ has five functions: continuative, additive, commentary, adversative, and simulative .... Arab students seemed to transfer the continuative function of “wa و” into their English writing since it is used at the beginning of the sentences and paragraphs in Arabic texts” (2014, p. 116). Hamed presented evidence of how these students’ L1 transfer, and textbook lessons led to their misuse of the connector ‘and’ to link sentences. Arabic uses the connector ‘and’ at the beginning of sentences in conjunction with other connectors to emphasise their significant function – a practice that does not work in English since each connector is independent. Therefore, effective writers employ cohesive devices appropriately rather than excessively (Walsh, 2010).

The students in these studies have a negative transfer from their L1 because the connector *and* in the Arabic language has five functions: continuative, additive, communicative,

adversative and simulative (Hamed, 2014). Therefore, language learners should be aware of the conventions of the target language because of the following:

the way of using metadiscourse in writing may vary from one language to another, that the conventions followed in its use may be different in different cultures. From this, it follows that when writing in a foreign language, new conventions may have to be adopted. (Markkanen et al., 1993, p. 138)

## **2. *Institutional traditional practice***

This factor considers textbooks and language teachers, as their effects overlap in students' production. Concerning textbooks, authors and publishers provide attractive layouts and transparent materials to the students because they are consumer readers (Swales, 1995). Although the rhetorical practices in textbooks designed for novice learners differ from other academic genres (Myers, 1992; Swales, 1995), 'EFL and EAP writing textbooks are often equally unhelpful, either treating metadiscourse features in a rather piecemeal and cursory way or ignoring them altogether' (Hyland, 2005, p. 178). Textbooks rarely consider the importance of hedges, whereas boosters and transitions can be misinterpreted (Milton, 1999).

For example, in a corpus-based study, Hyland (1994) analysed 22 textbooks at different levels, from post-beginner to advanced, designed for L2 students to prepare for academic study or science courses in English. Although these textbooks varied in terms of their style, organisation, assumption of proficiency, audience and pedagogic approaches, they shared the aim of teaching academic writing skills. Hyland designed his study to examine and evaluate the hedging devices in these 22 textbooks. The results revealed that modal verbs (e.g. *will*, *would*, *should*, *may*, and *might*) were the most frequent devices employed in these textbooks, whereas

the three modal nouns (*assumption, claim, and evidence*) were only cited. In addition, modal adjectives (e.g. *possibly*) were absent.

Hyland's (1994) findings draw attention to the fact that such awareness of how hedges are used is rare because the hedging devices are presented without a system or comment. These devices dealt with a single exercise that missed the emphasis of their function or importance. For example, most of these textbooks regarded modal verbs as conditionals, ignoring their hedging function of tentativeness. Moreover, the hedging devices were inadequately presented in textbooks, which imparted misleading information to students due to scattered information, insufficient explanation, limited practice materials and omitted alternatives for modal verbs behind the no supported presentation of hedges in published materials (Hyland, 1994). Therefore, 'a student who knows only the way textbooks use hedges for uncertainty is unprepared for the ways the articles use them in polite statements of claims' (Myers, 1992, p. 11). Textbooks underrepresent the importance of hedges, and students have difficulty orienting themselves to using epistemic strategies in their writing (Hyland, 1994).

Flowerdew's (1998) contrastive study confirms the effects of textbooks on student writing. She compared two corpora – an expert corpus (*Micro-Concord Academic Corpus Collection*) and a learner corpus (*Hong Kong University of Science and Technology Learner Corpus*) – and found differences between the two corpora in using 52 devices that express reason: results, means and grounds for the conclusion. The results revealed that the learner corpus overuses logical connectors as a sign of coherence, relies on a small set of devices, underuses mitigating markers, such as modal verbs that function as casual devices, and lacks specific grammatical features (relative clauses with causative verbs).

The concept of metadiscourse is familiar to teachers in L2 classes as an array of distinct devices that assist readers in processing written texts. Therefore, it is widely taught in academic writing courses (Hyland, 2004). Disturbingly, ‘neglect of metadiscourse in EFL textbooks may be duplicated by teachers who rely on such texts as sources for their own in-house materials’ (Hyland, 2005, p. 178). Because textbooks are designed with a sense of relevant and important areas to cover for busy teachers, teachers may assume that the items mentioned in textbooks are important for the course, whereas anything not included is unimportant and can be safely omitted (Hyland, 2005). Hyland (2004) stated that metadiscourse markers are

often taught in a rather piecemeal fashion, and little attention is given to how they function more widely to influence the interaction between the writer, the reader and the text, or how they relate to particular genre and discipline in which the student is working. (p. 135)

### ***3. Individual writer style***

This factor focuses on learner strategies in L2 writing. Learner strategies refer to the conscious actions, behaviour, steps and techniques applied by language learners to improve their comprehension and internalise progress while using L2 (Oxford, 1992). According to Ädel (2006), these strategies explain the linguistic behaviour of all learners, regardless of L1 or L2. Language learners use these strategies as a compensatory technique to make up for a lack of sufficient L2 knowledge. She hypothesised that ‘speakers using a foreign language put more effort into linguistic and metalinguistic matters than speakers using their L1, which results in more metadiscourse’ (Ädel, 2006, p. 153). This hypothesis agrees with the findings by Kasper (1998), who proved that advanced learners have greater verbosity in their output because



Learners may be conscious of their foreigner role and as a result feel a stronger need to establish rather than presuppose, common ground than do native speakers. This leads learners to try to make their reasons for imposing on interlocutors as explicit as possible when performing illocutionary acts such as requests. (N. Ellis, 1994, p. 183)

However, Ehrman (2008) examined the consciousness of participants who combined intuiting and thinking. The results indicate that students' high consciousness helps them improve their target language competence, and 'they also strive to be precise in their use of words, expressions and grammar' (Ehrman, 2008, p. 67). The diverse findings in these studies can be considered normal because the learners' individual differences spontaneously lead to varied results.

### **2.3.5 Learners' Awareness and Use of Metadiscourse Markers**

The above discussion on the main factors influencing the use of metadiscourse markers by language learners requires raising their awareness of the factors influencing their use of metadiscourse markers in writing. Raising awareness is essential for both English second language ESL and L1 writers because it offers three main benefits, listed by Hyland (2005) as follows:

1. Awareness enables writers to understand the cognitive demands that the texts target readers and the ways writers can help to process information.
2. It provides writers with the required resources to express and explain their positions regarding their statements.
3. Awareness allows writers to engage readers in a community with appropriate dialogue by negotiating their position.

Rhetorical studies are important sources for researchers and language teachers because they enable them to identify rhetorical patterns and conventions across several languages and reveal their influence on ESL students' writing at different proficiency levels (Hyland, 2003).

A full understanding of the meaning and rhetorical function of metadiscourse markers enables writers to identify infelicities in their developing texts to increase the clarity of their writing (Intaraprawat & Steffensen, 1995). This outcome suggests that the students' use of metadiscourse markers reflects their awareness and management of discourse as a process (Burneikaitė, 2008). Thus, 'it is vital that students should receive appropriate instruction in metadiscourse using models of argument which allow them to practice writing within the socio-rhetorical framework of their target communities' (Hyland, 2005, p. 178). ESL writers tend to use metadiscourse devices very differently to their native English-speaking counterparts. This means that 'they often fail to represent themselves or their ideas in the ways that they intend and their writing can seem contextualized, incoherent and inappropriately reader-focused. Students generally recognized that they need to interact with their readers, but without a clear understanding of available resources, they often simply transfer conversational features to their writing' (Hyland, 2005, p. 176). Therefore, teaching students to use metadiscourse markers effectively, essentially, means helping them to develop a sense of audience and equipping them with the means to engage with that audience appropriately ... yet, many students find it hard to see writing as 'interactive' and so take their models from the more obvious to and fro of face to face encounters means there is a considerable value in explicitly introducing the concept of metadiscourse to students and discussing the functions it performs for writers (Hyland, 2005, p. 181).

This instruction requires tasks to draw the students' attention to rhetorical influence and its features that recur in a particular genre and communities to develop their curiosity about the rhetorical practices of their communities and attitudes towards text (Swales, 1990). Targeted genre and rhetorical strategies affect the use of metadiscourse markers; therefore, language learners are urged to learn the rhetorical function of metadiscourse markers and to know how to construct their desired rhetoric (Kawase, 2015).

### **Summary**

The previous section discussed factors affecting the use of metadiscourse markers by language learners during writing. It focuses on their linguistic-cultural background, institutional practice, and individual writing style by supporting them with empirical studies. It also highlights the importance of raising awareness among language learners to enable them to understand and overcome these obstacles. Since this study aims to investigate the effect of DDL on the use of metadiscourse markers by language learners in academic writing, particularly in argumentative essay writing, the following section will discuss academic writing. It will consider its definition and its features and show its relationship with argumentative essay writing.

### **2.4 Academic writing**

Writing is one of the productive skills that is developed through practice. It has a vital role in communication as it enables writers to express their ideas, thoughts, and feelings in the written form of a language (Agustiana, 2016). The appropriate use of metadiscourse markers 'comprises an essential element of persuasive and argumentative discourse' (Hyland, 2005, p. 5). Hence, it is important in English for Academic Purposes (EAP) and educational programmes (Hyland, 2005). In academic writing teaching programs, writing instructions aim to support student writers in obtaining membership in their specific discourse communities through the

acquisition of contemporary practices in the field of academic literacy (Ahmed, 2019). Fang (2021) defined academic writing as a kind of writing that ‘involves ideas that are expressed in careful elaboration, logical sequence, rigorous reasoning and tightly woven together’ (p. 4). It has different features such as formality, objectivity, and rigour.

1. Formality refers to an accurate and rigid style of writing, (Heylighen and Dewaele, 1999). By adhering to grammar, spelling, and punctuation conventions, as well as employing a variety of lexical and grammatical selections proposed by scholars such as Averil Coxhead (2000), who provided the academic word list, writers are required to avoid ambiguity and misinterpretation.
2. Objectivity means that a writer should provide arguments that are based on logical reasoning and supporting evidence (Fang, 2021). These arguments require cautious management of emotions, bias, and interpretive preferences in writing (Alvermann & Reinking, 2006). This suggests that when a writer considers an argument using evidence and examples, acknowledges different perspectives on the same argument, and reaches a conclusion, objectivity can be achieved (Fang, 2021).
3. Rigour refers to the clarity and precision of word choice, as well as the logic of arguments. The word selection in academic writing depends on some factors, such as the level of audience and modifying devices (e.g., embedded clauses) that are used to elaborate the meaning of terms or ideas while discussing (Fang, 2021).

#### **2.4.1 Tribble’s Classification of Academic Writing Approaches**

According to Hyland (2006), ‘English for Academic Purposes (EAP) means teaching English to assist learners’ study or research in that language’ (p. 1). Tribble (2009) noted that

EAP writing instruction programmes in the United Kingdom and the United States have different starting points. In the United Kingdom, for example, EAP can be seen as the English language context in higher education (e.g., university level), whereas in the United States, EAP can be viewed as strengthening the students' academic literacies in the pre-college or pre-university programmes. Based on these two views, Tribble (1996) identified two major approaches to EAP programmes: the intellectual/rhetorical approach, which is used in the United States for academic writing instruction, and the social/genre approach, which is utilised in the United Kingdom for academic writing teaching.

The materials that are provided to language learners in the intellectual/rhetorical approach are classified based on the content level by focusing on the modes of Exposition, Description, Narration, Argumentation, and Classification (Tribble, 1996). Writing tasks in these modes progress progressively, beginning with the sentence level and progressing to the paragraph level until the entire text is reached (Tribble, 1996). The process approach to writing instruction informs this tradition as it focuses on the writer (Raimes, 1983). The process approach, according to Hyland (2003), highlights that the learner's role is that of an independent producer of texts more than that of a learner who needs the teacher's support to write texts. His perspective was based on two essential demands: first, to recognise basic cognitive processes as central to writing activities; and, second, to assert the importance of a developing learner's abilities to plan, define a rhetorical problem, and propose and evaluate solutions. Hyland (2016) listed four stages that can be followed in teaching writing through the process approach as follows:

1. Prewriting stage: language learners brainstorm a topic while the teacher facilitates the process through such activities as mind mapping, note-taking, and discussing the selected topic;
2. Composing/drafting stage: learners are encouraged to get ideas down on paper without focusing on accuracy;
3. Revising stage: learners refine their ideas to adapt to their readers for peer review or individual self-evaluation, and
4. Editing/proofreading stage: this step can be done either in pairs or individually. In this stage, learners check and correct the form, layout, and evidence.

Regarding the materials in the social/genre approach, they are based on the Vygotskian notion of ‘scaffolding’ which is a procedure that shows movement from the analysis of contextualised exemplars of language that are necessary to the completion of specific academic tasks through the independent construction of text by learners (Tribble, 2009, p. 405). It is a teaching/learning strategy whereby learners are encouraged to engage in a collaborative problem-solving activity with their teachers. The teacher provides demonstrations, support, guidance, and input and gradually withdraws as the learners become independent (Richards and Schmidt, 2002). In this tradition, language learners can focus on the relationship between readers and writers by considering the texts that are provided for them as primary data. Therefore, they can analyse, imitate, challenge, and transform these texts as they develop and become more proficient (Tribble, 2009).

Tribble (2009) reviewed some EAP course textbooks, taking into account orientation (EAP categories, such as intellectual/rhetorical and social/genre), target users (student level), the main methodologies used in these books, as well as his comments on these methodologies.

“Effective Academic Writing 3, The Essay” by Davis and Liss (2006), for example, is a course book that deals with the major essay types (process, cause and effect, comparison and contrast and argumentative) relying on the intellectual/rhetorical orientation. It is provided for pre-college or pre-university programs. Another example is “New Headway Academic Skills, Reading, Writing and Study Skills Level 3” by Philpot and Curnik (2007). It focuses on essay types in addition to working with data and the citation that is required for assignments written by university students. Its orientation is based on social/genre that relies on scaffolding. While Tribble (2009) provided a review of academic writing course books that aims to assist language teachers in considering the materials that suit their students’ needs in EAP classes, he commented that most of these books focus on developing essayist literacy for students in a writing course. He, also, noted that the differences between the variety of EAP textbooks were not highlighted either in the titles or the promotional materials associated with these books. Whether these books focus on five-paragraph composition or students’ needs in writing a master dissertation, these books ‘will be called something along the lines of writing academic English’ (Tribble, 2009, p. 416).

#### **2.4.2 Academic Writing and Argumentative Essay Writing**

Even though Tribble’s (2009) comments on some EAP course textbooks might be criticised as these books mainly focused on essay writing, other views highlight the importance of essay writing at the university level. Essay writing can be considered a genre that Hyland (2009) names the “acculturation practice” which aims to develop the student writers’ descriptive, analytical, and critical skills through exposition and argumentation. Its significance can be seen in developing academic knowledge and socio-cultural embedded literary conventions’ (p.132). Therefore, by raising the students’ awareness, they can be trained to

develop their familiarity with a variety of text types or genres they would come across in their academic life (Ahmed, 2019).

Since this study aims to examine the effect of DDL intervention on argumentative essays that are written by language learners at an intermediate level, there is a need to relate argumentative essay writing to the field of academic writing. Scholars discussed argumentative essays from different perspectives such as contrastive rhetoric by Hyland (1990, 2009) and Swales (1990) in English for specific purposes. ‘Argumentation is a sub-genre of academic writing that involves a controversy usually stated in a proposition or statement (Ahmed, 2019, p. 280). ‘The structure of the argumentative essays is commonly taught in academic writing textbooks for English language learners’ (Schneer, 2013, p. 620). However, even though university students may not need to write argumentative essays in their university assignments, Crowhurst (1988) argues that the ability to write persuasively can lead to success in academic and real-life settings. Typically, the argumentative essay includes a discussion on a topic that promotes arguments for and against the topic in addition to the writer’s position on that topic (Ahmed, 2019) and aims to persuade the reader of a central proposition (Hyland, 1990). According to Fang (2021), the argumentative essay is a common academic task ‘as making the argument is a staple of scholarly inquiry’ (p. 160). To fulfil this task, a student writer introduces an issue, states his position on that issue, provides reasoning and evidence to connect them with claims, and considers both adherent and opposing positions. Developing the linguistic resources that enable the student writers to discuss reasoning, and evidence and express the different positions of an argumentative essay (Fang, 2021). Based on Tribble’s discussion on the two approaches of academic writing and the views of some scholars such as Hyland (1990) regarding the argumentative essay, it can be concluded that the argumentative essay has the mode of



academic writing from the perspective of the intellectual/rhetorical approach.

### **Summary**

This section focused on academic writing by considering its definition and main features. It discussed Tribble's (1996, 2009) classifications for the intellectual/rhetorical and social/genre approaches as they have different views regarding EAP writing programs. Based on these classifications, argumentative essay writing was linked to academic writing through the view of an intellectual/rhetorical approach.

### **2.5 Theoretical Framework**

The main key concepts of this study are DDL, metadiscourse markers and argumentative writing is a mode of academic writing. It is important to explain the use of metadiscourse markers by language learners and examine the efficiency of applying the DDL approach in writing pedagogy in light of theoretically grounded constructs. The theoretical framework displays the design and execution of research on metadiscourse and its relation to DDL. It enables a researcher to examine the features and effects of the DDL approach accurately and allows researchers to reciprocate by contributing to a deep understanding of the theory.

This section discusses two key theories: the output and noticing hypotheses. This section presents the beginning of the output hypothesis and explains its three main functions. An explanation of the differences in employing metadiscourse markers by language learners in the light of the output hypothesis is provided. This section reviews the noticing hypothesis by focusing on its origin and principles. A discussion of the relationship between these two hypotheses is considered. Then, it explains the role of the noticing hypothesis in processing DDL intervention by considering other definitions of explicit/implicit instruction and

deductive/inductive learning, as they have a relationship with instructed second language acquisition.

### **2.5.1 Output Hypothesis**

The output hypothesis emerged when Swain (1985) questioned the input hypothesis of Krashen's theory in the 1980s. According to Krashen (1982, 1985), comprehending meaningful messages and analysing messages in the innate language faculty are essential for language acquisition. In the input hypothesis, Krashen (1985) argued that comprehensible input slightly beyond the learners' current level is necessary for language acquisition. He presented an example of this process: if a language learner is at a specific level  $i$ , the acquisition occurs when this learner is exposed to a comprehensible input that belongs to level  $i + 1$ , as it suits the learner's ability.

This point is related to the interaction hypothesis by Long (1996). Long considered that language acquisition occurs based on three components. First, the learners receive comprehensible input that can be either in spoken or written form that makes sense for learners and is suitable for their level. The second component is the interaction, referring to the communicative practices when learners discuss the input in a socio-communicative context. They receive instant feedback on their utterances during the interaction to determine whether they are accurate. Long (1985) viewed 'the negotiation of meaning', which states that discourse patterns, such as clarification requests, lead to more comprehensible input. The third component is the output, where learners move from the comprehension to production stage. Therefore, Krashen (1982, 1985) claimed that exposure to sufficient input knowledge was only one necessary method for second language acquisition.

However, Swain (1985) argued in a seminal study that relying only on ‘comprehensible input is not sufficient for successful second language acquisition’ (p. 249) because nonnative speakers require the opportunity to produce comprehensible output and achieve successful second language acquisition. Her hypothesis relating to language learners’ production is comparable to the input hypothesis by Krashen. The results of Swain’s (1985) study, conducted on immersion students in Canada, constructed the basics of the output hypothesis. She analysed and evaluated the receptive and productive skills of students enrolled in the French immersion programme in Canada and were exposed to a rich source of comprehensible input for about eight years. The findings revealed that in reading and listening comprehension tests, the immersion students achieved scores similar to Francophone students’ scores (native speakers of French) of the same age. However, in writing and speaking tests, the immersion students did not show the same proficiency in productive skills, and their interlanguage performance was still off-target. Therefore, Swain (2005) raised doubts about the input hypothesis and questioned its validity, particularly in the argument that ‘comprehensible input was the only true cause of second language acquisition’ (Krashen, 1984, p. 61).

Swain (2005) explained that the output hypothesis is the main reason for considering immersion students off-target in their productive skills (writing and speaking) because they did not speak the same amount of French during the day as they did during the English portion of the day. Another important reason is that the students were not forced or pushed by their teachers to produce language, enabling them to negotiate their meaning in ‘getting one’s message across’ (Swain, 2005, p. 472). This finding confirms the basic premise of comprehensible output, which suggests that producing L2 pushes language learners to produce coherent and appropriate output that contributes to second language acquisition (Shehadeh, 2002; Swain, 2005). The output

attracts the learners' attention to the means of expression required to convey the intended meaning successfully (Swain, 1985). Therefore, a comprehensible output is as necessary as comprehensible input for the following reason:

Its role is at the minimum to provide opportunities for contextualized meaningful use, to test out hypotheses about the target language and to move the learner from a purely semantic analysis of the language to a syntactic analysis of it. (Swain, 1985, p. 252)

In the same vein, Swain and Lapkin (1995) pointed out that learners' performance in the target language is a mechanism that enables them to notice the gap in their interlanguage capacity. This noticing forces them into a conscious reprocessing performance that produces modified output.

The output hypothesis does not negate the significance of the input hypothesis, although the output hypothesis appeared as a reaction to the input hypothesis by Krashen (1982, 1985). Rather, it aims to complete and reinforce the input-based approaches (Izumi & Bigelow, 2000).

The input hypothesis

refers to the language that a learner is exposed to in a communicative context, i.e., from reading or listening ... it is an essential component for learning in that it provides the crucial evidence from which learners can form linguistics hypothesis. (Gass & Mackey, 2015, p. 182)

Thus, the productive skills (speaking and writing) of language learners can reveal how those learners produce modified outputs using their receptive skills (listening and reading) and drawing their 'attention to problematic aspects of their inter-language' (Gass & Mackey, 2015, p. 199).

Swain's output hypothesis is based on three main functions that occur successively:

- the noticing/triggering function,
- the hypothesis testing function, and
- the metalinguistic (reflective) function.

### ***1. Noticing/triggering function***

According to Swain (1995, 2005), this function considers the challenges that may impede the learners' performance. When they produce target language in speaking or writing, they may notice difficulty in precisely expressing the meaning they aim to convey. Swain (2005) asserted that '[...] while attempting [to] produce the target language [...], learners may notice that they do not know how to say or write precisely the meaning they wish to convey' (p. 474). In other words, under some circumstances, producing the target language may prompt second language learners to consciously recognise some of their linguistic problems. It may bring their attention to something they need to discover about their second language (possibly directing their attention to relevant input). 'This awareness triggers cognitive processes implicated in second language learning, in which learners generate linguistic knowledge that is new for them or consolidate their current existing knowledge' (Swain, 2005, p. 474).

Swain and Lapkin (1995) provided an example of an immersion student in Canada writing a composition in a think-aloud session. During negotiations with his peers, the following extract represents his search, triggered by his own input that he noticed was incorrect. '*La dé...truc...tion. Et le detruccion. No that's not a word. Démolition, demolission, démolition, démolition, detruccion, détruision, détruision, la détruision des arbres au forêt des pluie* (the destruction of the trees in the rain forest)' (Swain & Lapkin, 1995, p. 379).

The student in the above example tried different possibilities until he decided to use the last solution, '*la détruision*', which was wrong, yet he used his French knowledge to use the stem

of the verb that he said and added a French-sounding suffix (Swain, 2005). ‘L2 output pushes learners to process language more deeply (with more mental effort) than input does’ (Swain, 1995, p. 126).

In the same vein, in an experimental study, Uggen (2012) examined whether the learners’ produced output influences their attention to L2 structures in subsequent input. He found that the output activities presented to the participants in the experimental group induced greater noticing of the relevant forms in the subsequent input than in the control group that did not have output activities. Although the results did not indicate any significant differences in the quantitative results, the qualitative data revealed that the writing quality in the experimental group was better than that of the control group.

Through the internal feedback as output, learners may recognise the limitation of their interlanguage, promoting self-monitoring (Swain & Lapkin, 1995). Therefore, if a relevant input is immediately provided to them, ‘noticing the gap’ results in deeper subsequent input for learners with more focused attention that triggers their interlanguage development (Uggen, 2012). Therefore, Swain (2005) suggested directing the focus that views the output as a product to consider the output to be the processes involved while constructing output, including the noticing. She asserted the importance of the output as a cognitive tool that is ‘a stimulator of integrative processing’ (Izumi, 2002, p. 571) of subsequent input. The output facilitates the process of noticing both the difficulties in learners’ interlanguage and the relevant features of input (Izumi et al., 1999). The output mechanism promotes language acquisition by drawing learners’ attention to their limitations in interlanguage capacity (Izumi et al., 1999; Pica, 1988; Shehadeh, 2002).

## **2. Hypothesis testing function**

This function is related to the learner's responses to feedback, both explicit and implicit, particularly their modified utterances that Swain considered profitable for second language learning (Egi, 2010). Swain and Lapkin (1995) noted,

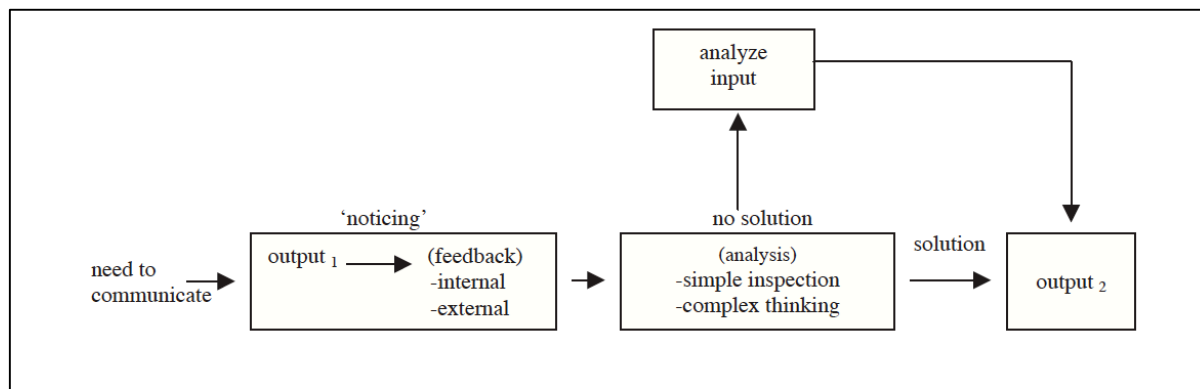
In producing the L2, a learner will on occasion become aware of (i.e. notice) a linguistic problem brought to his/her attention either by external feedback (i.e. clarification request) or internal feedback. Noticing a problem "pushes" the learner to modify his/her output. In doing so, the learner may sometimes be forced into more syntactic processing mode than might occur in comprehension. Thus, output may set "noticing" in train, trigger mental processes that lead to modified output. (pp. 372–373)

Swain (1995) suggested that the pushed output has a significant role in developing morphological and syntactical language components required for accuracy in production. However, pushing learners to modify their output through corrective feedback may harm their performance (Peker & Arslan, 2020), as it increases anxiety levels that limit the learners' ability to comprehend or attend to output. Trebit (2014) studied the effect of anxiety on some speaking and writing tasks by language learners and found that anxiety negatively affects learners' spoken and written use of modalities in their spoken and written performance.

Therefore, producing the target language is insufficient to stretch learners' linguistic abilities (Swain, 1995, 2005) because 'they must be pushed to modify their problematic utterances' (Egi, 2010, p. 2). When learners receive feedback that signals incomprehensible or no target-like utterances, they may reconsider their language and modify it to be more comprehensible (Swain, 2005). The modified output represents 'the internalization of new

linguistic knowledge or the consolidation of existing knowledge' (Swain & Lapkin, 1995, p. 374; Figure 2.8).

**Figure 2. 8** Output Processes in Second Language Acquisition by Swain and Lapkin (1995, p. 386).



According to Figure 2.8, Swain and Lapkin (1995) stated that 'what goes on between the first output and the second ... is part of the process of second language learning' (p. 386). Therefore, they concluded that 'sometimes, under some conditions, output facilitates second language learning in ways that are different from or enhance those of input' (p. 371). For example, while constructing output, learners pay attention to their interlanguage structures, enabling them to compare their interlanguage and the target language and attend to their linguistic limitations (Gass, 2010; Uggem, 2012). This attention can be related to input enhancement, referring to any pedagogical technique that aims to make a particular aspect of written input more salient to the learners, such as using bold or italics to attract attention to a specific element in the text (Sharwood Smith, 1981). Nevertheless, Sharwood Smith (1991) cautioned that exposing learners to enhanced text does not guarantee the intake occurrence in the developing interlanguage system, as some learners may make incorrect meaning connections. Thus, with input enhancement alone, learners notice the enhanced target form that may or may not result in further language processing (Russell, 2014). A study by Russell (2014) tested the



noticing function of the output hypothesis by comparing the effects on the learners' output and the exposure of enhanced textual input. She found that the experimental group participants who pushed output followed by textual enhancement input demonstrated better writing performance than participants in the control group who were only exposed to the enhanced input.

### **3. *Metalinguistic (reflective) function***

*Metalinguistic* means 'using language to reflect on language produced by others or the self, mediates second language learning' (Swain, 2005, p. 478). This function is related to the learners' interaction when they work together in pairs or groups, as they are expected to engage in solo mental functioning derived from joint activities. Learners in these activities use language to externally and collaboratively mediate problem solutions. Swain and Lapkin (1995) called these joint problem-solving dialogues 'collaborative dialogue' that engages speakers in problem-solving and knowledge building. Therefore, in the instructed SLA context, language learners use collaborative dialogue to solve linguistic problems and build knowledge about language. Their usage confirms the significance of learners' dialogue that demonstrates how acting on linguistic data becomes part of the mental activity for participants (Swain, 2005). The metalinguistic function highlights the importance of the learners' output to engage in conscious reflection on their language use, particularly in a collaborative dialogue (Hanaoka & Izumi, 2012). Conscious reflection is connected to language awareness, which

is a mental attribute which develops through paying motivated attention to language in use, and which enables language learners to gradually gain insights into how languages work. It is also a pedagogic approach that aims to help learners to gain such insights.

(Bolitho et al., 2003, p. 251)

Language awareness is not taught by language teachers or by course textbooks because it is a dynamic and intuitive process (Tomlinson, 1994) developed by learners in ‘internal, gradual realization of the realities of the language use’ (Bolitho et al., 2003, p. 252). The main principle of language awareness is engaging learners’ attention in the learning process. This attention to the language features can help learners notice the gap between their performance in the target language and that of proficient users (Bolitho et al., 2003). The noticing provides salience to a feature, so that it becomes more noticeable in future input thereby contributes to the learner’s psychological readiness to acquire that feature (Bolitho et al., 2003, p. 252). When learners notice and identify their agendas through output, they become more prepared to ‘look for solutions in the model text in a heightened awareness of problematicity’ (Hanaoka & Izumi, 2012, p. 335).

### **2.5.2 Language Learners and Metadiscourse Marker Use from the Output Hypothesis Perspective**

In light of the output hypothesis, the use of metadiscourse markers by language learners is related to the ‘awareness of the variety of devices acquired from second language teaching that led many writers to overuse them and sometimes misuse them’ (Field & Oi, 1992, p. 27). For example, in corpus-based research, Ersanli (2015) studied the use of cohesive devices in academic writing by comparing Turkish EFL learners’ essays with those of native English speakers. A total of 151 essays totalling 49,600 words written by Turkish students enrolled in a tertiary-level academic writing course at a Turkish state university were collected, analysed, and compared with the *British Academic Written English Corpus (BAWE)*. He found statistically significant differences ( $p < .001$ ) in using some connectors between the writing of Turkish learners and native speakers, suggesting that Turkish learners significantly overuse many

cohesive devices in their academic essays, especially those in the enumerative/additive, resultative, and contrastive categories.

Hamed (2014) analysed 32 argumentative essays written by undergraduate students (L1 Arabic) majoring in English. The results revealed that contrastive, additive, and resultative connectors are problematic and challenging for language learners, whereas adversative connectors are used with the greatest frequency because of the argumentative genre. The connector *on the other hand* appeared seven times; however, it was misused six times because the students' writing did not show any contrastive relations between the sentences. Instead, they used the connector to present different ideas.

Most ESL textbooks present conjunctions in lists without showing the subtle differences between them in terms of semantic function ... The conjunction[s] 'on the other hand' and 'however' are classified under the same functional category adversative, therefore, participants believe that the conjunction 'on the other hand' is used interchangeably with 'however' and 'but'. (Hamed, 2014, p. 115).

Furthermore, the difference between the learners' L1 and target language and their lack of understanding of connectors' semantic roles caused them to overuse certain connectors. Granger and Tyson (1996) examined the use of connectors in English argumentative essays written by advanced French learners of English. Their findings indicated that French learners mostly used additive, exemplifying, and emphatic connectors, whereas they underused the main connectors required for argumentative essays, such as contrastive connectors (*however* and *although*) and grounds for an argument (*therefore* and *thus*). This use is because of the different argumentative patterns in English and French (Neff-van Aertselaer, 2015), leading French learners to misuse some linking adverbials. 'The subjects used several English connectors as they would be their

equivalent in French unaware of the differences between them' (Garner, 2013, p. 413). For instance, the connector *on the contrary* was overused due to its similarity to the French expression *au contraire*, which is used in the French writing system to express a concessive and antithetic link (Granger & Tyson, 1996).

Given the discussion so far, the output hypothesis assumes that learners' awareness of their linguistic limitations prompts them to modify their produced language to be comprehensible by others. Their limitations can be defined as mistakes that are 'non-systematic and temporary, often slips of the pen or tongue considered performance phenomena. They are often recognized by the learner, either instantly or in retrospect' (Callies, 2015, p. 41). Therefore, learners prefer using specific connectors because 'frequently-used linguistic items inspire the feeling of being familiar and safe' (Granger, 1998, p. 156). Learners' preference for specific connectors over others that they cannot use correctly in their writing may lead to a lack of logic or coherence, hindering understanding (Yu, 2012). 'The students' lack of familiarity with formal English linking adverbials is an evidence that second language writers misuse linking adverbials stylistically by overusing more colloquial linking adverbials in academic writing while underusing formal linking adverbials' (Hamed, 2014, p. 113).

The output hypothesis focuses on the difficulties that may impede the performance of language learners, requiring raising their attention and awareness to deal with and manage these difficulties successfully. This focus reveals a relationship to the noticing hypothesis, particularly in the second principle, which explains the learner's notice in achieving better language acquisition. The following section explains the noticing hypothesis, its principles, and the relationship between the noticing and output hypotheses and their roles in learning processes.

### 2.5.3 Noticing Hypothesis

The origin of the noticing hypothesis was in 1983 when Schmidt questioned the reasons for the consistent lexical and grammatical errors of a Japanese learner of English 'Wes'. Schmidt (1983) suggested that Wes made these errors because he may not have noticed the correct form in his interlanguage and may not have been aware that he was saying them incorrectly. This point was proposed in Schmidt and Frota's (1986) argument about the influence of learner awareness in the learning processes. Their study highlighted that learners' noticing is a driving force supporting learners in developing their second language. The study relied on Schmidt's experience learning Portuguese by documenting the courses he attended for his daily lessons to compare conversations recorded in Portuguese with Frota and his written accounts. The main findings (considered the basics of the noticing hypothesis) indicated that if a learner does not notice the frequency of foreign-language input, the acquisition does not occur. In addition, if a learner does not notice the corrective feedback of the errors, this does not support language learning. According to Schmidt and Frota (1986), noticing is a conscious awareness of learners regarding the input. This awareness enables them to process the input to become intake that becomes 'new language which has been processed sufficiently for it to become incorporated into the learner's developing second language system' (Mitchell & Myles, 2004, p. 184). Intake refers to the noticed input by the learners; thus, noticing requires conscious effort from the learners to process learning successfully (Schmidt, 1990, 1994).

Based on conscious noticing, Schmidt (1990) explained the concept of consciousness in terms of intention, attention and awareness. He illustrated that consciousness as intention refers to the difference between incidental learning without any particular intention to learn and intentional learning (goal-directed). For example, we learn vocabulary through reading by

intentionally searching for the meaning of a word in a dictionary to find the meaning and understand and enjoy the reading. Schmidt (1990) explained consciousness in terms of attention, as attention is a variety of mechanisms that involve alertness, orientation, detection with selective attention, facilitation and inhibition.

These mechanisms share the function of controlling information processing and behaviour when existing skills and routines are inadequate (Schmidt, 2001, 2012). ‘Attention must be directed to whatever evidence is relevant for a particular learning domain...attention must be specifically focused and not just global’ (Schmidt, 2012, p. 31). In a language lesson, if the aim is that the learner acquires phonology, the learner must attend to the sounds of the target input, particularly if the learner’s mother tongue language and target language are contrastive, as was the case for Wes. In defining consciousness in terms of awareness, Schmidt (2012) pointed out that awareness is complicated because it is closely linked to attention. When learners are aware of what they attend to, they attend to determine what enters the phenomenal consciousness (Baars, 1988), implying that if attention is required for learning, awareness is also required because attending to the form spontaneously leads the learner to become aware of it (Schmidt, 1990).

However, this close link between attention and awareness in the noticing was questioned by Van Lier (1991) because awareness is not a prerequisite for input attending. For example, a learner can ‘show a conscious tendency to register the input but may not fully become aware of its existence’ (Ünlü, 2015, p. 265). Schmidt (1994, 2001, 2012) mentioned that this objection could not be dismissed because, in some cases, more focused attention and a higher level of awareness are required in learning a form. In contrast, it is not required in other cases, such as abstract grammatical rules of native speakers or nearly native speakers, advanced level learners,

because they cannot verbalise the knowledge, as they learn these rules without awareness (Schmidt, 2012) which can be related to explicit/implicit knowledge and learning (see section 2.5.3. Therefore, Schmidt (2012) distinguished between noticing ‘a technical term limited to consciousness registration of attended specific instances of language, and understanding a higher level of awareness that includes generalizations across instances’ (p. 32).

### **Types of noticing.**

Schmidt’s idea of noticing has been explained in different ways resulting different types of noticing in the field of SLA (Izumi, 2013). This study will consider two types noticing a form and noticing the gap as these types will be principles in designing DDL activities in the methodology chapter.

#### **1. Noticing a form**

According to Schmidt and Frota (1986), if learners notice how a particular form of a language is used in the input they receive, their interlanguage competence develops. They asserted, ‘a second language learner will begin to acquire the target like form if and only if it is presented in comprehensible input and noticed in the normal sense of the word that is consciously’ (p. 311). Schmidt (1990) believed that only what learners notice during input can become intake. As such, it can be argued that those ‘who notice most, learn most’ (p. 144). In some cases, only noticing would be sufficient to learn perceptual aspects of novel words, yet it is insufficient to learn forms for communication because meaning and function are equally important (Izumi, 2013).

An example was presented by Izumi (2013) of English foreign-language learners in Japan who are taught the verb *to be* in grammar. In this case, the learners were exposed to instructions that relied on noticing only, aiming to attract their attention to the conjugation rule using such

sentences as ‘*I am a student*’ and ‘*You are a teacher*’. Izumi (2013) mentioned that they would fail to use these forms of the verb *to be* in communication because these learners did not attend to the meaning. Schmidt (2001) emphasised noticing the form alone and noticing the form related to the meaning it represents and the context for which it is used. Learning based on this principle requires noticing the form-meaning-function relationship (Schmidt, 2012). Therefore, the conscious noticing of form-meaning mapping in the input is required for language learning (Shegar et al., 2013).

## **2. Noticing the gap**

Noticing only the form is a partial process that leads to incomplete learning; therefore, the second principle, noticing the gap, is important in second language learning (Izumi, 2003, 2013). The gap refers to the difference between a language form used by the language learner and the form used by an expert to convey the same idea (Izumi, 2013). Schmidt (1994) argued that noticing requires that the learners’ attention, awareness and subliminal learning do not account for the SLA process. If learners notice and recognise their interlanguage problems, this encourages them to do something about these problems (Izumi & Bigelow, 2000). Attention is essential for second language learning and development (Izumi, 2002). The amount of attention that learners pay to matters of form influences second language input and interaction to produce language intake (Mitchell & Myles, 2004).

Hanaoka (2007) suggested that model samples are valid pedagogical tools to promote second language learning. In an experimental study, Hanaoka (2007) asked his participants (L1 Japanese) to write a story based on a picture (Stage 1). Then, he provided two writing models of the same picture written by native English speakers to encourage the participants to compare their productions and the provided model samples (Stage 2). They noted their linguistic problems



in Stage 1, compared their writings and wrote a modified story (Stage 3). Hanaoka (2007) found that participants' autonomous noticing solved about two-thirds of their linguistic difficulties, as the model samples provided relevant input, enabling language learners to convert the experimental problem to produce written output.

Doughty (2001) argued that noticing the gap is influenced by the learner's current L2 knowledge because it offers the opportunity for cognitive comparison. This influence can be related to the learners' proficiency levels, as it is easier for learners with higher proficiency levels to notice the gap between their interlanguage and target language in comparison (Qi & Lapkin, 2001).

However, some researchers, such as Carroll (1999) and Gass et al. (2003), disagreed with Schmidt's view, suggesting that conscious attention is necessary for second language acquisition. Gass et al. (2003) proved that second language acquisition could occur without focused attention. In addition, Carroll (1999) criticised Schmidt's hypothesis by pointing out that the available characteristics of input for noticing are unspecified. Consequently, Schmidt (2001) further specified what must be noticed as 'elements of the surface structure of utterances in input, instances of language rather than any abstract rules or principles of which instances may be exemplars' (p. 5).

Truscott (1998) criticised studies that assert the importance of noticing during the second language learning process based on this specification. He claimed that 'awareness is not only unnecessary but also unhelpful' (p. 126) because he considered the role of noticing to advance only metalinguistic knowledge but not competence. These negative views against the role of noticing in second language acquisition have been challenged by various researchers who have provided supporting data and evidence that noticing facilitates second language learning (e.g.

Leow, 2000; Mackey, 2006; Swain & Lapkin, 2002). One possible reason for these negative views of noticing is that it is difficult to measure noticing because introspection, which is ‘the assessment of learner-internal cognitive activity’ (Uggen, 2012, p. 509), might be required (Uggen, 2012).

Schmidt (1995) considered that learner’s self-reporting either during or after exposure to input may operationalise noticing, yet a lack of self-reporting is not always a lack of awareness because some thoughts are difficult to verbalise during input exposure. Therefore, Izumi (2013) aimed to clarify Schmidt’s idea of what he meant by ‘noticing’ in second language acquisition. Schmidt’s main view stated that the role of attention and awareness propels second language development, as follows:

The concept of attention is necessary in order to understand virtually every aspect of second language acquisition, including the development of interlanguages overtime, variation with interlanguage at particular points in time, the development of L2 fluency, the role of individual differences, such as motivation, aptitude, and learning strategies, and the ways in which interaction, negotiation for meaning and all forms of instruction contribute to language learning ... there is no doubt that attended learning is far superior [to unattended learning], and for all practical purposes, attention is necessary for all aspects of L2 learning. (Schmidt, 2001, p. 3).

#### **2.5.4 Relationship Between the Output Hypothesis and Noticing Hypothesis**

The role of awareness in language learning is adopted by the output and noticing hypotheses. According to the noticing hypothesis, learners’ attention to the input has the primary intention to achieve comprehension (Schmidt, 2012; Ünlü, 2015), whereas learners’ attention to their own production has the primary intention to develop their language performance in the

output hypothesis (Swain, 1995). In the output hypothesis, the learners either notice a missed part in their production or notice a difference between their performance and the target language (Swain, 1995, 2005), corresponding to the principle ‘notice the gap’ by Schmidt and Frota (1986). ‘Awareness of the role of noticing in corrective feedback and becoming knowledgeable of the ways that what can be noticed more easily may contribute to the teaching practice’ (Ünlü, 2015, p. 265).

In addition, the output can serve a noticing/triggering or consciousness-raising function (Izumi et al., 1999) because ‘under some circumstances, the activity of producing the target language may prompt second language learners to consciously recognize some of their linguistic problems, it may bring to their attention something they need to discover about their L2’ (Swain, 1995, pp. 125–126). Therefore, the learners’ output is a facilitator for noticing their limitations in interlanguage and the relevant features in the input; thus, this noticing becomes a stimulus for the language acquisition process (Izumi et al., 1999). If learners notice and recognise their interlanguage problems, this encourages them to do something about these problems (Izumi & Bigelow, 2000). Swain (2005) suggested that when learners consider their production to build their language learning, this step processes hypothesis testing that results in learning, which implies that the learners’ output is also a part of the language input that the learners must be aware of and use to learn a language (Ünlü, 2015).

Acquiring the features of an L2 first demands the learners’ noticing those features (Schmidt, 1990, 1994, 1995) because drawing learners’ attention to certain forms of language renders them more salient and increases their likelihood of being noticed, facilitating second language acquisition (Doughty & Williams, 1998; R. Ellis, 1994; Gascoigne, 2006; Leow, 2012). Specific techniques, such as ‘explicit discussion of target forms, metalinguistic description,

negative evidence via overt error correct ... and textual enhancement through typographical alterations such as bold face type or color coding' (Gascoigne, 2006, p. 552), can increase the saliency of the given targeted features of an L2. These principles of the output and noticing hypotheses are considered in designing DDL activities (for more details, see Section 3.2). The output and noticing hypotheses revolve around the concepts of explicitness and implicitness; thus, it is crucial to focus on these definitions and their subsequent effects on language learning and teaching. The following section illustrates the terms *explicitness* and *implicitness* and their relationship with DDL as they will be considered in designing DDL activities.

### **2.5.5 Explicit and Implicit Continuum**

The type of instruction, explicit or implicit, is an important factor that triggers learners' noticing (Schmidt, 1990). Explicit/implicit instruction and explicit/implicit learning are 'the key issues in SLA' (Dörnyei, 2009, p. 167). Research focuses on whether SLA is learnt explicitly or implicitly (Dörnyei, 2009; N. Ellis, 1994; N. Ellis, 2015). These terms are linked to the processes of acquiring conscious (explicit) and unconscious (implicit) knowledge, which are fundamental features of human cognition (Rebuschat, 2015). This section opens with an illustration of the concepts of explicit/implicit knowledge and explicit/implicit learning. Second, it explains *explicit* and *implicit instruction* and their relationship to instructed SLA research. The concepts *focus on form*, *focus on forms* and *deductive and inductive instruction* are also considered, as they relate to the theoretical basis of the DDL approach and instructed SLA.

#### **Explicit/Implicit Knowledge and Explicit/Implicit Learning.**

Explicit knowledge refers to knowledge that the individual states verbally (Dörnyei, 2009) and consciously recalls as necessity demands (Fordyce, 2011). Explicit knowledge is consciously held, learnable and 'typically accessed through controlled processing when learners

experience some kinds of linguistic difficulty in using L2' (N. Ellis, 2006, p. 95). In contrast, implicit knowledge is knowledge that enables spontaneous communication (Spada & Tomita, 2010) 'without conscious reflection on the language being produced' (Fordyce, 2011, p. 38). It is unconsciously held and procedural 'and can only be verbalized if it [is] made explicit' (N. Ellis, 2006, p. 95).

Regarding learning types, explicit learning refers to the presence of an individual's awareness during learning (Godfroid & Winke, 2015), particularly in conscious operations (Hulstijn, 2003) that enable the individual to compare current and previous instances of input to form and test hypotheses (Williams, 2005). Therefore, this type of learning is 'slow, effortful, conscious, declarative, domain dependent, top down, rational and linear' (N. Ellis, 2015, p. 418). In contrast, implicit learning is the acquired knowledge of the underlying structure of a complex stimulus environment that is processed within natural, simple unconscious operations (N. Ellis, 1994). 'It is fast, effortless, unconscious, procedural, domain independent, bottom up, intuitive, and associative' (Reber, 2011, p. 30). This corresponds with the noticing hypothesis, discussed in Section 2.5.2, as awareness from native speakers is not required for learning because of their intuitive understanding of subtle points of grammar and they cannot verbalize it (Schmidt, 2012). Similarly, advanced-level learners have intuitive knowledge which could be very close to the native speaker's intuition than the grammatical rules instruction that is taught in language classes (Rothman, 2008).

When Krashen (1982, 1985) argued that second language acquisition processes are the same as in first language acquisition if the learner is exposed to the right language input, he aimed to distinguish between learning and acquisition. According to Krashen (1985), learning requires intention and effort resulting in explicit language knowledge, whereas acquisition occurs

unconsciously and spontaneously when learners interact in a second language. ‘The crucial and most controversial part of [the] distinction between acquisition and learning is that these two knowledge stores, the acquired system and the learned system, can never interact’ (VanPatten & Williams, 2007, p. 26). Krashen (1982) considered explicit instruction in a language classroom useless if instruction aims to develop implicit knowledge. Krashen (1985) presented the immersion programmes in Canada as an example of successful second language acquisition in meaning-focused classrooms.

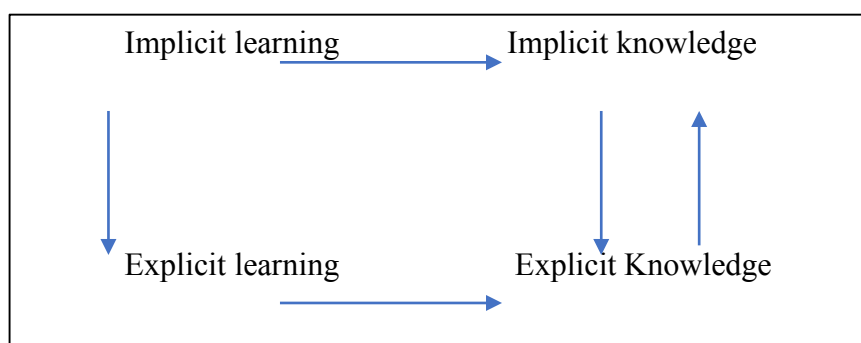
Nevertheless, Swain (1985, 1995, 2005) proved that these learners are still below the level of native speakers in productive skills even though they achieved similar results in receptive skills. Therefore, Swain (2005) emphasised the role of the learner’s output in second language acquisition because relying only on the comprehensible input would not result in a native-like level of language acquisition (Fordyce, 2011). With these different views, the most important issue is the degree of the learners’ attention to input, which is the basis of Schmidt’s (1990, 1995) noticing hypothesis. Schmidt (2001) asserted that ‘since many features of L2 input are likely to be infrequent, non-salient, and communicatively redundant, intentionally focused attention may be practical (though not theoretical) necessity for language learning’ (p. 23).

Based on the discussion above, explicit/implicit knowledge and explicit/implicit learning can be considered distinct concepts; yet, they are thought to be ‘engaged in interplay with one potentially influencing the other’ (Roehr-Brackin, 2015, p. 118). In second language acquisition, N. Ellis (2005) argued that when a learner uses fluent language, the attention is focused on meaning rather than form; consequently, it draws on implicit processes. In contrast, explicit processes take over when difficulties appear in comprehension or production. During these explicit processes, the learners’ attention is converted to focus on the language form to make a

conscious analysis of input and construct an output. Fordyce (2011) suggested that establishing new connections and networks to process L2 requires learners to attend forms consciously. The explicit process draws on knowledge based on external sources, such as L2 textbooks and teachers' input, or internal sources derived from the learner's reflection (N. Ellis, 2005). It is inconsistent with the noticing hypothesis, stating in effect 'that effective implicit learning cannot happen without explicitly creating the initial mental representation of a new stimulus' (Dörnyei, 2009, pp. 164–165).

In addition, the general assumption suggests that implicit learning results in implicit knowledge and that explicit learning results in explicit knowledge. Nevertheless, N. Ellis (2015) pointed out that, in some cases, learners may have implicit learning that leads to the acquisition of explicit knowledge. He used adult learners in a language classroom as an example of this relationship because these learners focus on the target language as an object rather than as a tool for communication. Thus, they consciously analyse some acquired linguistic forms implicitly to reach an explicit generalisation of their structure (N. Ellis, 2015; Figure 2.9).

**Figure 2. 9** Relation Between Explicit/Implicit Learning and Explicit/Implicit Knowledge by N. Ellis (2015, p.420).



According to Dörnyei (2009), in many cases, explicit learning for adults is a prerequisite for implicit learning, as 'the key to explicit learning is to find the best ways of directing our

biological spotlight of consciousness at the target material and keeping it focused on it' (p. 136). This suggestion corresponds to the work by N. Ellis (2007), who indicated that L2 instruction is necessary because

in contrast to the newborn infant, the L2 learner's neocortex has already been turned to the L1, incremental learning has slowly committed it to a particular configuration, and it has reached a point of entrenchment where the L2 is perceived through mechanisms optimized for the L1. (p. 24)

Whatever the knowledge is, both explicit and implicit knowledge are important and positively affect the learning processes (N. Ellis, 2005). Dörnyei (2009) noted that 'the key to L2 learning efficiency is the successful co-operation of explicit and implicit learning systems' (p. 171). For example, new language expressions that receive explicit attention, followed by unattended encounters in input, are more effective than expressions that rely on input exposure only (Fordyce, 2011). This statement is consistent with Schmitt's (2008) Proposal that 'incidental learning seems to be better at enhancing knowledge of words which have already been met' (p. 348).

### **Explicit and Implicit Instruction.**

Considering instructed SLA, debates have highlighted the influence of different types of instruction along with explicit and implicit instruction (Spada & Tomita, 2010) and issues that may affect the instructional outcomes, such as language feature types and treatment types (Goo et al., 2015; Mackey & Goo, 2007). In addition, SLA research has revealed that L2 instruction effectively facilitates L2 development and accelerates L2 acquisition rates (Fordyce, 2014; Norris & Ortega, 2000; Spada & Tomita, 2010) because it is 'necessary to compensate for the developmental changes that put adults at a cognitive disadvantage' (Doughty, 2003, p. 257).



Therefore, classroom instruction can speed up the acquisition of complex L2 form-function-context mapping (Li, 2012).

According to R. Ellis (2008), explicit instruction occurs when ‘learners are encouraged to develop metalinguistic awareness of the rule’ (p. 962) as it is related to rules, consciousness, attention and noticing (Fordyce, 2011). Spada and Tomita (2010) provided examples that consider instruction explicit if they include grammatical rule explanation (Benati, 2005), L1/L2 contrasts (Spada & Tomita, 2010) and metalinguistic feedback (Carroll & Swain, 1993; Ellis et al., 2006). Housen and Pierrard (2005, p. 10) listed the following features of explicit instruction:

- It directs attention to the target form.
- It is predetermined and planned.
- It interrupts the communication of meaning.
- It presents the target form in isolation.
- It uses metalinguistic terminology.
- It involves the controlled practice of meaning.

In contrast to explicit instruction, ‘implicit instruction is directed at enabling learners to infer rules without awareness’ (R. Ellis, 2008, p. 879). According to Norris and Ortega (2000), the main criterion to consider the instruction implicit is ‘when neither rule presentation nor direction to attend to particular forms were part of the treatment’ (p. 437). Some examples that consider instruction implicit are input flood (Spada & Lightbown, 1999), interaction (Mackey, 1999) and recasts (Ellis et al., 2002). Housen and Pierrard (2005) listed the features of implicit instruction:

- It attracts attention to the target form.
- It is delivered spontaneously in a communication-oriented activity.

- It presents the target forms in context.
- It makes no use of metalanguage.
- It encourages free use of the target form.

By relating explicit/implicit instruction to the noticing hypothesis, Fordyce (2011) suggested that explicit instruction aims to attract learners' attention to the features of the target language, which corresponds to Ellis's view (2005) that 'by noticing Schmidt 1994 meant that registration of the occurrence of a stimulus event is conscious awareness and subsequent storage in long-term memory' (p. 317). In contrast, implicit learning aims 'to achieve the same learning targets below the level of consciousness' (Fordyce, 2011, p. 40).

In addition to the discussion of the explicit/implicit continuum, other terminologies are found in instructed SLA research: focus on form, focus on forms, and deductive/inductive instruction. These terms are related to explicit/implicit instruction and the theoretical basis of the DDL approach.

### **2.5.6 Focus on Form and Focus on Forms**

Long (1991) distinguished between these two terms based on the type of instruction that either emphasises form or meaning. Focus on form is a type of instruction that occurs when 'the meaning and use must be evident to the learner at the time that attention is drawn to the linguistic apparatus needed to get the meaning across' (Doughty & Williams, 1998, p. 4). In contrast, when the focus is on one rule for its specific target features, usually during a language course, and instruction was previously prepared by the teacher or textbook, this type of instruction is called the focus on forms (Richards & Schmidt, 2002), as it focuses more on accuracy than fluency (Fordyce, 2011).

When relating these two concepts to explicit/implicit instruction, the emphasis on meaning and use in the focus on form corresponds with the features of implicit instruction, whereas the emphasis on specific target features in focus on forms is nearer to the features of explicit instruction (Fordyce, 2011).

### **2.5.7 Deductive and Inductive Instruction**

Similar to the explanation of the focus on form and focus on forms above, deductive and inductive instruction are concepts also found in instructed SLA literature and have a relationship with explicit/implicit instruction. Richards and Schmidt (2002) mentioned that in deductive instruction, the teacher begins teaching the rules and provides the language learners specific information about the language and then examples for these rules. Conversely, the teacher encourages language learners to discover the rules based on their language experience in inductive instruction.

‘Deductive and inductive instruction do not, however, equate directly to explicit and implicit instruction’ (Fordyce, 2011, p. 41) because explicit instruction, for example, can either be deductive or inductive. According to the criteria proposed by Norris and Ortega (2000) regarding explicit/implicit instruction (Section 2.5.3 and Figure 2.9) and explicit/implicit dimensions suggested by DeKeyser (2003) in table 2.5, rule explanation can be considered explicit instruction that includes deduction, where the teacher initially announces the rule and provides examples to the learners. In contrast, ‘learners are asked to attend to particular forms and to try to arrive at metalinguistic generalizations on their own involves induction’ (Fordyce, 2011, p. 42). In addition, ‘when learners derive a number of characteristics of the language being learned from the setting of the parameter’ (DeKeyser, 2003, p. 314) that occurs without awareness, the implicit instruction results in deduction. In contrast, implicit instruction results in

induction when children acquire their mother tongue language without thinking of the structure (DeKeyser, 2003). However, Fordyce (2011) argued that a strong connection exists between implicit instruction and inductive learning, as ‘implicit instruction rarely encompasses deductive learning deduction usually explicitly-stated rules and patterns’ (p. 42).

**Table 2. 5** Inductive/Deductive and Explicit/Implicit by DeKeyser (2003, p. 314)

	<b>Deductive</b>	<b>Inductive</b>
<b>Explicit</b>	Traditional teaching	Rule discovery
<b>Implicit</b>	Using parameters	Learning from L1

In this study, the aim to distinguish between the terms *explicit* and *implicit* instruction by considering the focus on form, focus on forms, and deductive/inductive instruction is first to explain their influence on instructed SLA. The second aim is to depict their role in implementing the DDL approach in a language classroom by relating the implementation of DDL to the output and noticing hypotheses.

### **2.5.8 Explicit/Implicit Continuum and Instructed SLA**

A consensus exists that explicit instruction has more beneficial effects on second language learning than implicit instruction. For example, in a seminal meta-analysis, Norris and Ortega (2000) investigated the effects of L2 instruction in 49 experimental and quasi-experimental studies published between 1980 and 1998. These studies were classified into four instructional type groups based on explicitness (explicit or implicit) and attention to form (focus on form and focus on forms) as follows:

- explicit focus on form,

- implicit focus on form,
- explicit focus on forms, and
- implicit focus on forms.

The instruction types were compared according to conditions with either no or minimal exposure to forms. The results revealed that explicit instruction has better effects than implicit instruction ( $d = 1.13$  for explicit instruction and  $d = 0.54$  for implicit instruction). In addition, the explicit focus on form and explicit focus on forms treatments ( $d = 1.22$  and  $1.08$ ) were more effective than implicit treatments ( $d = 0.69$  for implicit focus on form and  $d = 0.31$  for implicit focus on forms). The inclusion criteria in Norris and Ortega's meta-analysis affected their results regarding the explicit/implicit comparison. The inclusion criteria should involve experimental studies that compare these two treatments with a control group to compare the effects of explicit and implicit treatments. Nonetheless, their inclusion involved studies that compared either explicit instruction or implicit instruction treatments against a control group, which may not control the level of instruction in the involved studies (Goo et al., 2015). Moreover, Doughty (2003) claimed that research demonstrating the beneficial effects of explicit instruction over implicit instruction might be biased because 'research efforts have been generally directed toward the development of explicit treatments and outcome measures that allow controlled use of L2 knowledge' (Goo et al., 2015, p. 445). Moreover, implicit treatments require cautious preparations of training materials, a longer intervention, and outcome measures in which knowledge is used for communication (Goo et al., 2015).

