

**A LONGITUDINAL STUDY OF MULTI-WORD UNITS IN L1 AND L2 NOVICE  
ACADEMIC WRITING**

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## **Abstract**

English academic writing has a central role at English-medium universities for assessment purposes. It is generally reported that L2 novice writers have difficulties in using multi-word units in their academic writing. Although there have been recent studies that investigate the use of multi-word units across different levels in L1 and L2 novice writing, truly longitudinal studies are rare. By using growth curve modelling, this study tracks the use of multi-word units, i.e. lexical bundles and p-frames in both L1 and L2 novice writers' essays in the field of English Language Education over one academic year. Additionally, interviews were conducted with lecturers and novice writers in order to provide contextual insights into the role of multi-word units in novice academic writing. The results indicate that dynamic patterns of change in terms of multi-word units occurred in both L1 and L2 novice writers' essays over one academic year, and both L1 and L2 novice academic writing overall approximated to the typical characteristics of the English academic prose identified in previous studies (Biber, 2009; Gray & Biber, 2013). The patterns of multi-word units and the changes that occurred over one academic year are interpreted in relation to the theoretical approaches to multi-word units, including usage-based approaches to language as well as interlanguage developmental effects informed by previous studies and contextual factors informed by the interviews. Teaching implications for English and academic writing as well as suggestions for further research are offered.

**Keywords:** longitudinal study, multi-word units, lexical bundles, phrase frames, growth curve modelling, academic writing.

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## **Dedication**

I dedicate this thesis to my mother for her unconditional love, wholehearted support and all of her sacrifices she made for me throughout my life.

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## **Chapter 1 Introduction**

“Universities are about writing.”

(Hyland, 2013, p. 53)

In this chapter, I provide background to this study and define the key terms that are used throughout. Then, I present the aims, research questions and explain the significance of my study. The structure of the thesis is outlined at the end of this chapter.

### **1.1 Background to the study**

Academic writing has a central role in gate-keeping and assessment for students in higher education. Given that first-year university students tend to have limited experience of academic writing before university, it is conceivable that they may encounter difficulties in meeting expectations of academic writing at university. As Hyland (2013, p. 56) notes, academic writing practices “confuse newcomers and force them into roles, identities and ways of writing which run counter to their experiences and intuitions about how language is used”. First-year university students at English-medium universities are required to submit their assignments in English, and they are expected to follow conventions of academic writing which may be mysterious to them. The conventions of academic writing involve demonstration of appropriate disciplinary knowledge, argumentation, exposition, critical analysis, content, organisation, and language features. Adapting to these conventions is challenging for both L1 and L2 writers during their first year of university; however, this challenge is likely to be greater for L2 writers who learn both the language and academic writing conventions at the same time.

Considerable literature has investigated second language writers' writing experiences during their first year at university in the Anglophone world (e.g. Knoch, Rouhshad, & Storch, 2014; Leki, 2007; Morton, Storch, & Thompson, 2015). Fewer studies have paid attention to academic writing challenges of L2 writers in English-medium instruction contexts in non-English speaking countries (e.g. in Hong Kong – Evans & Morrison, 2011; in Qatar – Pessoa, Miller, & Kaufer, 2014). These studies have identified issues related to content, organisation, the presentation of argument, and the language features of academic writing.

One of the most prominent language features of academic writing are multi-word units (Wray, 2002), which can be defined as recurrent word combinations with a single function, and they pose 'the final difficult hurdle' for advanced language learners (Wray & Fitzpatrick, 2008, p. 124). Multi-word units, which are pervasive in academic writing, play a key role in the construction of discourse in academic writing (Hyland, 2008, 2012; Wood, 2015). Biber, Johansson, Leech, Conrad and Finegan (1999) found that multi-word units (lexical bundles), which construct disciplinary membership and enhance effective communication (Hyland, 2008, 2012), constituted 20 per cent of the academic prose of English. The academic prose of English has been found to rely on noun phrases (e.g. 'the use of the') and prepositional phrases (e.g. 'in relation to') (Biber, 2009). These multi-word units also serve important functions in academic writing, which can be summarised as follows: They organise texts through discourse organisers (e.g. 'on the other hand'), convey attitudes, (un)certainly through stance expressions (e.g. 'it is possible'), and present textual content and frame attributes through referential expressions (e.g. 'in the context of'). Through these functional roles, multi-word units enable writers to achieve meaning-making and communicative purposes of academic writing (Hyland, 