A decade later, other meta-analyses were published, such as those by Spada and Tomita (2010) and Goo et al. (2015). About 30 published studies were analysed by Spada and Tomita (2010) to examine the effects of explicit and implicit instruction on the acquisition of simple and

complex grammatical features of English. They found that the effect sizes of explicit instruction (immediate posttest, complex,  $d = 0.88$ , simple,  $d = 0.73$ , delayed posttest, complex,  $d = 1.02$ , simple,  $d = 1.01$ ) were greater than the implicit instruction (immediate posttest, complex,  $d = 0.39$ , simple,  $d = 0.33$ , delayed posttest, complex,  $d = 0.56$ , simple,  $d = 0.51$ ).

In the same vein, Goo et al. (2015) examined 34 published studies to investigate the effectiveness of explicit and implicit instruction in L2 development. Their inclusion criteria relied only on experimental or quasi-experimental studies that employed and compared explicit and implicit treatments so that these categories could be balanced to control the effects of inclusion/exclusion criteria. The findings indicated that the mean effect size of explicit instruction ( $g = 1.290$ ) was higher than the mean effect size of implicit instruction ( $g = 0.774$ ). These results correspond to Norris and Ortega's (2000) main results, suggesting that explicit instruction has a more beneficial influence than implicit instruction in L2 instruction.

### **Guided induction**

Within a range of selection on the explicit/implicit continuum, language teachers can select and use any approach to teach target form-function-context mapping (Fordyce, 2014). Additionally, instruction in the second language classroom can rely either on deduction or induction. They 'are worth revisiting to examine their different effects when combined with DDL so as to suggest a better alternative to using DDL to achieve its full effect' (Lee & Lin, 2019, p. 15). This combination of DDL with traditional teaching approaches (explicit induction, explicit deduction, implicit induction, and implicit deduction) can overcome problems that impede the implementation of DDL in the second language classroom (Boulton, 2010; Cobb & Boulton, 2015).

Smart (2014) addressed this point by investigating the effects of the inductive DDL instruction group, deductive corpus-informed instruction group, and deductive traditional grammar instruction group on ESL grammar instruction on the passive voice in English. The results indicated that the inductive DDL group achieved significant improvement in using the passive voice compared with the other two groups. This outcome suggests that inductive DDL is more effective and efficient than the deductive approach alone (Smart, 2014; Todd, 2001). The inductive approach relies on noticing, either initiated by learners or directed by teachers; thus, DDL can facilitate noticing through concordance-based tasks because they enhance learners' input via noticing, which leads to successful uptake (Flowerdew, 2015).

The teacher's directed noticing relates to the guided inductive approach (usually teacher-initiated). Smart (2014) defined guided induction 'as an approach that provides a structural scaffold framework for inductive learning, places the learner at the center of the learning task, with the learner seeking to discover the nature of the grammar structure through interacting with the language' (p. 187). In this case, the teacher designs tasks and guides learners to discover the rules without stating these rules explicitly. The teacher's guidance acquaints language learners with the required materials and target forms and monitors their language use (Larsen-Walker, 2017). Consequently, learners can inductively discover the structures and patterns of the language by interacting with concordance software or previously prepared concordance-based materials (Smart, 2014). Further, they can develop their generalisation abilities to formulate their observations about language (Larsen-Walker, 2017).

However, the inductive autonomous approach might be overwhelming for language learners, especially those with lower proficiency (Smart, 2014). Therefore, providing learners with adequate guidance and scaffolding is required (Kirschner et al., 2006). Flowerdew (2009)

developed an outline designed by Carter and McCarthy (1995) for corpus-based research enquiries to be a guided approach to DDL, where language learners are encouraged to discover the target language without explicitly providing grammatical rules. Flowerdew's (2009) outline involves four steps: illustration, interaction, intervention, and induction.

In DDL activities, learners begin by viewing prepared examples of language data input. This method is in line with Schmitt's (2010) assertion that 'noticing precedes understanding and is a condition which is necessary for converting input into intake' (p. 724). Next, teachers guide learners to make observations, either in groups or pairs, to identify patterns in problem-solving activities on the language data to which they have been exposed. This step supports Schmitt's (2010) point on noticing the gap because 'to overcome errors, learners must make conscious comparisons between their output and target language input' (p. 724). Then, teachers intervene with suggestions and advice to assist the learners in accomplishing their activities. Finally, with guidance, learners complete the subsequent activities according to their observations (Smart, 2014). Noticing, either initiated by the learner (internal) or directed by the teacher (external), is a fundamental pillar of DDL. The steps of guided induction are consistent with research by Papp (2007), who presented the psycholinguistic processes for learners' noticing that 'can enable them to compare between the language they produce and the language they encounter' (p. 209).

First of all, learners need to be paying attention to form (Robinson, 2003; Schmidt, 2001), and they need to be able to consciously notice features of their interlanguage grammar (ILG) and the target language (Truscott, 1998). Then they need to be able to use inductive learning mechanisms to be able to make generalizations, analogies and discern patterns in the target (Shaffer, 1989). Next, they need to compare their ILG with the L2 (James &



Garrett, 1992) and find mismatches and discrepancies. This is what Kavaliauskiene (2003) called a “qualitative leap to conscious cognition.” (p. 19).

### **Summary**

This section discusses the theoretical framework of this thesis, beginning with an explanation of Swain’s output hypothesis with its three major functions in language classrooms, emphasising that productive skills (writing and speaking) are as important as receptive skills (reading and listening). This section describes the use of metadiscourse markers by language learners from different L1 backgrounds and cultures in light of the output hypothesis. In addition, this section illustrates Schmidt’s noticing hypothesis by focusing on its origin and main principles and the relationship between the noticing and output hypotheses. It explains explicit/implicit instruction and related terms: focus on form, focus on forms, and deduction/induction. It defines the explicit/implicit continuum in instructed SLA. Guided induction in light of the noticing hypothesis is also considered. The discussion of the theoretical framework integrates with corpus linguistics was provided as they are necessary in the design and implementation of DDL activities (see section 3.2).

### **2.6 Findings of Previous Research on Data Driven Learning**

Flowerdew (2001) stated, ‘not many of the findings have been applied directly to pedagogy and tend to remain at the level of implications’ (p. 366). A decade later, most learner-corpus research still consists of analysing learner data rather than using learner data in teaching contexts (Chambers, 2015). However, corpus-based research studying the use of cohesive devices under different concepts, such as conjunctions (Halliday & Hasan, 1976; Hamed, 2014), linking adverbials (Biber et al., 1999) and metadiscourse markers (Hyland, 2005, 2016), has been very helpful because it has provided insight on the problematic and difficult issues that impede

language learners from using cohesive devices properly. Hyland's (2005) framework of metadiscourse markers (hedges, boosters, attitude markers, engagement markers and self-mentions) has been a major topic in the corpus-based analysis of academic writing (Flowerdew, 2015; Neff-van Aertselaer, 2015). Most learner-corpus research that aims to explore the use of metadiscourse markers by language learners focuses on coherence relations or only one type of marker (Neff-van Aertselaer, 2015).

In a seminal corpus-based study, Granger and Tyson (1996) studied the use of conjunctions, such as listing, summative and appositive, by French EFL learners in the *ICLE* sub-corpus compared with those of native speakers. They found that French students overused connectors that mark addition and exemplification, whereas they underused connectors that signalled contrast (*however* and *although*) and the grounds for arguments (*therefore* and *thus*). These findings refer to the different patterns of argumentation in English and French.

Similarly, Paquot (2008) compared the use of different types of exemplifying signals (*for example*, *example*, *for instance*, *illustrate*, and *exemplify*) between written samples derived from The Louvain Corpus of Native English Essays (LOCNESS) that is a native speaker corpus consisting of about 300,000 words that comprises a range of argumentative and literary essays written by British and American university students and nonnative-speaker (five sub-corpora in *ICLE*) corpora. The findings indicate that nonnative-speaker writings are influenced by their L1 transfer, teaching factors and proficiency level.

Hong and Cao (2014) examined interactional metadiscourse marker use in young EFL learners (Grade 10) from three L1 backgrounds: Chinese, Spanish and Polish. Unlike Granger and Tyson (1996) and Paquot (2008), who obtained their data from the *ICLE* corpus, which involved writing samples produced by advanced learners, Hong and Cao (2014) derived their

data from the *International Corpus of Cross-linguistic Interlanguage*, which involves samples written by EFL secondary-school students. They applied a contrastive interlanguage analysis to obtain quantitative and qualitative information. The quantitative results revealed no significant differences between the three groups in using hedges, whereas significant differences appeared in using boosters between Chinese and Spanish EFL learners. The qualitative results revealed that the three groups exhibited misunderstanding and confusion regarding the differences in text types that explain the writers' involvement in argumentative texts because they focused more on descriptive writing than argumentation. Therefore, several contrastive interlanguage analysis studies have revealed that second language writers from various L1 backgrounds and different proficiency levels tend to overuse, underuse or misuse certain cohesive devices in their writing.

Previous studies have varied in employing DDL instruction for language pedagogy: some have used native-speaker corpora (Almutairi, 2016; Frankenberg-Garcia, 2014), whereas others have combined native- and nonnative-speaker corpora (Cotos, 2014; Moon & Oh, 2018) to derive data input. In addition, certain studies have relied on computer-based DDL practices (Larsen-Walker, 2017), whereas others have used paper-based DDL practices (Boulton, 2009, 2010; Smart, 2014). With all these various implementations of DDL in language pedagogy, the consensus is that DDL is a beneficial technique for second language acquisition and pedagogy (Lee et al., 2019).

Garner (2013) examined the role of DDL in teaching cohesive devices (linking adverbials) in an experimental study. The 27 intermediate-level language learners from various L1 backgrounds (Chinese, Arabic, Korean and Lithuanian) were divided into two groups. The control group ( $N = 12$  participants) was exposed to traditional instruction for linking adverbials, whereas the experimental group ( $N = 15$  participants) was exposed to DDL instruction.

Regarding data input in the DDL instruction, Garner (2013) employed the *Corpus of Contemporary American English* which is a native-speaker corpus (Davies, 2009), and the *Michigan Corpus of Upper-Level Students Papers* (2009). According to Garner (2013), the *COCA* was used because of 'its wide coverage amounts of data and amount of search and display options' (p. 414). Moreover, *MICUSP* involves 'short contexts about two to four sentences instead of simply concordance lines ... and its ease of use' (p. 414). The experimental and control groups submitted two written essays, pre-treatment and posttreatment. The findings indicated no significant differences in the pre-treatment essays in using linking adverbials in their writing, with an average correct use proportion of 74.41% ( $SD = 15.76$ ) in the control group and 79.64% ( $SD = 18.16$ ) in the experimental group. After treatment, however, the development of the control group was slightly raised to 78.95% ( $SD = 10.16$ ), whereas the experimental group development was greatly raised to 91.60% ( $SD = 6.56$ ), which is a significant difference between the two groups.

Because the participants in the experimental group recognised the differences in the meanings and categories of linking adverbials and between individual ones, 'they gained a higher awareness of register differences among them' (Garner, 2013, p. 420) and performed better than the control group. The DDL instruction in Garner's (2013) study was based on native- and nonnative-speaker corpora, which are not local-learner corpora. There is a considerable need for research on integrating learner-corpus data into language pedagogy in feasible ways for language teachers who are not researchers (Chambers, 2015).

In a quasi-experimental study, Cotos (2014) investigated advanced learner use of linking adverbials by exploring DDL pedagogy, which combined learner and native-speaker data. She applied two types of DDL activities to 31 international graduate students enrolled in an advanced

academic writing course at a North American university, distributing them into two groups. The first group completed activities by consulting a native-speaker corpus only, whereas the second group completed activities employing native-speaker and local-learner corpora, which were both considered research and teaching tools aimed to discover learning potential and capacity.

The DDL activities in both groups focused on the semantic roles, forms and syntactic distributions of linking adverbials. The writing samples that the second group produced at the beginning of the semester were intentionally used for diagnostic purposes to present ‘a set of reports on students’ corpus observations of genre conventions in their discipline and final term papers in the form of research articles’ (Cotos, 2014, p. 207).

The results revealed that the second group, which had access to native-speaker and learner data, performed better in the delayed posttest than the first group, displaying greater frequency and variety in employing the linking adverbials. Further, the second group demonstrated a greater awareness of differentiating between native-speaker writing samples and their writing because they became ‘more cognitively involved in the process of learning for most of them, 79% drawing individual conclusions about the use of linking adverbials after having thought about how they would personally use them in the examples provided’ (Cotos, 2014, p. 217).

Both groups confirmed that they realised the importance of employing linking adverbials in academic writing and aimed to develop their writing quality using a varied selection of cohesive devices. However, Cotos (2014) employed both native-speaker and local-learner corpora (representing nonnative-speaker data) to deal with DDL computer-based activities. This type of practice suits students at advanced levels more than those at intermediate levels (Chambers, 2015; Granger, 2002).

In an experimental study, Larsen-Walker (2017) replicated Garner's (2013) study, except for employing *COCA*, the native-speaker corpus Garner employed. Instead, she employed *MICUSP*, nonnative-speaker corpus, in her study. Larsen-Walker (2017) investigated the use of linking adverbials in the academic essays of advanced writers in an English-for-academic-purposes programme. She divided the participants into two groups, where the experimental group received *MICUSP* data input for DDL practice, whereas the control group received traditional instruction, relying on a textbook.

The experimental group followed the four-step instruction sequence by Flowerdew (2009): illustration (students view concordance lines), interaction (students and peers ascertain the correct semantic category for the linking adverbial word under the supervision of the teacher/researcher), intervention (teachers offer hints and advice based on students' needs), and finally induction (students formulate the rule). Both groups provided two tests: pretest and posttest. The pretest indicated no significant differences between the two groups in the frequency of using linking adverbials, and some devices for linking adverbials were misused. The posttest results revealed that the experimental group performed better, achieving 91.4% of the correct use of linking adverbials, whereas the control group achieved 88%. In other words, the experimental group had a modest gain in the percentage of linking adverbials written accurately, whereas the  $t$ -value was 1.420, less than the critical  $t$  of 2.33. Thus, no statistically significant differences were found between the two groups.

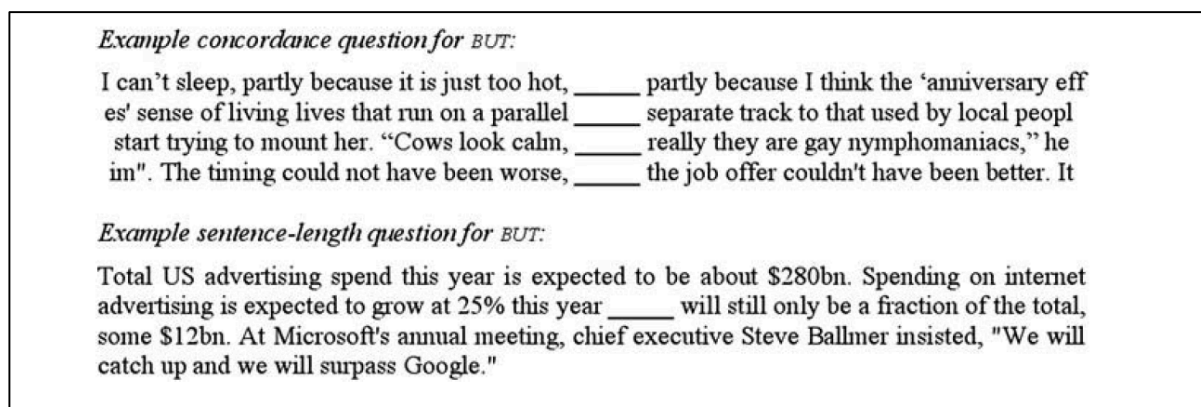
Certain reasons can explain these similarities between the two groups, such as Larsen-Walker's (2017) observation that a very small sample size may have compromised the validity of the quantitative results. Another reason is that both groups had advanced-level proficiency, close to the upper-intermediate level in the *MICUSP* corpus. Hence, the results might have indicated

statistically significant differences if the experimental group had been exposed to a native-speaker corpus because that could be considered a suitable and higher target level for advanced learners. Moreover, the difference might have been significant if the same experiment had been applied to learners at intermediate or lower levels so that *MICUSP* could be their model sample input.

The above studies have discussed the effects of computer-based DDL, whereas other studies have focused on paper-based DDL. Boulton (2010) argued that prepared paper-based DDL materials could achieve the same goals as computer-based DDL, particularly in lower-level learners and those unfamiliar with concordance software. For example, Boulton (2009) investigated how lower-level students used linking adverbials using a paper-based DDL that derived its data from WebCorp (Renouf et al., 2007). He recruited 132 first-year students in an engineering college in France and distributed them into four groups. The first group included 34 students who received brief context data, and the second group included 34 students who received keywords in context data. The third group had 32 students who received dictionary data. Finally, the fourth group of 32 students received grammatical usage data.

The first and second groups were exposed to DDL, whereas the third and fourth groups were exposed to traditional teaching materials. All participants submitted a pretest, in which they consulted their information sheets and recall test tendency. Then, they were asked to fill in the gaps in their tests, as presented in Figure 2.10.

**Figure 2. 10** Samples of Concordance Test Questions for the Metadiscourse Marker *but* by Boulton (2009, p.9)



In a qualitative analysis, Boulton (2009) found that the vast majority achieved better performance on the concordance questions than on the full sentences. This outcome is because KIWC presentations easily attract the attention of target items and encourage noticing (Hyland & Milton, 1997): 'the number of words in a four-line concordance being roughly equivalent to that in one full-sentence context' (Boulton, 2009, p. 49). However, in the quantitative analysis, the mean scores were very low, and about 30.26% of responses were left blank, suggesting that linking adverbials were considered difficult by lower-level learners. Moreover, the data input for DDL was derived from a web corpus, which is a native corpus, and this may have caused a gap between the language learners and target language data input.

In the same vein, in an experimental study, Smart (2014) investigated the role of guided induction as an instructional approach integrated with paper-based DDL in participants enrolled in an intensive English programme at an American public university. In this study, 49 advanced-level language learners were recruited and distributed across three groups. The first group was exposed to paper-based DDL activities through a guided inductive instructional treatment. The second group was exposed to corpus-informed materials through a deductive instructional



treatment, and the last group (the control group) was exposed to traditional grammar-teaching materials through deductive instruction. The instructional approaches to the three groups aimed to teach the passive voice rule. The three groups were given three tests (a pretest, posttest and delayed posttest). The results indicated no statistically significant differences in the pretest scores between the groups. The mean scores on the second and control groups (not exposed to DDL) increased from pretest to posttest, although this increase was not statistically significant. Furthermore, their scores decreased on the delayed posttest. In contrast, the mean posttest scores of the first group (exposed to DDL) demonstrated statistically significant differences ( $p = .000$ ). Although the scores of the DDL group decreased on the delayed posttest, this decrease was not statistically significant compared with the posttest ( $p = .43$ ). This outcome suggests that paper-based DDL as an inductive instructional treatment can significantly increase and improve grammar performance. This finding is evidence of the flexibility and feasibility of implementing paper-based DDL because of its positive results for advanced-level participants.

Huang (2014) examined the influence of paper-based DDL activities on the lexicogrammatical use of abstract nouns in L2 writing. A sample of 40 Chinese students with upper-intermediate proficiency at a university in southern China was divided into experimental and control groups. The experimental group was exposed to prepared paper-based DDL activities derived from the *LOCNESS*, whereas the control group was exposed to traditional teaching. The results indicated that the writing performance in the experimental group demonstrated a higher variety of collocational and colligated patterns and fewer linguistic errors in using the targeted abstract nouns than in the control group. This evidence indicates that the students' awareness increased, enabling them to consider the appropriate use of the target linguistic items. Furthermore, Huang (2014) included a questionnaire at the end of the experiment to measure the

students' attitudes towards using DDL in the language classroom, which confirmed that concordance activities helped them notice the lexical collocations and prepositional colligations of target items, which developed accuracy and complexity in their written outcomes. Huang's findings regarding the students' attitudes towards their experience with DDL correspond with a study by Moon and Oh (2017) that examined the students' perceptions towards DDL activities, to learn the grammatical use of the verb *to be*, utilising an open-ended survey. They found that 92% of the students showed positive perceptions as they appreciated the pedagogical benefits they get from DDL activities, while 5% replied negatively and 3% replied "*I don't know*". The results showed that the students replied that DDL activities are interesting and raised their grammatical consciousness.

The aforementioned studies showed that DDL has potential advantages for the written performance of language learners. Whether the design and implementation of DDL intervention in these studies relied on existing pedagogical corpora (native/ nonnative/ both), local learner corpus, computer-based DDL or paper-based DDL, the common consensus concur that DDL is beneficial for language learners. With the variety of corpora that form data resources to design DDL activities, corpus software that provides features of the corpus-based analysis such as concordances, clusters and frequencies, and different implementation types either computer-based or paper-based DDL, these options can show the flexibility of DDL in language pedagogy and research. Researchers and language teachers, through these various options, can design different kinds of DDL activities that suit the levels of language learners and consider their needs as well. It is important to note that researchers and language teachers must be cautious in selecting data to design DDL activities. Even though the design of DDL may consume time and effort from researchers or teachers, the careful selection aims for the successful implementation

of DDL which, consequently, leads to better performance for language learners. Also, it can be concluded that language learners showed positive attitudes towards DDL activities because of the different kinds of benefits they receive after exposure to DDL.

### **Summary**

This previous section reviews empirical research on the DDL approach regarding language learners' written performance, particularly in using cohesive devices, to determine the positive effects of DDL in language education. Based on the previous research, the gap that this study aims to fill and the rationale are discussed in the following section.

### **2.7 Rationale and Focus in this Thesis**

'The academic writing classrooms is the locus of a number of studies, where the use of corpus data is intended to raise the learners' awareness of the academic writing conventions relevant to their discipline' (Chambers, 2015, p. 457). In the academic writing classroom, it is essential for language learners to understand the meanings and functions of metacognition and metadiscourse markers, as this helps them understand the new intellectual practices while learning (Elbow, 1991). Huang (2014) and Larsen-Walker (2017) examined the influence of implementing DDL intervention, particularly on using metadiscourse markers on the writing skill of advanced-level language learners, where native-speaker corpora were employed to derive data and design DDL activities for the linguistic targets. Similarly, other researchers, such as Garner (2013), examined the efficiency of DDL intervention for intermediate-level language learners in using metadiscourse markers in their writing. He used a native-speaker corpus (*COCA*) and a nonnative-speaker corpus (*MICUSP*) in his study. Garner mentioned that he adopted a nonnative-speaker corpus in his study because it is easy for intermediate-level learners. This view

highlights two important points: the use of native-speaker corpora by language learners with lower proficiency and the importance of including the learner corpus in DDL intervention.

Regarding native-speaker corpora, Xu (2016) recommended that language learners be exposed to authentic data produced by native speakers as much as possible during the implementation of DDL activities in a language classroom. This recommendation was because comparing native and learner data enables a search for mistakes or ‘rather for differences in learner and native speaker language’ (Nesselhauf, 2004, p. 140), increasing autonomous learning in noticing such differences (Xu, 2016). In addition, learners may have positive attitudes towards their mistakes because they consider them features to be discovered rather than just features that require correction (Nesselhauf, 2004). Although Xu’s (2016) recommendation might be useful with advanced-level learners because obtaining a native-like level is a good target for them, this target may not suit intermediate- or lower-level learners due to the gap between their current and target levels.

Native-speaker corpora do not always constitute a suitable model for students because they involve samples that might be difficult or complex for novice learners (Osborne, 2004). These corpora might be difficult for language learners with lower proficiency, which requires the teacher to modify data from native-speaker corpora as much as possible to suit the learners’ level and fit their abilities. By relating this step to Chapelle’s evaluation scheme (2001), the required modifications could negatively affect the authenticity of the derived data, as the more modifications made to the derived data, the more degradation of authenticity occurs on the data. Therefore, corpora that can provide authentic data must be used to design DDL activities suited to intermediate-level language learners that do not require modifications as in the native-speaker corpora.

The *ICLE* is an example that has now been made available to the academic community (Granger, 2003). It can be considered a source of authentic data because it does not require modifications as in native-speaker corpora, and it can be a bridge connecting intermediate-level learners to the native-speaker-like target. According to the website of the Université Catholique de Louvain, *ICLE* is a comprehensive database of learner corpora around the world in different languages. It contains 3.7 million words from nonnative English learners with different L1 backgrounds (Bulgarian, Chinese, Czech, Dutch, Finnish, French, German, Italian, Japanese, Norwegian, Polish, Russian, Spanish, Swedish, Turkish and Tswana), with 200,000 words per language (Granger, 2003).

Regarding the second point, the local-learner corpus refers to the learners' production, either written or spoken data collected and used by teachers as part of regular classroom activities, the so-called local-learner corpora (Callies, 2019). Johansson (2009) drew attention to the fact that, even though native-speaker corpora help acquire a second language, they cannot be considered the only criterion when designing a syllabus because they do not indicate what causes difficulties for learners (Granger et al., 2009). Native-speaker corpora lack the learner's language use, which enables language teachers, learners and researchers to compare the performance of native speakers and language learners (Chambers, 2015).

Focusing solely on model samples derived from native-speaker corpora as input for learners is insufficient because such corpora neither provide information on the difficulties of learnability nor inform language teachers and learners whether specific aspects of native-speaker use are in real use (Chambers, 2015). This insufficiency requires us to examine 'the productivity of particular features from learners' perspectives' (Aston, 2000, p. 10) to demonstrate the necessity of studying learner-corpus research to inform corpus-based resources (Granger, 2009).

Learner corpora represent ‘a collection of texts or language samples produced by language learners’ (Richards & Schmidt, 2002, p. 127). They can reveal difficulties that may impede a learner’s progress by providing an understanding of the differences between the learner’s performance and the features that characterise the target language (Cotos, 2014). Thus,

combined with native-language corpora as positive evidence of language use, learner corpora can be used to provide negative evidence, it is common and persistent errors. In that way, learner corpus data used in DDL activities can increase future teachers’ (and learners’) abilities to notice and evaluate errors (Callies, 2019, p. 253).

‘There is a considerable need for research into the integration of learner corpus data in the language and teaching in ways which are feasible for teachers who are not researchers in applied linguistics’ (Chambers, 2015, p. 463). Thus, such scholars as Cotos (2014) and Cowan et al. (2014) used a local-learner corpus and native-speaker corpus in their experimental studies to implement DDL intervention. They found that the participants exposed to the local-learner corpus and native-speaker corpus achieved better performance than those only exposed to the native-speaker corpus. However, the participants were advanced, not intermediate level.

Therefore, the gap that this study aims to fill is to investigate the efficiency of implementing DDL intervention on the frequency of using metadiscourse markers by intermediate-level language learners in their academic writing, relying on the following points:

1. This study uses *ICLE*, which includes numerous essays written by advanced-level language learners, as authentic model samples for designing DDL activities. Advanced-level learners wrote these essays; thus, their writings are suitable models to be presented to intermediate-level language learners.

2. The study aims to employ the local-learner corpus because it enables language learners to examine and analyse their frequency of using metadiscourse markers. It provides the opportunity for language learners to identify overused, underused and misused metadiscourse markers in their writings. In addition, the local-learner corpus and model samples from *ICLE* enable intermediate-level language learners to compare their frequency of using metadiscourse markers with the model samples of the advanced learners. Therefore, they can benefit from analysing their own mistakes to correct them (Chambers, 2015).
3. It relies on using paper-based instead of computer-based DDL intervention. The paper-based DDL activities were previously prepared under careful selection by the researcher to suit learners with intermediate-level needs (see section 2.2.3).
4. It aims to investigate the language learners' evaluation regarding their experience with DDL through using a questionnaire and an interview.

### **Chapter Summary**

This chapter presents a detailed explanation of metadiscourse markers and DDL, which are central to the investigation of this study. It demonstrates their relationship to the output and noticing hypotheses. There are diverse research studying the use of metadiscourse markers from different perspectives such as writing pedagogy. Some research considered factors that influence the frequency of using metadiscourse markers by language learners who may, unconsciously, overuse, underuse and misuse metadiscourse markers while writing. Therefore, this chapter explains the learners' use of metadiscourse markers in the light of the output hypothesis. The discussion of output and noticing hypotheses and some important concepts related to instructed

second language acquisition research is crucial in this study. It represents the theoretical framework in designing and implementing DDL activities in a language classroom.

Moreover, the relationship between writing pedagogy and applications of corpus linguistics is a preamble for the DDL intervention that aims to raise language learners' awareness regarding their use of metadiscourse markers while writing. Findings of the previous research on the role of DDL in language pedagogy revealed positive effects language learners. Nevertheless, most of the research implement DDL intervention on advanced-level language learners and there is a need to examine its effect on intermediate-level language learners. Section 2.7 announces the gap that this study aims to fill in instructed second language acquisition research and the importance of conducting this research and paves the way for the third chapter, 'Methods'. The methods chapter presents the procedures for designing and implementing DDL activities to suit the level of the participants of this study.



## **Chapter 3: Methods**

### **3.0 Introduction**

The previous chapter discusses the theoretical framework and literature review related to metadiscourse markers and DDL. It considers two theories in second language acquisition: the output and noticing hypotheses. This chapter focuses on the practical part of the study. Section 3.1 presents the research questions and explains the data types used to answer the research questions. Next, Section 3.2 describes the experimental research design for this study by considering the intervention design, controlling variables, study participants, and intervention implementation procedures. Section 3.3 discusses the processes of designing the research instruments for data collection. Section 3.4 focuses on the validity and reliability of the research instruments. The ethical considerations are presented in Section 3.5. The chapter ends with a summary of the steps taken to prepare the practical procedures of this study. The pilot study and the main study details are provided in Chapters 4 and 5, respectively.

### **3.1 Research Questions**

The purpose of this study is to investigate the effect of DDL intervention on the written performance of B1 language learners. It also focuses on the effect of DDL intervention on the B1 language learners' use of metadiscourse markers in terms of frequency and variety in writing argumentative essays. The study considers the views of the experimental group, who were exposed to DDL intervention, to express their feedback on their DDL experience.

Several hypotheses were posed to answer the research questions RQ 1 and RQ 2. One of the most important features of experimental research is the formulation and testing of hypotheses. The hypotheses are based on the research questions (Gass & Mackey, 2015). If the researcher assumes that an impact occurred, this is called an 'alternative hypothesis' ( $H_1$ ) (Field,

2009). However, if the researcher predicts no impact occurrence, this is known as a ‘null hypothesis’ ( $H_a$ ) (Gass & Mackey, 2015). The quantitative data, therefore, will be used to obtain parametric and non-parametric analysis to test the hypotheses that aim to answer the research questions RQ 1 and RQ 2, respectively, while the qualitative data aim to answer RQ 3. As mentioned in Section 1.4, the research questions and their hypotheses are as follows:

RQ 1. Does DDL intervention that focuses on the appropriate use of metadiscourse markers develop the written performance of B1 language learners?

- Hypothesis 1: There are statistically significant differences in the test scores between the three periods of time of the experimental group for learners who are exposed to DDL intervention + explicit deductive instruction.
- Hypothesis 2: There are no statistically significant differences in the test scores between the three periods of time of the control group for learners who are exposed only to explicit deductive instruction.
- Hypothesis 3: The DDL intervention + explicit deductive instruction will lead to greater progress in writing performance by language learners in the experimental group than that of the language learners in the control group.

RQ 1 aims to assess the efficiency of the DDL intervention on B1 language learners’ writing performance. This question requires examining and tracking the learners’ achievements by measuring their writing test scores over three periods, covering a pretest, immediate post-test, and delayed post-test in the two groups, to collect quantitative data to manipulate using parametric tests. ‘Working with these tests enables the researcher to use statistics applicable to interval and ratio levels of data’ (Cohen et al., 2011, p. 317). Hypothesis 1 will analyse the three test scores obtained by experimental group learners over three periods of time to determine if

DDL intervention, in addition to explicit deductive instruction, affects their writing performance. Similarly, hypothesis 2 will also analyse the three test scores of the control group learners over the three periods of time to examine the influence of explicit deductive instruction without DDL intervention on their writing performance. Data analysis for hypotheses 1 and 2 will show within-subject effects, whereas data analysis for hypothesis 3 will provide the between-subject effect. Hypothesis 3 seeks to compare test scores between the two groups, experimental and control, to assess the efficiency of DDL intervention.

RQ 2. Do participants in the experimental group employ metadiscourse markers in their argumentative essays with the same frequency and variety as participants in the control group after the DDL intervention?

- Hypothesis 4: There are statistically significant differences between the experimental and control group participants in their frequency of using some metadiscourse markers after exposure to the DDL intervention.
- Hypothesis 5: There are statistically significant differences between the experimental and control group participants in their variety of using some metadiscourse markers after exposure to the DDL intervention.
- Hypothesis 6: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of frequency.
- Hypothesis 7: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of variety.

- Hypothesis 8: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of frequency
- Hypothesis 9: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of variety.

RQ 2 aims to test the effect of the DDL intervention on the learner's use of metadiscourse markers. Similar to RQ 1, RQ 2 requires examining and tracing the use of metadiscourse markers by the two groups over three periods of time. It relies on the frequency tool feature of corpus-based analyses to obtain quantitative data to work on non-parametric tests and log-likelihood.

As a result, hypotheses 4 and 5 compares the frequency and variety of use of metadiscourse markers in the experimental and control groups to see if there are differences between the two groups before and after exposure to DDL intervention. Testing hypotheses 4 and 5 will provide between-subject effects while testing hypotheses 6, 7, 8 and 9 will provide within-subject effects. Hypotheses 6 and 7 will examine the argumentative essays written by language learners in the experimental group over three tests to analyse the frequency and variety of using metadiscourse markers to test the effect of DDL intervention in addition to the explicit deductive instruction on the short and long term. Hypotheses 8 and 9 will analyse the frequency and variety of using metadiscourse markers in argumentative essays written by language learners in the control group over the tests to test the effect of explicit deductive instruction solely on the short and long term.

RQ 3. How do the experimental group participants evaluate their experience with the DDL intervention in terms of its positive and negative sides?

The third research question aims to include the voice of B1 language learners in the existing literature on metadiscourse markers and DDL. Their feedback is crucial because the corpus-based tools employed in the DDL intervention are more likely to be successful if target audiences find them feasible and if they raise their awareness of their written performance. Also, most of the previous DDL studies focused on the learners' performance before and after DDL intervention to examine its efficiency, yet few studies included the participants' evaluation of DDL. Huang (2014) and Moon & Oh (2017), for example, investigated the learners' attitudes by utilising a questionnaire and found that the majority of the participants' attitudes are positive regarding their experience with DDL. Moon & Oh (2017) found 3% of their participants have negative perceptions towards DDL; it would be better to ask about the reasons for the negative effects of DDL from the learners' perspective, as this would help develop DDL and future research. Therefore, this research question aims not only to utilise a questionnaire but also to include an interview to obtain more information about the learners' views regarding DDL.

### **3.2 Research Design**

This study aims to examine the influence of the DDL intervention on the writing performance of B1 language learners; therefore, the experimental research design was adopted. The main feature of experimental research is the controlled conditions and processes manipulated by the researcher to demonstrate whether a specific intervention has an effect (Cohen et al., 2011). Therefore, it requires at least two groups: the experimental group exposed to the treatment and the control group as the baseline for comparison (Dörnyei, 2007). The experiment aims to examine the effect of the independent variable on another variable, known as the dependent variable (Bryman, 2016). It involves a pretest, treatment intervention, immediate posttest and two-week delayed posttest. The comparison between the pretest and immediate

posttest is to ‘determine the effect of the treatment’ (Schmitt, 2010, p. 155). In addition, the comparison between the pretest and delayed posttest is to ‘demonstrate if long term retention (learning) has occurred’ (Schmitt, 2010, p. 155).

Relating to this study, the independent variable (e.g. DDL intervention) is the instruction. The dependent variable refers to the learners’ written performance, including their scores on essay writing tests, the frequency of use of metadiscourse markers in their writing over the three mentioned periods, and the attitudes they aim to express in the questionnaire regarding their experience with the DDL experiment. It is important to control other variables to make the results as realistic as possible. Therefore, the instructional settings, textbooks and tests conditions were similar, except that the experimental group was exposed to the DDL intervention, whereas the control group was not. The following section illustrates the procedures to design the DDL activities by relating them to the theoretical framework in 2.5 These activities represent the DDL intervention presented to the experimental group to examine its effects on their writing.

### **3.2.1 Data Driven Learning Intervention**

The DDL intervention includes the DDL activities designed for the treatment in the experimental group. The careful design for these activities is crucial to suit the participants’ levels, needs and abilities during the experiment. This step enables the researcher to obtain the required data to answer the research questions. Before designing the DDL activities, the selection of the targeted metadiscourse markers in the treatment intervention was based on Hyland’s (2005) taxonomy, a study by Bax et al. (2019), and an interview with an experienced language teacher. The following section explains the reasons for adopting Hyland’s (2005) taxonomy, followed by the procedures for selecting the targeted metadiscourse markers.

### **Justification for adopting Hyland's taxonomy**

This study aims to investigate the effect of DDL intervention on B1 language learners' use of metadiscourse markers when writing argumentative essays. This means that the DDL intervention requires activities, including targeting metadiscourse markers.

The proposed taxonomy by Hyland (2005) involves over 300 metadiscourse markers and is divided into two main categories: interactive, which guides the reader through the text, and interactional, which involves the reader in the text. Section 2.3.2 provided a chronological order for the metadiscourse marker taxonomies that were designed by the scholars Vande Kopple (1985), Crismore et al. (1993), Hyland (2005), and Ädel (2010). This study adopts Hyland's (2005) taxonomy for some reasons. Firstly, Hyland's taxonomy is an evolution of the previous taxonomies that were designed by Vande Kopple (1985) and Crismore et al. (1993). It is built by remedying the limitations that were found in these taxonomies, which may cause some issues when applied in practice. Since Vande Kopple's (1985) taxonomy has some drawbacks that caused some confusion when applying it in practice as the "narrator" and "attributes" categories, some scholars, such as Crismore et al. (1993), provided a developed taxonomy for Vande Kopple's (1985). In addition, they consider metadiscourse markers as a secondary discourse that does not add anything to the propositional content that has a primary discourse. Their view suggests an obvious separation between propositional content and metadiscourse. However, Hyland's taxonomy does not separate propositional content, which is a primary discourse, from metadiscourse, which is a secondary discourse. His taxonomy relies on the principles of metadiscourse that were listed by Hyland and Tse (2004) and discussed in Section 2.3. Hyland and Tse (2004) consider propositional content and metadiscourse as distinct, yet they are integrated. This integration shows the metadiscourse support for the propositional content to

achieve coherence, intelligibility, and persuasion for the audience (Hyland, 2005). Secondly, Hyland draws our attention to the differences between external and internal roles of transitions (addition, comparison, and consequence). This is because scholars such as Crismore et al. (1993) consider the metadiscourse markers as overt elements that only perform textual functions and are therefore unproblematic, yet Hyland (2005) provided evidence showing that a metadiscourse marker that has a textual function can perform an interaction between a writer and a reader (see Table 2.3). Thus, Hyland's taxonomy relies on the internal function of transitions, not the external function which requires the writer's awareness when using metadiscourse markers that may have multiple functions. This point is related to the explicitness feature for metadiscourse markers in his taxonomy. This explicitness is not only important for the writer's awareness of self and audience, but it also suits language learners as these metadiscourse markers can be identified clearly in the text. Finally, since 2005, scholars have been adopting Hyland's taxonomy in their research to examine the use of metadiscourse markers by writers from different L1 backgrounds and different language levels, such as Bax et al. (2019), Kawase (2015), and Namnik (2016), which can confirm its reliability.

### **Selection Steps for Targeted Metadiscourse Markers**

The selection of the targeted metadiscourse markers is based on three main sources: Hyland's (2005) taxonomy, the results of a study by Bax et al. (2019), and an interview with a language teacher who is experienced in IELTS preparation classes. These three sources will work hand in hand to achieve the final selection of metadiscourse markers to suit B1 language learners in this study. The first source was considering Hyland's taxonomy list that involves over 300 metadiscourse markers classified into two major categories, interactive and interactional, that have ten sub-categories (see Hyland, 2005, pp. 218–224). However, it is difficult to use all these



markers in a research experiment or ask the participants to work with them, as this number of markers can cause fatigue. Therefore, the second source is the study by Bax et al. (2019), who examined the use of metadiscourse markers in 900 exam scripts (i.e., writings) of language learners with different levels (C2, C1, and B2) adopting Hyland's taxonomy. Initially, their analysis included examining all markers in Hyland's taxonomy list. Using the *text inspector software*, which is an automated text analysis tool, and the manual analysis to detect computer errors, the initial set of more than 300 metadiscourse markers was refined to reach 281 metadiscourse markers for analysis. The analysis involved examining the categories to compare three levels of language learners' writings. Also, they provided an analysis for individual markers in specific categories, which included 144 metadiscourse markers, yet they only discussed 63 markers in seven categories as they were the good representative markers for each category. Bax et al. (2019) notified that they excluded the other markers as they rarely appear in their data, while analysis suggests that the 63 metadiscourse markers are commonly and frequently used in the writings of language learners with advanced and upper intermediate levels. The last source was a discussion with the supervisor, who recommended reducing the number of metadiscourse markers. Hence, a meeting with an experienced language teacher in an IELTS preparation class in a language centre in London was held to consider the metadiscourse markers that B1 language learners need in writing argumentative essays. Her recommendation involved 52 metadiscourse markers in different categories based on Hyland's taxonomy list (Table 3.1).

**Table 3. 1** Selected Metadiscourse Markers for DDL Activities

Main category	Sub-categories	Targeted metadiscourse markers	
Interactive	Transitions	Additive	Also, in addition, moreover, besides, furthermore.
		Causative	Because, since, as a result, consequently, therefore, thus, so.
		Contrastive	Although, even though, though, but, yet, however, nevertheless.
	Frame markers	Goal announcement	I would like, I want to, let us
		Sequencing	First, second, third Firstly, secondly, and thirdly To begin with
		Label stages	Overall, in conclusion, all in all, to sum up, to conclude.
Interactional	Hedges	About, almost, may, might, probably.	
	Boosters	Certainly, obviously, undoubtedly, indeed.	
	Attitude markers	I agree, I disagree, essential, important, interesting, fortunately, unexpected, cause, unfortunately.	

The total number of the targeted metadiscourse markers is 52 markers from five categories of Hyland's taxonomy. It is important to note that the sub-categories of transitions and frame markers are shown separately to facilitate the design of DDL activities to suit B1 language learners and facilitate analysis in the results chapter, giving a total of nine categories. The 52

metadiscourse markers resulted in nine DDL activities of type 1 that correspond to the nine categories in Table 3.1 (see Appendices 1.1-1.9).

The design of the DDL activities relied on two major sources for error analysis and feedback: (a) the *ICLE*, which is an existing corpus, to present model samples to participants, and (b) the participants' writings that are considered learner data, a mini local learner corpus that was built for this study (details will come in the pilot and main study as the size of the local learner corpus in the pilot study is different from the size of the local learner corpus in the main study). The DDL activities were classified into three types: the first and second types relied on concordance lines, whereas the third type relied on paragraphs and whole essays. DDL activities type 1 is based on *ICLE*, DDL activities type 2 is based on the local learner corpus, and DDL activities type 3 is based on the two corpora. A discussion of each type is presented below.

**Type 1.** The design of this type of DDL activity was derived from the *ICLE* and processed in systematic steps. First, the researcher received *ICLE* version 2 (the book and CD) from the Université Catholique de Louvain. The *ICLE* contains 3.7 million words from nonnative English learners with different L1 backgrounds (Bulgarian, Chinese, Czech, Dutch, Finnish, French, German, Italian, Japanese, Norwegian, Polish, Russian, Spanish, Swedish, Turkish, and Tswana), with 200,000 words for each language (Granger et al., 2009).

Second, the settings on the *ICLE* CD involve two main selections: corpus selection 1 and corpus selection 2. These selections include variables that filtered and facilitated the inclusion and exclusion criteria for selecting the concordance lines and model samples to design the DDL activities for this study. Through corpus selection 1, three types of essays appear in *ICLE*: argumentative, literary, and others. This study included only argumentative essays as the first criterion of selection. This selection of argumentative essays was refined through corpus

selection 2, which included the settings for timed and untimed essays under test and non-test conditions, with and without the use of reference tools. The final filtered selection involved timed argumentative essays that were written under test conditions and without the support of reference tools such as dictionaries. These filters resulted in approximately 1313 texts (609, 864 words) comprising the argumentative essays that are archived and used to design DDL activity types 1 and 3. The inclusion criteria (argumentative essays in timed test conditions and no references) aim to provide model essays to the participants who will write argumentative essays under test conditions in the pretest, immediate post-test, and delayed test.

Third, the selected argumentative essays were stored as data in a plain text format to create a single text file of 609,864 words. The latest version of AntConc Macintosh OS X 10.6-10.12 (3.5.8) was used to obtain the concordances for the target metadiscourse markers in a real context that suited the participants' level. The selection of the concordance lines is based on the selected targeted metadiscourse markers listed in Table 3.1 and the selected argumentative essays that were derived from ICLE. The selection is supported by a manual analysis to ensure that the selected concordance lines show the targeted metadiscourse markers in context and their function according to Hyland's (2005) taxonomy. For example, by examining the goal announcement marker "I would like" via AntConc, it showed 103 concordance hits. Through the manual analysis, the researcher was able to identify the concordance lines that show their use in context and suit the level of B1 language learners. AntConc software provides numerous concordances from the text file for the markers; thus, the number of concordance lines used for each marker was limited, not exceeding eight concordance lines for each marker. The limit was intentionally applied as a careful step while selecting the concordances for the required marker. Fourth, target metadiscourse markers were enhanced using blue underlines and a larger font. This typographic

input enhancement in the selected concordances was supported by closed and open-ended questions to attract the participants' attention to the function and the position of the target metadiscourse markers.

All selected *ICLE* text was used, representing an authentic and rich selection of metadiscourse markers that suit (B1) language learners. 'Modification to texts were kept to the minimum required in order for the materials to suit the proficiency level of the students and the time restrictions of the classes' (Fordyce, 2011, p. 122). The design of this type of activity is based on the principle of *noticing the form* of the noticing hypothesis (see Section 2.5.2). Schmidt and Frota (1986) suggested that the interlanguage competence of a language learner will develop if he notices how a specific form of a language is used. Thus, this DDL activity aims to encourage the experimental group participants to notice and explore the concordance lines that involve the targeted metadiscourse markers. These concordance lines are enhanced to attract the participants' attention and encourage them to analyse them and see how the targeted metadiscourse markers are used in context. In order to do so, the instruction of this type of DDL activity relies on an explicit inductive approach according to DeKeyser's (2003) dimensions for explicit-implicit/deductive-inductive instruction (see Table 2.5). The experimental group participants are exposed to the concordance lines that involve the enhanced targeted metadiscourse marker. Through noticing, comparing, analysing, and exploring these concordance lines, the participants are asked to infer the function of the targeted metadiscourse marker (see Appendix I).

**Type 2.** Similar to activity Type 1, Type 2 relies on the concordance lines, yet these lines are derived from the experimental group's writing. In this type of DDL activity, the experimental

group's argumentative essays on the pretest were typed and converted into a text file to obtain a corpus-based analysis using AntConc software (Anthony, 2014) as a mini local-learner corpus.

As mentioned in Section 2.5, the learners either notice a missed part in their production or notice a difference between their performance and the target language (Schmidt, 2001, 2012; Schmidt & Frota, 1986; Swain, 1995, 2005). This type of activity is based on the first function, *noticing function*, and the second function, *hypothesis testing*, of the output hypothesis, as they focus on learners' responses to the feedback they receive regarding their performance (see Section 2.5.1). According to Swain and Lapkin (1995), through external feedback, the learners' attention is directed to their linguistic problems, which can be considered noticing a problem.

The concordance lines, a corpus tool, were used in association with the participants' frequency of using the metadiscourse markers to notify them of overused and underused markers in their essays. Even though this type of activity does not provide concordance lines and asks the participants to infer the rule as in DDL activity type 1, it uses the same strategy, which is concordance lines through an explicit inductive approach, to attract the participant's attention and identify their linguistic problems that impede their progress. It seeks to increase their awareness of the frequency with which they use the target metadiscourse markers by providing quantitative analysis feedback on overused and underused metadiscourse markers. Additionally, this kind of feedback encourages them to notice, analyse, and compare their use of metadiscourse markers in the essays they wrote in the pretest with the model samples written by advanced-level learners that were provided in DDL activity type 1. Through this type of activity, learners become aware of their use of metadiscourse markers and become ready to search for solutions to these linguistic problems. The noticing function of the output hypothesis aims to lead the

participants to modify their output, i.e. the essays that they will write in the immediate post-test and the delayed post-test. (see Appendix II).

**Type 3.** Type 3. Unlike the DDL activities in Types 1 and 2, which employed concordance lines, this type of DDL activity relies on complete samples of argumentative essays archived from *ICLE* and the experimental group participants' writings in the pretest step. This type of activity is based on the first function *Noticing/triggering* the output hypothesis and the second principle of *Noticing the gap* in the noticing hypothesis that was discussed in Section 2.5.1. Based on the function of *Noticing/triggering* the output hypothesis, this activity aims to analyse the participants' essays in the pre-test to provide qualitative feedback on their use of metadiscourse markers in their essays. Through this analysis, the participants can consciously recognize their linguistic problems (i.e., misuse of metadiscourse markers). Izumi et al. (1999) named the *Noticing/triggering* function of Swain's (1995) output hypothesis as *the conscious-raising function* because the learners' awareness of their linguistic limitations can stimulate them to determine a solution to their problems (Swain, 2005). Therefore, the second principle of *noticing the gap* in the noticing hypothesis can play an important role here. Uggen (2012) recommends providing relevant input after raising the learners' awareness, as allowing them to notice the gap in their performance and compare it with a relevant model sample would result in more focused attention and interlanguage development. The gap here refers to the difference between the participants' use of metadiscourse markers and the use of the same markers by learners with an advanced level. The model samples from the *ICLE* were copied into Microsoft Word files, and the targeted metadiscourse markers were enhanced with a blue underlined font. The procedures in implementing this type of activity that is based on noticing the model samples utilise explicit induction. Similar to DDL activity type 1 which is based on exposing the

participants to concordance lines to infer the function of metadiscourse markers, DDL activity type 3 exposes the participants to a full complete argumentative essay written by advanced-level learners.

This part allows the experimental group to notice the target metadiscourse markers in a larger context than the concordances (in paragraphs and essays) and analyse how advanced-level learners employed these markers. Further, the argumentative essays of the experimental group in the pretest were copied into Word files and shown to them to notice and analyse how they used metadiscourse markers and compare their use with the model samples (see Appendix III). This comparison considers the relationship between the output and noticing hypotheses discussed in Section 2.5.

The DDL activities encouraged the participants to examine the provided linguistic evidence, reach their conclusions and become active rather than passive learners (Granger, 2012). These steps support the intervention that aims to attract the learners' attention to the forms as effectively as possible (Fordyce, 2011; Schmidt, 2001) through structured input 'specifically designed to expose learners' to exemplars of a specific linguistic feature' (R. Ellis, 2008, p. 980).

As mentioned previously in Section 2.5.6, language teachers can select either an explicit or implicit approach integrating it with either deductive or inductive instruction in their classrooms. The three types of DDL activities that are illustrated above are based on the explicit inductive approach, however, Smart (2014) notes that the inductive approach might not suit language learners with lower levels and they need adequate guidance to enable the language learners to notice and analyse the input forms and reach their generalisations. This guidance is the 'guided induction' that was previously discussed in 2.5.6 and will be adopted in this study as the participants are language learners at the intermediate level.



The procedures for instructing the DDL activities were based on Flowerdew's (2009) framework for corpus-based activities, namely the four *I*'s: illustration, interaction, intervention and induction as follows:

- Step 1 illustration: Participants first examined preselected paper-based activities, focusing on the patterns of concordance lines for the target metadiscourse markers.
- Step 2 interaction: In pairs or groups, participants shared their observations to discuss their views following the guiding questions on the worksheets.
- Step 3 intervention: The researcher provided hints for induction where necessary, particularly when participants needed guidance to focus on the target markers to determine their function.
- Step 4 induction: Participants individually determined their own rules and formed their hypotheses regarding the target marker.

### **3.2.2 Controlling the Variables**

According to Alessi and Dwyer (2008), three essential factors require consideration while conducting an experimental study. These factors are realism, control and power.

First, realism refers to the authenticity of the tasks and procedures in the experiment. The experimental tasks should suit the participants' level and are normally operable outside the experiment. Thus, the experiment is considered unrealistic if the task or procedures are unfamiliar to the participants. The activities derived from *ICLE* and the participants' writings were adopted to present the target metadiscourse markers in a meaningful context close to the participants' level.

Second, control aims to ensure identical settings for both groups, except for the treatment exposure for the experimental group to examine its effect. Concerning this study, both classes

had the same instructional settings, except for the experimental group exposed to the DDL intervention.

Third, Third, power means to ensure the efficiency of the treatment as much as possible, which provides learning benefits and statistically significant results. In this study, it was necessary to design feasible and comprehensible activities that participants could easily use as an experiment requires a practical implementation for teaching and learning.

### **3.2.3 Participants**

The careful selection of participants for research is essential to its quality (Cohen et al., 2011). According to Bryman (2016), two major methods for sampling are probability sampling and nonprobability sampling. The probability sample refers to a random selection strategy that provides an equal chance of selecting individuals (Cohen et al., 2011). In contrast, a nonprobability sample involves all other types of sampling that do not adopt random selection because the research aims to represent a specific group of individuals (Dörnyei, 2007). In this study, purposive sampling was adopted. Researchers using this type select ‘the cases to be included in the sample on the basis of their judgment of their typicality’ (Cohen et al., 2011, p. 103). More precisely, the DDL intervention in this study addresses only intermediate-level English language learners, and the *Common European Framework of Reference for Languages (CEFR)* criterion was employed to recruit the required participants.

Based on *CEFR* guidelines, the intermediate learners are classified as B1, representing the intermediate level and B2, representing the upper-intermediate level. This study concerns intermediate-level language learners (B1) who ‘can produce simple connected text on topics which are familiar or personal interest. Can describe experience and events, dreams, hopes and ambitions and briefly give reason and explanations for opinions and plans’ (Council of Europe,

2001, p. 24). Regarding coherence in their writing, they ‘can link a series of shorter, discrete simple elements in to a connected linear sequence of points’ (Council of Europe, 2001, p. 29). This study addresses language learners who are enrolled in B1 language classes only. In the United Kingdom, for example, language classes that are provided for language learners can be classified into two types. The first type represents language classes that are provided by an independent private sector, such as language schools that are accredited by the British Council. These schools provide different kinds of classes such as general English classes, IELTS preparation classes, and business English. The second type represents language classes that are provided by universities for international students to study in the pre-sessional courses as they did not achieve the required band score for the academic programme they aim to study (see Section 1.2). Typically, when language learners join a language school, either private school or pre-sessional courses in the university, they are requested to take a placement test that measures their level. Based on their results, they are enrolled in classes that suit their levels, A1, B1 or C1. They can also provide a certified language test, such as IELTS or TOEFL, indicating their level, and can enrol in classes according to their language test scores. Therefore, the recruited participants for this study are B1 language learners who study at a private language school in the United Kingdom. The details of the participants, such as gender, L1 background and age, are mentioned in the pilot study chapter (Section 4.1) and the main study chapter (Section 5.1). It is important to note that the participants in the pilot study are B1 language learners in the same language school, as this selection refers to the experimental research design, while the participants in the main study are B1 language learners in different language schools around the world which refers to the quasi-experimental research (more details will be presented in Section 5.1).

### 3.2.4 Teaching Instructions and Materials in the Two Groups

As mentioned in Section 2.4, Tribble (1996) noted that there are five modes in the materials of the intellectual/rhetorical approach: Exposition, Description, Narration, Argumentation and Classification. The classes of the two groups in this study, either control or experimental, used a textbook and supporting materials that follow the intellectual/ rhetorical orientation, and argumentative essay writing was taught in these classes. Traditionally, students in these classes are taught the definition of an argumentative essay, its organisation, details of paragraph construction, transitions, and connectors (i.e. equivalents of metadiscourse markers) utilising the process approach for instruction, whereby the teacher's overt and explicit language teaching and corrections are most likely to occur. It follows Hyland's (2016) list of the four stages for teaching writing, which are mentioned in Section 2.4. Typically, argumentative essays would involve topics such as an issue that requires reasons for supporting or disagreeing. Thus, both groups, experimental and control, begin with their teachers' brainstorming an idea to encourage the students to think about and discuss the provided idea. During the brainstorming, each student discusses their views by providing examples and reasons to explain their position regarding the idea. Then they are encouraged to write their essays. The teacher's explicit "response" that aims to assist learners moving through the stages of the writing process and provide feedback such as 'teacher-student conferences, peer response, and reformulation' (Hyland, 2003, p. 12) are used. Finally, they work on editing, either individually or in pairs, to revise and correct the form, layout, and evidence.

In terms of metadiscourse markers instruction, they are listed in the student's textbook and supporting materials under title the most common transitions and connectors in argumentative essays. As the topics in argumentative essays involve an argument and a

counterargument, the metadiscourse markers are listed in two categories: transitions and connectors that develop an idea or an argument, and transitions and connectors to address the counterargument. These transitions and connectors are taught based on the explicit deduction approach, whereby the teacher explains the rules for using these transitions and connectors in writing argumentative essays, followed by examples to illustrate these rules. Additionally, the teachers provide some activities that encourage students to join sentences using these transitions and connectors.

Since this is an experimental study, the two groups, experimental and control, were in identical conditions with the exception that the experimental group was exposed to the DDL intervention to examine its effect. Therefore, it can be concluded that the explicit deduction approach was utilised for instruction in the two groups, with the exception that the DDL intervention, which is based on the explicit induction approach that provides examples and encourages language learners to infer the function of the targeted metadiscourse markers, will be provided to the experimental group. It is important to note that the two groups in the pilot study were in identical conditions, whereas the two groups in the main study were not in identical conditions because of the global pandemic (more details will come in Sections 5.2 and 5.3).

### **3.2.5 Data Collection Procedures**

Prior to implementing the DDL intervention, the participants in the experimental and control groups must be informed of the details of this study and the data collection procedures. Thus, they were asked to sign the consent form to participate in the study (for more details, see section 3.5). After receiving all the participants' consent forms, a date was scheduled to begin the experiment, as presented in Table 3.2.

**Table 3. 2** Procedures for DDL Implementation and Data Collection

Week	Experimental Group	Control Group	Notes
Week 1, Day 1	Pretest	Pretest	Data collection
Week 1, Day 2 to Week 4	DDL intervention is provided to support the regular language-teaching classes (regular teaching and DDL)	Regular language-teaching classes (regular teaching)	Treatment is applied
Week 5	Immediate posttest	Immediate posttest	Data collection
Week 7	Delayed posttest	Delayed posttest	Data collection
Week 7	Questionnaire and interview	-	Data collection

As indicated in Table 3.2, both groups took the pretest in the first week, which required an argumentative essay writing test, in which participants were asked to write about the following topic: ‘Young people should be interested in national and international news; to what extent do you agree or disagree with the previous statement? Use examples to support your essay’.

The participants wrote essays under timed test conditions without the support of reference tools. The researcher received a copy of these essays to type them in a Microsoft Word file and converted them into a text file for corpus-based analysis. These were used for presenting Type 2 and 3 activities for the experimental group (see Appendices II and III). The essays written by the control group were also copied and typed into a Word file and text file. The control group’s essays were compared with those of the experimental group for data analysis. After the pretest, both groups continued attending the regular instruction in class, except that the experimental group received the DDL intervention and the control group did not.

On the first day of the DDL intervention, the experimental group were shown a PowerPoint presentation by the researcher to present a story on Ms Mani and Ms Cani (see Appendix XI).

In This story, there were two ladies (Ms. Mani and Ms. Cani) who travelled to London as tourists to enjoy their time. Ms. Mani decided to take only the taxi for her journeys. Even if the journey takes five minutes by walking, she insisted on taking the taxi as she did not want to use the other ways of transportation such as buses or trains which are famous around the world, safe and affordable in London. The taxi was the only way of transportation that Ms. Mani used to reach her destination, and she used it as well when she wanted to come back to the hotel. One day, she wanted to visit “Madame Tussuad’s” museum, so she went there by a taxi. When she arrived there, she asked the taxi driver to wait for her until she finishes her time there!

On the other hand, Ms. Cani was totally different, as she used ‘Google Maps’ before she started any journey. ‘Google Map’ that is an application on smart phone devices and can provide directions and signals for its users in an organised way. It can show the user the different ways of transportation as in buses or trains in addition to the duration time. In these two ways of transportation, ‘Google Maps’ can inform the user the name of each station that the bus or the train would stop, terminate or move. She selected the bus, the train and walking sometimes to reach all her destinations safely as well as she enjoyed her time. One day she went to ‘Harrods’ to do some shopping. When she finished shopping, she noticed that her shopping bags were heavy and cannot carry them all on her way back to the hotel, therefore, she used a taxi on that day.

After presenting the story, the participants were asked about their opinions of the

selection of the methods of transportation by the two ladies, and they provided explanations for considering one selection better than the other.

The reason for presenting this story, followed by a discussion of the ladies' selections, was to achieve two main objectives. The first objective was to prepare the participants with metadiscourse markers similar to the signal of 'Google Maps', as these markers help writers guide readers in an organised style, which presents the important role of metadiscourse markers in writing. The second objective was to demonstrate to the participants that Ms Mani's reliance on only one mode of transportation, the taxi, and leaving the other modes of transportation, trains and buses, which can perform the same function, is similar to the idea of overusing a specific metadiscourse marker that resulted in underusing other metadiscourse markers in writing that the participants may have.

The next day, the experimental group participants began receiving the DDL activities (see Appendices I, II and III). In addition, DDL Activity 1.1 was the first activity provided to the participants. The day after, the participants were asked about Activity 1.1 as a warm-up stage before providing Activity 1.2, and the same steps were taken with Activities 1.3 and 1.4. After presenting Activities 1.1 to 1.4, the Type 2 DDL activity was presented to participants (see Appendix II), as Type 1 DDL relies on the noticing hypothesis, whereas Type 2 relies on the output hypothesis. The same procedures were carried out for Activities 1.5 to 1.9, where the participants received model samples and a corpus-based analysis of their performance.

When the participants finished working with the DDL activities of Types 1 and 2, the Type 3 DDL activity was provided (see Appendix III). This type of DDL activity shows them the target metadiscourse markers in complete contexts and allows them to analyse how the advanced language learners employed the metadiscourse markers in their writings (see Appendix III:



activity 3.1). This DDL type also encourages participants to analyse their use of metadiscourse markers in the essays they wrote in the pretest and compare their written production with the model samples (see Appendix III, Activity 3.1).

In the fifth week, after implementing the DDL intervention, the participants in the two groups were asked to write an argumentative essay under test conditions as the immediate posttest. The topic was ‘Some animals are facing the danger of disappearing; we should do everything to save them. To what extent do you agree or disagree with this statement? Use examples to support your essay’.

The participants’ essays for the immediate posttest in the two groups were copied and typed into Word and text files for use in the data analysis. After the immediate posttest, both groups continued studying in their language classes until the seventh week, when they were asked to take the delayed posttest, the last test of the study.

In the seventh week, two weeks after the immediate posttest, the participants were asked to write an argumentative essay for the delayed posttest under test conditions. The topic was ‘Secondary-school students (11-16 years old) should not be allowed to take mobile phones into school; to what extent do you agree or disagree with this statement? Use examples to support your essay’.

The delayed test was conducted two weeks after the immediate post-test to control the variables in both groups as much as possible and have identical settings. In other words, the participants were enrolled in a language course with a length ranging between four and twelve weeks. Some of these participants aimed to achieve a specific band score in a language test such as the IELTS test to fulfil the language proficiency requirement for the universities they plan to join, while others aimed to study the twelve weeks of the language course and progress to the

next higher level in the same language centre. If participants who plan for a specific band score in a language test achieve the required result, they may not continue in the language course because they met their goal. This would lead to different settings among the participants, and external variables may appear as some of the participants would continue studying in the language course while others would not. Therefore, conducting the delayed post-test two weeks after the immediate post-test suits the study settings.

Similar to the processes for the participants' essays in the immediate posttest, their essays for the delayed posttest were copied and typed in Word and text files for use in the data analysis. The last step in this study was to ask the experimental group to complete a questionnaire and provide feedback in the interview regarding their experience with the DDL intervention (see Appendices IV and V).

### **3.3 Research Instruments**

The research instruments in this study involve participants' writing tests over three periods (pretest, immediate posttest and delayed posttest) for both the experimental and control groups. These writing tests involve essays for all three tests. The instruments also involve a questionnaire and interviews with the participants in the experimental group only. The participants' writings were used to measure the efficiency of the DDL intervention, whereas the questionnaire and interviews were used to obtain the experimental group's attitudes towards the DDL intervention.

#### **3.3.1 Writing Tests**

'Any writing test that involves actual writing, as opposed to completing multiple choice items, for example, can be considered a performance test since the written product represent a performance of writing' (Weigle, 2002, p. 46). Argumentative writing is one of the most common

genres that language learners must produce that involves the writer's interaction with the reader (Hyland, 2009). 'The author embraces a particular point of view and tries to convince the reader of the essay to adopt that same perspective' (Nippold et al., 1992, p. 125). It requires careful consideration of how the ideas are communicated with a grasp of the reader's expectations and knowledge of how the linguistic features are used to convey meaning (Morgan, 2011).

The efficient use of cohesive devices in writing primarily depends on a shared knowledge of the writing discipline, which is deeply problematic for language learners who lack cultural insight and familiarity with the genre (Aijmer, 2002). Concerning this study, the participants were presented with a viewpoint and asked to write an argumentative essay under test conditions. They were asked to write argumentative essays over three periods to measure the effect of DDL intervention on their writing performance, which was evaluated according to the IELTS writing test Task 2 criteria (see Appendix XIII).

Furthermore, this study aims to understand the language learners' use of metadiscourse markers in their argumentative writings. Thus, the corpus-based analysis tools, frequency and concordances, can provide both quantitative and analytical measurements for the target metadiscourse markers used by the participants.

### **3.3.2 Questionnaire**

This study involves a questionnaire that aims to measure the attitudes of the experimental group participants after their experience with DDL. The questionnaire was formed based on the principles of questionnaire design by Dörnyei (2007). It involves Likert-scale closed-ended items that indicate the participants' responses, ranging from 'strongly disagree' = 1 to 'strongly agree' = 6. The items were adopted from Huang's (2014) experimental study examining the effects of DDL in the L2 writing of Chinese students. Huang's questionnaire involves 24 items

focusing on two major aspects of the DDL experiment: the participants' evaluation of the DDL activities on vocabulary learning and the difficulties participants faced while working with concordance activities.

Huang's questionnaire was modified to 19 items to assess the experimental group's attitudes and includes three aspects. The first is the participants' views regarding their use of metadiscourse markers after DDL intervention, as the DDL activities focus on metadiscourse marker employment in essay writing. The second aspect is their feedback on the effects of the DDL activities on their writing performance, as the participants had the opportunity to examine, notice and analyse their essays for the pretest. The third aspect is the difficulties they may face while working with the DDL activities (see Appendix IV). The participants' responses to the questionnaire were analysed using percentages comprising the quantitative feedback data, whereas the semi-structured interviews discussed below comprise the qualitative feedback data. These data provide the required foundation for the results and discussion.

### **3.3.3 Interviews**

The semi-structured interview involves a set of prepared questions and prompts presented in an open-ended format (Dörnyei, 2007) to each experimental group participant to provide an opportunity to express feedback on the DDL activities with more details. The interview questions are related to the three aspects of the questionnaire discussed above to consider the positive and negative sides of DDL.

The interview questions revolved around five themes. The first theme deals with the difficulties participants faces while performing the DDL activities. The open-ended questions enabled the participants to discuss the obstacles faced while working with DDL activities from the perspective of a language learner. This kind of feedback is important because it can be

considered to develop future DDL activities to suit individual differences between language learners. The second theme is about the advantages of DDL activities from the participants' viewpoint, which assesses the benefits that the participants gained from DDL activities and the resulting positive effect on them. The third theme refers to the part of DDL activities that attract the participants' attention. The questions in this theme encouraged the participants to provide the reasons for considering a specific part of the DDL activities more attractive than other activities. The fourth theme focuses on the interesting part of DDL activities, and the participants were encouraged to explain their replies, as they did for the third-theme questions. The fifth theme is regarding the participants' recommendations for future DDL activities. After setting the main areas of the interview questions, appropriate wording to suit the level of the interviewees is recommended (Dörnyei, 2007). In this study, simple vocabulary was used to form questions so that B1 language learners could interact easily.

The interview involves 11 main questions, and some probing questions were included while interviewing, as the probes can 'increase the richness and depth of the responses' (Dörnyei, 2007, p. 138). The final draft of the interview questions was shown to and discussed with some participants in the pilot study to test its suitability for B1 language learners and was used for the main study participants (see Appendix V).

The participants' feedback from their interviews was written, transcribed and saved in Microsoft Word files, where each participant has an independent file for processing and analysis using NVivo software (Release 1.0) on Mac OS version 11.5.2. NVivo is a software program that can analyse qualitative data, such as interviews, diaries, and journal articles, relying on the coding of the data. 'Coding involves highlighting extracts of the transcribed data and labelling these in a way that they can be easily identified, retrieved or grouped' (Dörnyei, 2007, p. 250).

NVivo software can provide this feature by manipulating the data to obtain a hierarchy of codes in the form of a tree diagram, facilitating the examination of the code structures effectively and analytically, clarifying how categories are related to each other (Dörnyei, 2007). The hierarchal forms enable the researcher to relate the data in the subcategory levels to data in the main category levels. Moreover, it facilitates retrieving and highlighting the data with colours, aiding the researcher in determining similarities and differences in the data in the same or different categories. Dörnyei (2007) presented four steps to analyse the interviews: data transcription, precoding and coding, growing ideas, and data interpretation.

For the data transcription, the researcher took notes and transcribed the interviews for archiving and prepared for coding using NVivo software. Next, for the precoding and coding of data in NVivo software, the prototypical architecture of coding for relationships is based on coding (tree nodes) and subcoding (free nodes). By organising the free nodes hierarchically, the connection between these nodes can be established as tree nodes, which refers to the categories (themes), whereas the free nodes are subcategories. NVivo software was used to code the data, carrying out multiple cycles of reading the data. The codes were generated based on the main themes of the interview questions. Coding data requires organising free nodes and tree nodes in hierarchical categories. Thus, a table was created to visualise the hierarchical relationship of the codes. Afterwards, in growing ideas, this step is based on the previous step by locating similarities and differences between the different kinds of coded data and determining their relationships. Finally, the outcomes were interpreted, relating them to RQ 3.

### **3.4 Validity, Reliability and Trustworthiness of the Study**

The section above presents the research instruments required to collect quantitative and qualitative data. A researcher must measure the validity and reliability of the research instrument

(Cohen et al., 2011). Validity refers to the accuracy of research instruments in measuring what they were designed to measure (Weir, 2005). Reliability is a crucial factor for researchers who conduct quantitative analyses, as it is related to the consistency and repeatability of measurements (Bryman, 2016; Trochim, 2006). The quantitative part of the study relied on validity and reliability, whereas the qualitative part relied on trustworthiness, which is required for triangulation. The following subsections discuss the validity and reliability of the research instruments discussed in Section 3.3.

### **3.4.1 Validity**

Validity deals with the issue of ‘whether an indicator (research instrument) that is devised to gauge a concept really measures that concept’ (Bryman, 2016, p. 158). Cohen et al. (2011) listed several kinds of validity, yet this study focuses on the face, content and construct validity.

**Face Validity.** Face validity is the initial step that requires the feedback of expert people in the research area to determine whether the research instrument is suitable for measuring the concept under investigation (Bryman, 2016). Face validity was achieved in this study by presenting the research instruments: writing tests, questionnaires, and interview questions to expert language teachers in language schools in the UK to review these instruments. They confirmed that writing tests covering argumentative essay topics over the three periods (pretest, posttest and delayed posttest) are familiar to the participants. They reviewed the questionnaire items derived from Huang’s (2014) study and the interview questions and noted that the language used for the items and questions suit B1 language learners.

**Content Validity.** A research instrument must ensure that it fairly and comprehensively covers the items it was designed to cover (Cohen et al., 2011). The planned design for this study was an experimental research design that involves both control and experimental groups being

subjected to the same conditions, except for the treatment factor in the experimental group. It is important to note that the pilot study has an experimental research design, as the participants in both groups were exposed to identical instructional settings, procedures, textbooks, and tests, with the exception that the experimental group received DDL intervention while the control group did not. The dependent variable, the student's performance, was examined before and after the experiment to see the effect of the DDL intervention. Any differences between the two groups can be related to the effect of the experimental manipulation (Bryman, 2016). However, there were some compulsory changes in the research design and data collection of the main study because of the global pandemic (more details will come in Sections 5.1 and 5.2).

**Construct Validity.** This concept is also known as 'measurement validity', which examines whether the measurement tool measures the aspect it was intended to measure (Mackey & Gass, 2005). A construct is an abstract (Cohen et al., 2011), and 'the researchers must use tools that are meaningful to their participants themselves' (Eisenhart & Howe, 1992, p. 648). Therefore, a researcher must check the correspondence between a particular construct and the general undertaking of that construct (Cohen et al., 2011). This study is concerned with the influence of the DDL intervention on the frequency of using metadiscourse markers by B1 language learners in academic writing; thus, argumentative essay writing tests were used to measure their performance before and after the implementation of the DDL intervention. The participants in this study are familiar with argumentative essays, as they were enrolled in language classes that consider the four language skills. They are also familiar with questionnaires and interviews.



### 3.4.2 Reliability

Bryman (2016) listed three tests for measuring reliability: stability, internal reliability and inter-rater-observer consistency (inter-rater reliability). A stable or test-retest instrument means that the test produces similar results if repeated. Internal reliability refers to the consistency of indicators, ‘whether respondents’ scores on any one indicator tend to be related to their scores on the other indicator’ (Bryman, 2016, p. 157). Inter-rater reliability is a measurement achieved when two or more raters evaluate the same set of data in the same way (Mackey & Gass, 2005).

Regarding the stability of the tests, the essay writing tests used in this study were borrowed from IELTS preparation classes in a language centre in the UK, and the teachers used the criteria of the IELTS writing test Task 2 for assessment. The tests were previously applied to other language learners in other IELTS preparation classes in the same language centre, with similar results. Internal reliability was not a point in this study because the tests were essay writing tests that required a holistic evaluation rating. These tests did not involve objective items, such as multiple-choice questions, that require measuring internal consistency for dichotomous items; they relied on experienced examiner ratings. Therefore, the inter-rater reliability in this research was maintained, as all participants’ writing tests over the three periods (pretest, immediate posttest and delayed posttest) involved argumentative essay writing tests. The scores of the participants’ writing tests represent their overall marks (a holistic evaluation) given by the language teachers; thus, the use of the metadiscourse markers comes under the area of essay organisation (i.e. cohesion and coherence), which is a part of the evaluation, not the whole evaluation. ‘The classic problem in error correction studies is that they measure the effect of the treatment on accuracy ... attention to accuracy could help their accuracy but harm the fluency or the complexity of their writing’ (Polio, 2012, p. 147). Therefore, the IELTS writing test Task 2

marking criteria were used to measure the participants' writing performance (see Appendix XIII). 'It is important to get a holistic picture of the effect of any intervention' (Polio, 2012, p. 147). This method requires an assessment by experienced raters to obtain reliable scores and achieve inter-rater reliability (statistical details for inter-rater reliability are provided in the main study (see Section 5.4).

### 3.4.3 Trustworthiness

Multiple interpretations consider qualitative data, as there is no single method for qualitative data analysis (Cohen et al., 2011). Thus, the validity and reliability of qualitative data in this study were examined in light of trustworthiness. The term *trustworthiness* covers *credibility* and *transferability* (respectively equivalent for internal and external validity in quantitative data) and *confirmability* (Bryman, 2016). The information must be collected within a sufficient period to obtain credible data to ensure a true representation of the examination area. In this study, the data were collected within seven weeks, where the participants received the DDL intervention exposure for four weeks, followed by the immediate posttest and two-week delayed posttest. These steps were taken to enable the researcher to collect sufficient information by tracking the writing progress of participants' performance and their attitudes and feedback towards DDL.

The *transferability* of qualitative data is achieved through a comprehensive, detailed account of the data and a sufficient interpretation of their results (Bryman, 2016), which corresponds with 'data triangulation', underpinning trustworthiness. The reliability of the qualitative data is based on the concept of *confirmability*, which is a mirror of objectivity, and requires the researcher to avoid influencing the data collection, for example, by asking leading

questions in the interviews to obtain particular information (Bryman, 2016). In this study, all collected data were included in discussing the results or in the appendices.

#### **3.4.4 Triangulation**

Triangulation is essential to reduce bias and increase the validity and reliability of the research results, which requires two or more methods of data collection (Cohen et al., 2011) to provide an adequate conclusion (Mackey & Gass, 2005) and cope with the problem of ‘method-boundedness’ (Cohen et al., 2011). The quantitative data comprise the participants’ scores achieved over the three tests and their responses to the questionnaire to measure their attitudes towards the DDL intervention. In addition, the quantitative part of the corpus-based analysis can demonstrate the frequency of using the target metadiscourse markers on the three writing tests over the three periods. Frequency is an essential analytical tool in corpus linguistics that demonstrates various interesting findings to provide the researcher with a deeper understanding of the use of a specific word in a specific context (Baker, 2006). ‘Frequency list requires a careful interpretation to provide what is really wanted, which is a measure of the relative importance of words and more important than raw frequency may be even distribution across many text types’ (Stubbs, 2004, p. 116). These data were used to compare and contrast the two groups and track the use of target metadiscourse markers before and after the experiment implementation. The qualitative data involve the participants’ feedback provided in the interviews after the experiment. These quantitative and qualitative data answer the research questions.

#### **3.5 Ethical Considerations**

As mentioned in Section 3.2, this experimental study requires two groups of participants: the control and experimental groups. These groups had the same context of instruction in the

language classes, except that the experimental group were exposed to the DDL intervention. Thus, ethical concerns related to the research topic, data collection methods, participants and experimental procedures exist (Cohen et al., 2011). Ethical approval was first obtained from the University of Liverpool prior to conducting the experiment (see Appendix VI).

The researcher contacted language schools in the UK during the ethical approval process and explained the research experiment procedures and instruments. The next step was to obtain approval from the gatekeepers (the academic managers) in these language schools. Some schools declined because they did not have the required level or number of language learners. A language school in London accepted participation in the pilot study and invited the researcher to visit the participants in the classroom to present the project and illustrate the experiment processes.

Participants' rights and privacy were considered and protected by obtaining informed consent forms. Informed written consent forms for the study were distributed to obtain the participants' acceptance. They were made aware of the study purpose, that their participation was optional and that they had the right to withdraw at any time if they did not wish to continue. They were informed that their participation is anonymous as their data cannot be identified and that the research data would be used for research purposes only (see Appendices VII, VIII and IX).

## **Chapter Summary**

This chapter illustrates the practical part of the study. It begins with a discussion of the research questions by relating them to their hypotheses and explaining the type of data required to answer the research questions. This section discusses the experimental research design by providing a detailed explanation of the DDL intervention design and implementation procedures carried out with the experimental group. It presents the research instruments employed for data

collection, and a discussion of the validity and reliability of the research instruments is presented to obtain realistic results. The chapter ends with a focus on the ethical considerations of the study. The DDL intervention and research instruments must be tested in a pilot study before conducting the main study because this reveals any potential issues that may impede the main study procedures. The following chapter covers the pilot study and modifications required for the main study procedures in Chapter 5.

## **Chapter 4 Pilot Study**

### **4.0 Introduction**

The previous chapter discusses the research design of this study, illustrating the steps taken to design the DDL intervention activities and the research instruments required for the data collection procedures. The prior chapter also focuses on the language level of the participants participating in this study. A pilot study was essential to test the research instruments used in the main study. Through the pilot study, faults and weaknesses of instruments and procedures can be revealed, modified and finalised for the main study research, providing the researcher with the required timescale to complete the tests and procedures. Section 4.1 presents the details of the pilot study participants. Section 4.2 covers the implementation steps of the DDL intervention for the experimental group and the procedure for data collection from the participants in both groups. Section 4.3 presents an overview of the pilot study analysis to test the DDL intervention activities by examining the participants' writing performance over the three tests and their evaluation of the questionnaire and interview questions. The chapter ends with a summary and prepares the reader for the main study chapter.

### **4.1 Participants of the Pilot Study**

As mentioned in Section 3.5, a language centre in London agreed to work with the researcher in the pilot study. Therefore, an appointment was scheduled with the language learners studying in that language centre to provide them with the research details and data collection procedures. The participants who agreed to participate in the pilot study were asked to sign the consent form. Five adult B1 language learners ages 18 to 23 (four females and one male) participated in this study. Three language learners were in the experimental group, and two

language learners were in the control group. They were from different countries: three from Saudi Arabia (L1 Arabic), one from Spain (L1 Spanish) and one from Iran (L1 Persian).

They were enrolled in general English classes for B1 language learners, and they were asked to take a placement test or provide a score from a certified language test, such as IELTS, to join classes that suit their level. These classes focus on the four language skills: reading, writing, listening and speaking. In addition, these classes are provided in the morning, afternoon and evening. Two Saudi participants and the Iranian participant were enrolled in the morning class, representing the experimental group. The other Saudi participant and the Spanish participant were enrolled in the evening class, representing the control group.

#### **4.2 Procedures of Data-Driven Learning Implementation in the Pilot Study**

The pilot study was conducted in November 2019 for seven weeks to examine the feasibility of paper-based DDL activities. The pilot study aimed to test the research instruments, the writing tests over three periods (pretest, immediate posttest and delayed posttest), the questionnaire and the interview questions to test the effect of DDL intervention on B1 language learners.

The DDL implementation procedures followed the steps planned in Section 3.2.4. On the first day, both groups were asked to write an argumentative essay under a test condition, which represents the pretest. They were asked to write about the following topic: ‘Young people should be interested in national and international news; to what extent do you agree or disagree with the previous statement? Use examples to support your essay’.

Afterwards, the control group participants continued their regular classes while the experimental group worked with DDL intervention in their regular classes. The DDL activities were conducted in the last ten minutes of the daily writing class that the experimental group

participants attended. On the first day of the DDL intervention, the experimental group were presented a PowerPoint presentation of the story ‘Ms Cani and Ms Mani’. The next day, they received the first paper-based DDL activity, which was previously prepared, typed and printed out by the researcher (see Appendix I, Activity 1.1). The discussion and instruction for the DDL activity followed Flowerdew’s (2009) framework, the four *I*’s (see Section 3.2.4 and Appendices I, II and III). The activity lasted for about 10 minutes, and the participants were informed that they would receive the second paper-based DDL activity relying on Flowerdew’s (2009) framework on the following day to work on it (see sections 2.4.6 and 3.2.4). The same processes were completed for the rest of the DDL activities, where the experimental group received only one activity per day until the end of the intervention. It took about 10 minutes for the experimental group to work with the DDL activities of Types 1 and 2, whereas the DDL activity Type 3 required more time. Over three weeks, the length of DDL intervention was 175 minutes, consisting of approximately ten minutes for each DDL activity. It took about ten minutes for the participants to work with DDL activity types 1 and 2, however, DDL activities type 3 required more time (these points will be considered in Section 5.4 as there are some compulsory changes in the main study because of the global pandemic).

After three weeks of the DDL intervention (for the experimental group only), the experimental and control groups were asked to write an argumentative essay, representing the immediate posttest. They were asked to write about the following topic: ‘Some animals are facing the danger of disappearing. We should do everything to save them; to what extent do you agree or disagree with this statement? Use examples to support your essay’.

After the immediate posttest, the experimental group continued studying in their regular classes, and the control group studied without DDL activities for two weeks. After these two



weeks, the experimental and control groups were asked to write an argumentative essay for the delayed posttest on the following topic: ‘Secondary-school students (11-16 years old) should not be allowed to take mobile phones into school; to what extent do you agree or disagree with this statement? Use examples to support your essay’. By the end of the delayed posttest, the experimental group were asked to complete the questionnaire and read the interview questions to examine the suitability of the questions for the participants to provide feedback on DDL.

### **4.3 Overview of the Pilot Study Analysis**

The investigation of the collected data in the pilot study was explorative to examine the clarity and feasibility of the research instruments and the allocation of time and address any potential issues. As the number of participants in the pilot study was very low, a statistical analysis could not be used. Thus, the analysis was corpus-based because it provided quantitative and qualitative results. The first step of the data analysis involved the comprehensive reading of the participants’ essays to highlight the metadiscourse markers. This manual analysis provided insight into how the learners employed these markers. The second step was using AntConc software on the Macintosh OS X 10.6-10.12 (3.5.8) to perform the following:

- obtain the frequency of using the target metadiscourse markers and
- create concordances of the target metadiscourse markers to examine how these markers were used in context.

This method enabled the researcher to note the effect of the DDL intervention on the participants’ writing performance by comparing their use of the target metadiscourse markers before and after the implementation of the DDL intervention. Table 4.1 lists the details on the frequency of using the metadiscourse markers by both groups.

**Table 4. 1** Frequency of Using Metadiscourse Markers by the Two Groups (Pilot Study)

Category	Metadiscourse marker	Pretest step		Immediate posttest step		Delayed posttest step	
		Experimental	Control	Experimental	Control	Experimental	Control
<b>Goal announcement</b>	I would like	-	-	2	-	1	-
	I want to	-	-	-	-	2	-
	Let us	-	-	-	-	-	-
<b>Boosters</b>	Certainly	-	-	-	-	-	-
	Obviously	-	-	-	-	-	-
	Undoubtedly	-	-	1	-	-	-
	Indeed	-	-	-	-	-	-
<b>Label stage</b>	Overall	-	-	-	-	-	-
	All in all	-	-	-	-	-	-
	To sum up	1	-	2	-	1	-
	In conclusion	1	1	1	2	-	2
	To conclude	-	-	-	-	-	-
<b>Addition</b>	Also	1	1	2	0	1	2
	In addition	-	1	4	1	2	1
	Moreover	-	-	1	2	1	-
	Besides	-	-	-	-	-	-
	Furthermore	1	-	2	1	1	-
<b>Hedges</b>	About	-	-	-	-	-	-
	Almost	-	-	1	-	1	-
	May	-	-	-	-	-	-
	Might	1	-	1	-	-	-
	Probably	-	-	-	-	-	-

Category	Metadiscourse marker	Pretest step		Immediate posttest step		Delayed posttest step	
		Experimental	Control	Experimental	Control	Experimental	Control
<b>Causatives</b>	Because	4	-	3	3	4	2
	Since	-	-	1	-	-	3
	As a result	-	-	-	-	-	1
	Consequently	-	-	-	-	-	-
	Therefore	-	-	1	-	-	-
	Thus	-	-	1	-	1	-
	So	1	-	-	-	-	1
<b>contrastContrast</b>	Although	2	-	1	-	1	-
	Even though	-	-	-	-	1	-
	Though	2	-	-	-	-	-
	But	4	1	-	-	3	-
	Yet	-	-	-	-	-	-
	However	1	1	3	-	1	-
	neverthelessNevertheless	-	1	-	-	1	1
<b>Sequencing</b>	First/First of all	-	-	1	-	1	-
	Firstly	1	1	-	-	2	1
	To begin with	-	-	3	-	2	-
	Second	-	-	1	-	-	-
	Secondly	1	-	-	-	1	-
	Third	-	-	-	-	-	-
	Thirdlythirdly	-	-	-	-	1	-

Category	Metadiscourse marker	Pretest step		Immediate posttest step		Delayed posttest step	
		Experimental	Control	Experimental	Control	Experimental	Control
Attitudes	Agree	1	-	1	1	1	-
	Disagree	-	-	-	-	1	-
	Essential	-	-	1	-	-	-
	Important	6	4	3	4	1	1
	Interesting	-	-	-	-	-	-
	Unexpected	-	-	-	-	-	-
	Cause	-	1	-	-	2	1
	Fortunately	-	-	-	-	-	-
	Unfortunately	-	1	-	1	-	1

A manual analysis of the participants' written essays was necessary to support the corpus-based analysis, which has limitations in its tools (Fordyce, 2011). The corpus software cannot detect the learners' spelling mistakes or misuse of an item. A participant in the experimental group, for example, wrote 'secondaly' as the sequencing metadiscourse marker *secondly*, yet the corpus software did not count it as a marker. Additionally, the software cannot identify the marker function in a context. According to *Collins COBUILD Intermediate Learner's Dictionary*, the word *about* is an adverb that can be used 'in front of a number [which] means approximately' (HarperCollins, 2014, p. 2), representing a marker in the hedges category, and it can be a preposition that introduces 'who or what something relates to or concerns' (p. 2). Therefore, it is necessary to use a manual analysis supported by corpus analysis tools, such as concordances, to examine the data efficiently.

#### **4.3.1 Quantitative Analysis of the Participants' Writing**

In the pretest stage, the results demonstrated the following:

- The markers in the goal announcement and booster categories were the least used markers by both groups, whereas the attitude category markers were the most commonly used.
- The marker *about* was more frequently used than the other markers in the hedge category, yet it was used as a preposition.
- The resultative marker *so* was used to represent a result.
- Some markers, such as the attitude category marker *important*, were notably repeated by both groups.
- Some participants expressed their opinions in their introduction, body and conclusion.

After the pretest, the experimental group were exposed to the DDL intervention in their regular classes, whereas the control group continued in their regular classes. By the end of the DDL activities, the immediate posttest was conducted to examine the effect of the DDL intervention by analysing and comparing the employment of metadiscourse markers by the two groups. The experimental group exposed to the DDL intervention exhibited notable use of metadiscourse markers more often after exposure to the DDL intervention. These results suggest that the frequency of use of metadiscourse markers was similar in the two groups, providing a balanced basis for conducting the DDL intervention. The following points summarise the results of examining and comparing the use of metadiscourse markers by the two groups on the immediate posttest:

- The experimental group used the goal announcement markers before discussing the arguments in the body, whereas the control group did not.
- The experimental group employed a variety of metadiscourse markers within a category. For example, in the label stage category, they used the markers *in conclusion* and *to sum up*, whereas the control group focused only on the marker *in conclusion*. Similarly, in the attitudes category, the experimental group used various markers, whereas the control group focused on the marker *important*, which can be explained as the effect of the textbook.
- Both groups demonstrated variety in using metadiscourse markers in the additive category.
- The experimental group used the marker *however* to join the paragraphs, as they aimed to present different arguments (i.e. for and against).

In comparison, the experimental group exposed to the DDL intervention employed a variety of metadiscourse markers in their writing more often than the control group. This suggests that the DDL intervention positively affects the frequency of using metadiscourse markers by B1 language learners. After two weeks, on the delayed posttest, both groups displayed some similarities with the immediate posttest in using metadiscourse markers. The experimental group demonstrated variety in using metadiscourse markers in the categories of goal announcement, addition, contrast, sequencing and attitudes. The booster and hedge markers were the least used in both groups. Although the experimental group focused on the marker *because* in the causative category and the control group used the marker *since*, the same participant used this marker. The varied use of metadiscourse markers by the experimental group on the delayed posttest confirmed the positive effect of the DDL activities of Types 1 and 2 on their writing, as these types of activities encouraged the learners to notice, analyse and compare their frequency of using the target metadiscourse markers with the model samples (see Section 3.2.1).

#### **4.3.2 Qualitative analysis of participants' writing**

During the pre-test stage, the participants in both groups were asked to write an argumentative essay. Figure 4.1 shows an essay written by experimental group participant 1 on the pretest and Figure 4.2 presents an essay written by control group participant 1.

**Figure 4. 1** Pretest Essay by Participant 1 of the Experimental Group

According to the latest research many young people's not interested in local, national or international news ,though, they spend most of their time on media and playing games.

But there are some events like clime changing or Brexit: they are trying to do some changes in their country like protest in street and make their voice heard. The authorties try to make changes by doing a new law. However, if you asked them about any international news most of them don't know anything what happened in another side of the world even sometimes in their country.

Sometimes when I watch the news or listtening I heard redicles news about famous people and their affairs or private life, which make me I don't want to watch news it likes brain wash and they don't brought up any important news.

My point of view it's important to follow the news. Though, I don't see the news often. But sometimes I do research on internet and look up for new news.

I'm agree that we need at least know the basic knowledge of what's happen around us. So the easiest way to read the news and do some research on internet.

**Figure 4. 2** Pretest Essay by Participant 1 of the Control Group

It has lately discussed whether it is important for young people to follow national, local or international news. I believe it is important that everyone is watching news.

Firstly, it is important for everyone to know what kind of major events or happening in the world. When someone is watching bad news, that person will feel empathy, wich then leads to an action. For example, there was the fire of Notre Dame. People around the world donated their money in order to help paris to rebuild the church.

There are many arguments in favor of young people following the news, but there is also the other side of the medal.

News about famous people on make them obsessive over celebrities. Obsessions hurt everyone physically as like cutting themselves or emotionally mentally like depression.

Nevertheless, news can open someone eyes and make them grateful /openminded. No matter the age we all live in the same world.

In conclusion, major news are important. They make us feel gratefull of what we have, open our eyes for the ones in need and stick the world together.



According to the above figures, it can be noticed that the introductions by the two participants lack the goal announcement markers on the pretest, which is considered the essay outline, as participant 1 of the experimental group restated the topic and participant 1 of the control group explicitly expressed the opinion.

Regarding the body, participant 1 of the experimental group began the topic sentence of the first paragraph with the contrastive marker 'but' in addition to examples, and the second paragraph involves the participant's experience to support the first paragraph. The participant focused on one argument, yet she missed the counterargument. Turning to participant 1 of the control group, the first paragraph involved the sequencing marker 'firstly' to present the topic sentence, which was supported by an example. The second paragraph involves the contrastive marker 'but' to provide the counter-argument which was, also, followed by an example. However, the contrastive marker 'nevertheless' was used to support the first argument of the essay.

Moving to the conclusion of the essays, participant 1 of the experimental group explicitly expressed her opinion twice, which can be considered a repetition, yet the conclusion did not include a summary. In contrast, participant 1 of the control group provided a summary in her conclusion but without an opinion.

Figures 4.1 and 4.2 show that the participants need more information about the metadiscourse markers, as they play an important role in achieving cohesion and coherence in the paragraph's organisation in an argumentative essay. It can be noticed that they have some issues using some metadiscourse markers. Therefore, the three types of DDL activities aim to notify the experimental group about interactive metadiscourse markers to guide their reader in an essay and interactional metadiscourse markers to engage their readers in their essays.

After three weeks, participants in both groups were asked to write an argumentative essay. Figure 4.3 presents participant 1 of the experimental group on the post-test, and Figure 4.4 presents participant 1 of the control group on the post-test.

**Figure 4. 3** Immediate Posttest Essay by Participant 1 of the Experimental Group

I would like to discuss about the advantages and disadvantages if we should do everything we can to save animals, which are in danger of disappearing from our planet.

To begin with, animals in general are good for environment and they are part from circle life. For example we use them for our food and transport. In addition, wild life is good resource to fed plants therefore, their poo is very good for it. Moreover, creatures sometimes can reduce illness.

However, animals can be very dangerous speacial if they were ferocious. In addition, creatures could be the reason for contagious illness by speart to people. Furthermore, the government spend a lot of money to protect them or protect people from them.

In conclusion, there are pros and cons if we should do everything we can to save animals. in my opinion, we should do and I agree with that because I believe of the circle life and how God created us together to complete each other.

**Figure 4. 4** Immediate Posttest Essay by participant 1 of the control Group

Recently it has been debated whether we agree with the statement “we should do everything we can to save our planet” I believe endangered animals have an important role to nature and humanity. They have to be saved.

Firstly, nature is beautiful and has to be always protected. Animals in nature have the calming effect on humans and if we will not take care of its endangered animals, then other generations are not able to see its beauty. We would only have pictures or videos of those animals.

Additionally, to the above, endangered animals are in many ways important for the mankind. They provide us with important goods. Bees for example give us honey and take care of our environment by pollinating flowers.

Lastly, it is ethically and morality correct to protect other creatures. We humans help endangered animals not because they are funny or cute. We protect them because it is the right thing to do.

In conclusion, endangered animals must be protected because of the various reasons. They have benefits such as protecting the nature and giving us goods such as honey.

In the immediate post-test, both of the participants in the two groups organised their essays into three parts: introduction, body, and conclusion, which can be related to the class progress after the regular daily lessons. The experimental group participant employed the goal announcement marker "I would like" in the introduction, while the control group participant expressed her opinion in the introduction without announcing her goal. Regarding the body, both participants in the two groups presented points that were supported with examples and evidence using different kinds of metadiscourse markers. The participant in the experimental group presented a discussion of two paragraphs in the body and joined them with the contrastive marker 'however' to show the argument and a counterargument. Considering the participant in the control group, she wrote three paragraphs focusing on the same argument, yet the counterargument is missing. Moving to the conclusion, the participant in the experimental group utilised the marker "in conclusion" to provide a summary of the essay and explicitly express her opinion. Furthermore, the participant in the control group used the marker "in conclusion" to present her opinion, followed by the summary of the essay, even though the summary includes repeated examples. Two weeks later, participants in both groups wrote an argumentative essay for the delayed post-test, as shown in Figure 4.5, which presents participant 1 of the experimental group on the delayed post-test, and Figure 4.6.

**Figure 4. 5** Delayed Posttest Essay by Participant 1 of the Experimental Group

I want to discuss the pros and cons of using mobile phones into school. Lately, there are a lot of people discussing about this issue and people split to two sides, some who agree some disagree.

Firstly, mobile phones are useful in emergency like if they have an attack or any kind of accident they call 999 immediately. Secondly, parents they can track their children's location by GPS especially with smart phones by sharing their location with anyone they want. Thirdly, it could be useful for study by exploring internet is that nowadays you can get all the information on the internet.

However, mobile phone also could distract students from their study for example, they can log in to social media like Facebook, Twitter, etc. In addition, some students are using it for pranks like send to each other messages of one of the students and make fun of them how they look or anything else. Moreover, using phones a lot can cause harm to the brain especially with teenagers they thought it is the fact but they do not know it is causing damage to their health.

In sum, there is positive and negative of using mobile phones in schools. My point of view, students should be allowed to take their phones into school but with some rules of using it, for example during study time in class they can't use it and if they used it, it should have punishment for using during the study time.

**Figure 4. 6** Delayed Posttest by Participant 1 of the Control Group

Recently, it has been debated whether secondary school students should be allowed to bring their phones to school or not. In my opinion, those students should be allowed since the phone comes with many benefits.

Firstly, students can easily inform their parents per mobile phones. They text them when school would suddenly let the children out early so their parents can pick them up or inform them where they are if the parents want to pick their children up.

An argument against the allowance of mobile phones is that they can be distracting in class. Some children would give less attention to class because they would rather play with their phone secretly. This would be a burden to both the teacher and the students in the class because the lesson would always get interrupted by this particular student since he or she would always get called out for it.

Nevertheless, another argument for the allowance is that a mobile phone is necessary since they are all useful in emergencies. Unfortunately, students on their way home are never 100% safe. Imagine the student got into a car accident and it was a hit and run. The student's life could depend on a mobile phone making an emergency call.

In conclusion, I think a student should be allowed to bring a phone to school just in case for an emergency. An idea would be that the teacher always collects the phone at the beginning of a class and gives them later back when it is breaktime or the end of school.

In the delayed post-test, the participants' writings in both groups posed a clear organisation for the introduction, body, and conclusion. Similar to the immediate post-test, the experimental group participant used metadiscourse markers of the goal announcement in the introduction to be linked with the body discussion, while the control group participant still expressed her opinion in the introductions. Regarding the discussion in the body, the experimental group participant discussed the two different arguments, an argument and a counterargument, rhythmically, and she used different kinds of metadiscourse markers appropriately. The control group participant wrote three paragraphs using different metadiscourse markers to address the argument and the counterargument. However, the first and third paragraphs focused on one argument while the second paragraph provided the counterargument, which may result in an unbalanced body. Considering the conclusion, the participant in the experimental group summarised her discussion and expressed her point of view on the topic, whereas the control group participant expressed her opinion only, without a summary.

It can be concluded from the qualitative analysis of the argumentative essays, which were written by participant 1 in the experimental group and participant 1 in the control group over the three tests, that the two groups, experimental and control, showed development in their performances. The experimental group participants, however, who were exposed to the DDL intervention, showed better writing than the control group participants. This suggests that DDL intervention has a positive influence on the participants' written production, and it can be applied to language learners at the intermediate level (B1). The paper-based DDL activities were like the supporting materials that are provided to the learners in any class, so these activities are feasible with B1 language learners. Also, the guided induction facilitated the main aim of DDL, which encourages the language learners to use their cognitive skills, such as noticing and analysing

language input, to infer the targeted rule. Regarding the participants' feedback for DDL intervention, it will be presented in the next section.

### **4.3.3 Participants' Feedback on Data-Driven Learning**

Regarding the participants' feedback on the DDL intervention, they explained that they understood the questionnaire items, which could be completed by a language learner at their level. In addition, the interview questions were comprehensible, yet they indicated that some participants might feel shy while interviewing, so it would be better if these participants could express their replies in writing. The researcher noted that the participants' L1 could be used in the interviews because this could encourage elaboration and more details for the interview questions (Dörnyei, 2007).

### **Chapter Summary**

This chapter discusses the pilot study to prepare the reader for the main study chapter. It begins with discussing the details of the B1 language learners who participated in the pilot study. This chapter examined the feasibility of the DDL intervention by considering the research instruments and the DDL activity implementation for B1 language learners. The time required for the Type 3 DDL activity was more than the time allocated in the pilot study. Additionally, the recommendation to allow some language learners to reply to the interview questions in writing rather than by speaking was also considered. The next chapter discusses the main study and the required modifications for the data collection.

## **Chapter 5 Main Study**

### **5.0 Introduction**

The previous chapter is a crucial step in developing the methodology of the main study, which is discussed in this chapter. Due to the unexpected circumstances of the coronavirus disease 2019 (COVID-19) global pandemic, some changes to the methodology of the main study became compulsory for the sake of safety for the researcher and participants. In this chapter, Section 5.1 explains the details of the COVID-19 outbreak and its effects that caused changes in the main study methodology. Section 5.2 describes the participants who took part in the main study and how they were divided into the experimental and control groups for the DDL intervention. Section 5.3 presents the data collection procedures for the main study, including the implementation of the DDL intervention, the writing tests, and the participants' feedback on DDL. Section 5.4 discusses the data processing for the analysis required for the results chapter.

#### **5.1 COVID-19: The Global Pandemic**

As mentioned in the Chapter 4 summary, the researcher planned to conduct the main study procedures at the same language centre in London that provided the opportunity to conduct the pilot study. The planned time was February 2020 relying on the experimental research design; however, the spread of COVID-19 caused some issues in the data collection procedures. As it is a disease that attacks the human respiratory system, the National Health Service in the UK announced that people should stay at home to reduce the spread of the disease. In addition, places that involve human groups, such as schools and universities, were closed and converted to working online.

On 5 April 2020, the central research ethics team and integrity newsletter at the University of Liverpool announced an updated university policy regarding COVID-19 and research ethics. As COVID-19 is a global pandemic,

restrictions are imposed to protect staff, students and participants in research across the world. This means that the university researchers either change their data collection methods to avoid physical face to face contact with human participants or halt their study. (Research Ethics and Integrity Newsletter, 2020, p.2).

Therefore, the researcher amended the university research ethics approval from face-to-face physical research in a real classroom to research conducted online in a virtual classroom (see Appendix X).

Therefore, this study used Zoom software (<https://zoom.us/>), a videoconferencing application that can be downloaded on smart devices and computers. Through this application, people can interact virtually by video or audio when face-to-face meetings are not possible. Three kinds of online meetings in Zoom were employed for data collection and the DDL intervention:

1. Screen sharing: The researcher used screen sharing to (a) provide the essay title to the participants in the two groups for the three tests and (b) present the DDL activities to the experimental group and work with these activities.
2. Group videoconferencing allowed discussion and interaction between the researcher and participants while working on the DDL activities. Zoom provides opportunities for interaction through voice or chat.
3. One-to-one meetings facilitated private interactions between the researcher and experimental group while conducting the interviews.



## 5.2 Research Design of the Main Study

As mentioned in Section 3.4.1, the global pandemic resulted in some changes in data collection and research design for the main study. Even though the participants in the two groups were enrolled in language centres that provide language courses focusing on the four language skills, these groups were not in identical conditions. This is because the participants were studying in language centres that are located in different countries around the world (the Philippines, Kuwait, Sudan, the UK and Morocco). The textbooks, activities, and instructional settings that were given to the participants were not identical to those in the pilot study.

Thus, the research design of the main study was converted from experimental research into quasi-experimental research. Quasi-experimental research refers to studies that have certain features of an experimental research design but do not fulfil all the requirements of content validity (Bryman, 2016). The key feature is to have equivalent experimental and control groups, whereby the researcher can avoid ambiguity in the interpretation that may negatively affect the research design. The equivalence of the two groups can be strengthened by matching the experimental and control groups. However, if matching is not possible, which is the COVID-19 situation in this study, Cohen et al. (2011) recommend using samples from the same population or samples that are as similar as possible.

The researcher, therefore, tries to make the two groups as comparable as possible (Cohen et al., 2011). In order to do so, the main study recruited participants, language learners who have reached the B1 level, who joined language courses that provide daily classes for the four language skills in the spring semester of the academic year 2020-2021. In the pre-test stage, all the participants in the two groups were asked to write an argumentative essay under test conditions about the following topic: ‘Young people should be interested in national and

international news; to what extent do you agree or disagree with the previous statement? Use examples to support your essay'. These essays were rated by experienced examiners utilising the criteria of IELTS Writing Test Task 2. The results showed that the mean of the experimental group was 20.2, and the mean of the control group was 19.8. By converting these results to the IELTS band score criteria, both groups are in band 5, which is equivalent to the B1 level according to the CEFR. Therefore, the two groups can be considered comparable and have a B1 level (see Section 5.5.1).

### **5.3 Participants of the Main Study**

This section provides details on the main study participants and how the experimental and control groups were organised for the experiment. In April 2020, numerous international students who attended language schools and universities in the UK were asked to evacuate and travel to their home countries, causing a dramatic decrease in the number of students enrolled in these language schools. Therefore, unlike the pilot study that involved B1 language learners enrolled in UK language schools, the main study dealt with participants inside and outside the UK. In December 2020, an announcement was posted on the IATEFL Facebook account inviting worldwide language teachers interested in DDL research to encourage their students to participate in this study. The interested teachers received emails from the researcher explaining the research procedures to inform students of these procedures and decide whether to participate in the study. The students who agreed to participate in the study were invited to join a meeting on Zoom with the researcher to gather information about the study. They were informed that they could withdraw at any time from the study following the ethics approval conditions.

The participants in this study were from different L1 backgrounds (Arabic, Chinese and Filipino) and were enrolled in language centres inside and outside the UK (in the Philippines,

Kuwait, Morocco and Sudan). The participants of the experimental and control groups studied in language centres to join undergraduate studies at universities requiring a specific score band on a certified language test, such as IELTS or TOEFL, or they had already graduated from a university in their home country and aimed to join graduate studies requiring a certified language test for admission. Some participants, such as the Moroccans, studied in general English classes, to obtain a foreign language. Their native language is Arabic, and their second language is French, yet they joined general English classes to gain an additional language because they considered it an additional feature for their curriculum vitae and employment affairs. All participants were enrolled in general English classes where they studied the four language skills: reading, writing, listening, and speaking. Textbooks and supporting exercises were provided for these classes, yet these textbooks and supporting exercises were not identified as the pilot study because the main study participants were enrolled in different language schools worldwide. Even though participants in the two groups, experimental and control, used different textbooks, all these books adopt the intellectual/rhetorical orientation that teaches argumentative essays relying on the process approach and using explicit deduction in teaching different kinds of metadiscourse markers. This suggests that the instruction for the argumentative essay writing was based on the explicit deduction approach in the two groups, and the DDL intervention, which is based on the explicit induction approach, will be provided only to the experimental group. They have monthly assessments for their writing skills using holistic evaluation to trace their progress. Because this is a quasi-experimental study, participants were divided into experimental and control groups, where the experimental group received the DDL intervention in addition to the daily virtual lessons, whereas the control group received only the daily virtual lessons as a baseline (see Table 5.1 for more information).

**Table 5. 1** Basic Demographics of the Main Study Participants

<b>Group</b>	<b>N</b>	<b>Gender</b>	<b>L1 Background</b>	<b>Language centre location</b>	<b>Number of language classes</b>
<b>Experimental</b>	24	(12) males	(11) Arabic (9 Morocco, 1 Kuwait, 1 Sudan).	Outside the UK	4
		(12) females	(13) Filipino (13 Philippines)	Outside the UK	
<b>Control</b>	25	(15) males	(2) Arabic (2 Kuwait) (2) Chinese (2 China)	Inside the UK Inside the UK	3
		(10) females	(21) Filipino (21 Philippines).	Outside the UK	

Based on Table 5.1, the main study participants were 49 intermediate-level (B1) students in the experimental and control groups. These groups consisted of 27 males and 22 females aged 18 to 35 years old (average age of 26.5 years old). The control group had 25 participants: 21 Filipino participants (L1 Filipino) studying in language centres in the Philippines, along with two Chinese participants (L1 Chinese) and two Kuwaiti participants (L1 Arabic) studying in language centres in the UK. The experimental group had 24 participants: 13 Filipino participants (L1 Filipino) studying in language centres in the Philippines: nine Moroccans (L1 Arabic) studying in language centres in Morocco, one Kuwaiti participant (L1 Arabic) studying in an IELTS preparation class in a language centre in Kuwait; and one Sudanese participant (L1 Arabic) studying in a language centre in Sudan.

#### **5.4 Procedures for Data Collection in the Main Study**

The main study was conducted in the spring semester of the scholar year 2020/2021 for seven weeks as the procedures that are in table 3.1. Due to the global pandemic of COVID-19, the data collection procedures relied on the Zoom software application instead of the in-person data collection performed in the pilot study. Prior to all data collection steps, an online appointment via Zoom was scheduled with the control group to inform them of the research details, data collection procedures and how their written essays in the three tests (pretest,

immediate posttest and delayed posttest) would be used for research. Therefore, the control group participants were invited to ZOOM to submit Test 1, which is the pre-test of the experiment, in the first week, and then they continued studying in their daily classes that focused on the four language skills without being exposed to the DDL intervention. In the fifth week, they were asked to do Test 2, which is the immediate post-test, and continue studying in their regular language classes. Two weeks later, they had the third and final test of the experiment, which represents the delayed post-test.

Similarly, another online appointment via Zoom was held with the experimental group to inform them of the research details, how the DDL intervention would be conducted during the data collection procedures and how their written essays over the three tests would be used for research. After this step, participants sent their consent forms to the researcher by email, and the forms were saved.

#### **5.4.1 Procedures for DDL Implementation in the Main Study**

The main study procedures were the same as those in the pilot study (Section 4.2), except that the data collection was online instead of in person. On the first day of the first week, the participants in both groups received an online invitation link to join the researcher's Zoom account. By sharing the screen, the participants were presented with the essay topic and were asked to write an argumentative essay about the following: 'Young people should be interested in national and international news; to what extent do you agree or disagree with the previous statement? Use examples and evidence to support your essay'.

They spent approximately 40 to 60 minutes writing an argumentative essay on paper. Afterwards, they scanned their essays and sent them to the researcher as an attachment by email or as a photo using WhatsApp. These essays were typed and saved in Word files and converted to

text files. The essays of the experimental group were prepared for corpus-based analysis so that they could be used for Type 2 DDL activities (see Section 3.2.1).

After this initial step, the control group continued their regular classes, whereas the experimental group began to work with the DDL intervention. Similar to the pilot study, they were presented a PowerPoint presentation of the story of 'Ms Cani and Ms Mani'. The participants commented on the ladies' selection through the videoconferencing and chat icon in the Zoom software application (see Section 3.2.4).

The next day, the researcher shared the screen with the experimental group to display the DDL activity (see Appendix I, Activity 1.1). The DDL instruction was followed through videoconferencing, relying on Flowerdew's (2009) framework of the four *I*'s. The participants' responses and interactions are essential in the DDL intervention; thus, they were encouraged to discuss and interact by videoconferencing or the chat icon. By the end of the discussion, DDL Activity 1.1 was uploaded via the Zoom application as a portable document format (PDF) file to provide a copy of the DDL activity to save on their devices.

The following day, through videoconferencing in Zoom, the researcher asked the experimental group about Activity 1.1 as a warm-up before presenting DDL Activity 1.2. Activity 1.2 was shared on the screen for discussion and interaction with the participants, and the same steps were taken with Activities 1.3 and 1.4. After these activities, the Type 2 DDL activity was shared on the screen (see Appendix II, Activity 2.1). As mentioned in Section 3.2.1, the Type 2 DDL activities rely on concordance lines to show participants their frequency of using metadiscourse markers to point out the overuse and underuse of these markers in their essays. The researcher shared the screen with the participants and used AntConc software (Anthony, 2014) to display a live corpus-based analysis of the participants' frequency of using

metadiscourse markers. The same processes were done with all Type 1 and 2 DDL activities, and the duration for each type was 10 to 15 minutes.

The type 3 DDL activities were presented after presenting all DDL activities of Types 1 and 2. The researcher shared the screen to present the Type 3 DDL activities and encouraged discussion and interaction regarding the activity, which lasted for about 15 to 20 minutes (see Appendix III). All the DDL activities relied on screen sharing to present the activity and videoconferencing to enable the participants to interact and discuss these activities. After three weeks, the experimental and control groups joined the researcher's Zoom account to take the immediate posttest. Similar to the pretest, the researcher shared the screen to ask the participants to write an argumentative essay on the following topic: 'Some animals are facing the danger of disappearing. We should do everything to save them; to what extent do you agree or disagree with this statement? Use examples to support your essay'.

The participants wrote their essays and sent them to the researcher by email. The researcher typed these essays into Word files and text files for data analysis. After submitting the immediate posttest, the participants in both groups continued their regular classes and waited for two weeks for the delayed posttest. In the delayed posttest, they were given the topic on the screen via Zoom to write about the following: 'Secondary-school students (11-16 years old) should not be allowed to take mobile phones into school; to what extent do you agree or disagree with this statement? Use examples to support your essay'. Similar to the previous tests, the participants wrote their essays and emailed them to the researcher, who typed them into Word and text files for data analysis.

Since the data collection procedures were converted from in-person to virtual collection, the main study, purposely, provided the DDL intervention at a separate time after the participants

finished all their daily classes, unlike the pilot study, which provided the DDL intervention in the last ten minutes of the daily writing class. This step was done to avoid distracting the participants as they attended other classes virtually by using other software such as Google Classroom and Teams. As mentioned in Section 4.2, the intervention length of the pilot study was 175 minutes, yet some time was added for some DDL intervention activities presented in Table 5.2, which shows the time length for each DDL activity.

**Table 5. 2** Time Duration for DDL Activities in the Main Study.

Days	DDL activity	Time	Note
1	1.1	10 minutes	Announcing goals (DDL type 1)
2	1.2	5 minutes	Boosters (DDL type 1)
	1.3	5 minutes	Hedges (DDL type 1)
3	1.4	10 minutes	Additive transitions (DDL type 1)
4	2.1	10 minutes	DDL type 2
5	1.5	10 minutes	Causatives transitions (DDL type 1)
6	1.6	10 minutes	Contrast transitions (DDL type 1)
7	1.7	5 minutes	Sequencing (DDL type 1)
	1.8	5 minutes	Label stages (DDL type 1)
8	1.9	10 minutes	Attitudes (DDL type 1)
9	2.1	10 minutes	DDL type 2
10	3.1	20 minutes	DDL type 3
11	3.2	20 minutes	DDL type 3
12	3.3	20 minutes	DDL type 3
13	3.4	20 minutes	DDL type 2
14	3.5	20 minutes	DDL type 3
15	3.6	20 minutes	DDL type 3

Based on the above table, the DDL intervention time was raised in the main study to 210 minutes, consisting of ten minutes for DDL activity types 1 and 2, and 20 minutes for DDL type



3, as it required more time in the pilot study. The approximate treatment length was 210 minutes (three hours and thirty minutes). The classes normally have four daily hours that are distributed among the four language skills. The experimental group participants received the DDL intervention in the last ten minutes of their writing lesson. The duration of the DDL intervention was approximately three hours and thirty minutes. This suggests that the DDL intervention in the main study can be considered a feasible treatment because it is very close to the mean length of 4.08 hours reported in Norris and Ortega's (2000) meta-analysis of studies on L2 instruction.

Because the participants are students attending language classes in different countries around the world, the DDL intervention was conducted with the participants based on their country's time zone. That is, Filipino participants joined the researcher's ZOOM account at 13:00 GMT, which is 19:00 in the Philippines local time; Sudanese and Kuwaiti participants' time was at 17:00 GMT, which is 19:00 in Kuwait local time; and 18:00 in Sudan local time, and Moroccan participants entered ZOOM at 21:00 GMT, which is 20:00 in Moroccan local time.

#### **5.4.2 Feedback from the Experimental Group**

After the delayed posttest, the researcher uploaded the questionnaire for participants as a PDF file via Zoom and waited for any questions from them on the questionnaire items. All experimental group participants completed the questionnaire and emailed their feedback to the researcher. Their responses to the questionnaire were analysed based on frequency (more details are provided in Section 6.3.1). These data comprise the quantitative information, whereas the interview data comprise the qualitative information.

Regarding the interview, 14 participants were interviewed using the one-to-one meeting feature of Zoom software, where the researcher met the interviewees in a private meeting. In

some cases, due to internet connection issues, if the video call was difficult in Zoom, the interview interaction was switched to a voice call or chat with the participant.

The interviews began by thanking the interviewee for participating in the study from day one until the last day of the experiment. The interviewees were informed that the interview questions to gain their feedback on DDL were for research purposes only, respecting their privacy by maintaining their anonymity, and that the interviewee has the right to withdraw at any time. The questions first focused on the interviewee's background understanding of DDL before the experiment to explore sources that can support DDL in language pedagogy. However, all participants indicated that they had no previous idea about DDL. Next, the questions focused on the difficulties they faced working with DDL, and the interviewees were encouraged to express the difficulties in detail. Some participants mentioned that they did not face difficulties and indicated why working with DDL activities was not problematic for them. Later, the questions considered the attractive and interesting parts of the DDL activities. Each interviewee noted the interesting activity type or number and supported that information with their reasons. They were also encouraged to comment or provide recommendations to develop DDL in the future. Each interviewee's feedback was transcribed, typed and saved in a Microsoft Word file by the researcher. By the end of the interviews, the researcher had conducted 14 interviews, and each participant had an independent file processed for data analysis with NVivo software (see Appendix XII).

### **5.5 Processing Data for Analysis**

The participants' essays written under test conditions over the three periods (pretest, immediate posttest and delayed posttest) comprise the first data source to answer Research Questions (RQs) 1 and 2 (see Sections 6.1 and 6.2). These data were processed to have more

than one type of analysis to view them from different perspectives. The processing involved (a) examining the participants' scores on the writing test in the experimental and control groups for the three periods, (b) the corpus-based analysis of their essays, and (c) the manual analysis of their essays. This analysis provides a deeper understanding of the ways language learners use metadiscourse markers and examines the effect of DDL intervention on their writing performance.

### **5.5.1 Participants' Writing Test Scores**

The first type of data processing was the participants' written essays, considering their scores over the three periods under test conditions. As mentioned in Section 3.4.2, inter-rater reliability was maintained in this research, where two or more raters evaluated the participants' tests. Their essays were examined and assessed by two language teachers (i.e. raters) with experience in IELTS preparation classes and examining writing tests for the British Council. The raters evaluated the participants' essays based on the criteria for the IELTS writing test Task 2 (see Appendix XIII). Using SPSS software, the raters' evaluations for the essays were compared to obtain the interclass correlation coefficient. This statistical test 'measures the relationship between two variables that measure the same thing i.e. variables with the same class' (Field, 2009, p. 678). The results revealed that the raters' assessments were reliable (Table 5.3).

**Table 5.3** Results of the Inter-Rater Test

<b>Group test</b>	<b>Cronbach's alpha</b>	<b>Cronbach's alpha based on standardised items</b>	<b>Number of raters</b>	<b>Average measure of interclass correlation <sup>b</sup></b>	<b>Sig.</b>
<b>Pretest control group</b>	.931	.932	2	.867 <sup>c</sup>	<.001
<b>Pretest experimental group</b>	.961	.964	2	.928 <sup>c</sup>	<.001
<b>Immediate posttest control group</b>	.843	.843	2	.793 <sup>c</sup>	<.001
<b>Immediate posttest experimental group</b>	.957	.958	2	.930 <sup>c</sup>	<.001
<b>Delayed test control group</b>	.720	.741	2	.727 <sup>c</sup>	<.001
<b>Delayed test experimental group</b>	.925	.925	2	.891 <sup>c</sup>	<.001

Based on Table 5.3, the results demonstrated that the raters' assessments for the tests were reliable, with Cronbach's alpha ranging from .7 to .9 across the six groups (three tests for the control and experimental groups), and the average measure of interclass correlation ranging from .7 to .9. Nunnally and Bernstein (1994) suggested that .70 is a reasonable scale for reliability.

The good inter-rater reliability scale between the two raters means that their scores for the participants are close despite the slight differences. Therefore, the final score for each participant on each test was converted to be based on the mean of their evaluation. For example, Participant 2 in the control group was awarded 19 by Rater 1 and 18 by Rater 2 on the immediate posttest; therefore, the final score, the mean of the two raters' assessments, was 18.5.

After confirming the reliability, the participants' test scores were used to answer RQ 1, which aims to test the efficiency of the DDL intervention regarding the participants' written performance by examining whether any differences exist in the test scores (dependent variables)

between the experimental and control groups (independent variables). This question also aims to track the progress of the written performance of the two groups over the three tests. Thus, a two-way repeated-measure analysis of variance (ANOVA) test was conducted because it ‘compares several means when there are two independent variables, and the same participants have been used in all experimental conditions’ (Field, 2009, p. 500).

Examining the assumptions of normality, homogeneity and sphericity was essential for conducting the two-way repeated-measure ANOVA test. The overall spread of scores was used to examine the assumption of normality in the distribution of difference scores. This method ensures that no abnormal scores are higher or lower than the average, as this may cause skewed data (Dörnyei, 2007; Field, 2009). The homogeneity of variances refers to ‘the assumption that the spread of scores is roughly equal in different groups of cases, or more generally that the spread of scores is roughly equal at different points on the predictor variable’ (Field, 2009, p. 152). First, to examine the normality of the data distribution, a one-sample Kolmogorov—Smirnov (KS) test was used. ‘This test simply calculates the probability of the sample having the distribution it has assuming that it has been drawn from a normal distribution’ (Connolly, 2007, p. 201). In addition, Field (2009) pointed out that frequency tests in SPSS can examine the normality of the data distribution by analysing the skewness and kurtosis. If the values for skewness and kurtosis are below 0, a normal distribution is implied, whereas the data are not normally distributed if the values are above 0 (see Table 5.4).

**Table 5. 4** Significance of the Kolmogorov-Smirnov Test of the Two Groups Over the Three Tests.

Test	Group	Statistic	df	Sig.	Skewness	SD error	Kurtosis	SD error
<b>Pretest</b>	Experimental	.152	24	.159	-.750	.472	-.307	.918
	Control	.135	25	.200	-.659	.464	.311	.902
<b>Immediate posttest</b>	Experimental	.097	24	.200	-.053	.472	-.182	.918
	Control	.125	25	.200	-.231	.464	.742	.902
<b>Delayed posttest</b>	Experimental	.146	24	.200	.593	.472	.394	.918
	Control	.140	25	.200	-.138	.464	.122	.902

The results in Table 4.2 of the one-sample KS test were all not significant for the two groups over the three tests. For the pretest of the experimental group,  $D(49) = .152$  and  $p = .159$ , and for the control group,  $D(49) = .135$ , Sig = .200 and  $p > .05$ . For the immediate posttest of the experimental group,  $D(49) = .097$  and  $p = .200$ , and for the control group,  $D(49) = .125$  and  $p = .200$ . For the delayed posttest of the experimental group,  $D(49) = .146$  and  $p = .200$ , and for the control group,  $D(49) = .140$  and  $p = .200$ . Furthermore, all skewness and kurtosis values for the two groups over the three tests (pretest, immediate posttest and delayed posttest) were below 0. Based on the one-sample KS test and the skewness and kurtosis values, these findings suggest that the data are normally distributed and that the assumption of normality is tenable.

Second, Levene's test was conducted to test the homogeneity assumption because it 'tests the null hypothesis that the variances in different groups are equal (i.e. the difference between the variances is zero)' (Field, 2009, p. 150). If Levene's test is significant with  $p < .05$ , this suggests that the assumption of homogeneity was violated, whereas if the test is not significant with  $p > .05$ , the variances between the groups are equal (Field, 2009; Table 5.5).

**Table 5. 5** Results of the Significance of Leven's Test

Test		Levene's statistic	df1	df2	Sig.
<b>Pretest</b>	Based on the mean	1.292	1	47	.262
	Based on the median	.610	1	47	.439
	Based on the median and with adjusted df	.610	1	43.527	.439
	Based on the trimmed mean	1.039	1	47	.313
<b>Immediate posttest</b>	Based on the mean	.000	1	47	.984
	Based on the median	.000	1	47	1.000
	Based on the median and with adjusted df	.000	1	47.000	1.000
	Based on the trimmed mean	.000	1	47	.987
<b>Delayed posttest</b>	Based on the mean	.762	1	47	.387
	Based on the median	.665	1	47	.419
	Based on the median and with adjusted df	.665	1	44.788	.419
	Based on the trimmed mean	.724	1	47	.399

Based on the findings in Table 5.5 Levene's test was not significant for the three tests. For the pretest stage, the variances were equal for the experimental and control groups ( $F(1,47) = 1.929, p = .262$ ); thus, they are not significant. Similarly, the variances were equal for the immediate posttest for the experimental and control groups ( $F(1,47) = 1.039, p = .313$ ); thus, they are also not significant. Finally, the variances were equal for the delayed posttest for the two groups ( $F(1,47) = .762, p = .387$ ), indicating a non-significant result. These findings revealed that the assumption of homogeneity is also tenable.

Last, the homogeneity of variance assumption was tested using Mauchly's test of sphericity. 'Sphericity refers to the equality of variances of the differences between the treatment

levels' (Field, 2009, p. 459). If Mauchly's test is not significant (i.e.  $p > .05$ ), then it is reasonable to conclude that the differences are not significant (i.e. they are roughly equal; Field, 2009, p. 460). Table 5.6 presents the results of Mauchly's test.

**Table 5. 6** Mauchly's Test of Sphericity

Within-subject effect	Mauchly's <i>W</i>	Approx. chi-square	df	Sig.	Greenhouse–Geisser	Epsilonb Huynh–Feidt	Lower bound
Tests over time	.890	5.361	2	.069	.901	.955	.500

The results in Table 5.6 reveal that Mauchly's test statistic was not significant ( $p = .069$ ), indicating that the assumption of sphericity is met. Thus, as the assumptions of normality, homogeneity and sphericity were assumed, parametric tests can be conducted to answer RQ 1 (see Section 6.1).

### 5.5.2 Participants' Use of Metadiscourse Markers

The second type of data processed from the participants' written essays focused on the frequency of using the metadiscourse markers, which relied on corpus-based and manual analyses. A total of 147 essays (72 written by the experimental group and 75 by the control group) were collected over three periods (pretest, immediate posttest and delayed posttest). Six small learner corpora were created for the experimental and control groups for the three periods, as listed in Table 5.7.



**Table 5.7** Organisation and Size of Learner Corpora for the Three Tests (Main Study)

<b>Group</b>	<i>N</i>	<b>Pretest</b> <b>(tokens)</b>	<i>M</i>	<b>Immediate</b> <b>posttest</b> <b>(tokens)</b>	<i>M</i>	<b>Delayed</b> <b>posttest</b> <b>(tokens)</b>	<i>M</i>	<b>Total</b> <b>(tokens)</b>
<b>Experimental</b>	24	6454	268.9	8597	358.2	9598	399.9	24649
<b>Control</b>	25	5503	220.1	5356	214.2	6005	240.2	16864

According to Table 5.7, the overview of the learner corpora provided the number of text tokens over the three periods for the experimental and control groups. The means of the text tokens in the experimental group over the three tests were 268.9, 358.2 and 339.9, respectively, whereas the means of text tokens in the control group were 220.1, 214.2, and 240.2, respectively, decreasing and then increasing on the last test.

The corpus-based analysis of the learners' essays is essential because it 'can highlight patterns of language use which are difficult for the naked eye to observe' (Fordyce, 2011, p. 134). The analysis is supported by a manual analysis examining whether the participants used a metadiscourse marker correctly because the corpus software could not determine this. In addition, the corpus-based analysis could not detect the misspelt metadiscourse markers (see Section 4.3). The corpus-based analysis was processed in three steps. First, word lists were created to obtain the frequencies of the metadiscourse markers under analysis. Second, the frequency of using metadiscourse markers for both groups over the three periods was prepared for comparison. Third, the concordances for each metadiscourse marker were employed to examine and identify the learners' use of these markers in context. This step is essential because it determines whether the learners' use of a metadiscourse marker corresponds to its function in Hyland's (2005) taxonomy (see Table 5.8).

**Table 5. 8** Frequency of Using Metadiscourse Markers by the Two Groups over the Three Tests (Main Study).

Category	Metadiscourse marker	Pretest step		Immediate posttest step		Delayed posttest step	
		Experimental	Control	Experimental	Control	Experimental	Control
<b>Goal announcement</b>	I would like	0	0	15	0	10	0
	I want to	1	0	5	0	7	0
	Let us	1	1	16	0	21	1
<b>Boosters</b>	Certainly	0	0	7	0	2	0
	Obviously	0	0	3	1	1	0
	Undoubtedly	0	0	7	0	1	0
	Indeed	3	1	4	1	1	1
<b>Label stage</b>	Overall	1	1	0	0	2	1
	All in all	0	0	3	0	2	2
	To sum up	5	1	3	0	3	1
	In conclusion	0	1	5	0	6	2
	To conclude	0	3	13	1	7	3
<b>Addition</b>	Also	31	17	43	31	48	29
	In addition	2	2	14	0	14	2
	Moreover	2	4	15	1	19	3
	Besides	0	0	4	0	8	0
	Furthermore	3	2	6	2	7	3
<b>Hedges</b>	About	0	0	1	2	3	0
	Almost	1	0	2	0	3	2
	May	16	10	25	9	11	9
	Might	4	5	18	1	21	15
	Probably	1	0	3	0	1	0

<b>Causatives</b>	Because	34	42	29	28	30	31
	Since	2	3	12	2	12	3
	As a result	2	0	8	0	5	0
	Consequently	1	0	5	0	8	0
	Therefore	3	0	11	0	7	2
	Thus	2	1	11	0	13	0
	So	14	16	12	15	15	13
<b>Contrast</b>	Although	1	0	8	0	9	1
	Though	0	0	4	0	1	0
	Even though	0	0	3	0	2	2
	But	16	18	15	18	10	31
	Yet	2	1	19	1	8	0
	However	3	6	10	5	14	8
	Nevertheless	0	0	8	0	5	0
<b>Sequencing</b>	First/First of all	4	2	13	6	7	1
	Firstly	1	0	11	0	16	2
	To begin with	1	0	14	0	13	0
	Second	6	0	9	4	7	2
	Secondly	0	1	11	0	15	1
	Third	2	1	7	1	4	1
	Thirdly	0	0	4	0	10	0
<b>Attitudes</b>	Agree	13	20	4	13	5	8
	Disagree	1	1	0	0	4	9
	Essential	8	2	19	1	8	5
	Important	41	40	23	14	8	6
	Interesting	3	1	6	0	1	0
	Unexpected	1	1	0	0	2	0
	Cause	0	2	9	0	11	6
	Fortunately	0	0	0	0	1	0
	Unfortunately	0	0	4	1	0	0

Table 5.8 represents an overview of the frequency of using metadiscourse markers by the experimental and control groups over the three tests. These frequencies were processed and prepared for data analysis to answer RQ 2 in the results chapter. Moreover, RQ 2 aims to compare the frequency of using metadiscourse markers between groups to examine the effect of the DDL intervention on the participants' use of metadiscourse markers in their writing. Further, it aims to examine and track the frequency of using metadiscourse markers in each group over the three tests.

Therefore, 'the normal distribution of data is a prerequisite for parametric tests and where data is not distributed normally, non-parametric tests must be used' (Dörnyei, 2007, p. 2). The results of the normal distribution for the frequency of using metadiscourse markers by the two groups are presented in Table 5.9.

**Table 5. 9** Significance of the One-Sample Kolmogorov-Smirnov Test for the Frequency of Using Metadiscourse Markers (Main Study).

<b>Test</b>	<b>Group</b>	<b>Statistics</b>	<b>df</b>	<b>Sig.</b>
<b>Pretest</b>	Experimental	.336	52	.001
	Control	.357	52	.001
<b>Immediate posttest</b>	Experimental	.130	52	.029
	Control	.368	52	.001
<b>Delayed posttest</b>	Experimental	.173	52	.001
	Control	.321	52	.001

According to Table 5.9, the results of the one-sample KS test were all significant for the frequency of using metadiscourse markers by the two groups; thus, the data were not normally distributed. Therefore, the nonparametric tests, the Mann–Whitney U test and Friedman test, in addition to Rayson's log-likelihood, were used to compare between and within the groups.

Data processing for the participants' essays, focused on the writing test scores and the frequency of using metadiscourse markers, is an essential step to prepare the data for the statistical analysis (details in Section 6.2). The SPSS statistical software was used to examine the difference in the test scores for the between-subject and within-subject effects. Similarly, SPSS was also used to compare the frequency of using metadiscourse markers for the between-subject and within-subjects effects (for more details, see Sections 6.1 and 6.2).

### **5.5.3 Processing Experimental Group Participants' Feedback**

The interview-data manipulation relied on four steps suggested by Dörnyei (2007): data transcription, precoding and coding, growing ideas and data interpretation (see Section 3.3.3). NVivo software created the coding (tree nodes) and subcoding (free nodes). The tree nodes represent five themes, as mentioned in Section 3.3.3, whereas the free nodes represent the details provided by the participants. For example, the first tree node represents the difficulties of working with the DDL activities, and the free nodes provide samples of these difficulties. Some participants faced difficulties working with the concordance lines because it was the first time they encountered such activities, which were not undertaken in their regular classes. By including tree nodes and free nodes, a hierarchical organisation appeared so that the researcher could determine relationships between these categories. The thematic approach was used to analyse the participants' reviews for DDL and answer RQ 3 (see Section 6.3.2).

## **Chapter Summary**

This chapter focuses on the data collection procedures for the main study and the processing and preparation of the collected data for the results chapter. It discusses the effects of the global pandemic of COVID-19 that caused compulsory changes in the data collection in the main study. Then, it presents the participant selection process during the pandemic and the group

division into experimental and control groups. This chapter also illustrates the procedures followed for implementing DDL intervention, collecting participants' writing tests, and receiving the experimental group feedback based on their experience with DDL. The chapter ends with an explanation of the data processing. Data processing is a prerequisite for the statistical analysis to answer the research questions and hypotheses in the forthcoming chapter.

## **Chapter 6 Results**

### **6.0 Introduction**

This chapter presents the quantitative and qualitative analyses of the main study data collected in the previous chapter. It aims to answer the research questions dealing with the effects of the DDL intervention on the written performance of B1 language learners and their evaluations of their experience with DDL. The quantitative data analysis includes the learners' writing test scores on the essays they wrote over three periods (pretest, immediate posttest and delayed posttest), their frequency of using metadiscourse markers in their essays and their responses to the questionnaire. In addition, the qualitative data involve their feedback on their experience with the DDL intervention in the interview.

This chapter is divided into three sections consistent with the three research questions and their hypotheses. Each section describes the data and statistical tests for the analyses. Section 6.1 focuses on the participants' writing test scores to calculate inferential statistics. Section 6.2 employs a corpus-based analysis that provides the frequency of use of metadiscourse markers in the participants' writings, which is considered quantitative data. These frequencies were used for inferential statistics. Section 6.3 considers the feedback from the experimental group exposed to the DDL intervention. This chapter employs a quantitative analysis for the questionnaire and a qualitative analysis for the interview and summarises the main findings to prepare the reader for the discussion chapter.

#### **6.1 Outcomes of Writing Performance**

This section analyses the quantitative data pertinent to RQ 1 and its hypotheses. RQ 1: Does DDL intervention that focuses on the appropriate use of metadiscourse markers develop the written performance of B1 language learners?

- Hypothesis 1: There are statistically significant differences in the test scores between the three periods of time of the experimental group for learners who are exposed to DDL intervention +explicit deductive instruction.
- Hypothesis 2: There are no statistically significant differences in the test scores between the three periods of time of the control group for learners who are exposed only to explicit deductive instruction.
- Hypothesis 3: The DDL intervention +explicit deductive instruction will lead to greater progress in writing performance by language learners in the experimental group than that of the language learners in the control group.

This quasi-experimental study used three tests over three periods on the experimental and control groups, and it was essential to clarify the procedures to prepare the data to answer RQs 1 and 2. The following subsection describes these data input procedures, hypotheses and statistical tests.

### **6.1.1 Preparing Data for RQ 1**

As mentioned in Section 5.4.1, RQ 1 tests the efficiency of the DDL intervention on the learners' written performance by examining whether differences in their writing test scores (dependent variables) occur between the control and experimental groups (independent variables). In addition, this question aims to track the progress of the written performance of the two groups over the three tests. Thus, after confirming the normality, homogeneity and sphericity of the quantitative data, the two-way repeated-measure ANOVA was used to answer RQ1 to examine the following:

- within-subject effects that indicate whether differences exist between the three tests over the three periods for each group, which tests Hypothesis 1 and 2.



- between-subject effects that compare the experimental and control groups, which tests Hypothesis 3.

As RQ 1 involves dealing with quantitative data (i.e. participants' tests scores), it was necessary to begin with the descriptive data. The descriptive statistics of the experimental and control groups over the three periods (pretest, immediate posttest and delayed posttest) were required to provide summarised findings describing the general tendencies in the data and the overall spread of the scores and were used in interpreting the results (Dörnyei, 2007; Table 6.1).

**Table 6. 1** Descriptive Data of the Participants' Test Scores over the Three Tests.

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>SD error</b>
<b>Pretest</b>	Experimental	24	20.229	2.75	.562
	Control	25	19.810	2.23	.446
<b>Immediate posttest</b>	Experimental	24	21.104	2.46	.501
	Control	25	19.580	2.24	.448
<b>Delayed posttest</b>	Experimental	24	21.198	1.91	.391
	Control	25	18.730	1.33	.267

According to Table 6.1, the mean scores of the control group  $M = 19.810$  ( $SD = 2.23$ ) and the experimental group  $M = 20.229$  ( $SD = 2.75$ ) were similar on the pretest. The mean score for the experimental group raised to 21.104 ( $SD = 2.46$ ) and continued increasing to 21.198 ( $SD = 1.91$ ), whereas the mean score of the control group was stable at 19.580 ( $SD = 2.24$ ) and slightly decreased at 18.730 ( $SD = 1.33$ ) on the delayed posttest. This result suggests that the performance of the two groups was similar before the DDL intervention; therefore, the mean scores of the two groups were balanced. After the DDL intervention, the results demonstrated that the experimental group's performance increased compared with that of the control group on the immediate and delayed posttests (the descriptive data are mentioned in the parametric test

results). The assumptions of normality, homogeneity and sphericity were required and confirmed to conduct the two-way repeated-measure ANOVA to answer RQ 1 (see Section 5.5).

Hypotheses 1 and 2 aim to examine the within-subject effects by tracking and comparing the mean scores of the pretest, immediate posttest and delayed posttest for each group to determine whether any differences exist. The results of the two-way repeated-measure ANOVA for testing within-subject and between-subject effects are presented in Table 6.2.

**Table 6. 2** Results of the Two-Way Repeated-Measure Analysis of Variance.

Source		Type III sum of squares	<i>df</i>	Mean square	<i>F</i>	Sig	Partial eta squared
<b>Tests over time</b>	Assumed Sphericity	4.083	2	2.041	.592	.555	.012
	Greenhouse–Geisser	4.083	1.802	2.266	.592	.538	.012
	Huynh–Feldt	4.083	1.909	2.139	.592	.548	.012
	Lower bound	4.083	1.000	4.083	.592	.445	.012
<b>Tests over time * group</b>	Assumed Sphericity	25.751	2	12.876	3.735	.027	.074
	Greenhouse–Geisser	25.751	1.802	14.292	3.735	.032	.074
	Huynh–Feldt	25.751	1.909	13.489	3.735	.030	.074
	Lower bound	25.751	1.000	25.751	3.735	.059	.074
<b>Error (tests over time)</b>	Assumed Sphericity	324.074	94	3.448			
	Greenhouse–Geisser	324.074	84.684	3.827			
	Huynh–Feldt	324.074	89.728	3.612			
	Lower bound	324.074	47.000	6.895			

The results in Table 6.2 indicate that the main effect on the test scores was not significant (sphericity assumed,  $F(2,94) = .592, p = .555$ ). However, the test of the interaction between the

tests over time and the groups was significant ( $F(2, 94) = 3.735, p < .027$ ); thus, by tracking the progress of each group over the three tests (i.e. within-subject effects), no statistically significant differences were found, whereas statistically significant differences were found by comparing the means for the groups (i.e. the between-subject effects). A detailed analysis of the within-subject and between-subjects effects is presented.

### 6.1.2 Testing Hypothesis 1: Within-Subject Effects for the Experimental Group

Although no statistically significant differences were found for the within-subject effects, there was a need to examine the performance of each group over the three tests (pretest vs immediate posttest, immediate posttest vs delayed posttest and pretest vs delayed posttest) to track the progress and determine whether their performance exhibited development. The paired sample *t*-test was used to compare because it ‘compares two means, when those means have come from the same entities’ (Field, 2009, p. 333). Table 6.3 compares the performance of the experimental group on the pretest and immediate posttest.

**Table 6.3** Paired Sample T-test of the Experimental Group (Pretest vs Immediate Posttest).

Pair 1	Experimental group pretest vs immediate posttest			95% confidence interval of the difference			t	df	Sig. (2- tailed)
	Mean	SD	Std. error mean	Lower	Upper				
Pretest vs immediate posttest	-.87500	2.995	.611	-2.139	.3898	-1.431	23	.166	

The results in Table 6.3, Pair 1 (pretest vs immediate posttest), indicate that the experimental group performed better on the immediate posttest ( $M = 21.104, SD = 2.456$ ) than on

the pretest ( $M = 20.229$ ,  $SD = 2.754$ ), but these results were not significant  $t(23) = -1.431$ ,  $p = .166$ , two-tailed. Similarly, Table 6.4 compares the immediate posttest and delayed posttest of the experimental group.

**Table 6.4** Paired Sample T-test of the Experimental Group (Immediate vs Delayed posttest).

Pair 2	Experimental group		Std. error mean	95% confidence interval of the difference		t	df	Sig. (2-tailed)
	Mean	SD		Lower	Upper			
Immediate posttest vs delayed posttest	-.09375	2.307	.471	-1.068	.8806	-.199	23	.844

Based on Table 6.4, for Pair 2 (immediate posttest vs delayed posttest), the results demonstrated that the experimental group achieved higher results ( $M = 21.197$ ,  $SD = 1.916$ ) on the delayed posttest than the immediate posttest ( $M = 21.104$ ,  $SD = 2.456$ ), but these results were not significant ( $t(23) = -.199$ ,  $p = .844$ , two-tailed). Table 6.5 presents Pair 3, comparing the pretest and delayed posttest of the experimental group.

**Table 6. 5** Paired Sample T-test of the Experimental Group (Pretest vs Delayed posttest).

Pair 3	Experimental group		Std. error mean	95% confidence interval of the difference		t	df	Sig. (2- tailed)
	Mean	SD		Lower	Upper			
Pretest vs delayed posttest	- .96875	3.294	.672	-2.359	.4224	- 1.440	23	.163

According to Table 6.5 for Pair 3 (pretest vs delayed posttest), the results revealed that the scores on the delayed posttest ( $M = 21.197$ ,  $SD = 1.916$ ) were higher than the scores on the pretest ( $M = 20.229$ ,  $SD = 2.754$ ), even though these results were not significant ( $t(23) = -1.440$ ,  $p = .163$ , two-tailed).

Tracking the performance of the experimental group over the three tests reveals that their test scores rose on the immediate posttest and continued to increase on the delayed posttest. Therefore, the alternative Hypothesis 1 in RQ1, stating that there are statistically significant differences in the test scores between the three periods of time of the experimental group for learners who are exposed to DDL intervention +explicit deductive instruction, is rejected, and the null hypothesis is accepted because the experimental group development did not exhibit statistically significant differences.

### 6.1.3 Testing Hypothesis 2: Within-Subject Effects for the Control Group

Similar to the experimental group progress, the control group progress was also examined over the three tests. Table 6.6 presents Pair 1 of the control group to compare their performance on the pretest and immediate posttest.

**Table 6. 6** Paired Sample T-test of the Control Group (Pretest vs immediate Posttest).

<b>Pair 1</b>	<b>Control group</b>			<b>95% confidence interval of the difference</b>				
	Mean	SD	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)
<b>Pretest vs immediate posttest</b>	.23000	2.5605	.5121	-.8269	1.2869	.449	24	.657

In Table 6.6, Pair 1 of the control group (pretest vs immediate posttest), the findings demonstrated that the participants' scores on the immediate posttest ( $M = 19.580$ ,  $SD = 2.243$ ) were lower than their scores on the pretest ( $M = 19.810$ ,  $SD = 2.234$ ), but the difference between these two tests was not significant ( $t(24) = .449$ ,  $p = .657$ , two-tailed). Table 6.7 presents Pair 2, which compares the immediate and delayed posttests.

**Table 6. 7** Paired Sample T-test of the Control Group (Immediate Posttest vs Delayed Posttest).

<b>Pair 2</b>	<b>Control group</b>			<b>95% confidence interval of the difference</b>				
	Mean	SD	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)
<b>Immediate posttest vs delayed posttest</b>	.85000	1.9921	.3984	.02767	1.6723	2.133	24	.043

In Table 6.7, the results for Pair 2 (immediate posttest vs delayed posttest) were statistically significant because the participants' scores dropped in the delayed posttest

( $M = 18.730$ ,  $SD = 1.338$ ) from the immediate posttest ( $M = 19.580$ ,  $SD = 2.243$ ;  $t(24) = 2.133$ ,  $p < .043$ , two-tailed). Last, Table 6.8 presents Pair 3 comparing the pretest and delayed posttest.

**Table 6.8** Paired Sample T-test of the Control Group (Pretest vs Delayed Posttest).

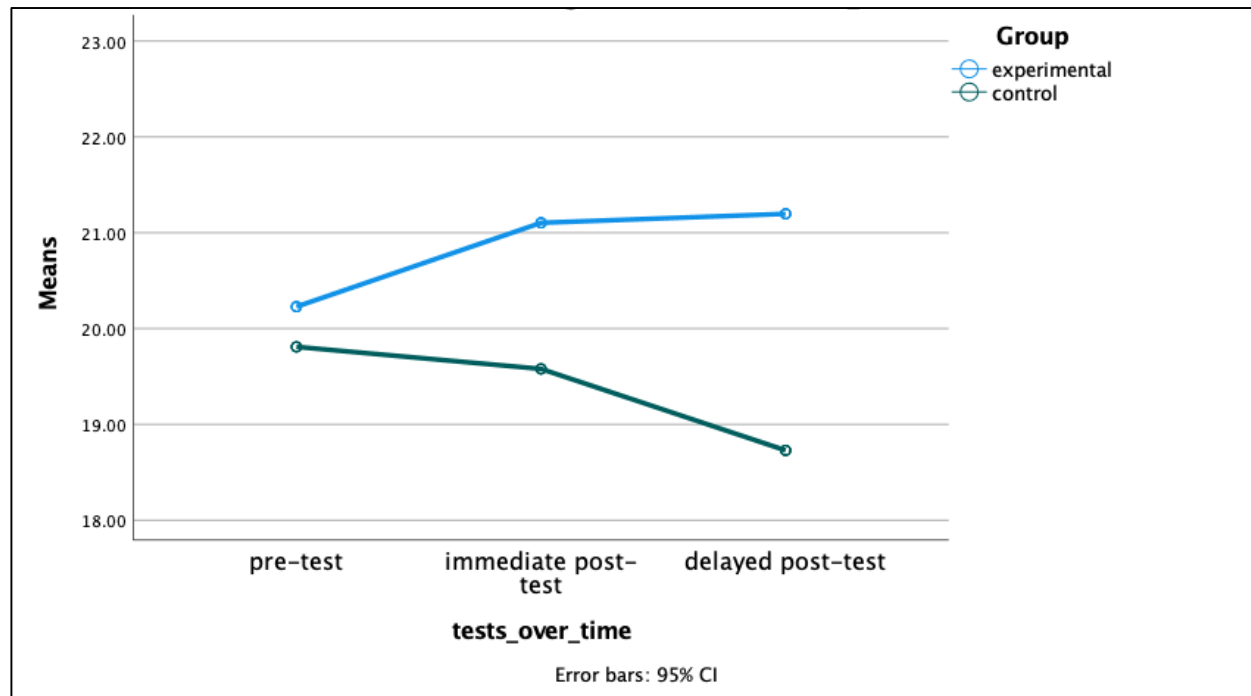
Pair 3	Control group			95% confidence interval of the difference		t	df	Sig. (2-tailed)
	Mean	SD	Std. Error Mean	Lower	Upper			
Pretest vs delayed posttest	1.08000	2.4246	.4849	.07917	2.0808	2.227	24	.036

In Table 6.8, the performance of the control group participants for Pair 2 (pretest vs delayed posttest) had a statistically significant decrease from the pretest ( $M = 19.810$ ,  $SD = 2.234$ ) to the delayed posttest ( $M = 18.730$ ,  $SD = 1.338$ ;  $t(24) = 2.227$ ,  $p < .036$ , two-tailed).

Tracking the performance of the control group over the three tests demonstrates that the mean scores on the pretest and immediate posttest were similar; however, the mean scores declined in the delayed posttest. Their performance can be considered stable by examining their mean scores via the repeated-measure ANOVA. Although the two-way repeated-measure ANOVA did not find statistically significant differences for the within-subject effects, the paired sample  $t$ -test indicated statistically significant differences in Pairs 2 and 3.

Figure 6.1 depicts a line graph of the mean scores of the two groups over the three tests, comparing the achievement scores of the experimental and control groups over the pretest, immediate posttest and delayed posttest.

**Figure 6. 1** Mean Scores of the Two Groups Over the Three Tests.



Thus, based on the above figure, the experimental group's performance rose on the immediate posttest and continued rising on the delayed posttest, although the rise was not statistically significant. In contrast, the achievement scores of the control group decreased on the immediate posttest and continued decreasing on the delayed posttest. This outcome suggests that, although the mean test scores did not demonstrate statistically significant differences for within-subject effects, the experimental group achieved better results over time than the control group. Therefore, the null Hypothesis 2 in RQ1, stating that there are no statistically significant differences in the test scores between the three periods of time of the control group for learners who are exposed only to explicit deductive instruction, is accepted because the progress of the control group participants did not show any significant differences.



### 6.1.4 Testing Hypothesis 3: Between-Subject Effects

As mentioned in Table 6.2, a significant interaction exists between the groups and tests, and this section compares the groups regarding the three tests to provide more details on the between-subject effects. Table 6.9 presents the results for the between-subject effects.

**Table 6. 9** Results of the Between-Subjects Effect Test.

Source	Type III sum of squares	df	Mean Square	F	Sig.	Partial eta squared
Intercept	19805.067	1	19805.067	7816.301	<.001	.994
Group	26.475	1	26.475	10.449	.002	.182
Error	119.089	47	2.534			

According to Table 6.9, a statistically significant difference exists between the two groups ( $F(1,47) = 10.449, p < .002$ ). This outcome implies that one of the two groups achieved significantly higher results than the other group. The independent sample  $t$ -test and Cohen's  $d$  values were used for the three tests to observe which group's mean score is higher between the two groups.

It was crucial to provide an equal basis for comparing the results between the two groups in the pretest stage. An independent sample  $t$ -test was used to compare the means of the two groups. Table 6.10 compares the means of the two groups on the pretest.

**Table 6. 10** Independent Sample T-test for the Pretest.

		Levene's test for equality of variances		T-test for equality of means				95% confidence interval of the Difference		
		F	Sig.	t	df	Sig. (2- tailed)	Mean difference	Std. error difference	Lower	Upper
<b>Pretest</b>	Equal variances assumed	1.441	.236	.586	47	.561	.41917	.71507	-1.01937	1.85771
	Equal variances not assumed			.584	44.294	.562	.41917	.71815	-1.02791	1.86624

In the pretest stage, based on Table 6.10, the results of the independent *t*-test revealed no statistically significant differences between the experimental group ( $M = 20.229$ ,  $SD = 2.75$ ) and the control group ( $M = 19.810$ ,  $SD = 2.23$ ;  $t(47) = .586$ ,  $p = .561$ ). Figure 6.2 displays a graphical representation of the mean scores and the adjusted 95% confidence intervals.

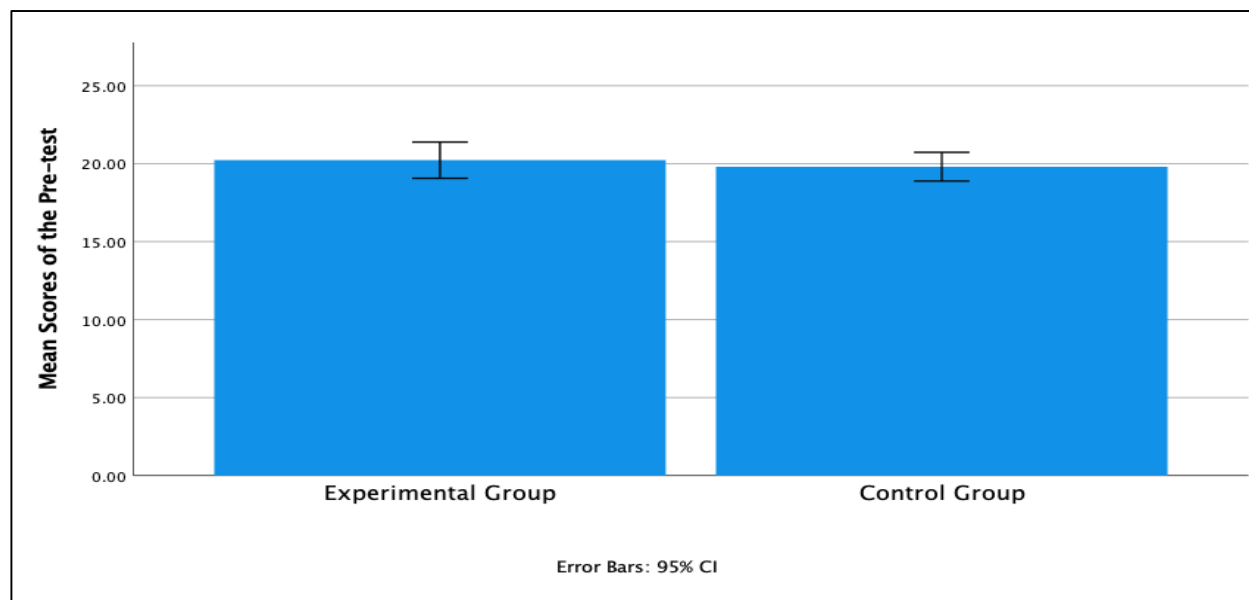
**Figure 6. 2** Mean Scores of the Two Groups on the Pretest.

Figure 6.2 representation and the independent sample *t*-test results for the pretest suggest that the two groups were equal before implementing the DDL intervention. Table 6.11 compares the mean scores on the immediate posttest between the two groups after DDL implementation.

**Table 6. 11** Independent Sample T-test for the Immediate Posttest.

		Levene's test for equality of variances		T-test for equality of means				95% confidence interval of the difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
<b>Immediate posttest</b>	Equal variances assumed	.135	.715	2.269	47	.028	1.52417	.67160	.17309	2.87525
	Equal variances not assumed			2.265	46.200	.028	1.52417	.67286	.16993	2.87840

On the immediate posttest stage, the results of the independent *t*-test in Table 6.11 indicate statistically significant differences between the experimental group ( $M = 21.104$ ,  $SD = 2.46$ ) and the control group ( $M = 19.580$ ,  $SD = 2.24$ ;  $t(47) = 2.269$ ,  $p < .028$ , two-tailed). Cohen's  $d$  was .31, which suggested a medium effect size. This result suggests that the DDL intervention positively affected the written performance of the experimental group, as their mean scores were higher than those of the control group. A graphical representation of the means and adjusted 95% confidence intervals is presented in Figure 6.3.

**Figure 6.3** Mean Scores of the Two Groups on the Immediate Posttest

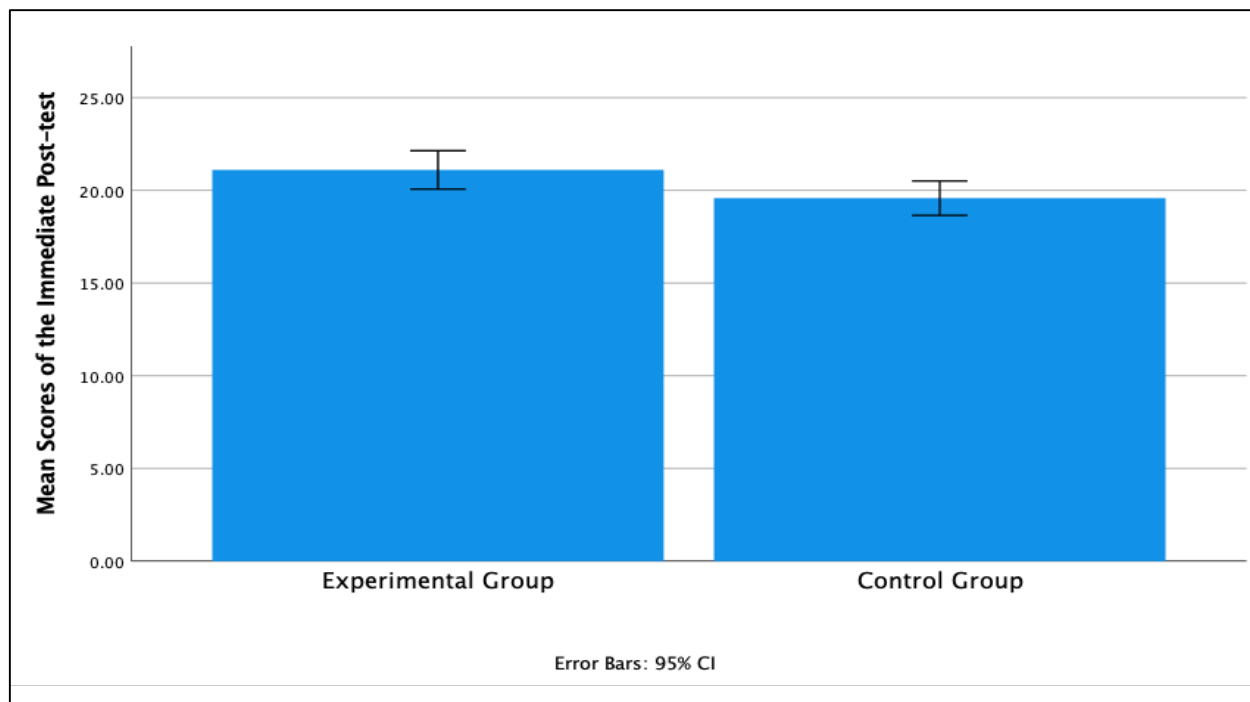


Figure 6.3 and the independent sample *t*-test results on the immediate posttest suggest that the experimental group achieved statistically significantly higher scores than the control group. The next step of analysis is the comparison of the mean scores between the experimental and control groups on the delayed posttest in Table 6.12.

**Table 6. 12** Independent Sample T-test for the Delayed Posttest.

		Levene's test for equality of variances		T-test for equality of means				95% confidence interval of the difference		
		F	Sig.	t	df	Sig. (2- tailed)	Mean difference	Std. error difference	Lower	Upper
<b>delayed posttest</b>	Equal variances assumed	2.08	.155	5.24	47	<.001	2.46792	.47066	1.52107	3.41476
	Equal variances not assumed	6		5.20	46.96	<.001	2.46792	.47405	1.51053	3.42531

In the delayed posttest stage, the results of the independent *t*-test (Table 6.12) indicated statistically significant differences between the experimental ( $M = 21.198$ ,  $SD = 1.91$ ) and control groups ( $M = 18.730$ ,  $SD = 1.33$ ;  $t(47) = 5.244$ ,  $p < .001$ , two-tailed). Cohen's  $d$  was .60, which indicates a large effect size. Similar to the intermediate posttest results in Table 6.11, Table 6.12 indicates that the experimental group achieved higher mean scores than the control group on the delayed posttest. This confirms that the effect of the DDL intervention continued with the experimental group until the delayed posttest. Figure 6.4 provides a graphical representation of the mean scores and adjusted 95% confidence intervals.

**Figure 6. 4** Mean Scores of the Two Groups on the Delayed Posttest

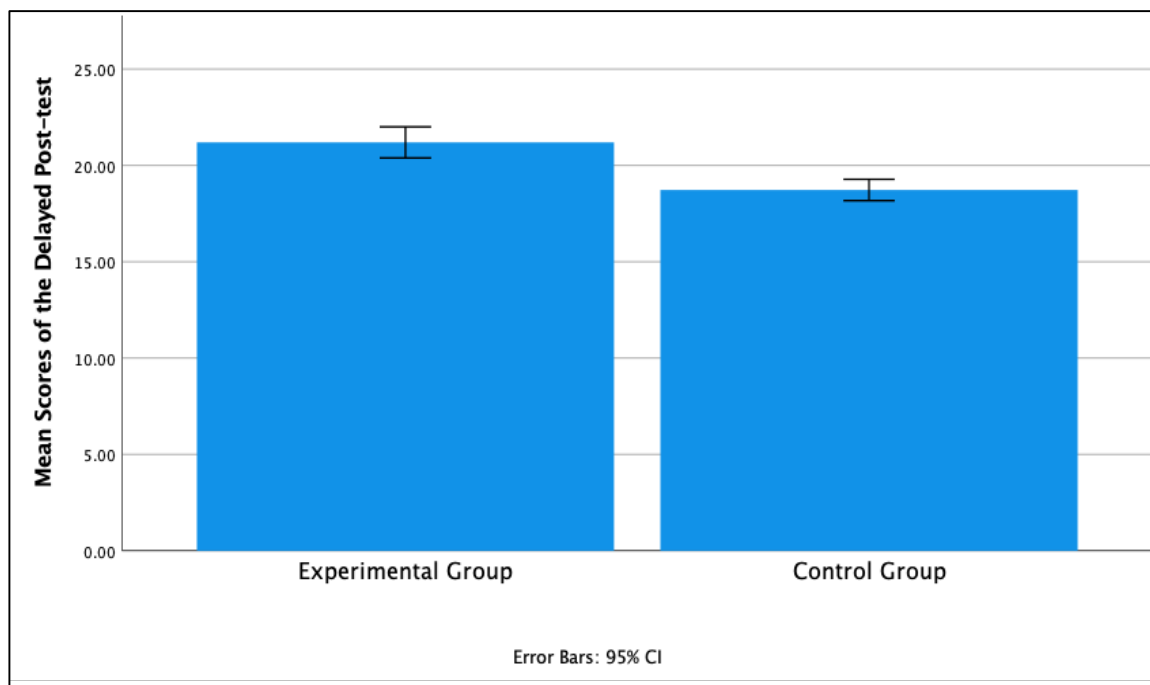


Figure 6.4 and the independent sample *t*-test results on the delayed posttest imply that the performance of the experimental group was statistically significantly higher than that of the control group.

Based on the results for the between-subject effects, the mean tests scores for the two groups on the pretest did not exhibit statistically significant differences, implying that the test results were similar in the two groups. However, on the immediate and delayed posttests, statistically significant differences were found between the groups, where the experimental group scored higher than the control group. Therefore, alternative Hypothesis 3 of RQ1, which states that the DDL intervention +explicit deductive instruction will lead to greater progress in writing performance by language learners in the experimental group than that of the language learners in the control group, is accepted, because the language learners exposed to the DDL intervention in

addition to the explicit deductive instruction scored higher than the language learners in the control group exposed to explicit instruction only. Overall, the DDL intervention focusing on the appropriate use of metadiscourse markers in writing positively affected the language learners' performance. The following section examines the frequency of using metadiscourse markers by the experimental and control groups to test the effect of the DDL intervention.

## **6.2 Use of Metadiscourse Markers**

RQ 2. Do participants in the experimental group employ metadiscourse markers in their academic writing with the same frequency and variety as participants in the control group after the DDL intervention?

- Hypothesis 4: There are statistically significant differences between the experimental and control group participants in their frequency of using some metadiscourse markers after exposure to the DDL intervention.
- Hypothesis 5: There are statistically significant differences between the experimental and control group participants in their variety of using some metadiscourse markers after exposure to the DDL intervention.
- Hypothesis 6: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of frequency.
- Hypothesis 7: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of variety.

- Hypothesis 8: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of frequency
- Hypothesis 9: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of variety.

### **6.2.1 Preparing Data for RQ 2**

This question requires a comparison between the experimental and control groups over the three periods regarding the frequency of using metadiscourse markers. The initial step for data analysis involved examining the learner corpora for the two groups over the three tests using concordance software AntConc (Anthony, 2014) to obtain the frequency of using metadiscourse markers by participants in the two groups on their writing tests (see Section 5.4.2). After obtaining the frequency of using metadiscourse markers, the data were examined to test the normality, and the results revealed that the distribution of the frequency of using metadiscourse markers was not normal. This result suggests that the data must be analysed statistically, relying on nonparametric tests and Rayson's log-likelihood (see Section 5.5).

The analysis first focuses on the results of between-subject effects (experimental vs control) to determine whether significant differences exist between the groups before and after the DDL intervention. The Mann–Whitney U test (nonparametric) was used to test statistically significant differences in the metadiscourse markers by the total number of categories, and Rayson's log-likelihood was used to compare each marker between the groups. Second, the analysis considers the results of the within-subject effects to determine whether any significant differences exist in the frequency of using metadiscourse markers by each group over the pretest,



immediate posttest and delayed posttest. The Friedman test (nonparametric) was used to examine the statistical significance of the metadiscourse markers by category for the three tests, and Rayson's log-likelihood was used to track the frequency of using each metadiscourse marker. Also, a Chi-squared test was used to consider the variety/range in using metadiscourse markers.

### 6.2.2 Testing Hypothesis 4: Between-Subject Keyword.

Tests of between-subject effects that compare the experimental and control groups over the three periods are examined for Hypothesis 4.

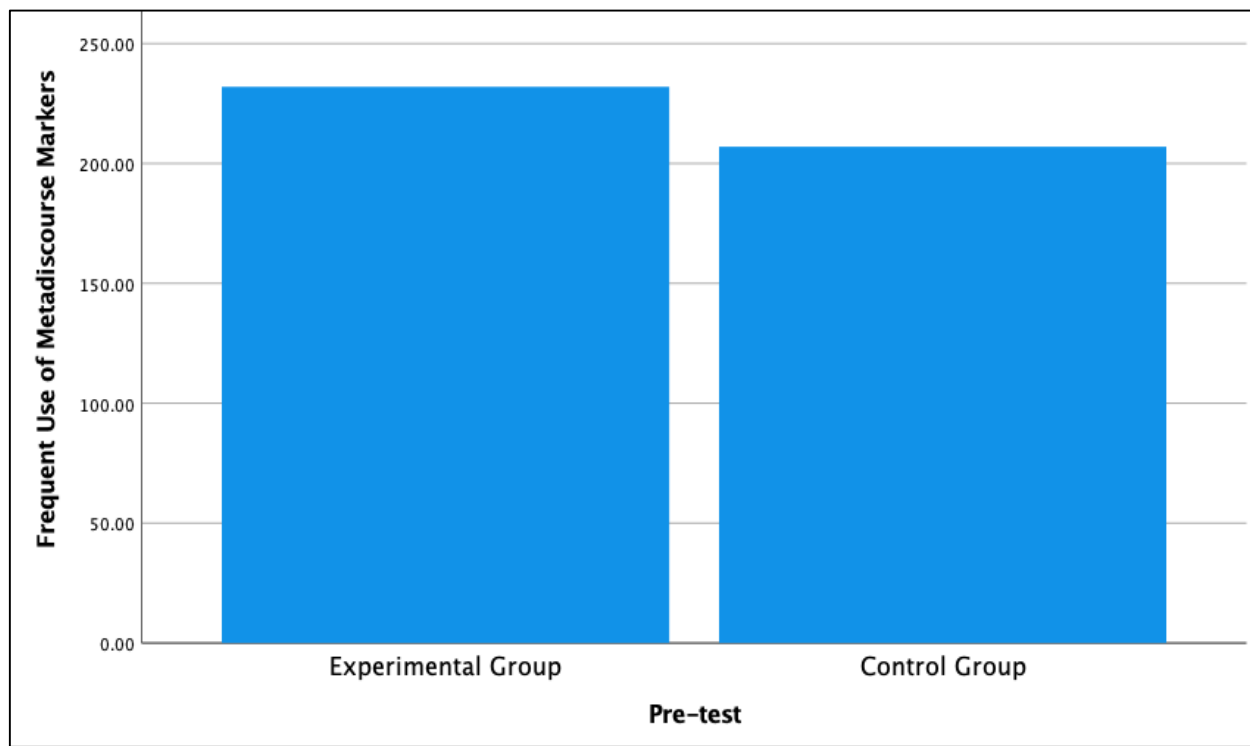
**Pretest.** In the pretest stage, it was estimated that the frequency of using metadiscourse markers between the experimental and control groups was balanced. The Mann–Whitney U test was applied to the data to examine whether any statistically significant difference exists in the total number of metadiscourse markers in categories used between the experimental and control group in the pretest stage, as listed in Table 6.13.

**Table 6. 13** Results of the Mann-Whitney U Test for the Frequency of Using Metadiscourse Markers (Pretest).

Group	Number of markers	Mean rank	Mann–Whitney U	Asymp. Sig. (2-tailed)
Control	52	49.23		
Experimental	52	55.77	1182.0	.253

The results in Table 6.13 indicate that the mean ranks for the control and experimental group were 49.23 and 55.77, respectively. The two groups did not differ significantly (Mann–Whitney  $U = 1182.0$ ,  $p = .253$ , two-tailed); thus, no statistical differences were found between the control and experimental groups in the frequency of using metadiscourse markers by category. Figure 6.5 graphically displays the results.

**Figure 6. 5** Frequency of Using Metadiscourse Markers by the Two Groups on the Pretest



Rayson's log-likelihood was used to examine each metadiscourse marker individually to compare its frequency of use between the two groups, as presented in Table 6.14.

**Table 6. 14** Results of Rayson's Log-Likelihood for the Frequent Use of Metadiscourse Markers by the Two Groups on the Pretest

Category	Metadiscourse marker	Pretest		
		Experimental	Control	LL
<b>Goal</b>	I would like	0	0	0.00
<b>announcement</b>	I want to	1	0	1.23
	Let us	1	1	0.01
<b>Boosters</b>	Certainly	0	0	0.00
	Obviously	0	0	0.00
	Undoubtedly	0	0	0.00
	Indeed	3	1	0.75
<b>Label stage</b>	Overall	1	1	0.01
	All in all	0	0	0.00
	To sum up	5	1	2.31
	In conclusion	0	1	1.55
	To conclude	0	3	* 4.66
<b>Addition</b>	Also	31	17	2.22
	In addition	2	2	0.03
	Moreover	2	4	1.04
	Besides	0	0	0.00
	Furthermore	3	2	0.07
<b>Hedges</b>	About	0	0	0.00
	Almost	1	0	1.23
	May	16	10	0.61
	Might	4	5	0.33
	Probably	1	0	1.23
<b>Causatives</b>	Because	34	42	2.60
	Since	2	3	0.39
	As a result	2	0	2.47
	Consequently	1	0	1.23
	Therefore	3	0	3.70
	Thus	2	1	0.20
	So	14	16	0.64

Category	Metadiscourse marker	Pretest		
		Experimental	Control	LL
<b>Contrast</b>	Although	1	0	1.23
	Though	0	0	0.00
	Even though	0	0	0.00
	But	16	18	0.65
	Yet	2	1	0.20
	However	3	6	1.55
	Nevertheless	0	0	0.00
<b>Sequencing</b>	First/First of all	4	2	0.40
	Firstly	1	0	1.23
	To begin with	1	0	1.23
	Second	6	0	** 7.40
	Secondly	0	1	1.55
	Third	2	1	0.20
	Thirdly	0	0	0.00
<b>Attitudes</b>	Agree	13	20	2.82
	Disagree	1	1	0.01
	Essential	8	2	2.96
	Important	41	40	0.37
	Interesting	3	1	0.75
	Unexpected	1	1	0.01
	Cause	0	2	3.10
	Fortunately	0	0	0.00
	Unfortunately	0	0	0.00

*Note:* Comparisons of the participants' use of metadiscourse markers in the experimental and control groups over the three periods are based on Rayson's log-likelihood calculator (retrieved from the University of Lancaster. <https://ucrel.lancs.ac.uk/llwizard.html>).

\* Signifies a significant difference with  $p < .05$  if the log-likelihood ratio is greater than or equal to 3.84.

\*\* Signifies a significant difference with  $p < .01$  if the log-likelihood ratio is greater than or equal to 6.63.

\*\*\* Signifies a significant difference with  $p < .001$  if the log-likelihood ratio is greater than or equal to 10.83.

Table 6.14 indicates that the two groups used metadiscourse markers similarly, except for two markers in two categories. The frequency of using metadiscourse markers in the experimental and control groups had significant differences only for the label stage marker *to conclude* and the sequencing marker *secondly*. The control group used the marker *to conclude* significantly more often than the experimental group, whereas the experimental group used the marker *secondly* significantly more often than the control group. There were no significant differences in the frequency of using other metadiscourse markers. Therefore, based on the Mann–Whitney U test and Rayson’s log-likelihood in the pretest stage, the frequency of using metadiscourse markers by the experimental and control groups in the pretest stage is similar, as expected. This step is essential to test Hypothesis 4 of RQ 2, as it is the basis to examine whether the DDL intervention influenced the participants’ use of metadiscourse markers on the immediate and delayed posttests.

### **Immediate Posttest.**

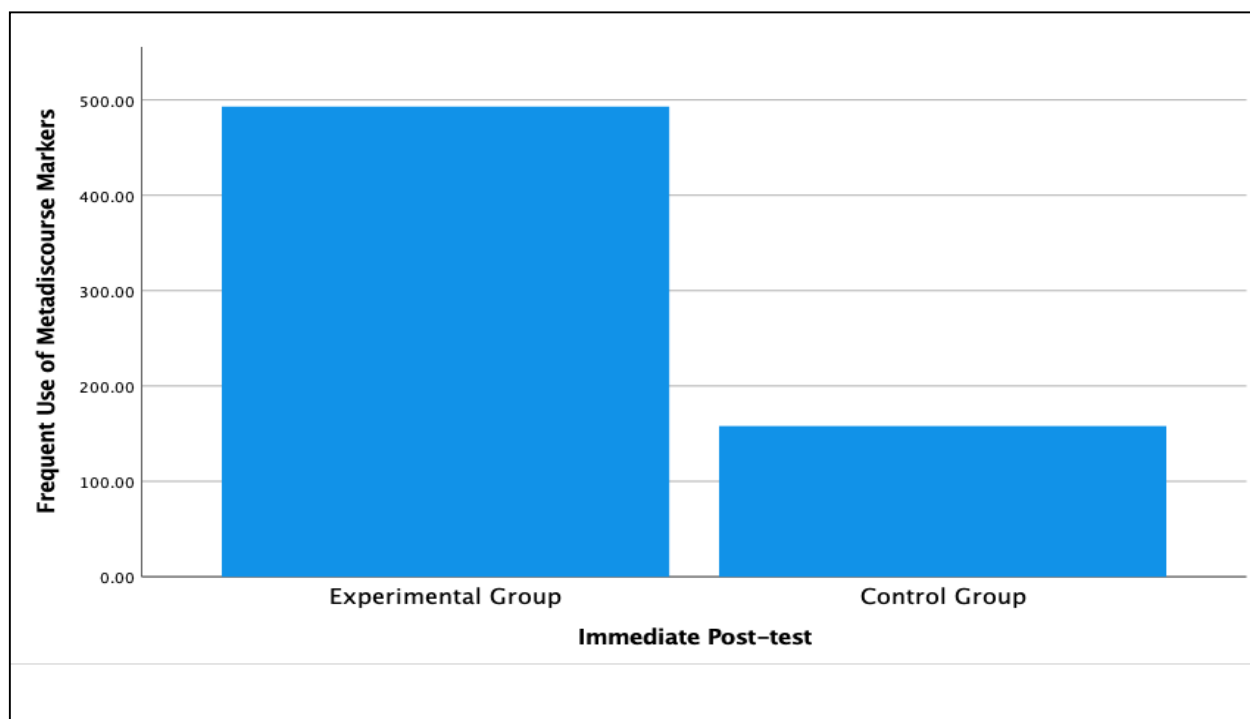
Similar to the pretest, the Mann–Whitney U test was applied to the immediate posttest to examine the frequent use of metadiscourse markers in categories by the two groups after the DDL intervention (Table 6.15).

**Table 6. 15** Results of the Mann-Whitney U Test for the Frequency of Using Metadiscourse Markers (Immediate Posttest).

<b>Group</b>	<b>Number of markers</b>	<b>Mean rank</b>	<b>Mann–Whitney U</b>	<b>Asymp. Sig. (2-tailed)</b>
<b>Control</b>	52	35.53		
<b>Experimental</b>	52	69.47	469.50	.001

Table 6.15 presents the statistically significant differences between the two groups in the frequency of using metadiscourse markers. The Mann—Whitney test indicated that the frequency of use of metadiscourse markers by the experimental group (*mean rank* = 69.47) was significantly higher than that of the control group (*mean rank* = 35.53; Mann–Whitney  $U = 469.50$ ,  $p < .001$ , two-tailed). Thus, the experimental group employed metadiscourse markers on the immediate posttest more often than the control group. Figure 6.6 graphically displays these findings.

**Figure 6. 6** Frequency of Using Metadiscourse Markers by the Two Groups on the Immediate Posttest



In addition, Rayson's log-likelihood was used to examine the frequency of using each metadiscourse marker individually by the two groups. Table 6.16 illustrates the frequency of using metadiscourse markers by the experimental and control groups on the immediate posttest after the DDL intervention. Overall, the results demonstrated greater significant differences

between the two groups in all categories because the experimental group used metadiscourse markers significantly more often than the control group.

**Table 6. 16** Results of Rayson's Log-Likelihood for the Frequency of Using Metadiscourse markers by the Two Groups on the Immediate Posttest.

Category	Metadiscourse marker	Immediate posttest		LL
		Experimental	Control	
<b>Goal announcement</b>	I would like	15	0	***14.53
	I want to	5	0	4.84
	Let us	16	0	***15.50
<b>Boosters</b>	Certainly	7	0	**6.78
	Obviously	3	1	0.32
	Undoubtedly	7	0	**6.78
	Indeed	4	1	0.79
<b>Label stage</b>	Overall	0	0	0.00
	All in all	3	0	2.91
	To sum up	3	0	2.91
	In conclusion	5	0	*4.84
	To conclude	13	1	**7.30
<b>Addition</b>	Also	43	31	0.38
	In addition	14	0	***13.56
	Moreover	15	1	**8.96
	Besides	4	0	*3.87
	Furthermore	6	2	0.64
<b>Hedges</b>	About	1	2	0.98
	Almost	2	0	1.94
	May	25	9	2.15
	Might	18	1	***11.51
	Probably	3	0	2.91
<b>Causatives</b>	Because	29	28	2.71
	Since	12	2	*3.97
	As a result	8	0	**7.75
	Consequently	5	0	*4.84
	Therefore	11	0	**10.65
	Thus	11	0	**10.65
	So	12	15	3.25

Category	Metadiscourse marker	Immediate posttest		
		Experimental	Control	LL
<b>Contrast</b>	Although	8	0	**7.75
	Though	4	0	*3.87
	Even though	3	0	2.91
	But	15	18	3.52
	Yet	19	1	***12.38
	However	10	5	0.16
	Nevertheless	8	0	**7.75
<b>Sequencing</b>	First/First of all	13	6	0.38
	Firstly	11	0	**10.65
	To begin with	14	0	***13.56
	Second	9	4	0.33
	Secondly	11	0	**10.65
	Third	7	1	2.67
	Thirdly	4	0	*3.87
<b>Attitudes</b>	Agree	4	13	**10.22
	Disagree	0	0	0.00
	Essential	19	1	***12.38
	Important	23	14	0.00
	Interesting	6	0	*5.81
	Unexpected	0	0	0.00
	Cause	9	0	**8.72
	Fortunately	0	0	0.00
Unfortunately	4	1	0.79	

In the goal announcement category, statistically significant differences exist between the groups in using the markers *I would like* and *let us* ( $p < .001$ ), as the control group did not use any markers in the goal announcement category. In contrast, the experimental group used all the metadiscourse markers in this category.

In terms of metadiscourse markers in the categories boosters, label stages, addition, causatives, contrast and sequencing, statistically significant differences also exist between the



groups with different  $p$ -values. The experimental group employed the markers *in conclusion*, *besides*, *since*, *though* and *thirdly* significantly more often than the control group ( $p < .05$ ). They also used the markers *certainly*, *undoubtedly*, *to conclude*, *moreover*, *as a result*, *therefore*, *thus*, *although*, *nevertheless*, *firstly* and *secondly* significantly more often than the control group ( $p < .01$ ). The markers *in addition*, *to begin with* and *yet* were used significantly more often by the experimental group than by the control group ( $p < .001$ ).

Regarding the hedge category, the results revealed that the experimental group used the marker *might* significantly more often than the control group ( $p < .001$ ), whereas no significant differences were found in the other markers in the same category. However, in the attitudes category, the control group employed the marker *agree* significantly more often than the experimental group ( $p < .001$ ), whereas the markers *essential*, *interesting* and *cause* were used significantly more often by the experimental group than the control group.

Comparing the groups on the immediate posttest revealed that the experimental group exposed to the DDL intervention demonstrated more variety in metadiscourse marker use than the control group. The immediate posttest was followed by a delayed posttest to compare the frequency of using metadiscourse markers by the two groups.

### **Delayed Posttest.**

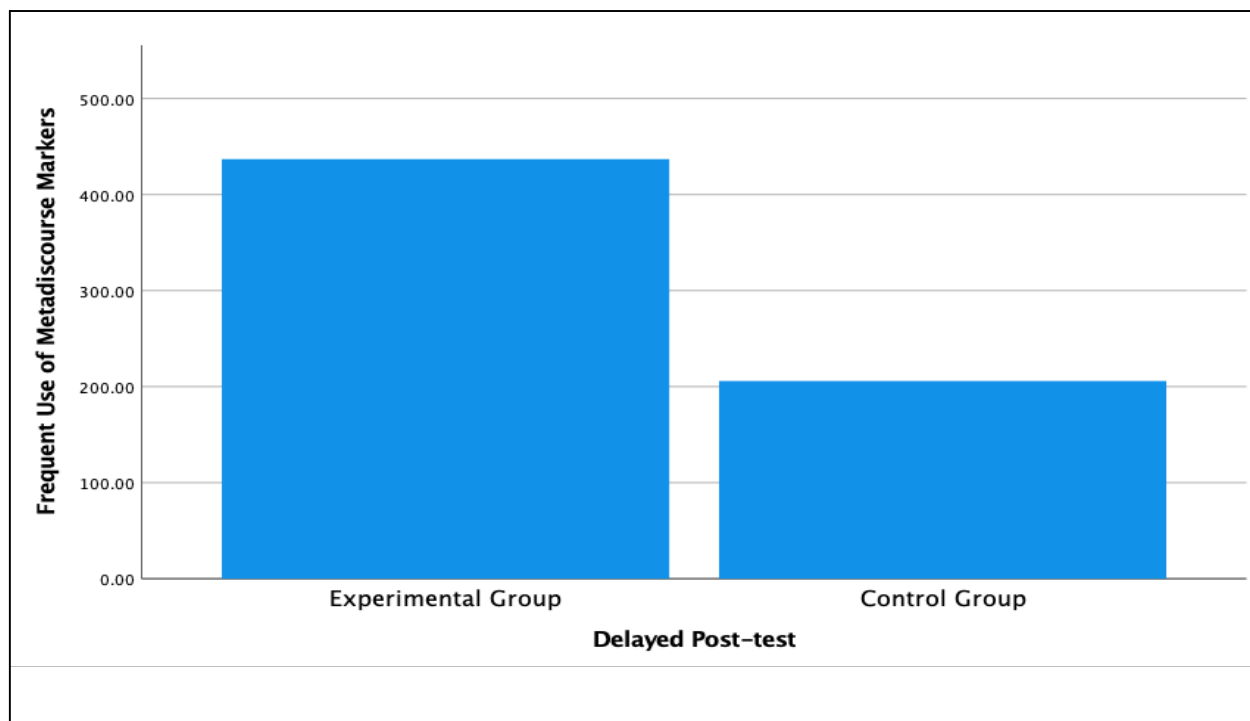
The Mann–Whitney U test was applied on the delayed posttest to examine the frequent use of metadiscourse markers in categories by the two groups (Table 6.17).

**Table 6. 17** Results of Mann-Whitney U Test for the Frequency of Using Metadiscourse Markers (Delayed Posttest).

Group	Number of markers	Mean rank	Mann–Whitney U	Asymp. Sig. (2-tailed)
Control	52	38.81		
Experimental	52	66.19	640.0	.001

The Mann–Whitney test indicated that the frequency of using metadiscourse markers was statistically significantly greater for the experimental group (*Mean rank* = 66.19) than for the control group (*Mean rank* = 38.81; Mann–Whitney  $U = 640.0$ ,  $p < .001$ , two-tailed). This result suggests that the frequency of using metadiscourse markers in the experimental group was higher than in the control group. These results are presented graphically in Figure 6.7.

**Figure 6. 7** Frequency of Using Metadiscourse Markers by the Two Groups on the Delayed Posttest



In addition, Rayson's log-likelihood was used to compare the frequency of using each metadiscourse marker individually between the two groups. Table 6.18 depicts the delayed posttest results for the two groups. Some significant differences were found on the immediate posttest, which disappeared by the time of the delayed posttest, whereas others remained significant. Moreover, some metadiscourse markers were significantly more used by the control group than the experimental group.

**Table 6. 18** Results of Rayson's Log-Likelihood for the Frequency of Using Metadiscourse Markers by the Two Groups (Delayed Posttest).

Category	Metadiscourse marker	Delayed posttest		
		Experimental	Control	LL
<b>Goal announcement</b>	I would like	10	0	**9.72
	I want to	7	0	**6.80
	Let us	21	1	***14.18
<b>Boosters</b>	Certainly	2	0	1.94
	Obviously	1	0	0.97
	Undoubtedly	1	0	0.97
	Indeed	1	1	0.11
<b>Label stage</b>	Overall	2	1	0.03
	All in all	2	2	0.22
	To sum up	3	1	0.33
	In conclusion	6	2	0.65
	To conclude	7	3	0.31
<b>Addition</b>	Also	48	29	0.02
	In addition	14	2	*5.37
	Moreover	19	3	**6.67
	Besides	8	0	**7.77
	Furthermore	7	3	0.31
<b>Hedges</b>	About	3	0	2.92
	Almost	3	2	0.00
	May	11	9	0.35
	Might	21	15	0.15
	Probably	1	0	0.97

Category	Metadiscourse marker	Delayed posttest		
		Experimental	Control	LL
<b>Causatives</b>	Because	30	31	3.81
	Since	12	3	2.38
	As a result	5	0	*4.86
	Consequently	8	0	**7.77
	Therefore	7	2	1.09
	Thus	13	0	***12.63
	So	15	13	0.73
<b>Contrast</b>	Although	9	1	*4.15
	Though	1	0	0.97
	Even though	2	2	0.22
	But	10	31	***23.37
	Yet	8	0	**7.77
	However	14	8	0.04
	Nevertheless	5	0	*4.86
<b>Sequencing</b>	First/First of all	7	1	2.68
	Firstly	16	2	**6.81
	To begin with	13	0	***12.63
	Second	7	2	1.09
	Secondly	15	1	**9.01
	Third	4	1	0.79
	Thirdly	10	0	**9.72
<b>Attitudes</b>	Agree	5	8	2.81
	Disagree	4	9	*5.03
	Essential	8	5	0.00
	Important	8	6	0.11
	Interesting	1	0	0.97
	Unexpected	2	0	1.94
	Cause	11	6	0.07
	Fortunately	1	0	0.97
Unfortunately	0	0	0.00	

According to Table 6.18, the experimental group continued using the metadiscourse markers in the goal announcement, addition, causative and sequencing categories, significantly

more than the control group as they did on the immediate posttest, except for the markers *since* and *therefore* in the causative category. In contrast, all statistically significant differences between the two groups in using metadiscourse markers from the categories boosters, label stages and hedges during the immediate posttest disappeared by the delayed posttest.

Regarding the metadiscourse markers in the contrast category, the markers *although*, *yet* and *nevertheless* remained significantly used by the experimental group more often than the control group, whereas the significant use of the marker *though* disappeared. Moreover, the marker *but* was significantly used by the control group more often than the experimental group ( $p < .001$ ). Last, all significant differences in the attitude category on the immediate posttest between the two groups disappeared in the delayed posttest; yet, the control group used the marker *disagree* significantly more often than the experimental group ( $p < .05$ ).

To conclude, the between-subjects keyword analysis suggests that, during the pretest stage, no statistically significant differences existed between the two groups in their frequency of using metadiscourse markers. In the immediate and delayed posttest stages, statistically significant differences were found between the experimental and control groups in the frequency of using metadiscourse markers. The DDL intervention led to immediately noticeable changes in the experimental group's use of metadiscourse markers, as they used metadiscourse markers in different categories significantly more often than the control group. However, in the delayed posttest stage, some significant differences in using metadiscourse markers between the two groups disappeared while others remained. Therefore, the findings in Section 6.2.2 result in support the alternative Hypothesis 4 in RQ 2, or that, when exposed to the DDL intervention in addition to receiving explicit deductive instruction, the experimental group would use metadiscourse markers more often than would the control group when exposed to the instruction

but not the intervention. This section compared the use of metadiscourse markers before and after the intervention in both the experimental and control groups. The following section compares the variety/range of used metadiscourse markers between the groups.

### 6.2.3 Testing Hypothesis 5: Between-Subject Keyword Analysis

In terms of variety, the range was calculated and measured using a Chi-squared test to examine whether there were statistically significant differences between the experimental and control groups in the range of used metadiscourse markers over the three tests. Table 6.19 shows a comparison between the groups on the pretest.

**Table 6. 19** Variety of Using Metadiscourse Markers by the Two Groups on the Pretest.

Group	Observed N	Expected N	Residual	$X^2$	df	Asymp. Sig.
Control	29	32.0	-3.0	.563 <sup>a</sup>	1	.453
Experimental	35	32.0	3.0			
Total	64					
Range difference	6					

Table 6.19 shows that the number of metadiscourse markers used on the pretest was 29 markers for the control group and 35 markers for the experimental group. The range difference between the groups was 6, showing no significance ( $X^2 [1] = .563, p = .453$ ). This means that the variety of using metadiscourse markers among the experimental and control groups in writing argumentative essays were similar before providing DDL intervention to the experimental group. The next table compares the range of using metadiscourse markers between the groups on the immediate posttest.

**Table 6. 20** Variety of Using Metadiscourse Markers by the Two Groups on the Immediate Posttest

<b>Group</b>	<b>Observed N</b>	<b>Expected N</b>	<b>Residual</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b>Asymp. Sig.</b>
<b>Control</b>	22	35.0	-13.0			
<b>Experimental</b>	48	35.0	13.0	<b>9.657<sup>a</sup></b>	<b>1</b>	
<b>Total</b>	70					<b>.002</b>
<b>Range difference</b>	26					

Table 6.20 shows that the number of metadiscourse markers used on the immediate posttest was 22 markers for the control group and 48 markers for the experimental group. The range difference between the groups was 26, showing a statistically significant difference ( $X^2 [1] = 9.657, p < .002$ ). This means that the variety of employing metadiscourse markers in writing argumentative essays by the experimental group was significantly higher than by the control group for the immediate posttest. The following table compares the range of used metadiscourse markers between the groups on the delayed posttest.

**Table 6. 21** Variety of Using Metadiscourse Markers by the Two Groups on the Delayed Posttest

<b>Group</b>	<b>Observed N</b>	<b>Expected N</b>	<b>Residual</b>	<b>X<sup>2</sup></b>	<b>df</b>	<b>Asymp. Sig.</b>
<b>Control</b>	32	41.5	-9.5			
<b>Experimental</b>	51	41.5	9.5	<b>4.349<sup>a</sup></b>	<b>1</b>	
<b>Total</b>	83					<b>.037</b>
<b>Range difference</b>	19					

Table 6.21 shows that the number of metadiscourse markers used on the delayed posttest was 32 markers among the control group and 51 markers among the experimental group. The range difference between the groups was 19, showing a statistically significant difference ( $X^2 [1]$

= 4.349,  $p < .037$ ). This means that the variety in employing metadiscourse markers in writing argumentative essays by the experimental group was significantly higher than by the control group on the delayed posttest.

Therefore, the Chi-squared tests that compared the range of using metadiscourse markers between the experimental and control groups did not show statistically significant differences on the pretest; however, there were statistically significant differences on the immediate and delayed posttests. This demonstrates that the intervention led to noticeable changes among the experimental group's range in using metadiscourse markers, as their use of metadiscourse markers showed a greater variety than the control group did on the immediate and delayed posttests. These findings support the alternative Hypothesis 5 of RQ 2, stating that there are statistically significant differences between the experimental and control groups in their variety of using some metadiscourse markers after the intervention.

#### **6.2.4 Testing Hypothesis 6: Within-Subject Keyword Analysis**

The second set of keyword analyses examined the experimental and control groups separately by comparing the frequencies and variety of metadiscourse markers on the pretest with the immediate posttest as well as those on the immediate posttest with the delayed posttest. Tests of within-subjects effects examined whether differences existed between the three tests over the three periods, using the Friedman ANOVA test and Rayson's log-likelihood for frequency and a Chi-squared test for variety/range, to test Hypotheses 6-9. Section 6.2.4 tracks the frequency of using metadiscourse markers by the experimental group over the three tests, and Section 6.2.5 considers the range/variety in using metadiscourse markers by the experimental group over the three tests to test Hypotheses 6 and 7, respectively. Similarly, Section 6.2.6 tracks the frequency of using metadiscourse markers by the control group over the three tests. Section



6.2.7 examines the range/variety in using metadiscourse markers by the control group over the three tests to test Hypotheses 8 and 9.

### Experimental Group.

The Friedman ANOVA test examined the frequency of using metadiscourse markers by the experimental group over the pretest, immediate posttest and delayed posttest, as provided in Table 6.22.

**Table 6. 22** Results of Friedman Analysis of Variance for the Frequency of Using Metadiscourse Markers by the Experimental Group.

Experimental group	Mean rank	N (number of metadiscourse markers)	52
Pretest	1.38	X2	31.690
Immediate posttest	2.31	df	2
Delayed posttest	2.32	Asymp. Sig.	.001

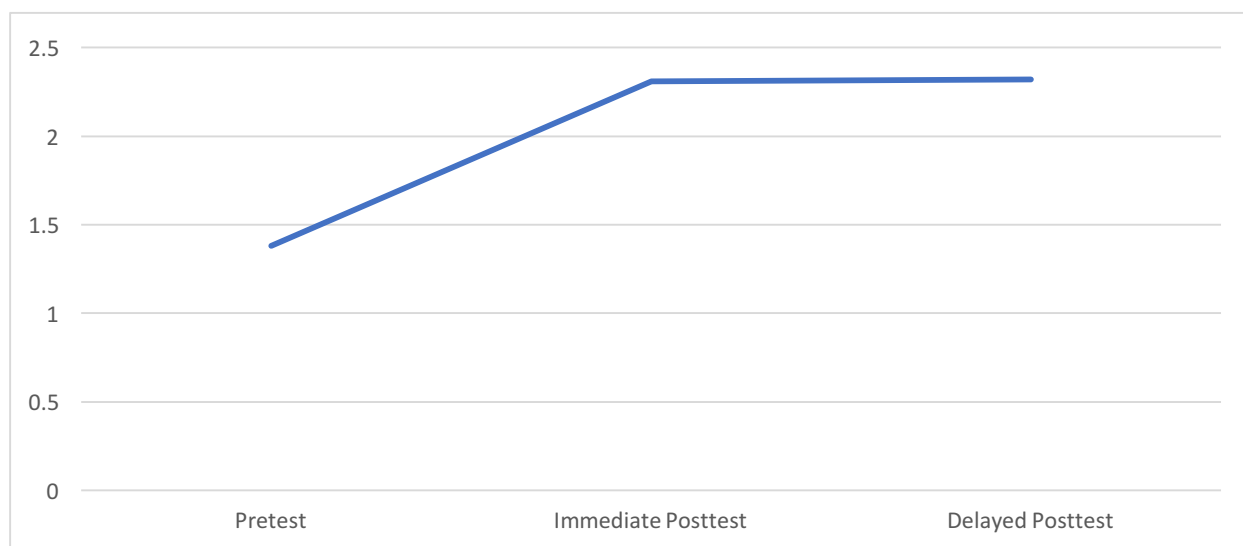
Table 6.22 reveals a significant effect of the DDL intervention on the frequency of using metadiscourse markers in the experimental group ( $X^2(2) = 31.690, p < .001, W = .305$ ). The mean ranks indicate that the delayed posttest demonstrates more use of metadiscourse markers (2.32), followed by the immediate posttest (2.31) and then the pretest (1.38). The effect size  $W = .305$  is considered a small effect. The Wilcoxon signed ranks test measured the effect size across the three tests (Table 6.23).

**Table 6. 23** Results of the Wilcoxon Signed Ranks Test for the Frequency of Using Metadiscourse Markers by the Experimental Group.

	Pretest – immediate posttest	Pretest – delayed posttest	Immediate posttest – delayed posttest
<b>Z</b>	-4.855b	-4.062b	-1.197c
<b>Asymp. Sig. (2-tailed)</b>	.001	.001	.231

Table 6.23 indicates that statistically significant differences were found between the pretest and immediate posttest (mean rank in pretest = 1.38, immediate posttest = 2.31,  $p < .001$ , two-tailed) and between the pretest and delayed posttest (mean rank in pretest = 1.38, delayed posttest = 2.32,  $p < .001$  two-tailed). There were no significant differences between the immediate and delayed posttests (mean rank: immediate posttest = 2.31, delayed posttest = 2.32,  $p = .231$ , two-tailed). This outcome reveals that the DDL intervention affects the frequency of using metadiscourse markers by the experimental group, as this measure on the immediate posttest rose significantly compared with the pretest. Further, no statistically significant differences existed between the immediate and delayed posttests; thus, the effects of DDL continued. Figure 6.8 shows a graphical presentation tracking the mean rank of using metadiscourse markers by the experimental group over the three tests.

**Figure 6. 8** Mean Rank of Using Metadiscourse Markers by the Experimental Group Over the three Tests.



In addition, Rayson's log-likelihood examined the experimental group's use of metadiscourse markers individually over the three tests. The results of the keyword analysis of the experimental group are presented in Tables 6.24 (pretest vs immediate posttest), 6.25 (immediate posttest vs delayed posttest) and 6.26 (pretest vs delayed posttest), with the statistically significant differences found in the Friedman ANOVA test. Table 6.24 illustrates that the DDL intervention had significant short-term effects on the participants' use of metadiscourse markers. Their frequency of using metadiscourse markers in all categories exhibited statistically significant differences at different levels.

**Table 6. 24** Results of Rayson's Log-Likelihood Comparison of Metadiscourse Markers (Pretest vs Immediate Posttest) for the Experimental Group.

Category	Metadiscourse marker	Experimental group		
		Pretest	Immediate posttest	LL
<b>Goal announcement</b>	I would like	0	15	+***16.80
	I want to	1	5	1.89
	Let us	1	16	+***12.01
<b>Boosters</b>	Certainly	0	7	+**7.84
	Obviously	0	3	3.36
	Undoubtedly	0	7	+**7.84
	Indeed	3	4	0.00
<b>Label stage</b>	Overall	1	0	1.69
	All in all	0	3	3.36
	To sum up	5	3	1.24
	In conclusion	0	5	+*5.60
	To conclude	0	13	+***14.56
<b>Addition</b>	Also	31	43	0.03
	In addition	2	14	+**7.01
	Moreover	2	15	+**7.87
	Besides	0	4	+*4.48
	Furthermore	3	6	0.34
<b>Hedges</b>	About	0	1	1.12
	Almost	1	2	0.11
	May	16	25	0.25
	Might	4	18	+*6.07
	Probably	1	3	0.55
<b>Causatives</b>	Because	34	29	3.12
	Since	2	12	+*5.34
	As a result	2	8	2.34
	Consequently	1	5	1.89
	Therefore	3	11	2.85
	Thus	2	11	+*4.55
	So	14	12	1.26

<b>Contrast</b>	Although	1	8	+*4.38
	Though	0	4	+*4.48
	Even though	0	3	3.36
	But	16	15	0.95
	Yet	2	19	+***11.46
	However	3	10	2.24
	Nevertheless	0	8	+**8.96
<b>Sequencing</b>	First/First of all	4	13	2.78
	Firstly	1	11	+**7.13
	To begin with	1	14	+***10.03
	Second	6	9	0.05
	Secondly	0	11	+***12.32
	Third	2	7	1.69
	Thirdly	0	4	+*4.48
<b>Attitudes</b>	Agree	13	4	-*7.95
	Disagree	1	0	1.69
	Essential	8	19	2.01
	Important	41	23	-***11.60
	Interesting	3	6	0.34
	Unexpected	1	0	1.69
	Cause	0	9	+**10.08
	Fortunately	0	0	0.00
Unfortunately	0	4	+*4.48	

*Note: The significant levels in these tables involve the signs + and —, where + means the frequency of using the metadiscourse marker significantly increased, and — means the frequency of using the metadiscourse marker significantly decreased.*

Table 6.24 indicates that all categories involved increased significant use of some metadiscourse markers, as the experimental group used metadiscourse markers on the immediate posttest significantly more often than on the pretest. However, the attitude category involved both increased and decreased significant use of metadiscourse markers.

The participants used the markers *in conclusion*, *besides*, *might*, *since*, *thus*, *although*, *though*, *thirdly* and *unfortunately* significantly more often on the immediate posttest than the

pretest ( $p < .05$ ). They demonstrated a significant increase in using the markers *undoubtedly*, *certainly*, *in addition*, *moreover*, *firstly*, *cause* ( $p < .01$ ), *I would like*, *let us*, *to conclude*, *yet*, *to begin with* and *secondly* ( $p < .001$ ). In contrast, they exhibited a significant decrease in using the markers *agree* and *important* ( $p < .001$ ). This outcome suggests that the DDL intervention influences the frequency of using metadiscourse markers by B1 language learners exposed to the DDL intervention because their frequency significantly increased for some markers and significantly decreased for other markers.

This comparison is followed by comparing the frequency of using metadiscourse markers between the immediate and delayed posttests (Table 6.25).

**Table 6. 25** Results Rayson's Log-likelihood Comparison of the Metadiscourse Markers (Immediate posttest vs Delayed Posttest) for the Experimental Group.

Category	Metadiscourse marker	Experimental Group		
		Immediate posttest	Delayed posttest	LL
<b>Goal announcement</b>	I would like	15	10	1.63
	I want to	5	7	0.15
	Let us	16	21	0.24
<b>Boosters</b>	Certainly	7	2	3.52
	Obviously	3	1	1.28
	Undoubtedly	7	1	- * 5.75
	Indeed	4	1	2.27
<b>Label stage</b>	Overall	0	2	2.56
	All in all	3	2	0.33
	To sum up	3	3	0.02
	In conclusion	5	6	0.01
	To conclude	13	7	2.55
<b>Addition</b>	Also	43	48	0.00
	In addition	14	14	0.08
	Moreover	15	19	0.13
	Besides	4	8	0.96
	Furthermore	6	7	0.01
<b>Hedges</b>	About	1	3	0.84
	Almost	2	3	0.11
	May	25	11	-**7.24
	Might	18	21	0.02
	Probably	3	1	1.28
<b>Causatives</b>	Because	29	30	0.09
	Since	12	12	0.07
	As a result	8	5	1.07
	Consequently	5	8	0.41
	Therefore	11	7	1.39
	Thus	11	13	0.02
	So	12	15	0.09

Category	Metadiscourse marker	Immediate post-test	delayed post-test	LL
<b>Contrast</b>	Although	8	9	0.00
	Though	4	1	2.27
	Even though	3	2	0.33
	But	15	10	1.63
	Yet	19	8	-*5.91
	However	10	14	0.30
	Nevertheless	8	5	1.07
<b>Sequencing</b>	First/First of all	13	7	2.55
	Firstly	11	16	0.46
	To begin with	14	13	0.23
	Second	9	7	0.52
	Secondly	11	15	0.26
	Third	7	4	1.19
	Thirdly	4	10	2.04
<b>Attitudes</b>	Agree	4	5	0.03
	Disagree	0	4	+*5.12
	Essential	19	8	-*5.91
	Important	23	8	**-*9.32
	Interesting	6	1	-*4.53
	Unexpected	0	2	2.26
	Cause	9	11	0.04
	Fortunately	0	1	1.28
	Unfortunately	4	0	**-*6.00

Table 6.25 compares the immediate posttest with the delayed posttest, revealing significant differences in only four categories: boosters, hedges, contrast and attitudes, whereas the other categories did not exhibit any differences. The booster marker *undoubtedly* and the contrast marker *yet* demonstrated decreasing significant differences ( $p < .05$ ), the hedge marker *may* ( $p < .01$ ). The attitude markers *essential* and *interesting* significantly decreased ( $p < .05$ ), *important* and *unfortunately* significantly decreased as well ( $p < .01$ ), whereas the marker *disagree* rose ( $p < .05$ ). As most of the significant differences were in the attitude category



because the experimental group expressed their opinions, they used other ways to express their opinions, such as *I believe*, *I think*, *we should*, *it is a must* and so on. Overall, the significant differences in comparing the immediate posttest vs the delayed posttest were fewer than for the pretest vs immediate posttest and the pretest vs delayed posttest, implying that the effect of DDL continued with the experimental group in the frequency of using metadiscourse markers.

The keyword analysis comparing the experimental group's pretest and delayed posttest provides information on whether the DDL intervention has a long-term effect on the participants' frequency of using metadiscourse markers, as presented in Table 6.26. After two weeks, statistically significant differences were found in the participants' use of metadiscourse markers on the delayed posttest at different levels in all categories, except the booster category.

**Table 6. 26** Results of Rayson's Log-Likelihood Comparison for Metadiscourse Markers (Pretest vs Delayed Posttest) for the Experimental Group.

Category	Metadiscourse marker	Experimental group		
		Pretest	Delayed posttest	LL
<b>Goal announcement</b>	I would like	0	10	+**10.29
	I want to	1	7	2.99
	Let us	1	21	+***15.29
<b>Boosters</b>	Certainly	0	2	2.06
	Obviously	0	1	1.03
	Undoubtedly	0	1	1.03
	Indeed	3	1	2.00
<b>Label stage</b>	Overall	1	2	0.06
	All in all	0	2	2.06
	To sum up	5	3	1.61
	In conclusion	0	6	+*6.17
	To conclude	0	7	+**7.20
<b>Addition</b>	Also	31	48	0.03
	In addition	2	14	+*5.99
	Moreover	2	19	+**9.98
	Besides	0	8	+**8.23
	Furthermore	3	7	0.45
<b>Hedges</b>	About	0	3	3.09
	Almost	1	3	0.41
	May	16	11	-*3.97
	Might	4	21	+**6.91
	Probably	1	1	0.08
<b>Causatives</b>	Because	34	30	-*4.34
	Since	2	12	+*4.50
	As a result	2	5	0.41
	Consequently	1	8	3.77
	Therefore	3	7	0.45
	Thus	2	13	+*5.24
	So	14	15	0.77

Category	Metadiscourse marker	Experimental group		
		Pretest	Delayed posttest	LL
<b>Contrast</b>	Although	1	9	+*4.58
	Though	0	1	1.03
	Even though	0	2	2.06
	But	16	10	-*4.80
	Yet	2	8	1.86
	However	3	14	+*4.02
	Nevertheless	0	5	+*5.14
<b>Sequencing</b>	First/First of all	4	7	0.07
	Firstly	1	16	+**10.67
	To begin with	1	13	+**7.99
	Second	6	7	0.19
	Secondly	0	15	+***15.43
	Third	2	4	0.12
	Thirdly	0	10	+**10.29
<b>Attitudes</b>	Agree	13	5	-**7.56
	Disagree	1	4	0.93
	Essential	8	8	0.63
	Important	41	8	-***39.33
	Interesting	3	1	2
	Unexpected	1	2	0.06
	Cause	0	11	+***11.31
	Fortunately	0	1	1.03
	Unfortunately	0	0	0.00

Based on Table 6.26, the markers *in conclusion*, *in addition*, *since*, *thus*, *although*, *however* and *nevertheless* had significantly increased use by the participants ( $p < .05$ ). Similarly, the markers *I would like*, *to conclude*, *moreover*, *besides*, *might*, *to begin with*, *thirdly* and *agree* exhibited significantly increased use ( $p < .01$ ), as did the markers *let us*, *secondly* and *cause* ( $p < .001$ ). Conversely, the participants demonstrated significantly decreased use of the markers *may*, *because* and *but* ( $p < .05$ ), *agree* ( $p < .01$ ) and *important* ( $p < .001$ ). The markers in the booster category did not involve any significant differences. Overall, significant differences were

found in the frequency of using some metadiscourse markers between the pretest and delayed posttest, as some of them increased while others decreased.

The three comparisons (pretest vs immediate posttest, immediate posttest vs delayed posttest and pretest vs delayed posttest) indicated that the DDL intervention affects the experimental group's frequency of using metadiscourse markers on the immediate and delayed posttests. The findings in Section 6.2.4 support the alternative Hypothesis 6 of RQ 2, or that DDL intervention plus explicit deductive instruction affects the frequency of using metadiscourse markers in argumentative essays written by the experimental group.

### 6.2.5 Testing Hypothesis 7: Within-Subject Keyword Analysis

In terms of variety, a Chi-squared test was used to determine whether the effect of DDL on the range of used metadiscourse markers by the experimental group was significant. Table 6.27 compares the variety in using metadiscourse markers between the pretest and the immediate posttest.

**Table 6. 27** A Comparison of Variety in Using Metadiscourse Markers Between Pretest and Immediate Posttest by the Experimental Group

Test	Observed N	Expected N	Residual	X <sup>2</sup>	df	Asymp. Sig.
Pretest	35	41.5	-6.5	2.036 <sup>a</sup>	1	.154
Immediate posttest	48	41.5	6.5			
<b>Total</b>	83					
<b>Range difference</b>	13					

The experimental group used 35 markers on the pretest and after the intervention, and 48 markers on the immediate posttest. This means that the use of markers by the experimental group

on the immediate posttest varied more than their use on the pretest. However, the difference in range between these periods was 13 and therefore not significant ( $X^2 [1] = 2.036, p = .154$ ).

In addition, the range of using metadiscourse markers on the immediate and delayed posttests were compared to examine whether the effect of the intervention remained.

**Table 6. 28** A Comparison of Variety in Using Metadiscourse Markers Between Immediate and Delayed Posttest by the Experimental Group

Test	Observed N	Expected N	Residual	$X^2$	df	Asymp. Sig.
Immediate posttest	48	49.5	-1.5	.091 <sup>a</sup>	1	.739
Delayed posttest	51	49.5	1.5			
Total	99					
Range difference	3					

Table 6.28 shows that the number of used metadiscourse markers on the immediate posttest was 48 markers for the experimental group, and on the delayed posttest, 51 markers. The difference in range between the immediate and delayed posttests was 3, showing no significance ( $X^2 [1] = .091, p = .739$ ). This means that the influence of the intervention continued with the experimental group. The next table compares the ranges between the pretest and the delayed posttest.

**Table 6. 29** A Comparison of Variety in Using Metadiscourse Markers Between Pretest and Delayed Posttest by the Experimental Group

Test	Observed N	Expected N	Residual	$X^2$	df	Asymp. Sig.
Pretest	35	43.0	-8.0			
Delayed posttest	51	43.0	8.0	2.977 <sup>a</sup>	1	.084
Total	86					
Range difference	16					

The number of using metadiscourse markers by the experimental group was 35 on the pretest and 51 on the delayed posttest. The difference in range between the pretest and the delayed posttest was 16, which was not significant ( $X^2 [1] = 2.977, p = .084$ ).

Comparing the variety in using metadiscourse markers by the experimental group over the three tests shows that the experimental group varied in their use of metadiscourse markers after the intervention, yet the effect of the intervention was not statistically significant. These results do not support the alternative Hypothesis 7 of RQ 2, or that intervention plus explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of variety.

### 6.2.6 Testing Hypothesis 8: Within-Subject Keyword Analysis

This section tracks the frequency with which the control group used metadiscourse markers over the three tests. Section 6.2.7 examines the range/variety of using metadiscourse markers by the control group over the three tests.

#### Control Group.

The Friedman ANOVA test examined the frequency of using metadiscourse markers by the control group over the pretest, immediate posttest and delayed posttest (Table 6.30).

**Table 6. 30** Results of the Friedman Analysis of Variance for the Frequency of Using Metadiscourse Markers by the Control Group.

Control group	Mean rank	N (number of metadiscourse markers)	52
Pretest	2.13	X2	10.609
Immediate posttest	1.71	df	52
Delayed posttest	2.16	Asymp. Sig.	.005

The above results indicate statistically significant differences across the three tests ( $X^2(2) = 10.609, p < .005, W = .102$ ). The mean ranks indicate that the delayed posttest was the highest at 2.16, followed by the pretest at 2.13, and the immediate posttest at 1.71. The effect size  $W$  was .1, which is considered a very small effect. The Wilcoxon signed ranks test measured the effect size across the three tests, as listed in Table 6.31.

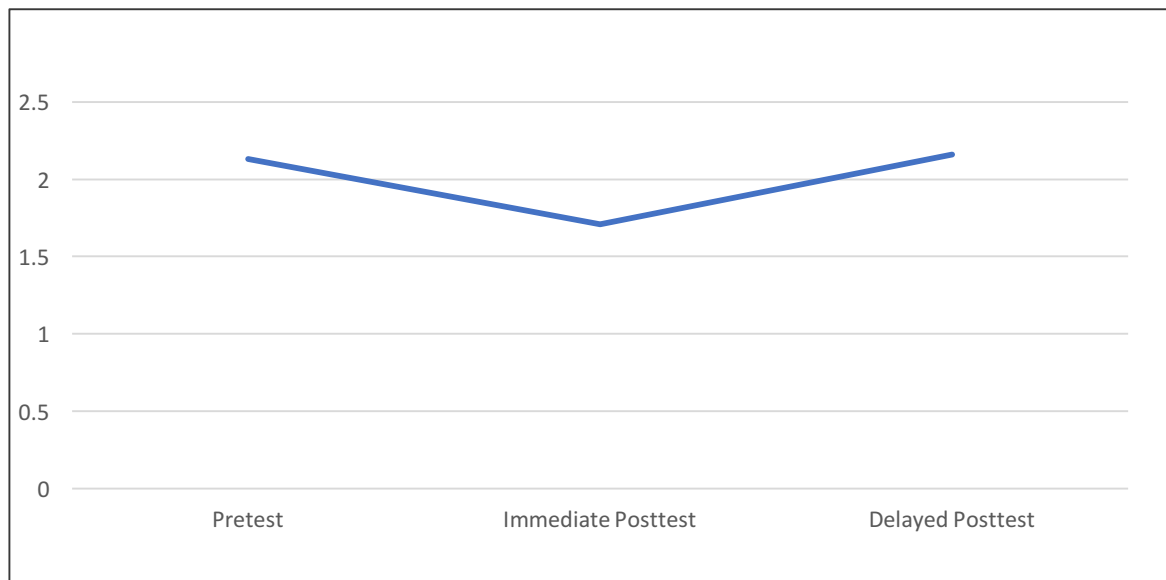
**Table 6. 31** Results of Wilcoxon Signed Ranks Test for the Frequency of Using Metadiscourse Markers by the control Group.

	Pretest – immediate posttest	Pretest – delayed posttest	Immediate posttest – delayed posttest
<b>Z</b>	-2.317b	-1.333c	-2.005c
<b>Asymp. Sig. (2-tailed)</b>	.021	.183	.045

Table 6.31 reveals that statistically significant differences were found between the pretest and immediate posttest (mean rank: pretest = 2.13, immediate posttest = 1.71,  $p < .021$ , two-tailed) and between the immediate and delayed posttests (mean rank: immediate posttest = 1.71, delayed posttest = 2.16,  $p < .045$ , two-tailed). No statistically significant differences were determined between the pretest and delayed posttest (mean rank: pretest = 2.13, delayed posttest = 2.16,  $p = .183$ , two-tailed). The results demonstrate that the frequency of using metadiscourse markers by the control group on the pretest with a mean rank of 2.13 was similar to that of the experimental group; yet, a notable decrease occurred in the frequency of using metadiscourse markers on the immediate posttest. On the delayed posttest, the frequency of using metadiscourse markers rose again to reach a mean rank of 2.16, which is close to the pretest result. This outcome suggests that the frequency of using metadiscourse markers in the control group remained stable until the end of the experiment. Figure 6.9 provides a graphical presentation tracking the mean rank of using metadiscourse markers by the control group over the three tests.



**Figure 6. 9** Mean Rank of Using Metadiscourse Markers by the Control Group Over the Three Tests



Similar to the tests applied to the experimental group to track the frequency of using each metadiscourse marker individually over the three tests, Rayson's log-likelihood examined this measure for each metadiscourse marker used by the control group over the three tests. It is important to note that the frequency of using metadiscourse markers by the control group was almost stable, as they employed a limited number of markers, resulting in few significant differences between the tests (Appendix XIV). Table 6.32 shows only the metadiscourse markers with significant differences.

**Table 6. 32** Results of Rayson's Log-Likelihood Comparison for Metadiscourse Markers (Pretest vs Immediate Posttest) by the Control Group.

Category	Metadiscourse marker	Control Group		
		Pretest	Immediate posttest	LL
<b>Addition</b>	Also	17	31	+*4.53
<b>Sequencing</b>	Second	0	4	+*5.65
<b>Attitudes</b>	Important	40	14	-***12.36

According to Table 6.32, the participants significantly increased their use of the additive markers *also* and *second* ( $p < .05$ ) and significantly decreased their use of the attitude marker *important* ( $p < .01$ ). Most of the frequency of using metadiscourse markers on the pretest and immediate posttest were similar, implying that the participants' use of metadiscourse markers in the control group was stable. Table 6.33 compares the immediate posttest with the delayed posttest to examine the frequency of using metadiscourse markers by the control group.

**Table 6. 33** Results of Rayson's Log-Likelihood Comparison of Metadiscourse Markers (Immediate Posttest vs Delayed Posttest) by the Control Group.

Category	Metadiscourse marker	Control Group		LL
		Immediate posttest	Delayed posttest	
<b>Hedges</b>	Might	1	15	+***13.15
<b>Sequencing</b>	First/First of all	6	1	-*4.56
<b>Attitudes</b>	Disagree	0	9	+***11.48
	Important	14	6	-*4.27
	Cause	0	6	+**7.65

Based on Table 6.33, significant differences in the frequency of using some metadiscourse markers occurred in three categories: hedges, sequencing and attitudes. The markers *might* and *disagree* increased significantly ( $p < .001$ ), as did the marker *cause* ( $p < .01$ ). In contrast, the markers *first/first of all* and *important* significantly decreased ( $p < .05$ ). Table 6.34 compares the pretest with the delayed posttest in the frequent use of metadiscourse markers by the control group.

**Table 6. 34** Results of Rayson's Log-likelihood Comparison of Metadiscourse Markers (Pretest vs Delayed Posttest) by the Control Group.

Category	Metadiscourse marker	Control Group		LL
		Pretest	Delayed posttest	
<b>Hedges</b>	Might	5	15	+*4.40
<b>Attitudes</b>	Agree	20	8	-*6.41
	Disagree	1	9	+**6.68
	Important	40	6	-***31.20

Table 6.34 compares the pretest and delayed posttest, where significant differences in using metadiscourse markers were found only in the hedge and attitude categories. The frequency of using the marker *might* increased significantly ( $p < .05$ ), and *disagree* also had a significant increase ( $p < .01$ ). In contrast, the markers *agree* and *important* significantly decreased ( $p < .05$  and  $p < .001$ , respectively).

The tables examining the within-subject effects for the frequency of using metadiscourse markers by the control group across the pretest, immediate posttest and delayed posttest indicated that significant differences were found in only two to three categories, whereas the other categories did not exhibit differences.

The three comparisons (pretest vs immediate posttest, immediate posttest vs delayed posttest and pretest vs delayed posttest) indicated that the only stable variable among the control group that received explicit deductive instruction was the frequency of using metadiscourse markers. The findings in Section 6.2.6 do not support the null Hypothesis 8 of RQ 2, or that explicit deductive instruction affects the frequency of using metadiscourse markers in argumentative essays written by the control group, as the ANOVA showed significant differences between the tests.

### 6.2.7 Testing Hypothesis 9: Within-Subject Keyword Analysis

This section examines the variability in using metadiscourse markers among the control group over the three tests. The range was calculated using a Chi-squared test. Table 6.35 compares the variety in using metadiscourse between the pretest and the immediate posttest.

**Table 6.35** A Comparison of Variety in Using Metadiscourse Markers Between Pretest and Immediate Posttest by the Control Group

Test	Observed N	Expected N	Residual	$X^2$	df	Asymp. Sig.
Pretest	29	25.5	3.5			
Immediate posttest	22	25.5	-3.5	.961	1	.327
Total	51					
Range difference	7					

The control group participants employed 29 markers on the pretest and 22 on the immediate posttest. This means that the use of metadiscourse markers among the control group on the immediate posttest varied less than their use on the pretest. However, the difference in range between these tests was not significant, ( $X^2 [1] = .961, p = .327$ ). Table 6.36 examines the

range of using metadiscourse markers by comparing the immediate posttest with the delayed posttest.

**Table 6. 36** A Comparison of Variety in Using Metadiscourse Markers Between Immediate Posttest and Delayed Posttest by the Control Group

Test	Observed N	Expected N	Residual	X <sup>2</sup>	df	Asymp. Sig.
Immediate posttest	22	27.0	-5.0	1.852 <sup>a</sup>	1	.174
Delayed posttest	32	27.0	5.0			
Total	54					
Range difference	10					

The number of used metadiscourse markers among the control group was 22 on the immediate posttest and 32 on the delayed posttest. This suggests that the use of metadiscourse markers among the control group on the delayed posttest varied more than their use on the immediate posttest. However, the difference in ranges between the tests was not significant ( $X^2 [1] = 1.852, p = .174$ ). The following table compares the ranges of using metadiscourse markers between the pretest and the delayed posttest among the control group.

**Table 6. 37** A Comparison of Variety in Using Metadiscourse Markers Between Pretest and Delayed Posttest by the Control Group

Test	Observed N	Expected N	Residual	X <sup>2</sup>	df	Asymp. Sig.
Pretest	29	30.5	-1.5	.148 <sup>a</sup>	1	.701
Delayed posttest	32	30.5	1.5			
Total	61					
Range difference	3					

The number of used metadiscourse markers by the control group was 29 on the pretest and 32 on the delayed posttest. The difference between the pretest and the delayed posttest was not significant, ( $X^2 [1] = .148, p = .701$ ).

Variety in using metadiscourse markers among the control group was stable. This result supports the null Hypothesis 9 of RQ 2, or that explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of variety.

### **6.3 Participants' Evaluation of Data-Driven Learning**

*RQ 3. How do the experimental group evaluate their experience with the DDL intervention in terms of its positive and negative sides?*

#### **6.3.1 Preparing Data for RQ 3**

This question relies on the learners' feedback on the experiment based on their experience with DDL. A thematic approach was used to analyse their interviews, and percentages were used to analyse their responses to the questionnaire. Processing their feedback is mentioned in the methodology for the main study chapter (Section 5.4.3). This section considers the participants' interviews and analyses their feedback on the questionnaire.

#### **6.3.2 Feedback from Interviews**

Table 6.38 displays the participants' feedback for DDL based on their experience. Through the use of NVivo software, there are five areas of investigation. The first and second areas examine the negative and positive sides of DDL from the participants' perspective, and the third and fourth areas consider DDL activities from participants' viewpoints. The last area focuses on the participants' recommendations for future DDL.

**Table 6. 38** Tabulation of the Interview Data.

Area of investigation (theme)	Findings	Frequency	Reference *
<b>Difficulties faced by participants working with DDL</b>	Concordance lines	3	T8 [8], T11 [6], T14 [6]
	Forgetting some deduced rules	1	T6 [6]
<b>Advantages of DDL</b>	Time management	1	T5 [6]
	Participants learnt the appropriate use of metadiscourse markers	12	T1 [10 14 16], T2 [12], T3 [14], T4 [10 13 14], T5 [8], T7 [10], T8 [14], T9 [8], T10 [10], T11 [8 10 12 14 16],
		9	T 12 [16], T13 [8 10]
	Raising participants' awareness	4	T1 [10 12], T4 [10], T5 [10], T6 [10], T7 [12], T9 [10], T10 [14], T12 [10 11 12 13 14], T14 [8 10]
<b>DDL part that attracted participants' attention</b>	Short and clear activities		T4 [12], T9 [6], T10 [6], T13 [6],
	Concordance lines	5	T 1 [18], T2 [14], T6 [12], T8 [16 18], T10 [16]
	Comparison of participants' essays and model samples	4	T5 [12], T 11 [18], T 12 [18], T13 [12]
	Corpus-based analysis of participants' writing	3	T 4 [16], T 11 [18], T 12 [18]
	Story of 'Ms Cani and Ms Mani'	2	T 9 [12], T 10 [14]
<b>Interesting part of DDL activities</b>	All activities of DDL	3	T 7 [18], T10 [18], T 14 [14]
	Comparison of participants' essays and model samples	4	T 3 [18], T 5 [14], T 8 [20], T 9 [14]
	Concordance lines	6	T 1 [20 22], T11 [20], T12 [20], T13 [15], T2 [16], T4
	Corpus-based analysis of participants' writing	3	[18] T 5 [14], T 6 [14], T 9 [14]
<b>Recommendations for future DDL</b>	Learn other markers by DDL	9	T2 [20], T3 [24], T4 [22], T5 [18], T6 [18], T7 [22], T9
	Learn grammatical rules by DDL	2	[18], T 12 [25], T13 [13]
	Relate language tests with DDL	2	T8 [26], T 11 [26] T10 [26 28], T11 [30]

*Note.* T = Transcript (T1 = Transcript 1, T2 = Transcript 2 and so on), T1 [20] = Transcript 1, line 20. All transcripts are in Appendix XII.

Regarding the first area of investigation, three participants discussed the difficulties of working with concordance lines in DDL, whereas nine participants mentioned that they did not face any difficulties working with DDL. Interviewees 4, 8 and 11 mentioned that it was difficult to work with DDL activities that involved concordance lines; however, they all indicated that the difficulties were only at the beginning as Interviewee 11 [6] said,

Yes, In the first activity, I found it a little bit challenging to understand the principle of DDL exercises, and how we can form a rule based on the concordancing lines. Yet, the guiding questions and the hints were helpful, it comes easy for me to understand the metadiscourse markers and compare between the sentences.

Interviewees 5 and 6 discussed memory and time management, which could be related to individual differences that may influence their experience with DDL.

In the second area of investigation, participants presented three main advantages of DDL: the appropriate use of metadiscourse markers, raising their awareness and short activities. Most of their responses were on the appropriate use of metadiscourse markers as interviewee 4 [13] stated,

I can say that metadiscourse markers are like the Google Maps that you showed us when explained the story of Ms Cani and Ms Mani. When Ms Cani used Google Maps, everything was clear for her, and I want to be clear to my reader and guide him or her for my writing.

Participants considered that raising their awareness is an advantage; as Interviewee 5 [10] explained,



Yes. The story of the two ladies: Ms Cani and Ms Mani, I understand the idea of overused markers and underused markers from the way they use transport. When you showed us the AntConc software, I realised that we did like Ms Mani and we did not know that.

Four participants noted that DDL activities were short, direct and funny. Overall, the participants had a positive impression of DDL.

The third and fourth areas of investigation dealt with the participants' views of DDL activities. These areas shared three points: concordance lines activities, comparison of participants' essays and model samples, and corpus-based analysis of the participants' writing. Activities that involve concordance lines have the most frequency of responses that attracted the participants' attention, and they considered them an interesting part of DDL. Interviewees 8 and 10 explained that the idea that different metadiscourse markers have the same function is important, *'I realised that I don't have to fix myself on specific markers'* (Interviewee 8 [18]). Interviewee 12 [20] stated, *'The first activities [concordance lines] are very interesting because they don't give us the rule of using the markers; instead, we got to it by examining the examples. This method helped us to make and memorize the rules'*.

Comparing participants' essays with model samples after the corpus-based analysis of the participants' writing received a similar evaluation, as participants regarded attractive and interesting parts of DDL. The participants related these two points while discussing their experiences. Interviewee 11 [18] stated,

when we analysed our writings, and compared them with the examples, these activities are important for me because I learned the benefits of metadiscourse markers in each part of an essay. I can see all these rules we discovered in concordances in these activities,

these activities improve the quality of my English writing, the paragraphs are now more organised.

Three interviewees pointed out that all the activities were interesting. Two interviewees noted that the story of ‘Ms Cani and Ms Mani’ attracted their attention because they recognised the overused and underused markers by language learners. Interviewee 9 [12] stated,

All activities are interesting for me, but the example of Ms Cani and Ms Mani was perfect to fully understand the purpose of the study. This is the most important part for me; the two ladies are just like an example that I always remember when I want to write. I need to think about the reader and how to guide him.

Overall, the interviewees most frequently mentioned concordance lines.

The last addressed part of the participants’ views was their recommendation of DDL. Most participants desired to study more metadiscourse markers, whereas the rest wanted to study grammatical rules via DDL, such as the conditional *if*. Moreover, two interviewees recommended joining DDL with language tests, such as IELTS writing Task 1. Overall, the feedback indicated the participants’ satisfaction with the DDL experience.

This section presents the qualitative analysis of the participants’ interviews. The forthcoming section presents the quantitative analysis of the participants’ responses to the questionnaire, considering their attitudes towards DDL intervention (Table 6.39).

### **6.3.3 Feedback from the Questionnaire**

The questionnaire obtained the participants’ feedback on DDL as a quantitative evaluation. All participants responded, completed and returned the questionnaire by email. Their completed questionnaires were collected, checked for missing data, saved and coded for analysis. As mentioned in Section 3.3.2, the questionnaire focused on three aspects of the experimental

group regarding DDL intervention as Items 1 to 8 consider the effects of concordance lines regarding the participants' use of metadiscourse markers, Items 9 to 15 focus on concordance lines regarding the participants' writing skill and Items 16 to 19 examine the difficulties working with concordance lines.

**Table 6. 39** Feedback Questionnaire by the Experimental Group.

No	Item	<i>N</i>	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Somewhat agree	5 Agree	6 Strongly agree
1	The DDL exercises are helpful for me to understand the meaning of metadiscourse markers.	24					16.7	83.3
2	The DDL exercises are helpful for me to learn the function of metadiscourse markers.	24					8.3	91.7
3	Studying the concordance lines is helpful for learning the collocation of the words.	24				8.3	25	66.7
4	Studying the concordance lines is helpful for learning the grammatical use of the words.	24					25	75
5	Studying the concordancing lines helps me memorise the usage of the metadiscourse markers better.	24				8.3	8.3	83.3

No	Item	<i>N</i>	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Somewhat agree	5 Agree	6 Strongly agree
6	Studying the concordance lines helps me learn the usage of metadiscourse markers.	24					16.7	83.3
7	I prefer learning the use of metadiscourse markers by analysing concordance lines than be taught by traditional teaching.	24			4.2	12.5	29.2	54.2
8	Studying concordance lines helps me incidentally learn more new words in the concordance output.	24			4.2	8.3	25	62.5
9	Studying concordance lines is helpful for my English writing.	24					16.7	83.3
10	Studying concordance lines helps me gain some ideas for my writing.	24				4.2	20.8	75
11	Learning about concordances has increased my confidence in using the metadiscourse markers in English writing.	24				4.2	16.7	79.2
12	The DDL exercises are very useful	24					12.5	87.5

No	Item	<i>N</i>	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Somewhat agree	5 Agree	6 Strongly agree
	resources for my use of metadiscourse markers in English writing.							
13	I can read the concordance lines and form the overall rules for the target metadiscourse markers.	24				8.3	33.3	58.3
14	Overall, the DDL exercises help me to improve my writing quality.	24				4.2	12.5	88.3
15	I can use the metadiscourse markers that I learnt from DDL exercises in my future writing.	24					16.7	83.3
16	I have some difficulties studying concordance lines because of the time and effort spent on data analysis.	24	16.7	45.8	16.7	16.7	4.2	
17	I have some difficulties studying concordance lines because there are too many sentences in the exercise.	24	33.3	33.3	29.2	4.2		
18	I <u>CANNOT</u> form the overall rules for the target metadiscourse	24	58.3	29.2	8.3	4.2		

No	Item	<i>N</i>	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Somewhat agree	5 Agree	6 Strongly agree
	markers from the concordance lines.							
19	Overall, DDL exercises are time-consuming.	24	62.5	29.2	4.2	4.2		

According to Table 6.39, most of the respondents displayed positive attitudes towards their experience with DDL. All their responses in the first aspect indicated that DDL is a beneficial and helpful resource for understanding the meaning and function of metadiscourse markers, as demonstrated in Items 1 to 6. In response to Items 7 and 8, most participants expressed their preference to learn more metadiscourse markers through concordance lines with traditional teaching. In addition, they learnt new words while working with concordance lines. However, 4.2% of the responses somewhat disagreed with these two items.

Regarding the second aspect of the questionnaire in Items 9 to 15, the participants' responses demonstrated that concordance lines positively affected their writing performance development, particularly in Items 12 and 15, where they agreed on the importance of employing metadiscourse markers in writing and aimed to employ these markers in future writing.

The third aspect focuses on the difficulties participants face working with DDL. In response to Item 16, 20% of the participants indicated that they faced some difficulties while working with concordance lines because it requires time and effort. In contrast, the majority (80%) indicated that they did not face these obstacles. In addition, the minority of participants (4.2%) expressed their struggles in forming rules for metadiscourse markers to generalise them or because of the number of sentences. In contrast, most of the participants' responses (95%)

indicated that they did not struggle. Overall, the quantitative feedback of the experimental group demonstrated that they were satisfied with and grateful for their experience with DDL.

### **Chapter Summary**

This chapter presents the results from the quantitative and qualitative data collected to answer the research questions. The comparison of the writing test scores of participants in the experimental and control groups over the three periods revealed no statistically significant differences for within-subject effects. However, the performance of the experimental group was better than that of the control group. Regarding the between-subject effects, the results indicated statistically significant differences between the experimental and control groups on the immediate and delayed posttests, where the experimental group achieved significantly higher scores than the control group.

Concerning the participants' frequency of using metadiscourse markers, participants in both groups demonstrated similar use of metadiscourse markers in the pretest stage. However, there were significant differences in the frequency of using metadiscourse markers in the immediate and delayed posttest stages. Similar to the comparison conducted for the participants' scores, the within-subject and between-subject effects were measured. The frequency of using metadiscourse markers by the experimental group on the immediate and delayed posttests exhibited a statistically significant difference from the pretest, whereas no statistically significant differences were found between the immediate and delayed posttests. The frequency of using metadiscourse markers by the control group on the pretest and delayed posttest was statistically significantly different from the immediate posttest. However, no statistically significant differences between the pretest and delayed posttest were found, despite the limited use of some metadiscourse markers. The experimental group demonstrated a greater variety and higher use of

metadiscourse markers in their essays for the immediate and delayed posttests than the control group. The influence of DDL intervention was notable in employing a variety of metadiscourse markers for the experimental group.

By comparing variety in the two group, participants showed similar variety in using metadiscourse markers in the pretest stage. However, there were significant differences in the variety of using metadiscourse markers in the immediate and delayed posttest stages. Also, within-subject effect was examined to track variety in using metadiscourse markers for each group. The results showed that the variety of using metadiscourse markers by the experimental group participants after exposure to DDL intervention increased in the immediate posttest and continued in rising in the delayed posttests, but without significant differences. Regarding variety in using metadiscourse markers among the control group, it decreased in the immediate posttest and increased in the delayed posttest, yet without significant differences.

The feedback from the experimental group on the questionnaire and interviews indicated positive attitudes towards DDL intervention and a satisfactory experience. The quantitative and qualitative data findings are explained and discussed in detail in the following chapter by relating them to the previous studies and theories discussed in Chapter 2.



## **Chapter 7 Discussion**

### **7.0 Introduction**

This chapter provides a detailed analysis and interpretation of the findings presented in the results chapter regarding each of the research questions. The findings are also discussed concerning the theories and studies previously discussed in the literature review. The discussion is divided into three sections corresponding to the three research questions in this thesis. Section 7.1 analyses the effects of DDL intervention on the learners' performance by tracking the progress of their writing test scores. Section 7.2 discusses the effect of the DDL intervention on the participants' frequency of using metadiscourse markers. Section 7.3 examines the experimental group's evaluation and perceptions of their experience with DDL. Each section answers the research questions by illustrating the quantitative and qualitative results in the previous chapter. The last section briefly summarises the discussion chapter.

### **7.1 Effects of Data-Driven Learning Intervention on the Learners' Performance**

This section reports the findings relating to the first research question and its hypotheses. It discusses the effects of DDL intervention on the learners' written performance by focusing on their test scores over the three periods (pretest, immediate posttest and delayed posttest).

RQ 1. Does DDL intervention focusing on the appropriate use of metadiscourse markers develop the writing performance of B1 language learners?

The two-way repeated-measure ANOVA examined the writing performance test scores for the experimental and control groups. First, the test analysed the mean scores for the two groups to examine the within-subject effects to track the progress of each group. Then, the ANOVA examined the mean scores of the experimental and control groups to compare the between-subject effects of the DDL intervention over the three periods. The results of the within-

subject effects test revealed no statistically significant differences for the two groups over the three tests (assumed sphericity,  $F(2,94) = .592, p = .555$ ), but the experimental group scored better on their writing tests than the control group.

- Hypothesis 1: There are statistically significant differences in the test scores between the three periods of time of the experimental group for learners who are exposed to DDL intervention +explicit deductive instruction.

The mean score for the experimental group rose from the pretest ( $M = 20.229, SD = 2.75$ ) to the immediate posttest ( $M = 21.104, SD = 2.46$ ) and continued rising on the delayed posttest ( $M = 21.198, SD = 1.91$ ), although the rise was not statistically significant. This finding is interesting, and I expected that the mean scores of the experimental group's test would rise on the immediate posttest, then decrease on the delayed posttest, similar to Smart's (2014) DDL study. In Smart's study, his participants' scores on the delayed posttest decreased from the immediate posttest but without statistically significant differences, which is normal because the participants may forget some of what they learnt at the delayed posttest stage. However, the findings in the current study showed that the experimental group's test scores continued rising on the delayed posttest, although these scores were not significant. This result can be considered normal, as this study focused on writing skill, which is accumulative and requires time, effort and practice to develop. This result suggests that the DDL intervention can improve the B1 language learner's performance in argumentative essay writing through focusing on the appropriate use of metadiscourse markers. The positive effect of the DDL intervention remained with the experimental group learners' writing performance even after a specific period of time.

- Hypothesis 2: There are no statistically significant differences in the test scores between the three periods of time of the control group for learners who are exposed only to explicit deductive instruction.

The results of tracking the performance of the control group learners over the three tests showed no significant differences in the mean scores, which suggests that their performance is stable. This result is similar to Smart's (2014) study, as his findings revealed that the performance of the control group, which was not exposed to DDL intervention, did not show statistically significant differences. The finding of Smart's control group's performance was also stable.

However, in my study, the scores on the delayed posttest were the lowest, as the mean scores of the repeated-measure ANOVA on the pretest ( $M = 19.810$ ,  $SD = 2.23$ ) decreased from the pretest to the immediate posttest ( $M = 19.580$ ,  $SD = 2.24$ ) and continued decreasing on the delayed posttest ( $M = 18.730$ ,  $SD = 1.33$ ). Possible reasons for this result include the order of the contents of the teaching materials provided to the learners and the explicit deductive teaching approach – that is, as mentioned in Section 2.4, the textbook materials provided to language learners relying on the intellectual/rhetorical orientation, which were the same as those used for teaching the language learners in this study, deal with the major essay types, such as *process*, *cause and effect*, *comparison and contrast*, and *argumentative*. Before the pretest stage, the groups were studying argumentative essay writing, and their teacher used the explicit deductive approach for instruction. This explains why the mean of the control group learners on the pretest was higher than that on the immediate posttest and the delayed posttest, as the learners were taught argumentative essay writing through the explicit deductive instruction and had a pre-existing idea of this type of essay. Similar to Fordyce's (2011) findings, in which the explicit

instruction showed an immediate effect on learners' use of epistemic stance, the explicit deductive approach for instructing argumentative essay writing to B1 language learners can show an immediate effect on their performance. After the pretest, the learners were taught the other types of essay writing for the rest of the seven weeks of the experiment. Thus, the control group learners' attention may have been directed to the other types of essay writing on the immediate posttest and the delayed posttest, decreasing their mean scores.

- Hypothesis 3: The DDL intervention +explicit deductive instruction will lead to greater progress in writing performance by language learners in the experimental group than that of the language learners in the control group.

The between-subject effects test revealed statistically significant differences between the two groups ( $F(1,47) = 10.449, p < .002$ ). In the pretest stage, no statistically significant differences were found between the experimental group ( $M = 20.229, SD = 2.75$ ) and control group ( $M = 19.810, SD = 2.23; t(47) = .586, p = .561$ ); thus, before the DDL implementation the two groups were similar. Nevertheless, the immediate posttest revealed statistically significant differences between the experimental group ( $M = 21.104, SD = 2.46$ ) and control group ( $M = 19.580, SD = 2.24; t(47) = 2.269, p < .028$  two-tailed). In addition, the delayed posttest indicated statistically significant differences between the experimental ( $M = 21.198, SD = 1.91$ ) and control groups ( $M = 18.730, SD = 1.33; t(47) = 5.244, p < .001$ , two-tailed). This outcome demonstrates that the experimental group exposed to the DDL intervention achieved significantly higher results than the control group not exposed to the DDL intervention. Most of the DDL studies in the literature review established that DDL intervention results in significant differences in the performance of language learners (Garner, 2013; Huang, 2014; Smart, 2014). Larsen-Walker's (2017) study of advanced-level language learners, however, did not show statistically

significant differences between the groups. She explained that the data used for DDL intervention are derived from MICUSP, which is an upper-intermediate level corpus and is therefore closed to her participants. She mentioned that if the experimental group had been exposed to a native-speaker corpus, the result would show significant differences. Nevertheless, including the local-learner corpus in DDL intervention would also lead to significant differences; indeed, the findings in Cotos's (2014) study revealed that language learners exposed to DDL intervention with both the native-speaker and local-learner corpora performed better than those exposed to DDL intervention with only the native-speaker corpus.

The significant differences between the two groups in my study can be explained by the output and the noticing hypotheses discussed in Section 2.5. That the noticing hypothesis focuses on the learner's attention to achieving comprehension (Schmidt, 2012, and Ünlü, 2015) and that the output hypothesis focuses on the learner's attention to their production (Swain, 1995) explain the positive effect of DDL activities on the learner's written performance. For example, one of the most important findings was the participants' use of goal announcement markers in writing their introductions in the argumentative essay. According to Travis et al. (2015), in the IELTS academic writing test Task 2, the introduction is based on providing a general framework for the essay, describing the topic background, presenting the problem and briefly outlining both sides of the issue. In the pretest stage, the participants in both groups were asked to write an argumentative essay, and almost all participants in the control and experimental groups did not use goal announcement markers to provide a brief outline of both sides of the essay. Figure 7.1 presents an example of an introduction written by a participant in the control group, and Figure 7.2 presents an introduction written by an experimental group participant.

**Figure 7. 1** Sample of an Introduction by Control Group Participant (1) on the Pretest

Today's innovations include the news of social media industry events in the world should be showed to everyone. But to what extent these news are significant to each are of us? do their a preference to us having these huge up to the people news national and international?

**Figure 7. 2** Sample of an Introduction by Experimental Group Participant (1) on the Pretest

Being updated into news is good. You will know what is happening around you and outside your country. Also, we can get some knowledge and very useful information.

The absence of the goal announcement markers in these introductions resulted in missing an essential part of their introduction, which is the outline of the essay, as the participants focused on presenting a general idea about the topic or expressing their opinions. Therefore, the DDL Activities 1 and 3 allowed the experimental group, first, to increase their awareness of the appropriate use of goal-announcement markers and their essential role in an argumentative essay introduction. Second, it notified the group about their errors in employing these markers, which they may not have been aware of; in Type 1 DDL activities, by noticing the form of the goal-announcement markers in the concordance lines and relating them to their meaning in context, through the guided induction, the experimental group were able to infer the function of these markers. This confirms the first principle, *noticing a form*, in the noticing hypothesis, as Schmidt (2012) suggests that learning, according to this principle, is based on form-meaning function relationships (see Appendix I, Activity 1.1). Also, the model samples derived from *ICLE* and presented to the experimental group involved introductions that employed goal-announcement markers, presenting the essay outline (Appendix III, Activity 3.1). Then, DDL Activity 3.2

encouraged the participants to compare their introductions from the pretest with the model samples derived from *ICLE* to determine the similarities and differences. Through guided induction, the participants found that they missed an important part of their introductions (outlining the aim of the essay), which could have been accomplished using goal-announcement markers. This step corresponds with the first function of the output hypothesis, the noticing/triggering function, as it provides qualitative feedback about the essays the learners wrote in the pretest stage; it brought their attention to their errors, as they ‘are fundamentally developmental, a normal part of the learning process, and it is not by pointing out where they occur that remedies can instantly be refused or will be effective’ (Myles, 2015, p. 311). Further, DDL Activity Type 3 confirmed the second principle of the noticing hypothesis, noticing the gap, as it enabled the experimental group to compare their essays with the model samples and demonstrated their interlanguage limitations. They all noticed and realised that they missed the goal-announcement markers in their introductions on the pretest. As a result, their reaction to this finding appeared in the essays they wrote for the immediate and delayed posttests, as they employed goal-announcement markers in their introductions whereas the control group did not. Figure 7.3 presents an introduction written for the immediate posttest by the same control-group participant who wrote the introduction in Figure 7.1. Figure 7.4 provides an introduction written for the immediate posttest by the same experimental-group participant who wrote the introduction in Figure 7.2.

**Figure 7. 3** Sample of an Introduction by Control Group Participant (1) on the Immediate Posttest

The world is carpet pf different types of organs either both living and non-living. With the ecological richness are very much important in living and maintaining a balance Earth. But what is happening today? aside from the positive change we are enjoying brought to us by the technology and innovations in general why can't we see that their are a lot of endemic animal species in our place. Do we need to take action about this? Save them from the dangers they are facing.

**Figure 7. 4** Sample of an Introduction by Experimental Group Participant (1) on the Immediate Posttest

We all know that animals are our companions, our workers, our eyes and ears and most specially, our food. In addition, animals help maintain our natural environment by predated upon plants and other animals and exhaling carbon dioxide, which green plants require to live. And this inserts the issue of whether or not we should do everything to save some endangered animals. This issue remain very controversial, so in this essay, I would like to discuss the argument about whether or not we should do everything to save endangered animals. Let me first start with the advantages.

Both participants wrote introductions, including a general background and problem statement. However, the experimental group participant employed the goal announcement marker *I would like* to outline the essay (highlighted in Figure 7.4), whereas the control group participant did not. Similarly, in the delayed posttest, the experimental group participant included the goal announcement marker *I would like* to outline the essay, whereas the control group participant did not. Figures 7.5 and 7.6 present the introductions written for the delayed posttest.



**Figure 7. 5** Sample of an Introduction by Control Group Participant (1) on the Delayed Posttest

Technology has been over of the result of advancement throughout the year. Not just in the field of medicine, architecture, science in general but now at likely in every field of specialization. But to what extent these technology/mobile phones to be specific in allowed for use? Is it necessary to bring them at school or not? Mobile phones nowadays have been very useful to everyone we can see children below 10 years old having his or her own phone.

**Figure 7. 6** Sample of an Introduction by Experimental Group Participant (1) on the Delayed Posttest

Mobile phones are by far one of the greatest invention due to their numerous uses. Day by day, they are becoming an essential part of our lives. But mobile phone usage has become a controversial topic in any school. As a student like me tend to become more advanced. *So in this essay, I would like to discuss about mobile phones that should or should not be allowed to take into school.*

The goal announcement marker *I would like*, presented in DDL Activity 1.1 (see Appendix I), can also be used in the body and conclusion. Some experimental group participants employed this marker in the body or conclusion of the essays for the immediate and delayed posttests, yet the common use of this marker was in the introductions. Figures 7.7 and 7.8 present the experimental group's employment of the goal announcement marker *I would like* on the immediate and delayed posttests.

**Figure 7. 7** Uses of the Marker I would like by the Experimental Group participants on the Immediate Posttest

Concordance Hits 16		
Hit	KWIC	File
1	danger of disappearing. In this essay	I would like to discuss the pros and cons experimental test 2 all.1
2	that wolf will disappear. To sum up,	I would like to say that we had an experimental test 2 all.1
3	any special authorities. On this topic,	I would like to consider how dangerous the dis experimental test 2 all.1
4	y we should save them. In this essay,	I would like to discuss the arguments which su experimental test 2 all.1
5	in very controversial, so in this essay,	I would like to discuss the argument about whe experimental test 2 all.1
6	others say the opposite. In this essay,	I would like to shed light on the advantages experimental test 2 all.1
7	cially to our ecosystem. In this paper,	I would like to delineate the cause and effects experimental test 2 all.1
8	danger of disappearing. In this essay,	I would like to discuss the pros and cons experimental test 2 all.1
9	cons and pros of saving\xCA animals .	I would like to examine the advantages\xCA\xC experimental test 2 all.1
10	on, and the people who opposed it.	I would like to explain why some people suppo experimental test 2 all.1
11	are also disadvantages. In this essay,	I would like to examine the abate m advantage experimental test 2 all.1
12	eatened with extinction. In this essay,	I would like to examine the two views of experimental test 2 all.1
13	nction and non-extinction of animals.	I would like to scrutinize why there are animals experimental test 2 all.1
14	this is not a priority. In this essay,	I would like to discuss the advantages and disa experimental test 2 all.1
15	eserve our environment. In this essay,	I would like to discuss about the advantages ar experimental test 2 all.1
16	danger of disappearing. In this essay	I would like to talk about the pros and experimental test 2 all.1

**Figure 7. 8** Uses of the Marker I would Like by the Experimental Group Participants on the Delayed Posttest

Concordance Hits 10		
Hit	KWIC	File
1	ones at school. On the other hand,	I would like also to show the proposed groun Experimental test 3 all.tx
2	obile phones into school. In this Essay,	I would like to discuss pros and cons of Experimental test 3 all.tx
3	he phone back to secondary school.	I would like to examine the reasons why it Experimental test 3 all.tx
4	people support this idea. In this essay,	I would like to discuss the argument which su Experimental test 3 all.tx
5	ome more advanced. So in this essay,	I would like to discuss about mobile phones t Experimental test 3 all.tx
6	been a topic of debates. In this essay	I would like to shed light on the advantages Experimental test 3 all.tx
7	obile phones into school? In this essay,	I would like to discuss the pros and cons Experimental test 3 all.tx
8	ct towards the students. In this essay,	I would like to discuss the arguments which s Experimental test 3 all.tx
9	backpacks and pockets. In this essay,	I would like to examine whether mobile phone Experimental test 3 all.tx
10	obile phones to school. To begin with,	I would like to talk about the advantages. The Experimental test 3 all.tx

The use of the goal announcement marker *I would like* by the experimental group in their introductions can be explained by their notice of the absence of an outline on their pretest caused by missing an important part of their introductions, which was considered an error. They considered this usage to be a solution to the error they noted in the essays they wrote for the

pretest, and they employed this marker in their introductions on the immediate and delayed posttests. Thus, they understood the benefit of employing the goal announcement marker *I would like* in the model samples.

Therefore, the experimental group modified their use of metadiscourse markers through exposure to DDL activities that involve enhanced metadiscourse markers showing salience to the target metadiscourse marker input in addition to a local-learner corpus led to better writing production. In contrast, the control group relied only on their teacher's feedback, i.e. holistic evaluation, on their writing, resulting in stable scores for their writing production (see section 5.3).

## **7.2 Effects of Data-Driven Learning Intervention on the Frequency and variety of Using Metadiscourse Markers**

The second research question examines the effects of the DDL intervention on the frequency and variety of using metadiscourse markers by B1 language learners relying on corpus-based and nonparametric analyses. This question relied on two types of data analysis: between-subject and within-subject effects. The Mann–Whitney U test was used to compare the groups in their frequency of using metadiscourse markers to determine the between-subject effects, and Friedman's ANOVA test was used to examine and track the frequency of using metadiscourse markers by each group over the three tests to determine the between-subject effects. Also, a Chi-Square test was used to cover the variety in using metadiscourse markers by the two groups over the three tests.

RQ 2. Do participants in the experimental group employ metadiscourse markers in their academic writing with the same frequency and variety as participants in the control group after the DDL intervention?

- Hypothesis 4: There are statistically significant differences between the experimental and control group participants in their frequency of using some metadiscourse markers after exposure to the DDL intervention.
- Hypothesis 5: There are statistically significant differences between the experimental and control group participants in their variety of using some metadiscourse markers after exposure to the DDL intervention

In terms of frequency, the between-subject effects on the pretest indicated no statistically significant differences between the two groups (Mann–Whitney  $U = 1182.0$ ,  $p = .253$ , two-tailed); thus, these groups have a similar frequency of using metadiscourse markers.

Nevertheless, on the immediate posttest, the results revealed that the frequency of the use of metadiscourse markers among the experimental group was significantly higher than that among the control group (Mann–Whitney  $U = 469.50$ ,  $p < .001$ , two-tailed). Similarly, the frequency of the use of metadiscourse markers among the experimental group on the delayed posttest was statistically higher than that among the control group (Mann–Whitney  $U = 640.0$ ,  $p < .001$ , two-tailed). Regarding variability, the difference in ranges between the groups on the pretest was not significant ( $X^2 [1] = .563$ ,  $p = .453$ ), suggesting that the variability in using metadiscourse markers among the groups was similar. However, on the immediate posttest, the variability among the experimental group was significantly greater than that among the control group ( $p < .002$ ). Also, on the delayed posttest, the variability in using metadiscourse markers among the experimental group was significantly higher than that among the control group ( $p < .037$ ). The findings revealed that DDL intervention affected the frequency of and variability in using metadiscourse markers among the experimental group, as their use was significantly higher than the control group not exposed to DDL. These results are consistent with Huang (2014), as his

participants exposed to DDL intervention involving both native-speaker and local-learner corpora employed more frequent and varied cohesive devices than the participants who received only input. As DDL intervention in Huang's (2014) study showed an effect on the selection of cohesive devices by the upper-intermediate level participants, the findings of the current study also demonstrated similar effects of DDL intervention on the selection of using metadiscourse markers in argumentative essays written by B1 language learners. This increase in frequency and variability in using metadiscourse markers supports Granger's (2009) suggestion of simultaneously employing the local-learner and native-language corpora in language pedagogy.

'Combined with native-language corpora as positive evidence of language use, learner corpora can be used to provide negative evidence, that is common and persistent errors.

In that way, learner corpus data used in DDL activities can increase future teachers' and learners' abilities to notice and evaluate errors' (Granger, 2009, p. 14).

Although Granger's (2009) suggestion encourages using a native-speaker corpus in addition to the local-learner corpus, my study employed *ICLE* writing samples by advanced learners as references with the local-learner corpus. The results demonstrated that the experimental group (B1 language learners exposed to advanced learners' writing as positive evidence and the local-learner corpus that involved some negative evidence) used a higher frequency of and greater variation in metadiscourse markers on their immediate and delayed posttests. This means that DDL can be implemented among lower-level language learners and increase their awareness of their use of metadiscourse markers.

Similar to RQ 1, RQ 2 was analysed considering the output hypothesis by Swain (1995, 2005), or that a learner's output can lead to increased linguistic knowledge and accuracy development. The Type 2 DDL activities were based on the local-learner corpus, as it provided

quantitative feedback to the experimental group participants about their frequent use of metadiscourse markers on the pretest. This quantitative feedback informed the participants about their overused and underused metadiscourse markers on their essays. This type of DDL activity corresponds to the first function of Swain's hypothesis, *the noticing/trigging* function, which encourages learners to notice their limitations and promotes self-monitoring, which acts as a stimulator for the subsequent input. *Noticing* focuses on the learners' linguistic problems when they produce a target language, which may prompt them to 'notice what they do not know' and 'make them aware of something they need to find out about their L2' (Swain, 1995, p. 129). This outcome is valuable for language learners who aim to develop their written performance by raising their awareness of declarative rather than procedural knowledge of a target language (Schmidt, 1990; Seidlhofer, 2002).

As the attention of the experimental group was directed to assess how to determine a solution to overusing and underusing these markers, the second function of Swain's '*testing hypothesis*' appeared. Learners are required to make changes regarding their overused and underused metadiscourse markers. 'One way of doing this is to say or write something' (Swain, 1995, p. 131). This finding was discovered while working with Type 1 and Type 2 DDL activities for the additive marker *also*, as the participants discovered through guided induction that the targeted metadiscourse markers have specific functions.

These functions can be explained by the *noticing a form* principle by Schmidt and Frota (1986) and by the *conscious noticing of the form-meaning function relationship* by Schmidt (2012). For this type of DDL activity, the target metadiscourse markers were enhanced with blue underscoring and a larger font, as this drew greater attention to the markers, ensuring the participants' conscious noticing of the form-meaning function. The enhanced target markers in

the concordances were also supported with closed- and open-ended questions to focus the participants on the functions of the target markers. The instructions relied on Flowerdew's (2009) framework of the four I's: *illustration*, *interaction*, *intervention* and *induction* (see Section 3.2.1).

Next, the participants were asked which markers they used in Test 1, and they all replied 'also'. Grammatically and semantically, the participants' use of the marker *also* is correct, yet they were unaware that they all focused on using this marker, and the other markers in the same category were rarely used. Their response was supported by a corpus-based analysis to present feedback on the frequency of their use of the marker *also*. Interestingly, most of the participants commented that they performed similarly to Ms. Mani, who used only the taxi during her journey. Thus, based on the notification of their output, they realised that they both overused and underused markers and better understood how some markers could perform the same or similar functions. This finding implies that when learners recognise their interlanguage problems, such as the overuse of the marker *also*, this recognition encourages them to discover solutions to these problems, such as examining DDL activities that provide alternatives for the marker (Izumi & Bigelow, 2000).

The third function, the metalinguistic (reflection) function, can serve in 'tasks which encourage reflection on language form while still being oriented to getting meaning across' (Swain, 1995, p. 132). This discovery was found in the Type 3 DDL activity that encouraged collaboration among the experimental group to solve linguistic problems and build their knowledge of the language. The participants were allowed to examine the use of the target markers in their essays for the pretest. In addition, they compared the pretest essays with the writing samples of the advanced-level learners. The outcome was consistent with Schmidt's (1990) hypothesis on the *noticing the gap* principle, which refers to the difference between the

language produced by the language learners and the language produced by an expert to present the same idea. Through the collaborative work on linguistic data, the participants became engaged in mental activity such that learning could take place (Swain, 2005).

- Hypothesis 6: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of frequency.
- Hypothesis 7: The DDL intervention + explicit deductive instruction affect the use of metadiscourse markers in argumentative essays written by the experimental group learners in terms of variety.

Regarding the within-subjects effects, the Friedman ANOVA test indicated a significant effect of the DDL intervention on the frequency of using metadiscourse markers among the experimental group ( $X^2 [2] = 31.690, p < .001, W = .305$ ) over the three periods (mean rank: pretest = 1.38, immediate posttest = 2.31, and delayed posttest = 2.32). The mean rank for the immediate and delayed posttests demonstrated a higher frequency of metadiscourse markers used by the experimental group. Thus, the DDL intervention significantly influenced the frequency with which language learners' used metadiscourse markers in their writing. In terms of variety, the experimental group employed 35 markers on the pretest, 48 on the immediate posttest, and 51 on the delayed posttest. Although the variety of metadiscourse markers used by the experimental group increased, the difference between ranges was not statistically significant. These findings correspond to Cotos's (2014) results, as her participants exposed to DDL intervention showed greater frequency and variety in employing the linking adverbials (cohesive devices) in their writing.



The increase of the frequency and variety in using metadiscourse markers by the experimental group in the immediate and delayed posttests suggests the awareness of genre while conducting the Type 3 DDL activity – that is, as mentioned in Section 2.4.2, the argumentative essay includes a discussion on a topic that promotes arguments for and against the topic in addition to the writer’s position of that topic (Ahmed, 2019) and aims to persuade the reader of a central proposition (Hyland, 1990). However, when the experimental group were asked to write an argumentative essay on the pretest, they focused on one argument by providing evidence and examples by omitted a counterargument. This meant that the participants missed a whole paragraph that involved many metadiscourse markers. Therefore, the first function of Swain’s output hypothesis, *the noticing/triggering function*, is manifested in the presence of Type 3 DDL activities to show a qualitative analysis about the participants’ use of metadiscourse markers. They also enabled the experimental group to compare their essays with the model samples, allowing the second principle of the noticing hypothesis, *noticing the gap*, to take place and lead them to recognise their limitations, which was omitting a whole paragraph and its metadiscourse markers (See Activities 3.5 and 3.6 in Appendix III). As a result, not only did the experimental group participants employ more explicit metadiscourse markers in their essays on the immediate and delayed posttests, but they also used non-explicit markers in their writing. One example on using explicit and non-explicit markers in this study the attitude marker *I agree*. The experimental group used this marker 13 times to express their opinions on the pretest, on the immediate posttest, the use of the attitude marker *I agree* significantly decreased among the experimental group to be 4 times and 5 times on the delayed posttest. The reason for the decrease among the experimental group on the immediate posttest is that they employed other non-explicit markers to express their attitudes, such as the following:

- *'In my opinion, this will not be enough to save all of the species of extinction if we do not make an effort and it must be individually'.*
- *'I think saving endangered animals weighs more than killing them'.*
- *'I believe that it is beneficial to help the animals so that we can learn more about them and show the younger generations how amazing the animals'.*
- *'Personally, I would definitely try my best to save animals in a way or another'.*

In addition, no significant differences were found in comparing the use of the attitude marker *I agree* on the immediate posttest with the delayed posttest. This suggests that the DDL intervention had an effect on the use of the marker *I agree* that remained until the delayed posttest. Bax et al. (2019) explained that the use of non-explicit metadiscourse markers in writing can be a sign of development, suggesting that advanced-level language learners used fewer metadiscourse markers in their writing than did lower-level language learners because 'they learn more sophisticated and subtle ways to express the organization of a text without heavily depending on explicit markers' (p. 89). However, the findings of this study pose an additional explanation, as variety in employing metadiscourse markers can lead to a decrease in the frequent use of a marker. For example, the contrastive metadiscourse marker '*but*' was employed 16 times by the experimental group participants on the pretest. After the intervention, the frequency of this marker decreased to 15 on the immediate posttest and 10 on the delayed posttest. However, the decreased frequency of this marker resulted in an increased frequency of other markers in the same category, such as '*yet*', '*however*' and '*nevertheless*'.

- Hypothesis 8: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of frequency.
- Hypothesis 9: The explicit deductive instruction does not affect the use of metadiscourse markers in argumentative essays written by the control group learners in terms of variety.

With respect to the frequency of using metadiscourse markers among the control group, the Friedman ANOVA test indicated statistically significant differences across the tests ( $X^2 [2], [n = 52] = 10.609, p < .005, W = .102$ ) over the three periods (mean rank: pretest = 2.13, immediate posttest = 1.71, and delayed posttest = 2.16). The frequency of using metadiscourse markers on the immediate posttest decreased significantly from the pretest and then increased significantly on the delayed posttest. In terms of variety, the control group employed 29 markers on the pretest, 22 on the immediate posttest, and 32 on the delayed posttest. Despite the differences in variety over the three tests, the differences in range were not statistically significant. The control group's use on the pretest and delayed posttest were similar but lower on the immediate posttest, implying that their frequency and variety in using markers was stable from the first week of the experiment to the last week. One possible reason for this result is that the control group focused on the topic content more than on using metadiscourse markers while writing their essays under test conditions, as they needed to use reasons and examples to support their main ideas and thus missed some metadiscourse markers. Figure 7.9 presents a writing sample from a control group participant on the immediate posttest.

**Figure 7.9** Writing Sample by a Control Group Participant on the Immediate Posttest

Animals are also part of this planet yet they have also the right to live and experience existence. Aside from they are created by god, animals also have crucial responsibility to this planet. Hence, I am agree with the statement regarding to the preventive actions towards combating extinction.

Why is it important to start some action for us to avoid and stop animal extinction?

First, animals Is vital in the ecosystem. They are responsible in maintaining the cycle of energy in the surroundings. Together with humans, animals are also included in oxygen and carbon dioxide exchange.

Second, animals are good companion. We cant deny the fact that animals bring us genuine happiness in wic helps us in lessening our stress.

Third, for their exquisite service. Animals have also responsibility regarding to their services. Especially in agricultural purposes, they are being utilized in plowing and harrowing the field as well as transportation.

Now, think of it; what will happen into us if they are disappeared? I assure you that sadness, hardships, and unhealthy environment will occur. We are created as partners; animals needs us and so we need them too.

Before its too late, may we all reminded that today is the time in saving them against animal extinction.

Based on Figure 7.9, the participant used the highlighted question to provide reasons for saving animals from extinction, and these reasons were listed. The counter-argument and conclusion were missing, causing missing metadiscourse markers from these parts of the argumentative essay.

**Figure 7. 10** Sample Writing of Another Control Group Participant on the Immediate Posttest

animal extinction has been always a big issue in our country and even from other countries, is everyone willing to solve this or we will fast allow that they will vanish? Do we even know what they mean in our environment, in our lives?

Here in the Philippines there are a lot of laws that are powered to protect these animals that are extinct, of course to save them from disappearing just like our very own Philippine eagle, and tamaraw. and they also protect them by putting them in a safe place and can be their habitat, and they cultivate them so that their species can still increase. With this I agree that we should do everything to save the animals that are facing the dangers of disappearing. I will use the eagle and the tamaraw again as an example, these animals are using important in our country because this has been one of our trademark, and it will be a heartache to us if even there will be not even one of this animal species. So since the government took the first step to save them we citizens should also take our part, simply by not hunting them, and not destroying their own habitat. If we all do this the future generation can also see these animals not just animated on pictures but in tree life.

animals can never be left out in our environment, they are very important in our lives. So we should help to save them, not hunt or kill them.

According to the above figure, the main focus of this essay was using the examples and explaining them rather than discussing the two viewpoints of an argumentative essay.

In addition, the participants used specific metadiscourse markers more than others. For example, the marker *but* was the most frequently used marker by the control group in the contrast category over the three tests, as they did not employ other markers, such as *yet*, in the same category. Table 6.26 compared the pretest with the immediate posttest regarding the frequency of using metadiscourse markers by the control group, with significant differences found in only three markers in three categories. Similarly, Table 6.27 compared the metadiscourse markers used on the immediate posttest with those on the delayed posttest, finding

significant differences in five markers in three categories. Table 6.28 compared the pretest with the delayed posttest, which involved significant differences in four markers in two categories. This outcome suggests that the frequency of using metadiscourse markers by the control group remained similar through the three tests, as very few markers demonstrated significant differences in frequency.

Their limited use of specific markers compared with others may be related to factors that influence the use of metadiscourse markers by language learners (as discussed in Section 2.3.4). Their usage could be related to the textbooks used in the language schools where the control group were enrolled. Hyland (2005) argued that the textbooks designed for busy teachers might lead teachers to focus only on metadiscourse markers mentioned in these books while assuming that other metadiscourse markers were not important. Regarding this study, the markers *may* and *might* were the most frequently used markers in the hedge category over the three tests, whereas the adjective marker *probably* was absent. This result corresponds with Hyland's (1994) study examining 22 textbooks designed for language learners of different levels. Hyland found that the hedging devices were inadequately presented in these textbooks. For example, modal verbs, such as *will*, *would*, *may*, and *might*, were the most commonly employed devices in these textbooks, whereas modal adjectives, such as *possibly*, were not used.

Similar to the discussion on within-subject effects of the experimental group that tracked the participants' progress, within-subject effects must be discussed regarding the control group. Some may argue that while working with material that is effectively 'auto-input' (Schmidt & Frota, 1986), such as textbooks, learners may repeat their errors unintentionally (Seidlhofer, 2002) because 'they often feel that their errors are not really errors' (R. Ellis, 1994, p. 129). This argument explains why some errors learners make are persistent even though they received good

input. Concerning the additive metadiscourse marker *also*, the participants in the control group understood its function. They exhibited correct grammatical and semantical use of this marker in their sentences, as the experimental group participant did in the pretest stage, but they had no idea that they overused this marker compared with the other markers in the same category. The findings of this research thus concur with the view that ‘the academic writing classroom is the locus of a number of studies, where the use of the corpus data is intended to raise the learners’ awareness of the academic writing conventions relevant to their discipline’ (Chambers, 2015, p. 457), and emphasise the importance of the learner corpus data (Cotos, 2014; Granger, 2009; Larsen-Walker, 2017; Smart, 2014; Vyatkina, 2016).

### **7.3 Evaluation of Data-Driven Learning**

The third and final research question considered the participants’ views regarding their experience with DDL. This was done by collecting quantitative data from the questionnaire that examined their attitudes and qualitative data that involve their replies in the interviews. Samples of their conversations were inserted throughout the discussion and referenced utilising the same approach as in table 6.38. The combination of quantitative and qualitative data aims to support the findings of research questions 1 and 2.

#### **3.7.1 Feedback from the questionnaire**

As mentioned in Section 6.3.3, the three aspects of the questionnaire that examined the experimental group’s attitudes regarding their experience with DDL are: effect of DDL intervention on their use of metadiscourse markers, its effect on their writing performance, and the difficulties that they faced while working with DDL activities. The questionnaire results revealed that most of the experimental group learners had a positive response to DDL on learning metadiscourse markers in their writing performance, and few of them showed that they had some

difficulties. Experimental group learners rated *concordance lines* favorably as a beneficial resource for learning the appropriate use of metadiscourse markers in their writing, which might suggest that noticing a targeted marker in concordancing lines raised their awareness of its importance and utility in writing. This corresponds Huang's (2014) findings as her students showed positive evaluation for concordancing lines on learning vocabulary in their writing. However, few students in Huang's study reported that they faced some difficulties in formulating the rules. Therefore, she recommended that providing guidance would be helpful for language learners when they struggle in analyzing the concordancing lines. Her recommendation matches with Flowerdew's (2009) view that emphasises on the teacher's intervention in data driven learning. This explains the vital role of the guided induction, particularly, with lower level language learners that encourages them to discover the target language rules under the supervision of their teachers through the four steps in Flowerdew's (2009) outline discussed in section 2.5.8.

The questionnaire revealed quantitative results regarding the learner's attitudes toward DDL, and interviewing some of them would provide qualitative data that aim to provide more explanations and details for their responses in the questionnaire. These data worked hand in hand to discuss the learners' evaluation regarding DDL which will be discussed in the coming section.

### **3.7.2 Feedback from Interviews**

There are five themes of investigation regarding the participants' feedback based on their experience with DDL. The first theme examines the difficulties that faced the participants while working with DDL. This theme can be related to the third aspect of the questionnaire. As mentioned previously, in Sections 2.2.2 and 2.2.3, previous research discussed the obstacles that may impede the implementation of DDL in a language classroom from the perspective of



language teachers and researchers. This study, therefore, aims to view the difficulties of DDL from the perspective of B1 language learners who experienced DDL. The second theme considers the benefits that B1 language learners found in DDL regarding the appropriate use of metadiscourse markers, which can be related to the first and second aspects of the questionnaire. The third and fourth themes focus on the attractive and interesting parts of DDL to get more details about the participants' evaluation and preferences regarding the three types of DDL activities that were utilized in the study. Similar to the first theme, the second, third and fourth themes aim to investigate the specifications of DDL from the perspective of B1 language learners. The fifth and last theme encourages the participants to conceive their recommendations for future DDL research.

### **Difficulties of DDL**

One of the justifications for interviewing the participants in this research was to investigate the issues that emerged during their experience with DDL. It was first necessary to examine the participants' background ideas about DDL to provide a starting point for the interviews to obtain more details about their views before and after their exposure to DDL intervention. When the participants were asked about their previous ideas about DDL, they all stated that they have no idea about DDL before they participate in the study. When the participants were asked about the difficulties that they faced during the DDL intervention, most of the participants reported that they did not face any difficulties as they consider the DDL activities "*clear and easy*" (T9, 6); and "*the activities were clear, short and informative*" (T13, 6). This corresponds with the learners' attitudes in the third aspect of the questionnaire as most of their responses revealed that they did not have any problems while working with DDL. This suggests that the DDL approach was successfully applied to B1 language learners and, therefore,

can suit them. However, two participants reported that they found a difficulty in DDL activities types 1 that involve concordance lines as the comments below:

At the beginning, I faced difficulties when I heard “concordance lines” for the first time. I was thinking how can I learn from these lines? it is not like the lessons that we know in our classes. (T8, 8)

Yes, In the first activity, I found it a little bit challenging to understand the principle of DDL exercises, and how we can form a rule based on the concordance lines. Yet, the guiding questions and the hints were helpful, it comes easy for me to understand the metadiscourse markers and compare between the sentences. (T11, 6)

These two comments show that the explicit inductive instruction, that asks language learners to focus on particular forms of language and ‘try to arrive at metalinguistic generalizations on their own’ (Fordyce, 2011, p. 42), might be difficult for B1 language learners who were not experienced with this type of instruction as interviewee 8 compared the concordance lines with the lessons that she used to attend. Since the concordance lines in DDL activities type 1 encourage them to investigate these lines and infer the function of the target metadiscourse markers, some language learners may struggle in discovering these functions, which corresponds Smart’s (2014) view stating that the inductive autonomous approach might be difficult for language learners with lower proficiency. Yet, interviewees 8 and 11 stated that the difficulty was only at the initial stages of DDL activities because the guiding questions, which are a part of the guided induction, facilitated inferencing the functions of the target markers. This confirms the beneficial role of the guided induction and the feasibility of implementing the DDL intervention among B1 language learners. Another participant noted that the difficulty was not

with DDL activities as it was in employing some metadiscourse markers in the correct position of a sentence as the comment below:

Yes, but only at the beginning. I don't know where to put some of the metadiscourse markers in sentences. (T14, 6)

This participant, through DDL activity type 1 that utilises concordance lines, noticed that some metadiscourse markers, such as “also” in activity 1.4, can be employed in more than one position while writing a sentence which may cause an issue for him as this employment should not be done randomly. This comment goes a long with the reaction of interviewee 11 to the same issue providing more information as she stated:

I learnt new metadiscourse markers and where position (beginning or middle of the sentence), changing their places because some markers can be used in the beginning and middle of the sentence. If you ask me before DDL to change the marker position, I would do it randomly, but now it is clear to me. DDL exercises increased my confidence in using the metadiscourse markers in English writing. (T11, 8)

The above comment indicates that the insertion of a metadiscourse marker, as “also”, in a sentence requires the learner's recognition of the verb type, either as main verbs or helping verbs, to insert the marker correctly in a sentence (see activity 1.4). The errors with the correct insertion that cause a linguistic problem for some participants can be related to the textbooks. This can be related with the results of a study by Leedham and Cai (2013) on Chinese learners' writing, they found that the participants preferred initiating their sentences with connectors as “English language reference books in China present linking adverbials in sentence-initial position” (p. 16). Other comments such as “I tend to forget the rules sometimes” (T6, 6) indicate difficulty in remembering the rules in which the concordance lines were presented in DDL activities type 1.

However, it appears from the rest of the comments in (T11, 8) that the DDL activities provided the opportunity for the learners' cognitive skills that were mentioned by O'Sullivan (2007), in Section 2.2, as observing, noticing, exploring, and differentiating and making inferences to take place.

In addition to examining the difficulties that faced the participants while working with DDL, it was, also, important to check whether any other issues appeared during the experiment. This is to view the issues that might, indirectly, influence the implementation of DDL. Two participants reported that time management and the internet connection were their concerns as the DDL intervention was provided virtually (T5, 6; T4, 6). These issues can be considered as technical problems which will not occur if the same DDL intervention, that was implemented in this study, is carried out in person in a real classroom.

### **Benefits Obtained from DDL**

Moving to the second theme focuses on the benefits that participants found in DDL. One of the questions posed was whether they learned something new from their experience in DDL. The participants' views regarding the benefits of DDL can be classified into two categories: learning the appropriate use of metadiscourse markers in writing and raising their awareness about the idea of overused and underused metadiscourse markers. These two categories can be linked with the first and the second aspects of the questionnaire, thus it would be better if DDL benefits are viewed from learners' perspectives. The appropriate use of metadiscourse markers was the first benefit as the participants used the phrase "use every marker correctly" (T13, 8). The word "correctly" was, also, mentioned by three participants (T1, 10; T10, 10; T12, 11) confirming the positive effect of DDL on their use of metadiscourse markers. One participant stated:

I knew these markers before, but I was using some of them incorrectly. After DDL, I managed to use them correctly. Also, Reem, I didn't expect that these markers can join paragraphs! The marker "however" and "nevertheless" for example, I thought that they can link only two sentences, but after DDL I realized that they can link paragraphs. (T12, 16)

The previous comment shows the participant's comparison between her previous idea about the functions of specific metadiscourse markers and the change that occurred in her view about the same metadiscourse after exposure to DDL. Her previous thought that metadiscourse markers can only join sentences can be explained as a result of the examples that she used to see in the textbooks or provided by the teachers in a language classroom which corresponds with Burneikaitė's (2008) factors that influence the use of metadiscourse markers by language learners. The examples that were mentioned by the participant regarding the markers *however* and *nevertheless* as they join paragraphs to show contrastive arguments can illustrate her realization of the metadiscourse marker's function and the development of the experimental group progress in writing their argumentative essays for the immediate and delayed post-tests.

Similarly, another participant compared the examples that were provided in the daily class she used to attend and the three types of DDL activities:

I saw the metadiscourse markers in concordance lines I mean sentences, then I saw them in paragraphs and I saw them in a full complete essay. in our normal class I see the examples in sentences only. (T1, 16)

Her comparison shows her preference for the three types of DDL activities as the examples that were in the daily class she attends were presented in only sentences and lacked larger contexts. In contrast, the DDL activities provided the opportunity for her to see the

employment of metadiscourse markers in sentences and larger contexts such as paragraphs and essays.

The above two views correspond with the findings by Cotos (2014) as her interviewee assumed that the linking adverbials and cohesive devices are used for short sentences, correct tenses, and repetition of the main points. This assumption can be explained by the textbook presentations in which the learners do not have the opportunity to see the target devices in context, as they only see them in sentences. Moreover, she stated in the post-test that they became aware and confident concerning linking adverbials because they realised the importance of these devices in academic prose.

Interviewee 4 related the story of Ms Cani and Ms Mani as a better understanding of the proper use of metadiscourse markers. She commented:

I can say that metadiscourse markers are like the Google Maps that you showed us when explained the story of Ms Cani and Ms Mani. When Ms Cani used Google Maps, everything was clear for her, and I want to be clear to my reader and guide him or her for my writing. (T4, 13)

This interviewee used the story of Ms Cani to express the importance and necessity of employing metadiscourse markers because they can guide the reader. This comment agrees with the second principle of metadiscourse provided by Hyland and Tse (2004) which considers the writer-reader interaction in writing. Since efficient writers develop an awareness of the audience and employ that awareness in the way of writing a text (Thompson, 2001), 'metadiscourse allows writers to address their audience and engage them in developing dialogue' (Intaraprawat & Steffensen, 1995, p. 254). Interviewee 4 focused on the reader by considering which insight should be explained or supported while writing an essay. Through employing the proper use of

metadiscourse markers in writing, it enables the participant to address the reader and guide him in developing writing. The computer tools in corpus-based analysis for compiling and collaboratively analysing a written learner corpus are built on Swain's (1995, 2005) output hypothesis. The importance of 'learning of output could be that output pushes learners to process language more deeply with more mental effort than does the input. With output, ... the learners can play more active responsible roles in their learning' (Swain, 1995, p. 126).

As mentioned previously in Section 3.2, the story of Ms Cani and Ms Mani aims to prepare language learners for the idea of overused and underused markers. The participants' responses showed that this aim is successfully achieved as some participants stated the words "overused", "underused" and "repeat" (T5, 10; T7,12; T 9,10) which can be considered as the second benefit of DDL as in the comments below:

The story of the two ladies: Ms Cani and Ms Mani, I understand the idea of overused markers and underused markers from the way they use transport. When you showed us the AntConc software, I realized that we did like Ms Mani and we did not know that. (T5, 10)

I don't repeat the same marker, I can use different markers that can have the same function. (T1, 12)

The above views reflect the participants' awareness regarding their frequent use of metadiscourse markers after exposure to DDL. This awareness can explain the variety in metadiscourse markers that were used in the immediate post-test and the delayed post-test by the experimental group participants in RQ2. These results confirm the efficiency of the DDL activities type 2 that enabled the participants to examine their frequent use of metadiscourse markers of the essays that they wrote in the pretest. It is inconsistent with Cotos (2014) who

emphasizes the importance of the local learner corpus as it can uncover the problematic areas in the learners' production and enable learners to notice and evaluate their errors.

### **Attractive Parts in DDL**

Turning to the third theme that examines the participants' views regarding the DDL activities that attracted their attention. About half of the participants reported that the DDL activities, particularly, type 3 have that attraction while others commented on activity type 1 and the story of Ms Cani and Ms Mani. DDL activities type 3, which have the most attraction, enabled the participants to examine and analyse their use of the targeted metadiscourse markers in the essays they wrote in the pretest which led them to focus on their problem areas in using their markers. Also, they had the opportunity to examine and analyse the use of the targeted metadiscourse markers in the model sample essays that were written by advanced learners. Lastly, these activities encouraged them to compare their use of metadiscourse markers in their written production with the model samples. Examples of their responses are presented below:

When we analysed our writings and compared them with the examples, these activities are important for me because I learned the benefits of metadiscourse markers in each part of an essay. I can see all these rules we discovered in concordance in these activities, and the other activities improve the quality of my English writing, the paragraphs are now more organized. (T11, 18)

When we compare our writings with the models, this gave me a clear clue about the elements that I need in writing argumentative essays. I noticed that my introduction in test 1 was too general and after DDL I realized that I need to think about the goal announcement that is like the google map for my reader. (T13, 12)



The above comments indicate the participants' views regarding the attraction of DDL activities type 3 by providing reasons. Interviewee 11 illustrated that through analysis and comparison between their writings with the model samples, he noticed his errors in employing metadiscourse markers and realized the beneficial role of these markers in writing a whole essay which, consequently, enabled him to write organised paragraphs in future. Similarly, interviewee 13 has the same view as interviewee 11 regarding DDL activities type 3, and she provided an example by specifying a problematic area in her writing which is missing the goal announcement in her introduction. Therefore, through DDL activities type 3, the comparison between her writing and the model samples enabled her to discover the profits of the goal announcement category markers in writing an introduction.

These views correspond with the three functions of Swain's output hypothesis. The guiding questions and discussion, which enabled the participants to analyse the essays they wrote in the pretest, acted as external feedback as they shed light on the participants' errors in using metadiscourse markers. This step, which can be considered as the noticing/triggering function of Swain's hypothesis, confirmed Uggen's (2012) view suggesting that the learners' attention to their limitations in interlanguage stimulates them to find a solution which can refer to the hypothesis testing function. Thus, by comparing their work with model samples, the participants through DDL activities type 3, are fostered to build their knowledge about metadiscourse markers and learn in a heightened awareness of problemat�icity' (Hanaoka & Izumi, 2012, p. 335) which can reflect the metalinguistic function.

In addition, some participants reported that DDL activities type 1 attracted their attention as interviewee 8 stated:

The concordance lines, I realized that I don't have to fix myself on specific markers.

There are other markers and they can have the same job. (T8, 16-18)

This participant explains the reason for considering concordance lines as the most attractive part of DDL. This type of DDL activity utilizes the concordance lines in addition to the guiding questions to encourage the participants to infer the function of the targeted metadiscourse markers. Since this inference attracted the interviewee's attention, she became aware that the variety in using metadiscourse markers would be better than restricting herself to using specific markers. This finding agrees with the first principle of the noticing hypothesis, as the learners' interlanguage competence develops when they notice how a particular form of language is used in the input (Schmidt & Frota, 1986) and notice the form-meaning-function relationship (Schmidt, 2012). This can be linked to the results of RQ 2 and explain the statistically significant differences between the experimental and control group learners in their variety of using some metadiscourse markers in the immediate and delayed posttests.

The above discussion indicated the most attractive DDL activities from the participants' points of view. Interestingly, interviewee 9 reported that the story of Ms Cani and Ms Mani attracted her attention, although this story does not involve any type of DDL activity:

The example of MS. Cani and MS. Mani was perfect for fully understanding the purpose of the study. This is the most important part for me, the two ladies are just like an example that I always remember when I want to write. I need to think about the reader and how to guide him. (T9, 12)

The statement above demonstrates the influence of the story on the participant's view which led her to consider her reader while writing, which shows the writer-reader interaction.

### Interesting Part of DDL Activities

The previous theme focused on the attractive part of DDL activities; the fourth theme sheds light on the interesting part of DDL activities. Some interviewees mentioned that all the DDL activities were interesting (T10, 18; T7, 18; T14, 14), while others reported a specific type of DDL activity to be the most interesting DDL activity, such as (T12, 20) for DDL activities type 1; (T6, 14) for DDL activities type 2; and (T8, 20) for DDL activities type 3. About half of the interviewees reported that the DDL activities type 1 are the most interesting part. One interviewee stated:

The first activities (concordance lines) are very interesting because they don't give us the rule of using the markers, instead, we got to it by examining the examples. This method helped us to make and memorize the rules. (T12, 20)

The interviewee in the above comment compared the explicit deduction strategy, which begins with rules followed by examples, and the explicit induction strategy, which provides examples and encourages the learners to find the rule. This comparison shows that the interviewee thought the type 1 DDL activities, which involved working with concordance lines and relying on explicit induction, were the most interesting part of DDL. The interviewee provided a reason for considering rule discovery the most interesting part of DDL activities because it led to better memory. Therefore, as she remembers the discovered rules better, this confirms the long-term benefits of DDL activity type 1. In addition to the positive effect of DDL type 1 on the participant's cognitive skills as a result of memorizing the discovered rules, it has another positive effect on the participants' emotional state, as shown in the following comments:

I feel happy when I look at the lines, read the guiding questions and have some discussion to find the rule. I feel so happy if I discover the rule. (T1, 22)

The concordance lines. It is like a puzzle, we read, think to find the answer. (T2, 16)

The activity that with concordance lines was my favourite type, I enjoyed finding the rule. (T13, 15)

The interviewees' comments indicate that the guided induction, which encouraged the participants' cognitive skills to find the rules (i.e., the functions of metadiscourse markers) and become active learners instead of passive learners, reinforced their findings and resulted in satisfaction with their views. Furthermore, it appears that dealing with the concordance lines to discover a rule and reach a generalisation is a source of benefits because these lines piqued their interest in discovering the rules rather than receiving the rules.

While I expected that the DDL activity type 2 would attract the participants' attention as this type of activity provides feedback to the learners from a researcher's perspective, one interviewee stated that this type of activity was the most interesting part of his DDL experience as he reported:

The evaluation of our works in numbers with AntConc software. I learn from my mistakes. (T6, 14)

This interviewee enjoyed the quantitative feedback of the corpus-based analysis that was provided to the experimental group participants to examine the essays they wrote in the pretest. It appears from the phrase "*learn from my mistakes*" that he explains the reason why this type of activity is interesting, as understanding the idea of overused and underused metadiscourse markers in writing enabled him to learn from his mistakes.

Some participants thought that the type 3 DDL activities were the most interesting. As mentioned in Section 3.2.1, type 3 activities allowed participants to analyse and compare their written production and model samples. The following comments are samples of the participants'

views:

The activity that discussed the introductions. The introduction is like the map. (T5, 14)

When we analyzed our introductions from test 1 while using the metadiscourse markers is a good idea to correct our mistakes. I like the way that we analysed our writings without seeing our names. I was so happy that there was a discussion of my writing but I didn't feel shy, we were focusing on the use of metadiscourse markers not on names. (T9, 14)

The above comments show that interviewees 5 and 9 considered DDL activity type 3, particularly 3.1 and 3.2, to be the most interesting part of DDL. The emphasis in these activities is on the introduction, as interviewee 5 focused on the essential role of the introduction by resembling a *map*. This view can be related to the influence of the story of Ms Cani and Ms Mani, as it aims to present the idea of how the metadiscourse markers function to B1 language learners. The introductions that were written by the experimental group participants in the immediate post-test and the delayed post-test demonstrated different uses of metadiscourse markers, and the goal announcement markers were the most salient ones. This can illustrate why these participants viewed DDL activities 3.1 and 3.2 as the most interesting parts (see Section 7.1).

In addition, when interviewee 9 included the phrase "*I didn't feel shy*" in the above comment, this suggests that negative emotions such as being embarrassed would appear among language learners while analysing their written production that exposes their names to the other learners. Some students may be distracted from analysing their writing and instead focus on the names, as they may not want other students to know their linguistic limitations. Thus, negative passions can form an obstacle that impedes a learner from enjoying the activity. Since the

participants' written essays were anonymously examined, analysed, and discussed in DDL activity type 3, the negative emotion of embarrassment was removed. This resulted in relief, and the interviewee has more interest in the objective analysis and discussions regarding the participants' written essays.

By observing the participants' views in the third and fourth categories, it was noticed that the concept of *concordance lines* frequently appeared in the participants' responses. One possible explanation for the appearance of this concept in the participants' views in these two categories is the limited number of concordance lines in the previously prepared DDL activity type 1. The limited number of concordance lines would make it easier for participants, who are B1 language learners, to examine, analyse, and infer the functions of targeted metadiscourse markers than the large number of concordance lines that would normally appear in a corpus software. The integration of the limited number of concordance lines with Flowerdew's *4I* steps of guided induction contributed to the successful conduct of explicit induction. Also, the previously prepared materials that are carefully selected mean that these materials should involve only correct model samples, as the corpus software will not inform the researcher or the language teacher about the errors that might appear in the model samples. Thus, as most of the participants were satisfied with working with concordance lines in DDL activity type 1, which relies on explicit induction, it can be concluded that B1 language learners can learn through the DDL approach. This result confirms Boulton's (2010) recommendation that prepared paper-based DDL materials can work successfully with B1 language learners and those unfamiliar with concordance software.

### **Learners' Recommendations for Future DDL Research**

A portion of the interview questions was designed to explore the participants'

recommendations for future DDL research. When they were asked about their recommendations, their replies revolved around two areas: designing more DDL activities for other metadiscourse markers (T2, 21; T6, 18; T9, 18) or grammar (T8, 26), and relating language tests with DDL activities (T10, 26; T11, 30). These different replies may stem from the participants' needs, interests, and motivations.

In terms of the first area, the participants' recommendations regarding metadiscourse markers involved either suggesting more DDL activities for a specific metadiscourse marker or metadiscourse markers that were not covered in the DDL activities that were used in this research. Examples of the participants' responses are presented below:

My favourite markers are firstly, secondly, and lastly. It makes my thoughts more organized. I considered it my recommendation for future DDL intervention research.

Markers provide more systematic writing that is well organised and easy to get the points that you want to convey. (T2, 21)

The rest of the markers that you talked about in Hyland's book. (T7, 22)

Notwithstanding, I hope to see it in the real essay as you showed us with other markers. (T13, 19)

Not meta-discourse markers, I recommend considering conditional if in the future. (T8, 26)

According to the comments above, it seems that interviewee 2 prefers sequencing category markers as firstly, secondly, and lastly. According to her explanation, the appropriate use of these markers in writing would result in organised work. Therefore, she suggested designing more DDL activities, particularly in the sequencing category, as language learners may vary their use of sequencing markers instead of relying on specific markers. Similarly,

interviewee 7 recommended including a broader range of metadiscourse markers for DDL activities by considering the rest of Hyland's (2005) list of metadiscourse markers. These comments suggest that interviewees recognised the role of metadiscourse markers in writing, as learning how to use metadiscourse markers appropriately resulted in a noticeable improvement in their written production, which prompted them to learn more about other metadiscourse markers. However, interviewees 13 and 8 overtly specified their recommendations, with interviewee 13 naming a specific marker "*notwithstanding*" as a recommendation, and interviewee 8 focusing on the conditional "if". These recommendations may be relevant to the interviewees' needs as they may be aware of their errors in implementing what they recommend in their writing, and they seek DDL activities that cover their specific recommendations and can solve their errors. This demonstrates the impact of DDL activities because they allow participants to examine, analyse, and compare their output with model samples.

Regarding the second area of the participants' recommendations, which relates to language testing with DDL, interviewee 10 proposed using quizzes to incorporate them with the DDL approach, as presented below:

Reem: Any comments about DDL?

Interviewee 10: I suggest supporting DDL activities with quizzes.

Reem: Why do you recommend that?

Interviewee 10: "The DDL activities are short, and the quizzes are short ... um, we can check our progress with these quizzes. (T10, 25-28)

Interviewee 10 explained her recommendation for including quizzes with DDL activities since the achievement test scores in these quizzes reflect the learners' performance. As DDL activity types 2 and 3 provided quantitative and qualitative analysis for the participants' written



production, the quiz results can trace the learners' progress. This comment indicates that the DDL approach would be improved if the learners' written production was examined from multiple perspectives, as it would result in DDL activities and test scores working in tandem to achieve learning.

Overall, the findings from the interviews and the questionnaire revealed that the majority of the participants have a positive response to DDL intervention in inferring the functions of metadiscourse markers, which enabled them to learn how to use metadiscourse markers appropriately. While few participants may struggle to work DDL activity type 1 to infer the function of the targeted metadiscourse markers, they stated that the difficulties were only at the beginning of the experiments which explains how the guided induction under the teacher's supervision facilitated the implementation of DDL activities successfully. Through the successful completion of DDL activities, its positive effect was noticed in the experimental group participants' performance and the appropriate use of metadiscourse markers in the immediate and delayed posttest.

### **Chapter Summary**

This chapter discusses and explains the quantitative and qualitative results in Chapter 6 by relating them to the previous research on DDL and metadiscourse markers and theories of SLA discussed in the literature review. The development in the writing performance of the experimental group explains the feasibility of the prepared paper-based DDL activities for B1 language learners. This chapter also considers the effects of the DDL activities on the frequency of using metadiscourse markers over the three tests by the experimental group and compares their use with that of the control group. The positive effect of the DDL intervention on the writing performance of the language learners led to their general satisfaction. The next chapter is

the conclusion, which summarises the study's main findings and discusses the implications for future research.

## **Chapter 8 Conclusion**

### **8.0 Introduction**

This thesis examines the effects of the DDL intervention on the written performance and frequency of using metadiscourse markers for B1 language learners. After introducing the topic and discussing the research problems in Chapter 1, Chapter 2 presents a detailed illustration of the DDL approach and the previous research. It provides a detailed literature review on metadiscourse markers and their significance and function in academic writing by focusing on the importance of metadiscourse markers in language pedagogy. The chapter discusses the academic writing and its relationship to argumentative essay writing. Moreover, it focuses the noticing hypothesis and its principles and its relationship to the output hypothesis and its functions, which were considered in designing the DDL activities. Chapter 3 describes the research design, instruments and data collection methods. Chapter 4 provides the data collection procedures for the pilot study, and Chapter 5 explains the compulsory changes in the data collection procedures for the main study due to the global pandemic. Chapter 6 presents the quantitative and qualitative findings for the experimental and control groups. Chapter 7 discusses these findings in detail by relating them to the previous studies and key theories in Chapter 2. The final chapter briefly summarises the research, clarifies some theoretical and pedagogical implications, and provides recommendations for future research.

### **8.1 Brief Summary of the Study**

The literature review on DDL studies demonstrated that DDL intervention positively affects language learning. However, most DDL studies have been conducted on language learners with advanced English, and most DDL resources in these studies have relied on native-speaker corpora. This point raises the question of the possibility of implementing the DDL

intervention on intermediate-level language learners. The two key theories in this thesis are the output and noticing hypotheses. Both hypotheses emphasise the importance of raising the learners' awareness by drawing their attention to their linguistic limitations and input to solve the interlanguage gaps. The principles of these hypotheses were considered when designing the activities for the DDL intervention. The literature suggests that the DDL intervention that relies on native-speaker corpora for input for language learners is important; however, the present research relied on incorporating *ICLE*, which is a corpus that involves writing samples written by advanced-level learners, with local-learner corpora as resources for DDL intervention.

Moreover, the literature discusses the traditional teaching approaches for language instruction (explicit induction, explicit deduction, implicit induction, and implicit deduction) by considering their principles and effects on language learners and comparing the approaches. As Fordyce (2014) notes that language teachers can adopt any kind of the explicit/implicit continuum for target form-function-mapping teaching, and Lee & Lin (2019) recommend integrating DDL with traditional teaching approaches to achieve its full effect. The present research therefore examined the effect of DDL integrated with the explicit deductive instruction on the use of metadiscourse markers in argumentative essay writing among B1 language learners. This was done by adopting a quasi-experimental research design through having an experimental group exposed to DDL intervention in addition to explicit deductive instruction and a control group exposed to only the explicit deductive instruction. The findings demonstrated that B1 language learners can work with DDL to infer the function of targeted metadiscourse markers through the guided induction that facilitated the inference. This supports the first principle of the noticing hypothesis, *noticing a form*, as it predicts that language learner's

interlanguage competence develops if they notice how specific forms are used (Schmidt & Frota, 1986).

There were three research questions to examine the effect of DDL intervention on B1 language learners argumentative essay writing. The first question considered the learners' test scores to examine their writing performance on the three tests before and after the intervention, relying on parametric test analysis. Comparing the argumentative essay writing tests over three periods for the experimental group exposed to DDL intervention and the control group, the between-group effect showed that the experimental group scored statistically higher than the control group on the immediate and the delayed posttests. In addition, the within-subjects effect did not show statistically significant differences among either group, but the experimental group's performance was better than the control group. These findings confirm the positive effect of DDL intervention in improving the performance of B1 language learners' in writing argumentative essays. The improvement among the experimental group's performance was explained considering the output hypothesis first function, *noticing/triggering*, which notified the learners about their errors in the Type 3 DDL activity and enabled them to *notice the gap*, which is the second principle of the noticing hypothesis, by comparing their use of metadiscourse markers in context with the model samples.

The second question examined the effect of DDL intervention on the use of metadiscourse markers among B1 language learners in terms of frequency and variety using corpus-based analysis in addition to non-parametric test analysis. The quantitative analysis data revealed that the frequency of using metadiscourse markers among the experimental group changed more than it did among the control group over the three periods. After the DDL intervention, the experimental group demonstrated variety in using metadiscourse markers in all

categories whereas the control group continued using the same markers for all three tests. This research question supports Granger's (2009) suggestion for incorporating a reference corpus with the local-learner corpus to raise the learners' awareness about the target language through comparison. The quantitative analysis provided for the experimental group in the Type 2 DDL activity showed powerful support for the output hypothesis, as raising the learners' consciousness to their limitations led them to find solutions for these limitations that resulted in greater frequency and variety in using metadiscourse markers on their immediate and delayed posttests.

Regarding the third question, the experimental group appreciated their experience with the DDL intervention because the local-learner corpus and the model samples attracted their attention to their linguistic limitations. Through DDL intervention, the experimental group had the opportunity to receive both quantitative and qualitative feedback, which resulted in a noticeable improvement in their writing quality on the immediate and delayed posttests. This produced satisfaction among the experimental group, as expressed in the questionnaires and interviews. Despite some participants of the experimental group commenting that they encountered issues while working with DDL, they noted that these issues were only at the beginning, as the guided induction facilitated the implementation of all DDL activities. The inference they discover during DDL implementation is evidence of its successful implementation for B1 language learners.

## **8.2 Theoretical and Pedagogical Implications**

This section explores how the study results contribute to the theories and pedagogical practices by implementing the DDL intervention for B1 language learners. The output hypothesis assumes that the learners' awareness of their linguistic limitations prompts them to modify their

productive language to be comprehensible by others (Swain, 2005). These limitations can be considered mistakes because ‘non-systematic and temporary, often slips of the pen or tongue considered performance phenomenon. They are often recognized by the learner, either instantly or in retrospect’ (Callies, 2015, p. 41). The noticing hypothesis also considers the learner’s attention to the input with the basic intention to achieve comprehension (Schmidt, 2012; Ünlü, 2015). These two hypotheses were considered in designing the DDL activities for the experimental group. The study results indicate that the writing performance of B1 language learners noticeably improved through the DDL activities that raised their awareness of their limitations and errors in their writing and attracted their attention to model samples of advanced learners to solve their writing limitations. In conclusion, the DDL intervention positively influenced B1 language learners’ writing performance.

### **8.3 Evaluation of the Study**

This section evaluates the theories discussed in this study, its design, and the DDL intervention implementation. It was crucial to have a theoretical construct for the study. Most studies on the direct application of corpus linguistics in language pedagogy have examined the influence of DDL on advanced learners’ writing, relying on native-speaker corpora. Therefore, there was a need to examine the feasibility and influence of the DDL intervention on B1 language learners’ use of metadiscourse markers in academic writing relying on advanced learning corpus. Chapter 2 discusses two theories of language learning: the output and noticing hypotheses considered in designing the DDL activities. The chapter illustrates the concepts of *explicit/implicit continuum*, *deductive* and *inductive* instruction, and *guided induction*, which were employed during the DDL implementation. The findings were explained in light of the output and noticing hypotheses and the previous research.

Concerning the design, the experimental research design involving the experimental and control groups to test the efficiency of the DDL intervention is a point of strength. Moreover, the study involved both quantitative and qualitative data over three periods using a pretest, immediate posttest and delayed posttest, which facilitated coalescing the findings.

Regarding data collection, the main issue faced in this study was the procedures. Prior to the collection, language schools and teachers were contacted to find B1 language learners to engage in the DDL intervention. However, not all contacted language schools were familiar with DDL. Additionally, because of the unexpected circumstances of the global pandemic of COVID-19, the situation became more challenging because all the language schools were closed, and lockdown restrictions were imposed. Nevertheless, the supervisor's recommendation to announce this research on the IATEFL Facebook account helped overcome this issue. I received emails from language teachers who were happy to help (Section 3.11).

#### **8.4 Limitations of the Study**

As mentioned in Section 8.3, the main issue in this study was the data collection procedures, as most language schools and teachers were unfamiliar with corpus linguistics or corpus applications in language pedagogy. Mukherjee (2004) surveyed some training workshops in corpus linguistics for English language teachers in Germany. He found that about 80% of the teachers were unfamiliar with corpus linguistics before joining the workshops related to corpus linguistics.

Similarly, after 15 years, Callies (2019) surveyed language teachers in Germany to examine their backgrounds in corpus linguistics. The results revealed that about 65% had never heard of corpus linguistics during their university study nor joined classes integrating corpus applications with language pedagogy. Further, two-thirds of the in-service teachers in training



had not heard about corpus linguistics, and they were not trained in using corpus tools in language pedagogy. The teachers' view indicated a gap between corpus linguistics and its applications in language pedagogy.

This gap explains the difficulty that I faced while conducting data collection. Corpus literacy should be a prerequisite for language teachers, either during their university study or professional development, to consider the benefits of corpora (Callies, 2019). Leńko-Szymańska (2015) recommended online teacher training workshops to provide applied corpus linguistics modules. This idea is feasible, particularly after the global pandemic, because schools and universities converted in-person classes into virtual classes. Language teachers and students are now experienced in using software applications that provide virtual classes. In addition, the spread of social media can facilitate announcing online corpus linguistics workshops, as recommended by Leńko-Szymańska (2015).

### **8.5 Recommendations for Future Studies**

This study contributes to the direct applications of corpora in language pedagogy by adding B1 language learners' perspectives on the previous research on DDL. The results demonstrate that the DDL intervention positively influences learning the appropriate use of metadiscourse markers in B1 language learners. Throughout the progress of this research, the results and limitations inspired possible areas for future research. The final section of this thesis recommends some uncovered areas to explore further.

First, this research can be extended by replicating this study on larger samples of B1 language learners by conducting the DDL implementation in in-person and virtual classes. This research investigates similarities and differences between these two conditions to discover the feasibility of the DDL implementation in the two conditions and examine the performance.

Second, this thesis focused on (a) written performance relying on a statistical analysis of the test scores over three periods (pretest, immediate posttest and delayed posttest) and (b) their frequency of using metadiscourse markers through a corpus-based analysis. One suggestion is to use the qualitative analysis for the writing over the three tests to provide an analysis from another perspective.

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## Appendix I (DDL activity type 1)

### Activity 1.1

#### Announcing goals:

1. Look at the highlighted words in the following concordancing lines and answer the questions.

1	In this essay,	I would like to	discuss the <u>advantages and disadvantages</u> of banning smoking in restaurants.
2	In this essay,	I would like to	examine the <u>advantages and disadvantages</u> of banning smoking.
3	Now,	I would like to	discuss the <u>disadvantages</u> of banning smoking in restaurants as followings.
4	To begin with,	I would like to	talk about the <u>advantages</u> . The main advantage of students using credit cards is convenient.
5	Finally,	I would like to	say that I <u>believe</u> that a lot of the social problems of today have to do with people's childhood.
6	In conclusion,	I would like to	<u>recommend</u> students to take a good habit to have a record for the use of credit card.

- a. Where do you think the marker “I would like to” in lines 1 and 2 appeared?  
(introduction-                      body-                      conclusion).
- b. What about the lines 3 and 4?  
(introduction-                      body-                      conclusion).
- c. What about the lines 5 and 6?  
(introduction-                      body-                      conclusion).



2. Look at the following concordances for the marker “I want to” and compare between them and the previous concordances.

1	in this essay,	I want to	discuss the <u>pros and cons</u> of banning smoking in restaurants.
2	The second advantage	I want to	talk about is <u>the prevention of</u> social problems caused by the born of unwanted babies.
3	In conclusion,	I want to	<u>point out</u> is that abortion can be the last remedy to tackle problems in some cases.
4	Finally,	I want to	<u>stress</u> is that it must be much more expensive to pollute the air in comparison with purification.

- Where do you think the marker “I want to” appeared in line 1? (introduction-                      body-                      conclusion).
- Where do you think the marker “I want to” appeared in line 2? (introduction-                      body-                      conclusion).
- Where do you think the marker “I want to” appeared in lines 3 and 4? (introduction-                      body-                      conclusion).
- Are there any similarities between the concordance table for “I want to” and “I would like to”? which lines?

.....

- The markers “I would like to” and “I want to” have the same role and they:
  - Present the point that I want to discuss.
  - Don't present anything.

- What markers do you use when you write an essay?

.....

---

3. Compare the previous markers with the following marker “let us”

1	In this paper,	Let us	<u>examine</u> the pros and cons of having cyber cafes.
2	Some people agree to this law, but some do not.	Let us	<u>discuss</u> the advantage & disadvantage of this law.
3		let us	<u>think</u> of the terrible, terrorizing car accidents on our crowded streets which not only cost a mountain of money but also lots of lives.
4		Let us	<u>talk about</u> the positive side first. One of the advantage of legalizing soccer betting is to fulfil residents' demand.
5		Let us	<u>consider</u> the homeless for example. They do not bother much about having a choice between brands because they have got nowhere to live.

a. Where did the marker “let us” in lines 1 and 2 appear?  
(introduction      -body      -conclusion)

b. What about lines 3-5?  
(introduction      -body      -conclusion)

c. Any comment?

.....

## Activity 1.2.

### Boosters:

1. Look at the highlighted markers in the following concordancing lines:

#### a. certainly

1	In long term, the profits of restaurants will,	certainly,	<u>decrease</u> and it will be closed up no longer under the current economic downturn.
2	the train line studies <u>are</u> ,	certainly,	expensive; the Finance Bureau says that the government spent \$ 908 million on consultants in 1998.
3	-	Certainly,	every individual <u>receives</u> the right to refuse to carry a weapon.

#### b. obviously

4	-	Obviously,	banning smoking <u>is</u> in the best interest of the society.
5	Owning a credit card	obviously	<u>brings</u> many disadvantages, but these disadvantages can be avoided before they happened.
6	It <u>is</u>	obviously	safer than cash, if a student applies for a credit card's account.

#### c. undoubtedly

7	This <u>is</u>	undoubtedly,	a great advantage brought by the recycling industry.
8	Smoke-free restaurants can	undoubtedly,	<u>give</u> a more enjoyable environment.
9	-	Undoubtedly,	credit card <u>is</u> very convenient to people.

#### d. indeed

10	recycling	indeed	<u>involves</u> both advantages and disadvantages
11	Such questions <u>are</u> ,	indeed	complex and difficult,
12	-	Indeed,	it <u>is</u> quite difficult to determine whether soccer betting should be legalized in Hong Kong or not,

2. The markers “certainly”, “obviously”, “undoubtedly”, and “indeed” can be used when the writer is:

1. Totally sure (90% -100%).
2. Partly sure (50%).
3. Not sure (0%).

3. Look at the following tables, the marker “certainly” has been replaced by the markers “obviously”, “undoubtedly”, and “indeed”.

1	In long term, the profits of restaurants will,	certainly,	decrease and it will be closed up no longer under the current economic downturn.
2	the train line studies are,	certainly,	expensive; the Finance Bureau says the government spent \$ 908 million on consultants in 1998
3	-	Certainly,	every individual has the right to refuse to carry a weapon.



1	In long term, the profits of restaurants will,	obviously,	decrease and it will be closed up no longer under the current economic downturn.
2	the train line studies are,	undoubtedly,	expensive; the Finance Bureau says the government spent \$ 908 million on consultants in 1998
3	-	Indeed,	every individual has the right to refuse to carry a weapon.

4. Did the replacement change the meaning?

.....

5. The markers “certainly”, “obviously”, “undoubtedly”, and “indeed” have the:

1. Same role.
2. Opposite role.

6. Can you replace the markers in lines 4-12?

### Activity 1.3.

#### Hedges.

1. Look at the following concordance lines and focus on the highlighted words to answer the questions.

a. About

1	he mentioned that	about	<u>30% of</u> people would go to the restaurants more frequent if they are smoke-free.
2	It states that average debt of student using credit card is	about	<u>\$2000.</u>
3	Some students think that they will have enough money to pay for the item after a grace of	about	<u>a month.</u>

b. Almost

4	The report shows that	almost	<u>40%</u> of Hong Kong areas are country parks.
5	If a total ban on smoking in restaurants is implemented,	almost	<u>twenty-one thousand</u> people will lose their jobs.
6	Hong Kong government spends	almost	<u>\$1 million</u> for one local degree students.

2. The markers “about” and “almost” have the same meaning to represent:

1. Approximate number.
2. Exact number.

3. Look at the markers “may”, “might” and “probably” in the following concordances and provide your notices.

a. May

1	Banning smoking	may	decrease the risks to have lung cancer or heart disease among people.
2	Some smokers	may	argue that smoking is part of their life, and banning smoking would deprive their freedom.
3	improper use of credit card	may	cause of financial crisis.

## b. Might

4	Banning smoking in restaurants	might	have drawbacks of costing Hong Kong catering sector billions of dollars.
5	they	might	need to risk their precious life if they sit with those smokers.
6	In the long term, these psychological problems	might	affect their health and make them feel pressure.
7	The environmental pollution in Hong Kong	might	be reduced with the recycling of some kinds of waste, for example, plastic bags.

## c. Probably

8	this scheme <u>is</u>	probably	able to help Hong Kong to recover from the economic crisis.
9	such high pressure, they would	probably	<u>have</u> many diseases and live unhappily.
10	After banning of smoking in restaurants, number of customers would	probably	<u>increase</u> because of air quality.
11	-	Probably,	This action would <u>affect</u> their business.
12	-	Probably,	the social pressure <u>is</u> the reason.

4. The markers “may”, “might” and “probably” can be used when the writer is:

1. Totally sure (90% -100%).
2. Partly sure (50%).
3. Not sure (0%).

5. Can you replace the marker “may” with the marker “might” in lines 1-3? Did that change the meaning?

6. Any comment on the marker “probably”? can you change the position of the marker “probably” in lines 11 and 12?

**Activity 1.4.****Additive transitions**

1. Look at the following concordance lines and focus on the highlighted words to answer the questions.

## a. Also

1	-	Also,	banning smoking in restaurants <u>is</u> a gift for children, as their health is easily affected when they stay in a place with 'polluted air'.
2	-	Also,	it <u>helps</u> their parents to overcome the high costs of purchasing textbooks, stationary, college fees, etc.
3	Less air pollution <u>is,</u>	also,	a big benefit if smoking is banned.
4	Cyber cafes <u>are,</u>	also,	good places for teenagers to play the online games.
5	Credit card centers,	also,	<u>allow</u> the university students to apply for them to offer lots of advantages.

2. Where did the marker “also” appear in lines 1 and 2? (beginning or middle of the sentence).  
 .....

3. What about lines 3-5? (beginning or middle of the sentence)  
 .....

4. Compare it with the marker “in addition” in the following concordancing lines.

## b. In addition

6	Credit card <u>is</u> ,	in addition,	an invaluable source during emergencies.
7	It,	in addition,	<u>makes</u> the students feel independent from their parents.
8	Brown,	in addition,	<u>thinks</u> that using credit cards can give students important way to managing their financial affairs.
9	–	In addition,	both sites are suitable for every member in a family.
10	–	In addition,	country parks can release the pressure of life of Hong Kong people.

5. Where did the marker “in addition” appear in lines 6-8? (beginning or middle of the sentence).

.....

6. What about lines 9 and 10? (beginning or middle of the sentence).

.....

7. Can you replace the marker “also” in line 1 with “in addition”?

.....

8. Can you replace the marker “in addition” with “also” in line 10?

.....

9. Did that change the meaning?

.....

10. The markers “also” and “in addition” have the same role to:

1. Support the main idea by adding new information.
2. Support the main idea by giving an example.



2. The following markers “moreover”, “besides” and furthermore” can add information to support the idea.

a. Moreover.

11	Moreover,	a credit card can be used abroad. It is convenient for students as they do not need to exchange the foreign currencies.
12	Moreover,	It can't cope with spending money on brand name clothes and trendy activities.
13	Moreover,	it is a good chance for the students to learn more about the financial management.

b. Besides

14	Besides,	the most important thing is educating people how to save their materials and prevent the resources.
15	Besides,	a large number of small smoke will cause the place look dirty.
16	Besides,	banning smoking in restaurants can strengthen the good impression.

c. Furthermore.

17	Furthermore,	the construction of railway needs a huge budget.
18	Furthermore,	as the income of people decrease, they lose the incentive to consume products in the market.
19	Furthermore,	modern recycling is a relatively high-tech industry. Many industrial investments in modern recycling start very early.

1. Where did the previous markers appear? (beginning or middle of the sentence).

.....

2. Can you change their positions? Can you compare them with “also” and “in addition”?

.....

## Activity 1.5.

### Causative transitions

1. Look at the following concordance lines and answer the questions.

#### a. Because

1	It can protect the environment	because	we do not fill lands with the poisonous products which form air and water pollution.
2	it will make you overweight	because	you won't do any sports while playing online games.
3		Because	<u>most of the university students are adults</u> , they have enough ability and self - control to manage their financial affairs.
4		Because	<u>of recent rapid development in Southern Part of the mainland China</u> , a lot of people passed into or out of Hong Kong through the borders to China for holidays and shopping activities.

#### b. Since

5	Government should ban smoking in restaurants	since	advantages are more than disadvantages, and health of people is very important to our society.
6	This can reduce the waste management costs	since	all useful materials are recycled and placed in the market for consumption.
7	-	Since	<u>credit cards provide quick ways of money</u> , students can afford their university life by using them rather than getting money from parents.
8	-	Since	<u>China is a big market</u> ; Hong Kong businessmen have more opportunities to co-operate in China.

1. The markers “because” and “since” are used to:

- a. Provide reasons.
- b. Provide results.

2. Replace the marker “because” in line 2 with the marker “since”.

.....

3. Replace the marker “since” in line 7 with the marker “because”.

.....

4. Did that change the meaning?

.....

5. The markers “because” and “since” have

- a. same meaning.
- b. different meaning.

2. Look at the following concordance lines and answer the questions.

a. As a result.

1	-	As a result,	air pollution would be getting worse and worse.
2	-	As a result,	air pollution will occur in restaurant and bar, for those who don't smoke in there.
3	credit cards,	as a result,	<u>provide</u> early training of financial management.
4	It,	as a result,	<u>creates</u> another social problem.

b. Consequently.

5	-	Consequently,	the local graduates' employment prospects are highly affected.
6	Many students are forced to work part - time jobs to pay the debts; they,	consequently,	<u>overlook</u> their study.
7	They felt secure and,	consequently,	<u>believed</u> that there is no need to compete with their provider, i.e. Nature.

c. Therefore,

8	-	Therefore,	banning smoking is a safeguard to non-smokers, and it would be welcomed.
9	-	Therefore,	cleaning and collecting the bags increases the cost.
10	Violence <u>is</u> ,	therefore,	a sign of weakness.
11	Students,	therefore,	<u>have</u> to work for a part-time job in order to gain money to repay their debts in credit cards according to <R>.

d. Thus

2	consumers	thus	can choose what they want.
3	crimes rate	thus,	decreases and the whole society can be peaceful in a real meaning.
4	-	Thus,	Credit cards, bring out convenience to students shopping when it is comparing with carrying cash out.
5	-	Thus,	The child is confronted with an additional new language.

1. The markers “as a result”, “consequently”, “therefore” and “thus”
  - a. Provide reasons.
  - b. Provide results.
  
2. They have the same meaning. Can you replace the marker “as a result” in line 2 with the marker “therefore”?
 

.....
  
3. Did that change the meaning?
 

.....
  
4. The previous markers can come at the beginning and in the middle of the sentence, look at the following marker “so” and tell us your notice!

5. Look at the marker “so” in the following concordances and tell us your notice.

So

1	The serious results of abortion cannot be predicted,	so	a woman has to consider the risk when seeking abortion.
2	It is the people who have the power and they voted for him to represent them,	so	he must know what they think about different issues.
3	I had forgotten my scarf in the car,	so	I had to call the driver.

1. Where did the marker “so” appear? (beginning or middle of the sentence)?

.....

2. What does it provide? (results or suggestions)?

.....

3. Can you change its position as the previous markers?

.....

*Different words have the same meaning. The previous concordances involve causative markers that provide reasons and results.*

4. *Which marker do you usually use for reasoning in your writing?*

.....

5. *Which marker do you usually use for expressing results in your writing?*

.....

6. *Have you ever used the other markers?*

.....

*try to use the other markers in your writing!*

## Activity 1.6

### Contrast transitions

1. Look at the concordancing lines for the markers “although”, “even though” and “though” and answer the questions.

#### a. although

1	-	Although	<u>it is a high-tech industry</u> , recycling protects the natural environment.
2	-	Although	<u>most students do not have stable income of money</u> , it is so easy for them to apply for credit cards.
3	Recycling protects the natural environment,	although	<u>it is a high-tech industry</u> .
4	It is so easy for them to apply for credit cards,	although	<u>most students do not have stable income of money</u> .

#### b. Even though

5	-	Even though	<u>it is illegal</u> , a large number of people participate in soccer betting,
6	-	Even though	<u>they take on part-time job</u> , university students may not be able to pay their debts.
7	A large number of people participate in soccer betting,	even though	<u>it is illegal</u> .
8	University students may not be able to pay their debts,	even though	<u>they take on part-time job</u> .

#### c. Though

9	-	Though	<u>it is really beneficial for Hong Kong</u> ; a large number of people disagree with the railway project.
10	-	Though	<u>some of the involved parts aren't satisfied</u> , we found solutions from the past.
11	A large number of people disagree with the railway project,	though	<u>it is really beneficial for Hong Kong</u> .
12	We found solutions from the past,	though	<u>some of the involved parts aren't satisfied</u> .

1. Where did the markers “although”, “even though” and “though” appear?  
(beginning or middle of the sentence)?  
.....
2. Replace the marker “although” in line 3 with the marker “though”.  
.....
3. Did the replacement change the meaning?  
.....
4. The markers “although”, “even though” and “though” have the same function, to link sentences that have:
  1. Contrastive ideas.
  2. Similar idea.
5. The markers “although”, “even though” and “though” are used to join:
  1. Compound sentences. (independent clause + independent clause).
  2. Complex sentences. (independent clause + dependent clause).

---

6. Look at the concordances for the markers “but” and “yet” and compare them with the previous markers.

a. But

13	A new railway is needed,	but	a suitable path should be closed to minimize negative impact on environment and expenses.
14	It is difficult to ask children to take difficult decisions,	but	their opinions should be listened with respect.
15	The rivers look beautiful,	but	they can be very dangerous.

## b. Yet.

16	Credit card is a very friendly-user way of consumption,	yet	there are still disadvantages for students for using them.
17	The E.C will provide a lot of interesting jobs for those who are well-educated,	yet	I think that the competition will be much harder.
18	We need these people to make progress,	yet	we fail them.

1. Replace the marker “but” with the marker “yet” in line 14.

.....

2. Replace the marker “yet” with the marker “but” in line 17.

.....

3. What do the markers “but” and “yet” provide?

1. Contrastive ideas.
2. Similar ideas.

4. Can you change their positions as the marker “although”?

.....

5. The markers “but” and “yet” are used to join:

1. Compound sentences. (independent clause + independent clause).
2. Complex sentences. (independent clause + dependent clause).

---

7. The following markers “nevertheless” and “however” are also used to join compound sentences and present contrastive ideas. They are, slightly, different from the markers “but” and “yet”.



## a. However.

19	We need to show other countries what we believe in and stand by our beliefs.	However,	this concept is easily overstated and might become dangerous.
20	Banning smoking may bring a lot of trouble to the catering industry.	However,	a recent survey showed that 30% of people would go to the restaurants more often if they were smoke-free.
21	The rivers look beautiful,	however,	they can be very dangerous.

## b. Nevertheless.

22	Most of the costs in above aspects can be greatly reduced.	Nevertheless,	this idea brings profits to human.
23	The basic education should be offered to everybody regardless of the economic situation of the family.	Nevertheless	private schools have many advantages to the compulsory school system.
24	We need these people to make progress,	nevertheless,	we fail them.

8. Replace the marker “however” with marker “nevertheless” in line 19.

.....

9. Replace the marker “nevertheless” with the marker “however” in line 22.

.....

10. Did that change the meaning?

.....

11. The markers “however” and “nevertheless” have

- a. Same meaning.
- b. Different meaning.

**Activity 1.7.****Sequencing**

1. look at the following concordances and answer the questions.

**a. Firstly**

1	Firstly,	the aural and visual media are much faster than the old-fashioned written word
2	Firstly,	today the foreign influence pervades all layers of society.
3	Firstly,	the waste materials are collected and separated from the waste stream for reuse of processing.

**b. First**

4	First,	sitting before the computer long time can cause many problems.
5	First,	today the foreign influence pervades all layers of society.
6	First of all,	cyber cafes provide a comfortable and convenient place to allow the people to use the internet facilities.
7	First of all,	the manufactories can reduce the costs which they spend on managements of waste.

**c. To begin with**

8	To begin with,	banning smoked is needed since the air pollution and damage is serious.
9	To begin with,	disease like lung cancer and heart disease which caused by smoking are all largely preventable by avoiding passive smoking and smoking cigarettes.
10	To begin with,	the most practical advantage of university studies becomes evident when applying for jobs.

2. Where do you think that the marker “Firstly”, “first” and “to begin with” appear? (introduction-                      body-                      conclusion).

.....

3. Which marker do you usually use for your writing? Can you use the other markers?

.....

4. the markers “first”, “firstly” and “to begin with” have:

1. same function.
2. different function.

## d. second

1	Second,	I would like to talk about the adverse effects of having cyber café
2	Second,	recycling is a better method for waste management than burning and landfilling.

## e. secondly

3	Secondly,	smoking causes air pollution.
4	Secondly,	the money contributes to the Mandatory Provident Fund provide a huge sum of fund for Hong Kong's financial market to invest.

## f. thirdly

5	Thirdly,	it makes them to become more independent and self-discipline for managing their financial affairs.
6	Thirdly,	constructing a second railway linked to the mainland also will disrupt the residents.

## g. third

7	Third,	developing country parks into construction projects would lead to construction problems and environmental problems.
8	Third,	recycling provide income from saleable waste.

First,      ➡      Second,      ➡      Third,

First of all,      ➡      Second,      ➡      Third

Firstly,      ➡      Secondly,      ➡      Thirdly,

To begin with,      ?

## Activity 1.8

### Label stages:

1. Look at the following concordances and answer the questions.

#### a. Overall

1	Overall,	<a href="#">both sides</a> provide recreation and entertainment facilities, food and beverage services, shopping areas, and scene-spot areas.
2	Overall,	cyber cafes are good places as recreational center with a bundle of up-to-dated information, yet they are problematic sometimes.

#### b. All in all

3	All in all,	banning smoking in restaurants <a href="#">has advantages and disadvantages</a> but we must pay attention to our health first.
4	All in all,	I think the advantages of cyber cafes are more than their disadvantages.

#### c. To sum up

5	To sum up,	recycling is the only method to balance the scale <a href="#">between consumption and conservation</a> .
6	To sum up,	<a href="#">everything has two sides</a> . Using credit cards is the same. Indeed, the existence of credit cards is worthy and good for the students at first.

#### d. In conclusion

7	In conclusion,	a credit card is convenient in our daily life, though it requires a cautious use.
8	In conclusion,	banning smoking in the restaurant <a href="#">has both proponents and opponents</a> .

2. Where did the highlighted markers appear?

(introduction-

body-

conclusion)

3. Which marker do you usually use for your conclusion?

.....

4. Have you ever used the other markers? Which ones?

.....

5. The markers “overall”, “all in all”, “to sum up” and “in conclusion” have:
- the same role.
  - The opposite role.

6. Have a look at the following concordancing table.

e. To conclude

9	Evaluating the above points leads me	to conclude,	that the advantages of students' use of credit cards are far outweigh the disadvantages.
10	Evaluating the evidences leads me	to conclude,	<u>both of the arguments provide reasonable factors</u> . In my opinion, I agree that students should hold credit cards.
11		To conclude,	importing professionals from Mainland China into Hong Kong is a good idea to improve the economic situation there, although it has disadvantages.
12		To conclude,	credit cards can really offer a flexible way for students to make use of money, despite their negative sides.

7. Where do you think the marker “to conclude” appeared in lines 9 and 10? (beginning or middle of the sentence).

.....

8. What about the lines 11 and 12? (beginning or middle of the sentence).

.....

9. Can you rewrite the sentences in lines 11 and 12 by changing the positions for the marker “to conclude”? (focus on the clauses that are on the left side of the lines 9 and 10, they can help!)

.....

10. The markers “overall”, “all in all”, “to sum up”, “in conclusion” and “to conclude” can be used to:

- Present the end of the essay (summary and opinion).
- Present the body of the essay (arguments with examples).

## Activity 1.9

### Attitudes:

1. Have a look at the following concordancing table, and tell us your notices.

#### a. Agree

1	<u>In my opinion, I</u>	agree	with importing professionals from Mainland China.
2	<u>In conclusion, I</u>	agree	that the scheme is a good solution to the worsen economy in Hong Kong.
3	<u>Overall, I</u>	agree	with having cyber cafes. It is the world trend.
4	<u>To sum up, after examining the advantages and disadvantages, I</u>	agree	having the cyber cafes, because people can easy access of information with a reasonable price

#### b. Disagree/ do not agree

5	<u>In my opinion, I</u>	disagree	with the legal abortion because this can increase the rate of sex in the society.
6	<u>Overall, to compare both sides, I</u>	disagree	importing them because Hong Kong government spends almost \$1 million for one local degree students.
7	<u>In conclusion, after comparing the pros and cons in each aspect, I</u>	don't agree	to construct a second railway in this period, there are two reasons to support me.

2. Where did the markers “agree” and “disagree” appear?  
(introduction-                      Body-                      conclusion).

3. These markers are used to present:

- a. Opinions.
- b. examples.

4. Look at the following concordance lines and answer the questions.

c. essential

1	Another	essential	<u>point</u> is that recycling seems to be a natural <u>solution</u> to the problem arising from disposal of plastic waste material.
2	The most	essential	thing is that <u>it helps</u> to solve the pollution problems arising from the disposal of plastic waste.

d. Important

3	it is	important	to <u>earn income</u> from this process and the income is earned by selling new products in the market for purchase and consumption.
4	I believe banning smoking in restaurant is an	important	and <u>useful</u> decision for the future.

e. Interesting

5	Another	interesting	<u>point</u> is that credit card can be a <u>substitute of money</u> as a mean of settling payment.
6	Such games are quite	interesting	and <u>fantastic</u> .

f. Fortunately

1	The <u>prize</u> for consumption has become very high and certain people	fortunately,	<u>realized</u> that something has to be done
2	-	Fortunately,	there are still quite a number of country parks and green areas in the New Territories which provide an area for <u>relaxing purposes</u> .
3	-	Fortunately,	<u>I don't have that problem</u> , for our house is far away from our neighbors.

5. The markers “essential”, “important” and “interesting” can show attitudes for:

- a. Good effect.
- b. Bad effect.

6. Can you replace the marker “essential” in line 2 with the marker “important”?  
 .....

7. Did that change the meaning?  
 .....

8. These markers have:  
 a. similar roles.  
 b. different roles.

9. any comment on the marker “fortunately”?  
 .....

10. Have a look at the following marker “unexpected” that also show the attitude.

a. unexpected

1	It may lead into <u>unnecessary and expensive</u> debt to pay for	unexpected	events.
2	It is quite easy to be understood that the	unexpected	arrival of a body really will be a very <u>serious problem</u> .
3	They may face financial problems by using credit cards under	unexpected	<u>difficulties</u> as they would not carry a large amount of cash with them normally.

b. cause

1	they are not the most suitable way as they can	cause	many <u>bad effects</u> to the world.
2	In Hong Kong, the limited living space may	cause	the <u>problems</u> for rubbish collection.
3	This toxic gas	causes	air <u>pollution</u> and leads to respiratory <u>diseases</u> .

11. What kind of attitudes do the markers “unexpected” and “cause” show? (the underlined blue words can help!).

1. Good effect.
2. Bad effect.



## c. Unfortunately

4	That,	unfortunately,	means that <u>they are not always able</u> to seize opportunities they meet.
5	-	Unfortunately,	this is a fact. People <u>have been violent</u> throughout history, ever since Cain killed his brother.
6	-	Unfortunately,	this may become <u>a real problem</u> in many of the developing countries of the third world.

12. What kind of effect does the marker “unfortunately” provide? (blue words can help!)

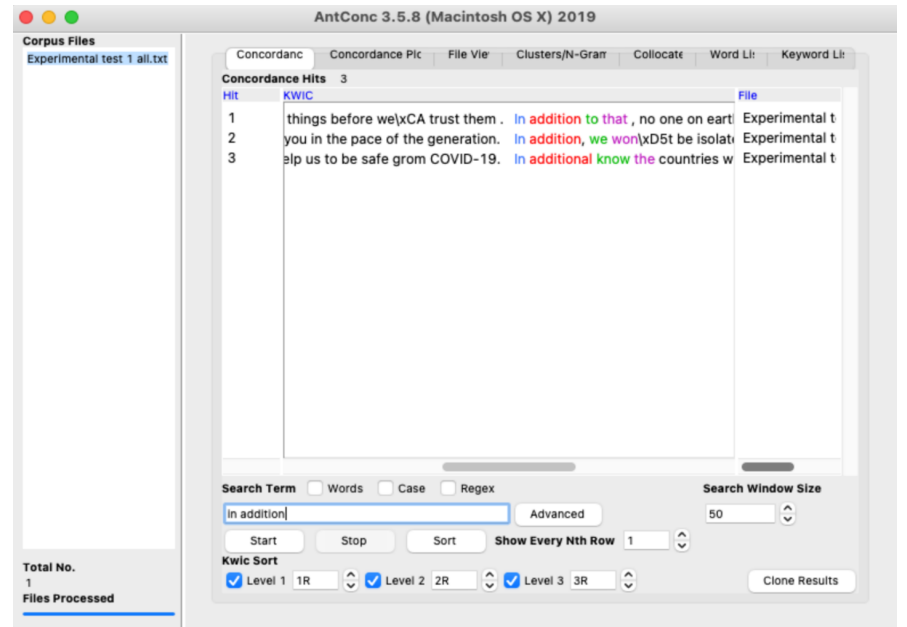
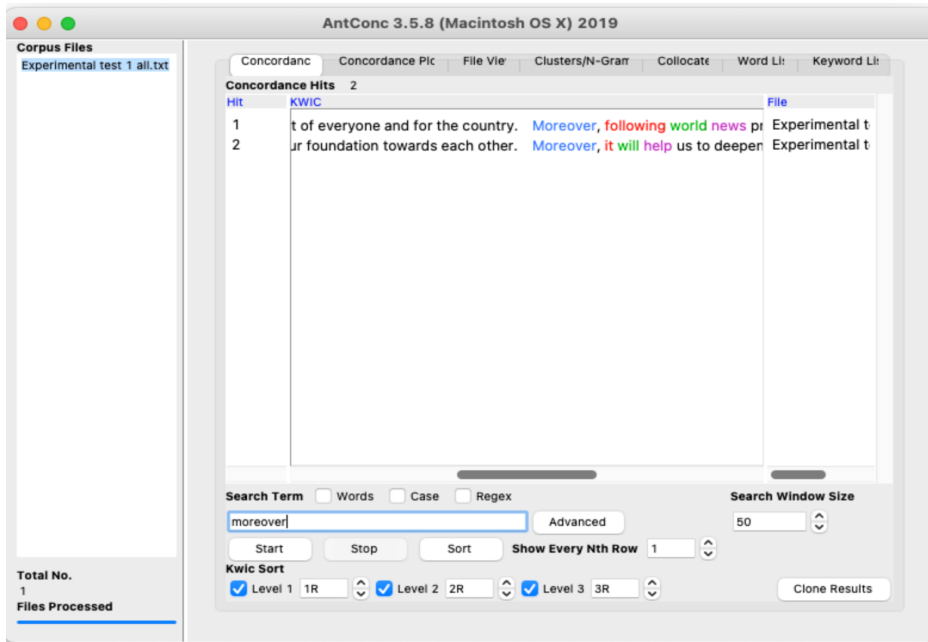
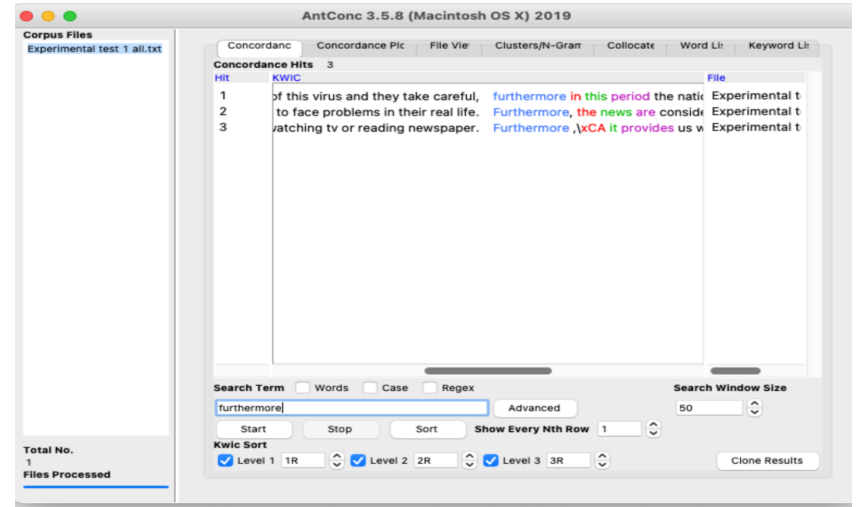
- a. Good effect
- b. Bad effect

13. Any other comment?

.....

Appendix II (Sample of DDL activity type 2)

Concordance Hits 36				
Hit	KWIC		File	
1		treat you like an intelligent one. News can	also be a kind of entertainment by following this	Experimental t
2		why we need to know the news and	also because those around us force us to do	Experimental t
3		thus, I agree. On the other hand, I	also beg to disagree in always following the said	Experimental t
4		well as our reading skills, and, then news	also brings new ideas for us to follow or	Experimental t
5		or the pandemic end all of the papulation.	Also by daily and updated following the news we	Experimental t
6		may be interesting or may be\xCA catastrophic .	Also, by following the news , we can discuss what	Experimental t
7		of media is not only provide knowledge, but	also enforce cooperation. To sum up, youth my find	Experimental t
8		may it be national or international. Second, news	also enhances our listening skills as well as our	Experimental t
9		example can make people very sad and nervous.	Also, following news needs a lot of time wich	Experimental t
10		this fake informations can be so fast and	also for my experience in the period of corona-	Experimental t
11		about That before taking any decision to travel.	Also for vaccination company, the minister of health c	Experimental t
12		s happening and share information with others and	also give our opinion. Which means why we need	Experimental t
13		Aside from that, national/international news	also gives us educational knowledge regarding global i	Experimental t
14		pageants or international sport events. These are	also good to watch to make us aware that	Experimental t
15		and to knew if we are safe. What	also important is in the level of learning to	Experimental t
16		tract on what is happening around us and	also, inspiring us to be recognized on our talents.	Experimental t
17		us is very important. Not only national, but	also international. It helps us to be updated, so	Experimental t
18		it to other people\xD5s mesirable situations.	Also, it makes them work on a worldwide level	Experimental t
19		not only waste one\xD5s time but	also keeps one dependent on what is told only.	Experimental t
20		the capital of allmost all the countries, He	also knows about their currancy and their social and	Experimental t
21		importance of following news above. Now, I would	also like to support my reasoning by giving examples	Experimental t
22		, by watching news, I was informed, became aware,	also, my listening and reading skills was enhanced eve	Experimental t
23		rating as fact, which may alarm the public.	Also, national/international news is important for us	Experimental t
24		believe any of it. Not only local but	also national news. International news is very importa	Experimental t
25		omic situations of their countries and the world.	also nowadays the global has become more interconnecte	Experimental t
26		be just like them or to be recognized	also on our talents. Being aware on what is	Experimental t
27		does not only give us educational knowledge but	also precise information. With these being said,	Experimental t
28		international news without including local news.	Also, some local news nowaday is biased to the	Experimental t
29		lockdown of every city and every country, which	also stopped everything from the shipping of goods to	Experimental t
30		case, then this would never happen. News is	also the maker of topic. People talk about things	Experimental t
31		all about the people\xD5s lives and	also, the virus is deadly and worse, it cannot	Experimental t
32		. The purpose of news is keep informing people,	also, they have the rights to know the current	Experimental t
33		us from what is happening in the society.	Also, to be ware in all aspects that are	Experimental t
34		is happening around you and outside your country.	Also, we can get some knowledge and very useful	Experimental t
35		and end as a pandemic reach whole world.	Also we wont knew or learn how to deel	Experimental t
36		will know and understand what happens around us.	Also what our country status & others. IT is benefit	Experimental t



*(After discussing the additive markers with the participants, their frequent use of the target markers was examined via AntConc software and shown to them).*

*Reem: I am so happy that you discovered the function of those markers, I want you to remember the essay that you wrote for me in test 1 (pre-test). which marker of those did you use?*

*Participants: also .. also .. also (Most of their answers was also)*

*Reem: let us have a look at AntConc software, let me show how many times did you use this marker in your writing in test 1. Can you see the frequent use of the marker "also"?*

*Participants: yes, it is 36.*

*Reem: let us have a look at the other markers, can you see the marker "besides"?*

*Participants: yes, it was not used at all.*

*Reem: what about the markers "moreover", "in addition" and "furthermore"?*

*Participants: 2, 3, 3.*

*Reem: can you see the difference in using these markers?*

*Participants: yes.*

*Reem: Now do you remember someone?*

*Participants: Yes, Ms. Mani*

*Reem: you are right, why did you remember her?*

*Participants: because she used the taxi only and we did like her also.*

*Reem: what do you think DDL wants to tell you?*

*Participants: don't be like Ms. Mani, think and work as Ms. Cani, we should use other markers not only also.*

## Appendix III (DDL activity type 3)

### Activity 3.1 introductions

1. Look at the following samples of “introduction” and their metadiscourse markers.

#### Introduction 1

Nowadays, banning smoking in restaurants has become controversy. This issue is highly related to the health of everyone. Although there are many advantages for people regarding to this action, some people said that it might cause a reduction of income of restaurants' owner. In this essay, I would like to discuss the arguments which support and do not support banning smoking in restaurants.

#### Introduction 2

Recently, people are more concerned about their health and understand that smoking is harmful to their health. The non-smokers want to ban smoking in the restaurants, but the smokers and some restaurant owners strongly oppose this idea. Let us examine in this essay the advantages and disadvantages of banning smoking in restaurants.

#### Introduction 3

In Hong Kong, the suggestion of Banning smoking in restaurants seems very prevalent among citizens. Some doctors claim that banning smoking in restaurants is beneficial for our health, yet lots of restaurant owners state that it is harmful for their business. In this essay, I want to focus on the pros and cons of this suggestion.



**Activity 3.2 students' introductions (samples).**

8. Let us compare between the introduction that you wrote in test 1 and the introduction we analysed for the model samples.

**Introduction 1.**

In our time, it is important to follow what is happening around us and around the world. This is why a lot of people follow the news using social media.

**Introduction 2.**

I agree with that. I think that following news and headlines can make people more aware of what is happening around the countries and the country in which they live.

**Introduction 3.**

Time to time we hear news on radios, see on televisions as well on social media who have the greatest number of user. In fact, that we are living in the world that news is a primary basis of life. Some think that following news aren't important but for me news is essential.

**Introduction 4.**

The world that we are living today is packed with shocking and distressing news. Some news maybe pleasant but the majority of it contains crime, violence, corruption, pandemic, and etc. With that said, I believe that people of a certain community must be fully aware of what's happening around them and be knowledgeable of the issues that their country is facing.

**Introduction 5.**

I agree that both of them are important because that keeps us informed if there's any change of events or issues in the world. Being informed by the national and international news has a big impact in our daily living. News is use to be the guide for us of what we should do or what we should be aware of. This platform is use to educate us and spread awareness. It covers the entire serious topic that every individual has right to know for the better living.

9. Have a look at the introductions that you wrote for me in test 1 (pre-test), can you see goal announcement markers?

.....

10. What can you notice in introductions 2, 4, and 5?

.....

11. Let us analyse these introductions, and compare them with the model sample.



### Activity 3.3. conclusion.

1. Look at the following samples of “conclusions” and the underlined metadiscourse markers and tell us your notices.

Conclusion 1.

All in all, the arguments on banning smoking have positive and negative sides. The environmentalists welcome the policy of banning smoking in restaurants, but restaurants owners would reject. I think it is difficult to ban smoking completely, so the suitable method is separating the smoking from non-smoking regions in restaurants and charging more fees on smoking regions. The smoking problems will be alleviated and the economic problems will be also eliminated.

Conclusion 2.

In conclusion, banning smoking in restaurants has advantages and disadvantages but we should pay attention to our health first. Health is the most valuable thing in the world. Everything can be bought or get back easily except the health because our health cannot be recovered or bought back. Therefore, I agree with banning smoking in restaurants because it is a good way to protect our health.

Conclusion 3.

Evaluating the above points leads me to conclude that banning smoking in restaurants has its advantages and disadvantages. For me, I agree to ban smoking in restaurants because restaurants are the places where people must enjoy their eating or relax themselves. If the restaurants are highly air polluted, I think people are not willing to spend money on having meals outsides.

2. Have a look at the first line of each conclusion, the writers used these sentences to present:

- a. A summary.
- b. An example.

3. Have a look at the underlined markers, can you replace them with other markers?

4. Did that change the meaning of the sentences?

5. Can you write your own conclusion about the same topic "To what extent do you agree or disagree to ban smoking in restaurants?"

.....

.....

.....

.....

.....

.....

.....

6. Let us compare between the conclusion that you wrote in test 1 and the conclusion we analysed today. (see activity 3.4)

7. Have a look at the conclusions that you wrote for me in test 1 (pre-test), can you see goal announcement markers?

.....

8. What can you notice in introductions 1 and 2?

.....

**Activity 3.4 students' conclusions (samples)**

1. Let us analyse these conclusions, and compare them with the model sample.

Conclusion 1.

Personally I think keeping up with the news is important to be up to date and to understand how things are changing. But, above all, you have to choose the news because not every news is important on carries good information. We are in a time when you have to pay attention to bad news and you have to manage your time and not waste it to do research on the internet or other to say that you are up to date.

Conclusion 2.

That all I have and I hope you like it.

Conclusion 3.

In that case, I strongly think that we should always follow news in our country and the other countries. This will truly keep you in the pace of the generation. In addition, we won't be isolated from the other.

Conclusion 4.

News published or publicized nationally and internationally are being created to make the public aware of the relevant events. Negative news like deaths or fires are not made to spread negativity to the world but, it is being created to make us aware that these things are happening and we need to take action for the betterment of everyone. News want us to become careful from hazards and to be confident in making people proud.

Conclusion 5.

This is were news plays an important role because it spread awareness and how to prevent ourselves in any issues that we're facing.

**Activity 3.5/ model sample 1 (body)**

In the world, many people have a smoking habit, most of them smoke in the public areas including restaurants. In Hong Kong, government introduced the law to ban smoking in the public area. However, it creates a great argument among Hong Kong people. Therefore, in this essay, I want to discuss the advantages and disadvantages of banning smoking in restaurants.

Let us examine the advantages of banning smoking in restaurants. To begin with, it can protect the health of people who do not smoke in the restaurant. When they breath secondhand smoke in the restaurants, it will, certainly, harm their health. It increases the risk of lung cancer and heart diseases by about 25%. Tobacco-specific carcinogens, for example, have been found in the blood and urine of non-smokers exposed to environmental tobacco smoke. Moreover, it can attract more people to the restaurants which are smoke free areas. When the air of these restaurants is fresh, people who do not have a smoking habit are willing to go to the restaurants which were smoking free rather than the restaurants that let the people smoke inside.

Although banning smoking in restaurants shows many benefits for people, it has disadvantages that need consideration. Firstly, governments must use a lot of resources to ban on smoking in restaurants. For example, they should employ more policemen for regular investigation to apply the rules which may cost governments a lot of money. Secondly, it might affect the health of people in other public areas, as government ban smoking in the restaurants, smokers will move to other public area for example in the park. Consequently, it will affect the health of people in the park.

In conclusion, I have stated many pros and cons of banning smoking in restaurants. In my opinion, the most important thing is educating people not to smoke. Governments can educate people the effects of smoking through the mass media. If more people do not smoke, the amount of people smoke in the public area will decrease. Thus, I think that no need to introduce the law to ban smoking in restaurants.

1. Can you use other alternatives for the metadiscourse markers that were used in the above essay?  
.....
2. Have you noticed the last sentence in the first paragraph?
  - a. As a reader, what do understand from that sentence?  
.....
  - b. How many points of view will the writer present for us?  
.....
  - c. Are they similar or different? Can you explain that?  
.....
3. Look at the first sentence of the second paragraph, the writer aims to talk about the advantages of banning smoking.
  - a. How many points did the writer mention? How did you know?  
.....
  - b. Look at the fifth line of the second paragraph, why did the writer use “for example”?  
.....
4. Look at the marker “although” in the third paragraph, what is its role?
  - a. Present a new supporting point for the second paragraph?
  - b. Present a counter point against the second paragraph?

Model sample 2:

University students are often targeted by credit card companies. They tend to be perfect potential customers for those companies as they have strong purchasing power. Some people support students to use these cards whereas others do not. In this essay, I want to examine the two views of providing university students to use credit cards.

I would like to examine the reasons why some people consider it beneficial for students to use credit cards. One feature of these cards is the essential lesson the students learn to manage their finance cautiously and a way for them to learn the responsibilities of owing the credit card. These financial management skills may help them to solve the debt problems which may be encountered in their future. In addition, the student will become independent because they can use the credit card to pay for the daily expenses that encourages planning for future.

Nevertheless, the opponents of the previous opinion may argue that these cards have drawbacks. Firstly, it is believed that students signing up the application of credit card is a step toward into the world of debt. In other words, the credit card companies offer free gifts such as concert ticket, T-shirt or CDs to entice students into the world. This causes the consumption of unnecessary items in spite of having insufficient funds. Secondly, uncontrollable overspending behavior leads for difficulties in paying the card debts and they ask for financial assistance from the parents. If the parents are poor, those students will work in part-time jobs which is time consuming, and it may affect their study.

Evaluating the evidence leads me to conclude that students' use of credit cards has good and bad sides. I think students should use credit card as they are matured enough to handle the use of the card. If they can use the card in an intelligent way, there is no doubt to support students using the credit card.

1. Read the third sentence in the introduction, what is the marker that shows the two different points of view?  
 .....
2. How many points did the writer present in the second paragraph?  
 .....
3. Which markers informed you about these points?  
 .....
4. How many points did the writer present in the third paragraph?  
 .....
5. Which markers informed you about these points?  
 .....
6. Can you use other alternatives for the metadiscourse markers that were used in the above essay?  
 .....
7. Have you noticed the last sentence in the first paragraph?
  - d. As a reader, what do understand from that sentence?  
 .....
  - e. How many points of view will the writer present for us?  
 .....
  - f. Are they similar or different? Can you explain that?  
 .....
8. Look at the first sentence of the second paragraph, the writer aims to talk about the advantages of banning smoking.
  - c. How many points did the writer mention? How did you know?  
 .....
  - d. Look at the fifth line of the second paragraph, why did the writer use “for example”?  
 .....
9. Look at the marker “although” in the third paragraph, what is its role?
  - c. Present a new supporting point for the second paragraph?
  - d. Present a counter point against the second paragraph?

**Activity 3.6 (students' samples)** let us compare your essays with the model samples

Jay Shetty once said, "Knowledge is power, and it can help you overcome any fear of the unexpected." Watching, reading and following national and international news is like learning. We see events of real life situations, we become aware and we learn something from it. I agree that following these news are important. Knowing news is not about intervening one's life but instead, it is about learning from them and making something better to ourselves and to the world around us.

National and international news are significant in the life of every citizen. In this world full of issues and problems, to know and act on these uncertainties means being a part of the world. Nowadays, especially at this times of pandemic, news are everywhere. It might be on our social media walls, newspaper, radio or television. These news are important to make us aware of how the world is going on. Let us take for example, the news on the daily cases of Covid-19. Why does the government want us to know the number of new and active cases of Covid-19? We don't even know who those persons are and we can't do anything to cure them either. Probably, they want us to know that this pandemic is becoming worse and we need to take actions to survive or prevent from this virus. News is an instrument to spread a specific topic that needs an attention to the public. Another example is a news about international pageants or international sport events. These are also good to watch to make us aware that someone is being confident and doing their best to make one's country's proud.

News published or publicized nationally and internationally are being created to make the public aware of the relevant events. Negative

Our world is now changing from time to time from the advancement of the technology, innovation of things and especially the way we live. However, with these changes we should be more attentive so that we can know what is happening around us.

I agree that it is important to know other news of the country and i have several reasons. Firstly, it is essential because to familiarize us from what is happening in the society. Also, to be ware in all aspects that are currently happening and emerging in our society. through watching National and International News we assure in ourselves what are the things that we need to be avoided and improved. Second it's significant because it connects us globally. Lastly it will serve as our communication in order to reach them and be inform. Well in fact Communication is our bedrock in order to have better and strengthen our foundation towards each other. Moreover, it will help us to deepen our apprehension un understanding our differences. One concrete example is when Corona Virus appeared wherein there's a lot of news been released since the pandemic occurred. That's why we should be grateful to them because without them we can't able to know what is happening around us. Meanwhile it could lead to misunderstanding if we don't utilize properly.

Overall, let's serve as an instrument to deliver information with authenticity as well as educate them



I agree with that. I think that following news and headlines can make people more aware of what is happening around the countries and the country in which they live. And I have reasons to agree for example: Anyone anywhere can know what is going on around the world. It discusses some of the problems occurring and suggests ways to solve them. Now, with the corona virus, it has become easy to educate people by offering these addresses without causing any harm.

News headlines have come to offer many programs that help educate people, there are: documentary, historical, scientific and literary news in various field. We can sit in front of the TV and watch everything new. People have become more aware of what is going on around them in terms of pros and cons by providing many services such as TV, radio and social media.

That all I have and I hope you like it.

Following national and international news is very important for some people. Especially during the pandemic situation. Personally I agree with this attitude. But we have to pay attention, because a lot of ne can affect our psychological health.

In Morocco for example, many cities are closed, and autocities ask agreements to let people get out or in. for that it's important to kn about That before taking any decision to travel. Also for vaccinatio company, the minister of health communicate via T.V and radio how get to the hospitals. In the other side, war's news for example can make people very sad and nervous. Also, following news needs a lot of time wich make social relation ships very hard, especially when ever one is on his phone without sharing a real speach with real persons.

For those arguments, we can say that it's good to follow news when useful but at the same time it's dangerous it it's out of limits.

1. Have a look at your essays, I highlighted the body in blue. What do you think about the body in essay 1 and 4?  
.....
2. Are they similar? Why?  
.....
3. Are they different? Why?  
.....
4. Do you see metadiscourse markers in the body that can be related to the body in the introduction in these essays?  
.....
5. What about the conclusion?  
.....
6. Can you see metadiscourse markers in the body?  
.....
7. Are they used correctly? Why?  
.....
8. Can you compare between these essays and the model sample?
9. Are they similar? Explain.
10. Are they different? Explain.
11. If you have the chance to rewrite the essay in test 1, what do you think you need to change? Why?

Let us examine the following essays as we did with the previous ones.

Hong Kong citizens produce several tons of waste every day. It becomes a problem for government deciding how to handle these wastes, while there is no more area for landfilling in Hong Kong. That why <R> point out that recycling has been adopted to dispose of waste from households as well as commercial and industrial concerns beside landfilling. Recycling is a method which involves the reuse of waste materials for beneficial purposes. However, both citizens and business are against this idea. Since they are not willing to take time to separate the waste and recycled material. Now, let us take a deep look of views that support and don't support recycling as a method of waste management.

Regarding the adherents of recycling, they consider it as an environmental protective method for many reasons as It can use less resources to manufacture a recycled product rather than a virgin product. Because the used material. have been refine and processing, the second time of manufacturing product would be more efficiency. Recycled paper is an example. It can save transportation cost from forest to factory and labor cost for deforestation. Besides, according to<R> , it can reduce air pollution and land pollution when comparing with burning and landfilling. Since incinerator would <?> toxic gas and plastic waste is nonbiodegradable. They take up one third of landfill space even though their weight percentage is about 7% to 9%. It proves that recycling is the most natural solution of handling the plastic waste materials.

Recycling is not without its drawbacks. as modern recycling is a capital-intensive and relatively high tech industry. According to a study conducted by the<R>, large scale industrial investment in modern recycling started in modern recycling started in Hong Kong in the late 1980's, with the establishment of a paper recycling plant and an oil re-finining plant in Yuen Long Industrial Estate. The rest are mostly small scale, primitive recycling of industrial waste such as plastics and used solvents. Huge Capital input, high cost of collection and sorting. and inadequate facilities have hampered the development of the modern recycling industry <R>. Above all, the public don't support recycling. Firstly, it is difficult to push families and factories to separate different type of waste material. As a result, governments have to waste lots of time on sorting, Secondly, recycled products are not profitable. Usually, recycled products have higher production cost result in higher price. Therefore, most people are not willing to pay higher price for recycled products which have the same quality of virgin products, even lower quality. Also, owners of factories are not interested in producing recycled products and it is hard for government to practice recycling.

In conclusion, recycling is a unique method of waste management in Hong Kong, even though it involves a large amount of money cost. It is worth to do so when air pollution and land pollution becoming more serious. I believe that in order to improve the living environment, government should take action as soon as possible.

## Appendix IV Questionnaire

Dear participants

Please answer the following questionnaire by using the scale below to circle the response that most closely represents your opinion. **1. Strongly disagree; 2. Disagree; 3. Somewhat disagree; 4. Somewhat agree; 5. Agree; 6. Strongly agree.**

No	Item	1	2	3	4	5	6
1	The DDL exercises are helpful for me to understand the meaning of metadiscourse markers.						
2	The DDL exercises are helpful for me to learn the function of metadiscourse markers.						
3	Studying the concordancing lines is helpful for learning the collocation of the words.						
4	Studying the concordancing lines is helpful for learning grammatical use of the words.						
5	Studying the concordancing lines helps me memorize the usage of the metadiscourse markers better.						
6	Studying the concordancing lines helps me learn the usage of metadiscourse markers.						
7	I prefer learning the use of metadiscourse markers by analyzing concordance lines than be taught by traditional teaching.						

8	Studying concordance lines helps me incidentally learn more new words in the concordance output.						
9	Studying concordance lines is helpful for my English writing.						
10	Studying concordance lines helps me gain some ideas for my writing.						
11	Learning about concordances has increased my confidence in using the metadiscourse markers in English writing.						
12	The DDL exercises are very useful resources for my use of metadiscourse markers in English writing.						
13	I can read the concordance lines and form the overall rules for the target metadiscourse markers.						
14	Overall, the DDL exercises help me to improve my writing quality.						
15	I can use the metadiscourse markers that I learnt from DDL exercises in my future writing.						
16	I have some difficulties in studying concordance lines because of time and effort spent on data analysis.						
17	I have some difficulties in studying concordance lines because there are too many sentences in the exercise.						
18	I <u>CAN NOT</u> form the overall rules for the target metadiscourse						

	markers from the concordance lines.						
19	Overall, DDL exercises are time consuming.						

Thanks for your participation!

Reem Alrashidi

## Appendix V interview questions

Interview questions:

1. Do you have any idea about DDL before participating in this study? yes – No  
.....
2. If yes, what was your source about DDL? i.e. school – website?  
.....
3. What are the difficulties that you faced while working with DDL intervention? Can you tell us why?  
.....
4. What did you learn from DDL?  
.....
5. Did you learn something new about metadiscourse markers instead of the traditional teaching?  
.....
6. Which activity type did really attract your attention? Why?  
.....
7. Which activity type did you find it interesting?  
.....
8. If you have the chance to work with DDL intervention, will you participate? Why?  
.....
9. Which marker do you recommend to consider for future DDL intervention research?  
.....
10. How do you feel about your mistakes?  
.....
11. Any Comments about DDL?  
.....

Thanks for your participation in my study.

REEM ALRASHIDI.

## Appendix VI Ethics Approval



School of the Arts Research Ethics Committee

30 July 2020

Dear Dr Jones,

I am pleased to inform you that the amendment to your study has been approved. Amendment details and conditions of approval can be found below. If applicable, Appendix A contains a list of documents approved by the Committee.

### **Amendment details**

Reference: 5463 (amendment)  
 Project Title: "The Effects of Data-driven Learning Approach on Intermediate Language Learners' Use of Meta-discourse in Academic Writing (an experimental study)". PhD thesis  
 Principal Investigator: Dr Christian Jones  
 Co-Investigator(s): Mrs Reem Alrashidi  
 Student Investigator(s): -  
 Department: English  
 Approval Date: 30/07/2020

The amendment was **APPROVED** subject to the following conditions:

### **Conditions of approval**

**Please note:** this approval is subject to the restrictions laid out in the [Policy on research involving human participants in response to COVID-19](#). Therefore all face-to-face contact with human participants for the purpose of research should be halted until further notice; unless the study qualifies as one of the exceptions specified in the Policy and has been discussed with Research Ethics and Integrity team.

- All serious adverse events must be reported to the Committee ([ethics@liv.ac.uk](mailto:ethics@liv.ac.uk)) in accordance with the procedure for reporting adverse events.
- If it is proposed to make further amendments to the study, please create and submit an amendment form within the research ethics system.
- It is the responsibility of the Principal Investigator or Supervisor to inform all the investigators of the terms of the approval.

Kind regards,

School of the Arts Research Ethics Committee

[sotares@liverpool.ac.uk](mailto:sotares@liverpool.ac.uk)

0151 795 3133




**Appendix - Approved documents**

If applicable, the final document set reviewed and approved by the committee is listed below:

Document Type	File Name	Date	Version
Default	modified interview	24/06/2020	1
Default	Participant information sheet experimental	24/06/2020	2
Default	Participant information sheet (control group)	24/06/2020	2
Default	project details	24/06/2020	2

## Appendix VII Participant Consent Form.

#4	 <b>UNIVERSITY OF LIVERPOOL</b>	
<b>Participant consent form</b>		
Version number & date: version No.1, On 31-Oct-2019		
Research ethics approval number:		
Title of the research project: The effects of DDL on intermediate language learners' use of metadiscourse in academic writing.		
Name of researcher(s): Reem Alrashidi		
		Please initial box
1. I confirm that I have read and have understood the information sheet dated [.....] for the above study, or it has been read to me. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.		<input type="checkbox"/>
2. I understand that taking part in the study involves collecting samples of my writings over three periods of time for data analysis for RESEARCH PURPOSES ONLY.		<input type="checkbox"/>
3. I understand that my participation is voluntary and that I am free to stop taking part and can withdraw from the study at any time without giving any reason and without my rights being affected. In addition, I understand that I am free to decline to answer any particular question or questions.		<input type="checkbox"/>
4. I understand that I can ask for access to the information I provide and I can request the destruction of that information if I wish at any time prior to [December, 2020]. I understand that following [December, 2021] I will no longer be able to request access to or withdrawal of the information I provide.		<input type="checkbox"/>
5. I understand that the information I provide will be held securely and in line with data protection requirements at the University of Liverpool until it is [fully anonymised] and then deposited in the [Archive] for sharing and use by other authorised researchers to support other research in the future.		<input type="checkbox"/>
6. I understand that signed consent forms and [writing samples] will be retained in [The University of Liverpool M drive] until [2022].		<input type="checkbox"/>
7. I agree to take part in the above study.		<input type="checkbox"/>
I have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting		
_____	_____	_____
Participant name	Date	Signature
_____	_____	_____
Name of person taking consent	Date	Signature
<b>Principal Investigator</b> <b>[Reem Alrashidi]</b> <b>[University of Liverpool]</b> <b>[07768069539]</b> <b>[R.alrashidi@liverpool.ac.uk]</b>		

## Appendix VIII. Participant information sheet (experimental group).



Title:

“The effects of Data Driven Learning approach on intermediate language learners’ use of metadiscourse markers in academic writing”.

Version number and date:

Version No.1, on 31-Oct-2019

Dear participant:

*My name is Reem Alrashidi, I am a PhD student at the University of Liverpool in the department of English under the supervision of Dr. Christian Jones in the field of Applied linguistics. I would like to invite you to participate in my research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask us if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends and your teacher. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.*

Thank you for reading this.

What is the purpose of this study?

To understand my study, there are two important concepts that need explanation, metadiscourse markers and Data Driven Learning (DDL) approach. The first concept is “metadiscourse markers” which refers to the cohesive devices that are used to link sentences and paragraphs to organize the ideas while writing essays, express opinions and guide the reader. The second concept is DDL that refers to the inductive style that enables students to see the various examples in the target language, and form their rules and generalizations about language form and use.

According to Common European Framework of Reference for languages (CEFR), learners with intermediate level can produce simple connected texts that are familiar to them or of their personal interest. In relation to the cohesive devices (e.g. metadiscourse markers) they can only use a limited number of cohesive devices to link the utterances in a clear coherent discourse, though, there may be “jumpiness” in a long concentration. Lower intermediate level may link shorter simple elements into a connected sequence of points.

My study, therefore, aims to examine the effect of using DDL to improve writings of language learners with intermediate level and how their use of metadiscourse markers develops. In using DDL, the student becomes a language researcher who examines linguistic evidence to reach their own conclusions; becoming an active learner rather than a passive receiver. It enables language learners to increase the breadth and depth of their knowledge more quickly than can traditional methods.

Why have you been selected for this study?

Students who are enrolled in the language center are nonnative speakers of English who have been offered a place at the university of Liverpool and need language support in order to meet the English language requirement. These students correspond with the required samples of my research as they have intermediate level of English language. The efficient use of cohesive devices in writing mainly depends on a shared knowledge of the writing discipline, which is deeply problematic for language learners who lack cultural insight and familiarity with the genre. Your participation in this study is voluntary and you are free to withdraw at any time.

What are the study procedures?

The study is based on DDL intervention. DDL exercises will be provided for you to raise your awareness about the appropriate use of metadiscourse markers in your writing. The activities involve model samples that deal with the target cohesive devices in authentic contexts and derived from the ICLE corpus since it suits your level.

On the first week, you and your classmates will have a writing test to measure your level. Next week, you will be given DDL activities to support the daily lessons you have. It will take about ten minutes at the first time to apply. Later, once the students get used to it, the time will be about five minutes. Also, your writing will be examined and analyzed via corpus software to notify you about the errors that occurs (for example overuse, underuse and misuse) to avoid them in future writings.

Once you finish all the DDL activities, you will have a second writing test to examine how the DDL worked with you. Two weeks later, you will have the last writing test.

How will the data be used?

The results of your writing tests will be used for **RESEARCH PURPOSES ONLY**, I will collect the data you provide and analyze them for my study. It is my duty to keep your names anonymous (no one can identify you) and protect your information.

*“The University processes personal data as part of its research and teaching activities in accordance with the lawful basis of ‘public task’, and in accordance with the University’s purpose of “advancing education, learning and research for the public benefit.*

*Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University’s research. The [Principal Investigator / Supervisor] acts as the Data Processor for this study,*

*and any queries relating to the handling of your personal data can be sent to [Reem Alrashidi / Dr. Christian Jones].*

How will my data be collected?	By having three writing tests
How will my data be stored?	They will be stored on the University of Liverpool computer M drive. It has a firewall protection.
How long will my data be stored for?	Until I finish the PhD program.
What measures are in place to protect the security and confidentiality of my data?	Your names will be anonymous and your data will be securely saved on the university computer M drive.
Will my data be anonymised?	You will be given nicknames
How will my data be used?	They will be used in the results and discussion parts of my thesis.
Who will have access to my data?	Me and my supervisor.
Will my data be archived for use in other research projects in the future?	No.
How will my data be destroyed?	They will be deleted from the computer.

By the end of this experience and as a way of thanking you for your participation, you will be awarded amazon voucher 30 GBP.

Are there any benefits?

Yes, there are benefits for both of us, you will have DDL that will raise your awareness and improve your writing. Also, I will benefit to collect data from the right participants.

What will happen to the results of this study?

The results of this study will be discussed in my thesis and you have the right to request a copy (either hard or soft) to read it.

What if I am unhappy or if there is a problem?

*“If you are unhappy, or if there is a problem, please feel free to let us know by contacting [Reem Alrashidi 07768069539] and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at [ethics@liv.ac.uk](mailto:ethics@liv.ac.uk). When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.*

*The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.””*

Who can I contact if I have further questions?

Reem Alrashidi

Tel: 07768069539

Email: [R.alrashidi@liverpool.ac.uk](mailto:R.alrashidi@liverpool.ac.uk)

Thanks.

## Appendix IX Participant information sheet (control group)



Title:

“The effects of Data Driven Learning approach on intermediate language learners’ use of metadiscourse markers in academic writing”.

Version number and date:

Version No.1, on 31-Oct-2019

Dear participant:

*My name is Reem Alrashidi, I am a PhD student at the University of Liverpool in the department of English under the supervision of Dr. Christian Jones in the field of Applied linguistics. I would like to invite you to participate in my research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask us if you would like more information or if there is anything that you do not understand. Please also feel free to discuss this with your friends and your teacher. We would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.*

Thank you for reading this.

What is the purpose of this study?



To understand my study, there are two important concepts that need explanation, metadiscourse markers and Data Driven Learning (DDL) approach. The first concept is “metadiscourse markers” which refers to the cohesive devices that are used to link sentences and paragraphs to organize the ideas while writing essays, express opinions and guide the reader. The second concept is DDL that refers to the inductive style that enables students to see the various examples in the target language, and form their rules and generalizations about language form and use.

According to Common European Framework of Reference for languages (CEFR), learners with intermediate level can produce simple connected texts that are familiar to them or of their personal interest. In relation to the cohesive devices (e.g. metadiscourse markers) they can only use a limited number of cohesive devices to link the utterances in a clear coherent discourse, though, there may be “jumpiness” in a long concentration. Lower intermediate level may link shorter simple elements into a connected sequence of points.

My study, therefore, aims to examine the effect of using DDL to improve writings of language learners with intermediate level and how their use of metadiscourse markers develops. In using DDL, the student becomes a language researcher who examines linguistic evidence to reach their own conclusions; becoming an active learner rather than a passive receiver. It enables language learners to increase the breadth and depth of their knowledge more quickly than can traditional methods.

Why have you been selected for this study?

Students who are enrolled in the language center are nonnative speakers of English who have been offered a place at the university of Liverpool and need language support in order to meet the English language requirement. These students correspond with the required samples of my research as they have intermediate level of English language. The efficient use of cohesive devices in writing mainly depends on a shared knowledge of the writing discipline, which is deeply problematic for language learners who lack cultural insight and familiarity with the genre. Your participation in this study is voluntary and you are free to withdraw at any time.

What are the study procedures?

The study is based on DDL intervention. DDL exercises will be provided for you to raise your awareness about the appropriate use of metadiscourse markers in your writing. The activities involve model samples that deal with the target cohesive devices in authentic contexts and derived from the ICLE corpus since it suits your level.

On the first week, you and your classmates will have a writing test to measure your level. Next week, you will be given DDL activities to support the daily lessons you have. It will take about ten minutes at the first time to apply. Later, once the students get used to it, the time will be about five minutes. Also, your writing will be examined and analyzed via corpus software to notify you about the errors that occurs (for example overuse, underuse and misuse) to avoid them in future writings.

Once you finish all the DDL activities, you will have a second writing test to examine how the DDL worked with you. Two weeks later, you will have the last writing test.

It is important to note that language schools around the United Kingdom converted their lessons from real classes into virtual classes because of COVID-19 Coronavirus pandemic. By using software applications such as Microsoft teams and ZOOM, students stay at home and login using their usernames and passwords to join the virtual lessons. This study will utilize ZOOM software application that allow people to interact virtually, either by video or audio only or by both, when physical face to face meetings are not possible. There are three kinds of meetings in ZOOM application that facilitate working with DDL:

1. Screen sharing: the host allows the guests or large groups to share his or her screen and enable them to see what is on the screen. In this study, the researcher will use the screen sharing to show the DDL activities to the experimental group participants and attract their attention to the target metadiscourse markers.
2. Group video conferencing: This feature allows discussion while working with the DDL intervention activities. Also, this feature is used to test their writings as they can see the essay topic on the screen and have approximately 45 minutes to write an argumentative

essay.

3. One to one meetings: this meeting allows two people interaction which is used for the interviews and questionnaires with participants in order to get their feedback about DDL intervention. The researcher can communicate with the experimental group participants privately.

How will the data be used?

The results of your writing tests will be used for **RESEARCH PURPOSES ONLY**, I will collect the data you provide and analyze them for my study. It is my duty to keep your names anonymous (no one can identify you) and protect your information.

*“The University processes personal data as part of its research and teaching activities in accordance with the lawful basis of ‘public task’, and in accordance with the University’s purpose of “advancing education, learning and research for the public benefit.*

*Under UK data protection legislation, the University acts as the Data Controller for personal data collected as part of the University’s research. The [Principal Investigator / Supervisor] acts as the Data Processor for this study, and any queries relating to the handling of your personal data can be sent to [Reem Alrashidi / Dr. Christian Jones].*

How will my data be collected?	By having three writing tests
How will my data be stored?	They will be stored on the University of Liverpool computer M drive. It has a firewall protection.
How long will my data be stored for?	Until I finish the PhD program.

What measures are in place to protect the security and confidentiality of my data?	Your names will be anonymous and your data will be securely saved on the university computer M drive.
Will my data be anonymised?	You will be given nicknames
How will my data be used?	They will be used in the results and discussion parts of my thesis.
Who will have access to my data?	Me and my supervisor.
Will my data be archived for use in other research projects in the future?	No.
How will my data be destroyed?	They will be deleted from the computer.

By the end of this experience and as a way of thanking you for your participation, you will be awarded amazon voucher 30 GBP.

Are there any benefits?

Yes, there are benefits for both of us, you will have DDL that will raise your awareness and improve your writing. Also, I will benefit to collect data from the right participants.

What will happen to the results of this study?

The results of this study will be discussed in my thesis and you have the right to request a copy (either hard or soft) to read it.

What if I am unhappy or if there is a problem?

*“If you are unhappy, or if there is a problem, please feel free to let us know by contacting [Reem Alrashidi 07768069539] and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and*

*Integrity Office at [ethics@liv.ac.uk](mailto:ethics@liv.ac.uk). When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved, and the details of the complaint you wish to make.*

*The University strives to maintain the highest standards of rigour in the processing of your data. However, if you have any concerns about the way in which the University processes your personal data, it is important that you are aware of your right to lodge a complaint with the Information Commissioner's Office by calling 0303 123 1113.””*

Who can I contact if I have further questions?

Reem Alrashidi

Tel: 07768069539

Email: [R.alrashidi@liverpool.ac.uk](mailto:R.alrashidi@liverpool.ac.uk)

Thanks.

## Appendix X (Ethics Newsletter, University of Liverpool).

Research ethics and integrity newsletter #5  
 April 2020  
[ethics@liverpool.ac.uk](mailto:ethics@liverpool.ac.uk)



### RESEARCH ETHICS AND INTEGRITY

#### Upcoming Central Committee dates and submission deadlines

<u>Committee date</u>	<u>Submission deadline</u>
CUREC A 19th May	Friday 17th April
CUREC C 16th June	Friday 15th May
CUREC B 23rd June	Friday 22nd May

More information on the committee dates and submission deadlines are available on the [research ethics webpages](#).

#### Introduction

This edition will focus on:

- ❖ The [Policy on research involving human participants in response to the COVID-19 pandemic](#).
- ❖ [Guidance on using different methods and approaches to collect data](#).
- ❖ Current guidance and literature in the sector.
- ❖ How to submit an amendment to your approved research ethics application.
- ❖ Submitting a new application.
- ❖ Submitting a research ethics application related to COVID-19.

#### Contact us

Research ethics queries      [Online system queries](#)  
[ethics@liverpool.ac.uk](mailto:ethics@liverpool.ac.uk)      [ethicssy@liverpool.ac.uk](mailto:ethicssy@liverpool.ac.uk)

#### Virtual committees via Adobe Connect

In light of the COVID-19 pandemic, all Central University Research Ethics Committees will be hosted via the online platform Adobe Connect until further notice. If you are a Central Committee member or an applicant requiring central level review, you will receive a link via email which will enable you to access the virtual meeting and be able to log in with your University username and password. We would recommend downloading the Adobe Connect add-in from the [Computing Services webpage](#) in advance of the meeting.

## COVID-19 Policy and guidance

### University Policy on COVID-19 and research ethics

The [Policy](#), circulated by the Pro-Vice Chancellor for Research & Impact, Professor Anthony Hollander outlines that all face-to-face research involving human participants should be halted until further notice. This Policy extends to all research, both UK and internationally based. As the COVID-19 crisis is a global pandemic, the restrictions imposed are in place to protect staff, students, and participants in research across the world.

Exceptions will only be made in order to continue operating key facilities that are critical to ongoing research into COVID-19; and in the case of studies whereby halting the research would affect patient care.

The Policy notes that University researchers should either change their data collection methods to avoid face-to-face contact with human participants; or halt their study.

This Policy came into effect on 20th March and is ongoing until further notice. The full Policy can be found on the [research ethics webpages](#).

### National guidance

Guidance and policy across the sector continues to be updated. We recommend keeping up to date with the current guidance to researchers;

The [Health Research Authority](#) regularly update their guidance for Sponsors, sites and researchers.

The National Research Committee has made the decision to limit research within [Her Majesty's Prison & Probation Service](#) until further notice. No new applications for approval are currently being accepted.

The [NIHR Clinical Research Network](#) is pausing the setup of any new or ongoing studies at NHS and social care sites that are not nationally prioritised COVID-19 studies. [UK Research and Innovation](#) (UKRI) continues to update their Coronavirus Hub, giving you the latest information on the vital work of UKRI and their community in response to the crisis.

### Guidance note and ethical considerations related to changing your data collection method

A [guidance document](#) has been created in response to the University [Policy](#) on halting all face-to-face research. Using a different approach to collect research data is advisable, however when replacing your data collection method with an alternative remote approach you must consider the differing ethical and methodological implications that arise. For example: studies examining sensitive issues or recruiting from populations who may be vulnerable require particular methodological considerations. You must consider the implications of changing research methods and the impact this will have on participants.

The guidance note can be found on the [research ethics webpages](#).

### Current guidance on research ethics and COVID-19

The [World Health Organisation](#) have produced a document summarising the universal ethical standards which should be upheld during the COVID-19 pandemic.

The [Nuffield Council on Bioethics](#) have a briefing on the ethical considerations in responding to the COVID-19 pandemic. For further commentary on the ethical considerations associated with research into COVID-19, see the Nuffield Council blog '[The ethical imperative of preparedness](#)'.

The [American Medical Association journal of ethics](#) have a podcast with journal Editor-in-Chief, Dr Audiey Kao, discussing the ethical challenges, including resource scarcity and medical worker obligations that arise during pandemics

See also the [Sage Journal blog](#) on the Ethical issues in managing the current COVID-19 pandemic.

## Applications and amendments

### Submitting an amendment in relation to COVID-19

If you have already obtained University research ethics approval to conduct face-to-face research, you can submit an amendment to change the method of data collection to an alternative approach, i.e. - telephone, online, or postal. Before submitting an amendment, you should consider the following points and ensure they are detailed in the amendment form under question 2.5;

- Are the new method appropriate for the study and/or the sample population?
- Have all potential risks and harms arising from the new data collection method been mitigated?
- Have issues of consent; confidentiality; data management; risk etc. been thoroughly accounted for in the application or amendment, and do these meet best practice?

Instructions on submitting an amendment can be found in the [Policy on COVID-19 and research ethics](#).

### Submitting a new application

The University's Research Ethics Committee are continuing to review and approve research ethics applications. Please note that all approvals granted during this period will be subject to the restrictions laid out in the Policy. Therefore, although research ethics approval may be granted during this period, researchers must not conduct any research which involves face-to-face contact with human participants until the Policy restrictions have been lifted.

Researchers should consider if they can adapt their research data collection methods before submitting a new application. If you have an application that is currently under review (and has not yet been approved), then you should ask the Secretary of the relevant Committee to return the application to you so that the relevant changes can be made and the application resubmitted. Please do not abandon any under-review applications in order to submit a new application.

### Submitting an application to conduct research associated to COVID-19

Applications submitted relating to the COVID-19 pandemic will be processed as quickly as possible by Chairs' Action. We advise that you email [ethics@liverpool.ac.uk](mailto:ethics@liverpool.ac.uk) before you submit your application so we can manage the number of applications being processed.

To ensure that we can process your ethics application as quickly as possible, the aims and designs of the research should be well detailed and written in lay language. The ethical considerations of the research topic need to be reflected upon throughout your application. During the COVID-19 pandemic, researchers should also consider the potential stress, discomfort or psychological impact that may occur as a result of being asked to take part in a research project in these challenging and uncertain times; and how this may affect a participant's health and wellbeing. Applications should highlight these challenges and describe how they will be mitigated and managed throughout the collection of research data.

**As a final message from the central research ethics and integrity team, we wanted to highlight the importance of staying safe and to highlight potentially helpful resources available to manage your wellbeing.**

- [#ResDevInYourPJs](#) includes alternating weekly bitesize videos to support your personal and professional career development through twitter check-in chats with our researchers.
- Prof Peter Kinderman and Patsy Irizar's article - [looking after your mental health during COVID-19](#).
- [Lunchtime concert series](#) available every Wednesday at 1pm.
- Join the [online book club](#) with Microsoft Teams using code: zrrquvc.
- Try mindfulness with [Headspace](#).
- Manage your mental health with [Blurt](#) and [Mind](#).
- Stay active by walking, running, joining [Joe Wicks](#) daily at 9am; or by doing some [yoga](#).



Appendix XI (Ms. Mani and Ms. Cani).

2/6/22

Ms. Mani & Ms. Cani

and ms. Mani

An illustration showing two women, one standing and one sitting in a yellow taxi. A blue arrow points from the taxi towards a large, ornate building.

Google map

An illustration showing a red double-decker bus, a black taxi, and a train on tracks.

A screenshot of a Google Maps interface showing a route highlighted in red on a map. Blue arrows point to various elements on the map and the left sidebar.

Ms. Cani's trips

Three icons: a red double-decker bus, a London Underground sign, and a black silhouette of a person walking.

Selfridges Trip

An illustration showing a building, a woman carrying several colorful shopping bags, and a yellow taxi.

1

**Appendix XII (Interviews transcription).****Interviewee 1****Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 1: hi Reem, ok.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 1: No.

[ 5 ] Reem: What are the difficulties that you faced while working with DDL intervention?

[ 6 ] Interviewee 1: Nothing.

[ 7 ] Reem: Did you learn something from DDL?

[ 8 ] Interviewee 1: yes.

[ 9 ] Reem: What did you learn from DDL?

[ 10 ] Interviewee 1: I learned how to use metadiscourse markers in a correct way and I learned how to use more devices.

[ 11 ] Reem: what do you mean by more devices?

[ 12 ] Interviewee 1: I don't repeat the same marker, I can use different markers that can have the same function.

[ 13 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 14 ] Interviewee 1: Yes, I learned how to use each marker in details.

[ 15 ] Reem: details?

[ 16 ] Interviewee 1: I saw the metadiscourse markers in concordancing lines I mean sentences, then I saw them in paragraphs and I saw them in a full complete essay. in our normal class I see the examples in sentences only.

[ 17 ] Reem: Which activity type did really attract your attention? Why?

[ 18 ] Interviewee 1: the concordancing lines, because I understand how to put some markers in more than one place in the sentence.

[ 19 ] Reem: Which activity type did you find it interesting?

[ 20 ] Interviewee 1: the concordancing lines.

[ 21 ] Reem: why?

[ 22 ] Interviewee 1: I feel happy when I look at the lines, read the guiding questions and have some discussion to find the rule. I feel so happy if I discover the rule.

[ 23 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 24 ] Interviewee 1: yes, I will. Because the activities were short and clear. I didn't feel bored.

[ 25 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 26 ] Interviewee 1; none.

[ 27 ] Reem: How do you feel about your mistakes?

[ 28 ] Interviewee 1: my mistakes became fewer than before, I know how to find my mistakes and how to deal with them.

[ 29 ] Reem: Any Comments about DDL?

[ 30 ] Interviewee 1: none,

[ 31 ] Reem: Thanks for your time and feedback.

[ 32 ] Interviewee 1: welcome.

## **Interviewee 2**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 2: fine.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 2: No, all I know is I am one of the respondents in the research making.

[ 5 ] Reem: Did you face any difficulty while working with DDL?

[ 6 ] Interviewee 2: None so far, My internet connection was stable.

[ 7 ] Reem: What did you learn from DDL?

[ 8 ] Interviewee 2: How to make a good essay and the usage of markers.

[ 9 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 10 ] Interviewee 2: yes, I learned the proper usage of metadiscourse markers, I can see that I was improved in my writing. I noticed some academic words and phrases and I like to use them.

[ 11 ] Reem: like?

[ 12 ] Interviewee: I don't have to write "I will talk about", I saw in the models that you showed us " I will discuss", " I will focus", I will examine" , I am so happy to use them not only in my essays in your study, but also in my homework with my teacher.

[ 13 ] Reem: Which activity type did really attract your attention? Why?

[ 14 ] Interviewee 2: the concordance lines, I see the proper usage of markers in context.

[ 15 ] Reem: Which activity type did you find it interesting?

[ 16 ] Interviewee 2: the concordance lines. It is like a puzzle, we read, think to find the answer.

[ 17 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 19 ] Interviewee 2: Yes, I am interesting this kind of topic and I want to gain more knowledge.

[ 20 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 21 ] Interviewee 2: My favorite markers are firstly, secondly, and lastly. It makes my thoughts more organized. I considered as my recommendation for future DDL intervention research. Any markers give more systematic in writing and well organized and can easily get the points that you want to convey.

[ 22 ] Reem: How do you feel about your mistakes?

[ 23 ] Interviewee 2: a little bit upset

[ 24 ] Reem: why?

[ 25 ] Interviewee 2: because I thought that is right and nobody can tell me the right usage of markers.

[ 26 ] Reem: but you are better than before!

[ 27 ] Interviewee 2: yeah!

[ 28 ] Reem: Any Comments about DDL?

[ 29 ] Interviewee 2: Very Good!

[ 30 ] Reem: Thanks for your time and your participation.

[ 31 ] Interviewee 2: thanks ma'am for everything!.

### **Interviewee 3**

#### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 3: Ok.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 3: No

[ 5 ] Reem: Did you face any difficulty when we were working with DDL?

[ 6 ] Interviewee 3: None.

[ 7 ] Reem: Did you learn something from DDL?

[ 8 ] Interviewee 3: yes

[ 9 ] Reem: can you tell us what did you learn?

[ 10 ] Interviewee 3: The usage of metadiscourse markers can help in the organization of writing an essay.

[ 11 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 12 ] Interviewee 3: Yes,

[ 13 ] Reem: Can you explain?

[ 14 ] Interviewee 3: it helped me identify and understand the use or the markers. Understanding the role of the marker helped me to present the idea easily.

[ 15 ] Reem: Which activity type did really attract your attention? Why?

[ 16 ] Interviewee 3: Almost everything, to be honest. The activities are fun and easy that is why one can follow through.

[ 17 ] Reem: Which activity type did you find it interesting?

[ 18 ] Interviewee 3: The part where we started to apply the metadiscourse markers on essays.

[ 19 ] Reem: If you have the chance to work with DDL intervention, will you participate?

[ 20 ] Interviewee 3: Yes, I will.

[ 21 ] Reem: why?

[ 22 ] Interviewee 3: because it will help me improve the way I write my essays.

[ 23 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 24 ] Interviewee 3: "Frankly"

[ 25 ] Reem: How do you feel about your mistakes?

[ 26 ] Interviewee 3: I felt very good to be corrected, for it is a pleasure to learn things.

[ 27 ] Reem: Any Comments about DDL?

[ 28 ] Interviewee 3: It can help students and instructors/teachers/professors when it comes to studying a language, one more thing is that it gives clarification and elaboration on how one shares his or her ideas.

[ 29 ] Reem: thank you so much for that!

[ 30 ] Interviewee 3: my pleasure.

#### **Interviewee 4**

##### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 4: fine.

[ 3 ] Reem: Do you have any idea about DDL before working in the project?

[ 4 ] Interviewee 4: no.

[ 5 ] Reem: Did you face any difficulty in working with DDL?

[ 6 ] Interviewee 4: no, I was only thinking about the internet connection because I don't want to miss the lessons online.

[ 7 ] Reem: did you learn something new from DDL?

[ 8 ] Interviewee 4: yes ma'am.

[ 9 ] Reem: can you tell me what did you learn?

[ 10 ] Interviewee 4: I learned the importance of metadiscourse markers in



writing, I learned how to use the markers properly.

[ 11 ] Reem: is DDL like the traditional lessons in dealing with metadiscourse markers?

[ 12 ] Interviewee 4: DDL is different. The activities are short and direct.

[ 13 ] I can say that metadiscourse markers are like the google map that you showed us when explained the story of Ms. Cani and Ms. Mani. When Ms. Cani used google map, everything was clear for her, and I want to be clear to my reader and guide him or her for my writing.

[ 14 ] Also, I saw some academic words that are important for me, especially, in the introduction umm... for example I will shed light, it has the same meaning of I will talk about.

[ 15 ] Reem: which activity did attract your attention?

[ 16 ] Interviewee 4: when we have the chance to see our writing analysis. Our essays are input, then we saw the quantitative analysis on AntConc software.

[ 17 ] Reem: which activity did you find interesting?

[ 18 ] Interviewee 4: concordance lines, I learned how to use different types metadiscourse markers.

[ 19 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 20 ] Interviewee 4: Yes, because there a bunch of information that I can gain and it enables to help me in my future writing. □

[ 21 ] Reem: Do you recommend markers that we can consider in future with DDL?

[ 22 ] Interviewee 4: additive markers.

[ 23 ] Reem: how do you feel now about your mistakes in test 1?

[ 24 ] Interviewee 4: hahaha, I felt mortifying though I learn from it.

[ 25 ] Reem: any comments about DDL?

[ 26 ] Interviewee 4: it was great and useful.

[ 27 ] Reem: thanks for your feedback!

[ 28 ] Interviewee 4: thanks, bye!

## **Interviewee 5**

### **Interview questions**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 5: ok.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 5: no ma'am.

[ 5 ] Reem: Did you face any difficulty in working with DDL?

[ 6 ] Interviewee 5: Time Management, um ... I need to get ready for the class before the time that you fix for us, and I need to make sure that internet connection is working well.

[ 7 ] Reem: What did you learn from DDL?

[ 8 ] Interviewee 5: the use markers in the sentences.

[ 9 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 10 ] Interviewee 5: yes. The story of the two ladies: Ms. Cani and Ms. Mani, I understand the idea of overused markers and underused markers from the way they use transport. When you showed us the AntConc software, I realized that we did like Ms. Mani and we did not know that.

[ 11 ] Reem: Which activity type did really attract your attention? Why?

[ 12 ] Interviewee 5: when we compared our writings with the samples because we saw the rules in concordance lines in real examples.

[ 13 ] Reem: Which activity type did you find it interesting?

[ 14 ] Interviewee 5: the activity that discussed the introductions. The introduction is like the map.

[ 15 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 16 ] Interviewee 5: Yes, because I want to learn more.

[ 17 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 18 ] Interviewee 5: all of them, hahaha.

[ 19 ] Reem: How do you feel about your mistakes?

[ 20 ] Interviewee 5: I am happy because I want to correct my mistake using the right way.

[ 21 ] Reem: Any Comments about DDL?

[ 22 ] Interviewee 5: Thank you so much for the opportunity to work in your team.

[ 23 ] Reem: I thank you as well for your time and feedback.

## **Interviewee 6**

### **Interview questions**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 6: ok.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 6: No.

[ 5 ] Reem: What are the difficulties that you faced while working with DDL intervention?

[ 6 ] Interviewee 6: I tend to forget the rules sometimes.

[ 7 ] Reem: Did you learn from DDL?

[ 8 ] Interviewee 6: I really learned a lot!

[ 9 ] Reem: can you tell me what did you learn?

[ 10 ] Interviewee 6: Now, I am aware of the proper way of writing an essay by making the proper use of markers.

[ 11 ] Reem: Which activity type did really attract your attention?

[ 12 ] Interviewee 6: When we learn every marker in its lines ...everything! I like the way of DDL activities were presented to us because in just a small span of time, I learned a lot!

[ 13 ] Reem: Which activity type did you find it interesting?

[ 14 ] Interviewee 6: The evaluation of our works in numbers with AntConc software. I learn from my mistakes.

[ 15 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 16 ] Interviewee 6: Yes. I know I want to learn more.

[ 17 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 18 ] Interviewee 6: the rest of metadiscourse markers in Hyland's book!

[ 19 ] Reem: How do you feel about your mistakes? Ashamed at first, but at least now, I am aware and know the proper usage of markers and these mistakes will not appear again.

[ 20 ] Reem: Any Comments about DDL?

[ 21 ] Interviewee 6: Great!

[ 22 ] Reem: Thanks!

## **Interviewee 7**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 7: Ok Reem.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 7 No.

[ 5 ] Reem: did you face any difficulty while working with DDL intervention?

[ 6 ] Interviewee 7: I didn't face any difficulty.

[ 7 ] Reem: Did you learn something from DDL?

[ 8 ] Interviewee 7: yes.

[ 9 ] Reem: like?

[ 10 ] Interviewee 7: I learn how to use the metadiscourse markers in an easy way for my essay writing.

[ 11 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 12 ] Interviewee 7: yes, we repeat markers and we must control that.

[ 13 ] Reem: Which activity type did really attract your attention?

[ 14 ] Interviewee 7: all of them Reem.

[ 15 ] Reem: why?

[ 16 ] Interviewee 7: because it was easy for me to work with them, the activities were clear and simple.

[ 17 ] Reem: Which activity type did you find it interesting?

[ 18 ] Interviewee 7: again, all of them! Hehehe.

[ 19 ] Reem: If you have the chance to work with DDL intervention, will you participate?

[ 20 ] Interviewee 7: of course I will. I enjoyed my time while learning.

[ 21 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 22 ] Interviewee 7: the rest of the markers that you talked about them in

Hyland's book.

[ 23 ] Reem: How do you feel about your mistakes?

[ 24 ] Interviewee 7: I'm happy that I became realized for my mistakes and now I know to overcome them. I will not repeat them.

[ 25 ] Reem: Any Comments about DDL?

[ 26 ] Interviewee 7: DDL is helpful to understand the role of markers. I am so happy to work with your project Reem.

[ 27 ] Reem: thanks for your time

## **Interviewee 8**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 8: fine.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 8: No.

[ 5 ] Reem: did you face any difficulty when we work with DDL?

[ 6 ] Interviewee 8: yes, at the beginning.

[ 7 ] Reem: can you tell me what are the difficulties that you faced?

[ 8 ] Interviewee 8: I faced difficulties when I heard "concordancing lines" for the first time. I was thinking how can I learn from these lines, it is not like the lessons that we know in our classes. but later, I understand the reason for these lines.

[ 9 ] Reem: Did you learn something from DDL?

[ 10 ] Interviewee 8: yes, a lot.

[ 11 ] Reem: What did you learn from DDL?

[ 12 ] Interviewee 8: I didn't expect that learning these markers can help me to write a good essay, especially, the introduction.

[ 13 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 14 ] Interviewee 8: Yes, I learned new metadiscourse markers that I didn't use before.

[ 15 ] Reem: Which activity type did really attract your attention?

[ 16 ] Interviewee 8: the concordancing lines.

[ 17 ] Reem: Why?

[ 18 ] Interviewee 8: I realized that I don't have to fix myself on specific markers. There are other markers and they can have the same job.

[ 19 ] Reem: Which activity type did you find it interesting?

[ 20 ] Interviewee 8: I enjoyed comparing our writings with the samples.

[ 21 ] Reem: If you have the chance to work with DDL intervention, will you participate?

[ 22 ] Interviewee 8: sure I will do it.

[ 23 ] Reem: Why?

[ 24 ] Interviewee 8: because DDL increased my knowledge about metadiscourse markers and I can tell you that I noticed a development in my writing.

[ 25 ] Reem: Which marker do you recommend to consider for future DDL intervention research?



[ 26 ] Interviewee 8: not metadiscourse markers, I recommend considering conditional if in future.

[ 27 ] Reem: How do you feel about your mistakes?

[ 28 ] Interviewee 8: I learned from them.

[ 29 ] Reem: Any Comments about DDL?

[ 30 ] Interviewee 8: none,

[ 31 ] Reem: thanks for your time.

[ 32 ] Interviewee 8: my pleasure.

## **Interviewee 9**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 9: that is fine Reem.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 9: No, I have no idea about DDL before participating in this study.

[ 5 ] Reem: What are the difficulties that you faced while working with DDL?

[ 6 ] Interviewee 9: nothing Reem, it was clear.

[ 7 ] Reem: did you learn from DDL?

[ 8 ] Interviewee 9: yes Reem, With DDL, I understand the meaning of metadiscourse markers and their functions. This helped me a lot in my writing.

[ 9 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 10 ] Interviewee 9: Yes Reem. The repetition that we did and we were not aware about it.

[ 11 ] Reem: Which activity type did really attract your attention? Why?

[ 12 ] Interviewee 9: All activities are interesting for me but the example of MS. Cani and MS. Mani was perfect to fully understand the purpose of the study. This is the most important part for me, the two ladies are just like an example that I always remember when I want to write. I need to think about the reader and how to guide him.

[ 13 ] Reem: Which activity type did you find it interesting?

[ 14 ] Interviewee 9: when we analyzed our introductions from test 1 while using the metadiscourse markers is a good idea to correct our mistakes. I like the way that we analyzed our writings without seeing our names. I was so happy that there was a discussion of my writing but I didn't feel shy, we were focusing on the use of metadiscourse markers not on names.

[ 15 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 16 ] Interviewee 9: If I will have the opportunity to work with DDL again, I will not miss this chance and I will participate because this approach facilitates learning and helps students to be independent, motivated and responsible for their learning.

[ 17 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 18 ] Interviewee 9: Comparison markers.

[ 19 ] Reem: How do you feel about your mistakes?

[ 20 ] Interviewee 9: The mistakes I made are very mundane but I'm glad I made them because I learned a lot from DDL.

[ 21 ] Reem: Any Comments about DDL?

[ 22 ] Interviewee 9: I will write a project when I graduate, I would like to write about DDL. Are there studies that discuss DDL in French? My major is French and it is a good topic for me to write about it.

[ 23 ] Reem: I will ask and inform you. Thanks for your time and feedback and good luck with your project.

[ 24 ] Interviewee 9: thanks Reem.

## **Interviewee 10**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 10: Ok.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 10: No

[ 5 ] Reem: did you face any difficulty while working with DDL intervention?

[ 6 ] Interviewee 10: No difficulties I had learned with DDL in an easy and funny way.

[ 7 ] Reem: did you learn something new from DDL?

[ 8 ] Interviewee 10: yes Reem!

[ 9 ] Reem: What did you learn from DDL?

[ 10 ] Interviewee 10: I learned how to use the metadiscourse in the correct way. Also, I understand that there are many metadiscourse markers that can have the same role, I realized that thing from Miss. Mani and Miss. Cani. I feel my writing is improving and I know how to present my ideas easily.

[ 11 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 12 ] Interviewee 10: Yes, of course

[ 13 ] Reem: Like?

[ 14 ] Interviewee 10: the two ladies Mani and Cani, I understand the idea of overused and underused markers because of their story. Also, I can tell you that I found the reason why my ielts score didn't change, because I focused on one idea and I didn't consider the other idea.

[ 15 ] Reem: Which activity type did really attract your attention? Why?

[ 16 ] Interviewee 10: concordancing activities, especially that deal with marker since, I don't know that we can use to present reasons as the marker because. The activities that showed us that different markers can do the same job.

[ 17 ] Reem: Which activity type did you find it interesting?

[ 18 ] Interviewee 10: All

[ 19 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 20 ] Yes, it I learned useful things in an interesting way.

[ 21 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 22 ] Interviewee 10: no.

[ 23 ] Reem: How do you feel about your mistakes?

[ 24 ] Interviewee 10: Satisfied

[ 25 ] Reem: Any Comments about DDL?

[ 26 ] Interviewee 10: I suggest to support DDL activities with quizzes.

[ 27 ] Reem: why do you recommend that?

[ 28 ] Interviewee 10: the DDL activities are short, and the quizzes are short ...  
um we can check our progress with these quizzes.

[ 29 ] Reem: Thank you so much for your feedback and time.

[ 30 ] Interviewee 10: thank you REEM!

## **Interviewee 11**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 11: fine Reem.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 11: No

[ 5 ] Reem: did you face any difficulty while working with DDL?

[ 6 ] Interviewee 11: Yes, In the first activity, I found it a little bit challenging to understand the principle of DDL exercises, and how we can form a rule based on the concordancing lines. Yet, the guiding questions and the hints were helpful, it comes easy for me to understand the metadiscourse markers and compare between the sentences.

[ 7 ] Reem: What did you learn from DDL?

[ 8 ] Interviewee 11: I learnt new metadiscourse markers and where position (beginning or middle of the sentence), changing there places because some makers can be used in beginning and middle of the sentence. If you ask me before DDL to change the marker position, I would do in a random way, but now it is clear for me. DDL exercises increased my confidence in using the metadiscourse markers in English writing.

[ 9 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 10 ] Interviewee 11: I can save my time with some markers.

[ 11 ] Reem: how?

[ 12 ] Interviewee 11: when you showed us the concordance lines and model samples for the contrastive markers. If I am in a test, I will use the marker “however” or “nevertheless” to join two paragraphs to show my reader that these two paragraphs are against each other.

[ 13 ] Reem: so what about if you are not in a test?

[ 14 ] Interviewee 11: because I have more time and I can revise it many times, I will use although. I noticed that this marker “although” needs a long sentence.

[ 15 ] Reem: we call it complex sentence.

[ 16 ] Interviewee 11; yes, ummm... I don't want to make mistake in the test, but if I have a homework, I can write the long sentence and check it with the model sample to make sure that my sentence is correct.

[ 17 ] Reem: Which activity type did really attract your attention? Why?

[ 18 ] Interviewee 11: when we analyzed our writings and compared them with the examples, these activities are important for me because I learned the benefits of metadiscourse markers in each part of an essay. I can see all these rules we discovered in concordances in these activities, and the other activities improve the quality of my English writing, the paragraphs are now more organised.

[ 19 ] Reem: Which activity type did you find it interesting?

[ 20 ] Interviewee 11: Almost all the concordancing lines activities, I enjoyed discovering new metadiscourse markers with their roles.

[ 21 ] Reem: If you have the chance to work with DDL intervention, will you participate?

[ 22 ] Interviewee 11: Yes.

[ 23 ] Reem: why?

[ 24 ] Interviewee 11: It is an easy and fun plus I learned a lot for my writing.

[ 25 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 26 ] Interviewee 11; Actually, umm .... I use “every” and “very” a lot in my writing, so it will be good to know more about them.

[ 27 ] Reem: How do you feel about your mistakes?

[ 28 ] Interviewee 11; I am more aware now about my mistakes, I understand the reason why my score band was not changing. the awareness is a main reason why my writing is better than before.

[ 29 ] Reem: Any Comments about DDL?

[ 30 ] Interviewee 11: our tests were argumentative essays, I recommend to use DDL for other kinds of essays like writing task 1 in the IELTS test.

[ 31 ] Reem: amazing

[ 32 ] Interviewee 11: thanks REEM t was a good experience for me and a great opportunity.

[ 33 ] Reem: thanks for your time and feedback.

## **Interviewee 12**

### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 12: that is fine Reem.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 12: No.

[ 5 ] Reem: did you face any difficulty when we work with DDL?



[ 6 ] Interviewee 12: I didn't face any difficulties.

[ 7 ] Reem: Did you learn from DDL?

[ 8 ] Interviewee 12: of course Reem!

[ 9 ] Reem: Can you tell us what did you learn from DDL?

[ 10 ] Interviewee 12: I have learned many things:

[ 11 ] I learned how to use metadiscourse markers correctly.

[ 12 ] I realized that while writing I have to be aware by avoiding repetition and think about my ideas to make them clear to the reader.

[ 13 ] I have learned how to write a good argumentative essay, this will help me a lot for the IELTS task 2.

[ 14 ] the ideas are not the only essential element in writing, there is also a structured that has to be followed.

[ 15 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 16 ] I knew these markers before, but I was using some of them incorrectly.

After DDL, I managed to use them correctly. Also, Reem I didn't expect that these markers can join paragraphs! The marker "however" and "nevertheless" for example, I thought that they can link only two sentences, but after DDL I realized that they can link paragraphs.

[ 17 ] Reem: Which activity type did really attract your attention? Why?

[ 18 ] Interviewee 12: when we analyzed test 1 (essays that we wrote before DDL) and we compared them to writings of students with an advanced level. This

helped me to observe the mistakes I made clearly and know the things I have learned from DDL.

[ 19 ] Reem: Which activity type did you find it interesting?

[ 20 ] Interviewee 12: The first activities (concordancing lines) are very interesting because they don't give us the rule of using the markers, instead, we got to it by examining the examples. This method helped us to make and memorize the rules.

[ 21 ] Reem: I'm so happy to hear that!

[ 22 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 23 ] Interviewee 12: Yes of course. Students often avoid such experiences because they fear to be judged because of their mistakes. DDL is a chance for me to learn and to correct my mistakes without feeling afraid or uncomfortable. My name was anonymous!

[ 24 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 25 ] Interviewee 12: I recommend adding the marker "namely".

[ 26 ] Reem: How do you feel about your mistakes?

[ 27 ] Interviewee 12: I think that I have corrected many of them and I will not repeat them again.

[ 28 ] Reem: Any Comments about DDL?

[ 29 ] Interviewee 12: DDL activities were brief and to the point the thing that makes them enjoyable and effective. This method can be used to teach various lessons and help students to develop their English level.

[ 30 ] Reem: thanks for your time and feedback!

[ 31 ] Interviewee 12: my pleasure.

### **Interviewee 13**

#### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 13: Ok Reem

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 13: No.

[ 5 ] Reem: Did you face any difficulty while working with DDL?

[ 6 ] Interviewee 13: I didn't face any difficulties, the activities were clear, short and informative.

[ 7 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 8 ] Interviewee 13: yes, Reem! I learned how to use every marker correctly. Also, places of some markers helped to think about the punctuation.

[ 9 ] Reem: can you explain more? Why did you mention the punctuation?

[ 10 ] Interviewee 13: I will give an example of that, the marker "although" is used to present two contrastive ideas in one sentence ...umm if I put it at the

beginning of the sentence I need to put a comma in the middle to tell my reader that part 1 of the sentence is finished now and the second part which is the opposite will begin.

[ 11 ] Reem: Which activity type did really attract your attention? Why?

[ 12 ] Interviewee 13: when we compare our writings with the models, this gave me a clear clue about the elements that I need in writing argumentative essays. I noticed that my introduction in test 1 was too general and after DDL I realized that I need to think about the goal announcement that is like the google map for my reader.

[ 13 ] Reem: wow!

[ 14 ] Reem: Which activity type did you find it interesting?

[ 15 ] Interviewee 13: the activity that with concordance lines was my favorite type, I enjoyed finding the rule.

[ 16 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 17 ] Interviewee 13: Of course I will love to participate, because DDL helped me to acquire new things within short periods of time.

[ 18 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 19 ] Interviewee 13: notwithstanding, I hope to see it in real essay as you showed us with other markers.

[ 20 ] Reem: How do you feel about your mistakes?

[ 21 ] Interviewee 13: I was surprised with my mistakes I used to make and I thought that I was using the markers correctly. But now I feel proud that I had the chance to correct them thanks DDL!

[ 22 ] Reem: Any Comments about DDL?

[ 23 ] Interviewee 13: DDL helped made it easy for me to improve my writing through useful activities and encouraged me to think about other markers rather than stick to a single one in every writing.

[ 24 ] Reem: Great! Thanks for your time and feedback

[ 25 ] Interviewee 13: thank you Reem for giving me the chance to work with DDL!

#### **Interviewee 14**

##### **Interview questions:**

[ 1 ] Reem: Hello, I would like to thank you for your time and feedback based on your experience with DDL. I will ask you some questions, you can withdraw at any time, and I want to inform you that your name will be anonymous.

[ 2 ] Interviewee 14: Ok Reem, let's do it.

[ 3 ] Reem: Do you have any idea about DDL before participating in this study?

[ 4 ] Interviewee 14: No.

[ 5 ] Reem: did you face any difficulty in working with DDL?

[ 6 ] Interviewee 14: yes, but only at the beginning. I don't know where to put some of metadiscourse markers in sentences.

[ 7 ] Reem: What did you learn from DDL?

[ 8 ] Interviewee 14: I've improved my writing skills and I've realized all my mistakes in writing essays.

[ 9 ] Reem: Did you learn something new about metadiscourse markers instead of the traditional teaching?

[ 10 ] Interviewee 14: Yes, not to repeat the same marker over and over.

[ 11 ] Reem: Which activity type did really attract your attention? Why?

[ 12 ] Interviewee 14: The analysis of our writing tests and we compare our writing with the model samples. Because of that activity, I am able to apply all the lessons that I've learned and that's a great experience in improving my writing skills.

[ 13 ] Reem: Which activity type did you find it interesting?

[ 14 ] Interviewee 14: All of it.

[ 15 ] Reem: If you have the chance to work with DDL intervention, will you participate? Why?

[ 16 ] Interviewee 14: Yes of course. I want to learn more about DDL so that I can improve more my writing skills and to share others my nice chance of DDL intervention.

[ 17 ] Reem: Which marker do you recommend to consider for future DDL intervention research?

[ 18 ] Interviewee 14: I think all of it would be great!

[ 19 ] Reem: How do you feel about your mistakes?

[ 20 ] Interviewee 14: I feel embarrassed and at the same time I'm thankful because with the help of DDL, I've learned a lot from my mistakes.

[ 21 ] Reem: Any Comments about DDL?

[ 22 ] Interviewee 14: DDL intervention is very helpful not just in improving writing skills but also it increases your awareness on how to make an essay correctly and perfectly.

[ 23 ] Reem: thanks for the amazing feedback!

[ 24 ] Interviewee 14: my pleasure.

## Appendix XIII IELTS Evaluation Criteria



## IELTS TASK 2 Writing band descriptors (public version)

Band	Task Response	Coherence and Cohesion	Lexical Resource	Grammatical Range and Accuracy
9	<ul style="list-style-type: none"> <li>fully addresses all parts of the task</li> <li>presents a fully developed position in answer to the question with relevant, fully extended and well supported ideas</li> </ul>	<ul style="list-style-type: none"> <li>uses cohesion in such a way that it attracts no attention</li> <li>skillfully manages paragraphing</li> </ul>	<ul style="list-style-type: none"> <li>uses a wide range of vocabulary with very natural and sophisticated control of lexical features; rare minor errors occur only as 'slips'</li> </ul>	<ul style="list-style-type: none"> <li>uses a wide range of structures with full flexibility and accuracy; rare minor errors occur only as 'slips'</li> </ul>
8	<ul style="list-style-type: none"> <li>sufficiently addresses all parts of the task</li> <li>presents a well-developed response to the question with relevant, extended and supported ideas</li> </ul>	<ul style="list-style-type: none"> <li>sequences information and ideas logically</li> <li>manages all aspects of cohesion well</li> <li>uses paragraphing sufficiently and appropriately</li> </ul>	<ul style="list-style-type: none"> <li>uses a wide range of vocabulary fluently and flexibly to convey precise meanings</li> <li>skillfully uses uncommon lexical items but there may be occasional inaccuracies in word choice and collocation</li> <li>produces rare errors in spelling and/or word formation</li> </ul>	<ul style="list-style-type: none"> <li>uses a wide range of structures</li> <li>the majority of sentences are error-free</li> <li>makes only very occasional errors or inappropriacies</li> </ul>
7	<ul style="list-style-type: none"> <li>addresses all parts of the task</li> <li>presents a clear position throughout the response</li> <li>presents, extends and supports main ideas, but there may be a tendency to overgeneralise and/or supporting ideas may lack focus</li> </ul>	<ul style="list-style-type: none"> <li>logically organises information and ideas; there is clear progression throughout</li> <li>uses a range of cohesive devices appropriately although there may be some under-/over-use</li> <li>presents a clear central topic within each paragraph</li> </ul>	<ul style="list-style-type: none"> <li>uses a sufficient range of vocabulary to allow some flexibility and precision</li> <li>uses less common lexical items with some awareness of style and collocation</li> <li>may produce occasional errors in word choice, spelling and/or word formation</li> </ul>	<ul style="list-style-type: none"> <li>uses a variety of complex structures</li> <li>produces frequent error-free sentences</li> <li>has good control of grammar and punctuation but may make a few errors</li> </ul>
6	<ul style="list-style-type: none"> <li>addresses all parts of the task although some parts may be more fully covered than others</li> <li>presents a relevant position although the conclusions may become unclear or repetitive</li> <li>presents relevant main ideas but some may be inadequately developed/unclear</li> </ul>	<ul style="list-style-type: none"> <li>arranges information and ideas coherently and there is a clear overall progression</li> <li>uses cohesive devices effectively, but cohesion within and/or between sentences may be faulty or mechanical</li> <li>may not always use referencing clearly or appropriately</li> <li>uses paragraphing, but not always logically</li> </ul>	<ul style="list-style-type: none"> <li>uses an adequate range of vocabulary for the task</li> <li>attempts to use less common vocabulary but with some inaccuracy</li> <li>makes some errors in spelling and/or word formation, but they do not impede communication</li> </ul>	<ul style="list-style-type: none"> <li>uses a mix of simple and complex sentence forms</li> <li>makes some errors in grammar and punctuation but they rarely reduce communication</li> </ul>



5	<ul style="list-style-type: none"> <li>addresses the task only partially; the format may be inappropriate in places</li> <li>expresses a position but the development is not always clear and there may be no conclusions drawn</li> <li>presents some main ideas but these are limited and not sufficiently developed; there may be irrelevant detail</li> </ul>	<ul style="list-style-type: none"> <li>presents information with some organisation but there may be a lack of overall progression</li> <li>makes inadequate, inaccurate or over use of cohesive devices</li> <li>may be repetitive because of lack of referencing and substitution</li> <li>may not write in paragraphs, or paragraphing may be inadequate</li> </ul>	<ul style="list-style-type: none"> <li>uses a limited range of vocabulary, but this is minimally adequate for the task</li> <li>may make noticeable errors in spelling and/or word formation that may cause some difficulty for the reader</li> </ul>	<ul style="list-style-type: none"> <li>uses only a limited range of structures</li> <li>attempts complex sentences but these tend to be less accurate than simple sentences</li> <li>may make frequent grammatical errors and punctuation may be faulty; errors can cause some difficulty for the reader</li> </ul>
4	<ul style="list-style-type: none"> <li>responds to the task only in a minimal way or the answer is tangential; the format may be inappropriate</li> <li>presents a position but this is unclear</li> <li>presents some main ideas but these are difficult to identify and may be repetitive, irrelevant or not well supported</li> </ul>	<ul style="list-style-type: none"> <li>presents information and ideas but these are not arranged coherently and there is no clear progression in the response</li> <li>uses some basic cohesive devices but these may be inaccurate or repetitive</li> <li>may not write in paragraphs or their use may be confusing</li> </ul>	<ul style="list-style-type: none"> <li>uses only basic vocabulary which may be used repetitively or which may be inappropriate for the task</li> <li>has limited control of word formation and/or spelling; errors may cause strain for the reader</li> </ul>	<ul style="list-style-type: none"> <li>uses only a very limited range of structures with only rare use of subordinate clauses</li> <li>some structures are accurate but errors predominate, and punctuation is often faulty</li> </ul>
3	<ul style="list-style-type: none"> <li>does not adequately address any part of the task</li> <li>does not express a clear position</li> <li>presents few ideas, which are largely undeveloped or irrelevant</li> </ul>	<ul style="list-style-type: none"> <li>does not organise ideas logically</li> <li>may use a very limited range of cohesive devices, and those used may not indicate a logical relationship between ideas</li> </ul>	<ul style="list-style-type: none"> <li>uses only a very limited range of words and expressions with very limited control of word formation and/or spelling</li> <li>errors may severely distort the message</li> </ul>	<ul style="list-style-type: none"> <li>attempts sentence forms but errors in grammar and punctuation predominate and distort the meaning</li> </ul>
2	<ul style="list-style-type: none"> <li>barely responds to the task</li> <li>does not express a position</li> <li>may attempt to present one or two ideas but there is no development</li> </ul>	<ul style="list-style-type: none"> <li>has very little control of organisational features</li> </ul>	<ul style="list-style-type: none"> <li>uses an extremely limited range of vocabulary; essentially no control of word formation and/or spelling</li> </ul>	<ul style="list-style-type: none"> <li>cannot use sentence forms except in memorised phrases</li> </ul>
1	<ul style="list-style-type: none"> <li>answer is completely unrelated to the task</li> </ul>	<ul style="list-style-type: none"> <li>fails to communicate any message</li> </ul>	<ul style="list-style-type: none"> <li>can only use a few isolated words</li> </ul>	<ul style="list-style-type: none"> <li>cannot use sentence forms at all</li> </ul>
0	<ul style="list-style-type: none"> <li>does not attend</li> <li>does not attempt the task in any way</li> <li>writes a totally memorised response</li> </ul>			

**Appendix XIV the Frequency of Using Metadiscourse Markers by the Control Group Over the Three Tests.**

*Results of Rayson's Log-Likelihood Comparison for Metadiscourse Markers (Pretest vs Immediate Posttest) by the Control Group*

Category	Metadiscourse marker	Control Group		
		Pretest	Immediate posttest	LL
<b>Goal</b>	I would like	0	0	0.00
<b>announcement</b>	I want to	0	0	0.00
	Let us	1	0	1.36
<b>Boosters</b>	Certainly	0	0	0.00
	Obviously	0	1	1.41
	Undoubtedly	0	0	0.00
	Indeed	1	1	0.00
<b>Label stage</b>	Overall	1	0	1.36
	All in all	0	0	0.00
	To sum up	1	0	1.36
	In conclusion	1	0	1.36
	To conclude	3	1	0.99
<b>Addition</b>	Also	17	31	++*4.53
	In addition	2	0	2.72
	Moreover	4	1	1.85
	Besides	0	0	0.00
	Furthermore	2	2	0.00
<b>Hedges</b>	About	0	2	2.83
	Almost	0	0	0.00
	May	10	9	0.03

	Might	5	1	2.80
	Probably	0	0	0.00
<b>Causatives</b>	Because	42	28	2.45
	Since	3	2	0.18
	As a result	0	0	0.00
	Consequently	0	0	0.00
	Therefore	0	0	0.00
	Thus	1	0	1.36
	So	16	1	0.01
	Although	0	0	0.00
	Though	0	0	0.00
<b>Contrast</b>	Even though	0	0	0.00
	But	18	18	0.01
	Yet	1	1	0.00
	However	6	5	0.07
	Nevertheless	0	0	0.00
<b>Sequencing</b>	First/First of all	2	6	2.20
	Firstly	0	0	0.00
	To begin with	0	0	0.00
	Second	0	4	***5.65
	Secondly	1	0	1.36
	Third	1	1	0.00
	Thirdly	0	0	0.00
<b>Attitudes</b>	Agree	20	13	1.31
	Disagree	1	0	1.31
	Essential	2	1	0.31
	Important	40	14	***12.36

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Interesting	1	0	1.36
Unexpected	1	0	1.36
Cause	2	0	2.72
Fortunately	0	0	0.00
Unfortunately	0	1	1.41

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*Results of Rayson's Log-Likelihood Comparison of Metadiscourse Markers (Immediate Posttest vs Delayed Posttest) by the Control Group*

Category	Metadiscourse marker	Control Group		LL
		Immediate posttest	Delayed posttest	
<b>Goal announcement</b>	I would like	0	0	0.00
	I want to	0	0	0.00
	Let us	0	1	1.28
<b>Boosters</b>	Certainly	0	0	0.00
	Obviously	1	0	1.50
	Undoubtedly	0	0	0.00
	Indeed	1	1	0.01
<b>Label stage</b>	Overall	0	1	1.28
	All in all	0	2	2.55
	To sum up	0	1	1.28
	In conclusion	0	2	2.55
	To conclude	1	3	0.83
<b>Addition</b>	Also	31	29	0.49
	In addition	0	2	0.49
	Moreover	1	3	0.83
	Besides	0	0	0.00
	Furthermore	2	3	0.10
<b>Hedges</b>	About	2	0	3.01
	Almost	0	2	2.55
	May	9	9	0.06
	Might	1	15	***13.15
	Probably	0	0	0.00
<b>Causatives</b>	Because	28	31	0.00
	Since	2	3	0.10
	As a result	0	0	0.00
	Consequently	0	0	0.00
	Therefore	0	2	2.55
	Thus	0	0	0.00
	So	15	13	0.46

<b>Contrast</b>	Although	0	1	1.28
	Though	0	0	0.00
	Even though	0	2	2.55
	But	18	31	2.16
	Yet	1	0	1.50
	However	5	8	0.40
	Nevertheless	0	0	0.00
	<b>Sequencing</b>	First/First of all	6	1
Firstly		0	2	2.55
To begin with		0	0	0.00
Second		4	2	0.93
Secondly		0	1	1.28
Third		1	1	0.01
Thirdly		0	0	0.00
<b>Attitudes</b>		Agree	13	8
	Disagree	0	9	+***11.48
	Essential	1	5	2.47
	Important	14	6	-*4.27
	Interesting	0	0	0.00
	Unexpected	0	0	0.00
	Cause	0	6	+**7.65
	Fortunately	0	0	0.00
	Unfortunately	1	0	1.50

*Results of Rayson's Log-Likelihood Comparison of Metadiscourse Markers (Pretest vs Delayed Posttest) by the Control Group*

Category	Metadiscourse marker	Control Group		LL
		Pretest	Delayed posttest	
<b>Goal announcement</b>	I would like	0	0	0.00
	I want to	0	0	0.00
	Let us	1	1	0.00
<b>Boosters</b>	Certainly	0	0	0.00
	Obviously	0	0	0.00
	Undoubtedly	0	0	0.00
	Indeed	1	1	0.00
<b>Label stage</b>	Overall	1	1	0.00
	All in all	0	2	2.60
	To sum up	1	1	0.00
	In conclusion	1	2	0.26
	To conclude	3	3	0.01
<b>Addition</b>	Also	17	29	2.21
	In addition	2	2	0.01
	Moreover	4	3	0.24
	Besides	0	0	0.00
	Furthermore	2	3	0.12
<b>Hedges</b>	About	0	0	0.00
	Almost	0	2	2.60
	May	10	9	0.18
	Might	5	15	+*4.40
	Probably	0	0	0.00
<b>Causatives</b>	Because	42	31	2.76
	Since	3	3	0.01
	As a result	0	0	0.00
	Consequently	0	0	0.00
	Therefore	0	2	2.60
	Thus	1	0	1.48
	So	16	13	0.63
<b>Contrast</b>	Although	0	1	1.30
	Though	0	0	0.00
	Even though	0	2	2.60

	But	18	31	2.45
	Yet	1	0	1.48
	However	6	8	0.14
	Nevertheless	0	0	0.00
<b>Sequencing</b>	First/First of all	2	1	0.43
	Firstly	0	2	2.60
	To begin with	0	0	0.00
	Second	0	2	2.60
	Secondly	1	1	0.00
	Third	1	1	0.00
	Thirdly	0	0	0.00
<b>Attitudes</b>	Agree	20	8	-*6.41
	Disagree	1	9	+**6.68
	Essential	2	5	1.08
	Important	40	6	-***31.20
	Interesting	1	0	1.48
	Unexpected	1	0	1.48
	Cause	2	6	1.76
	Fortunately	0	0	0.00
	Unfortunately	0	0	0.00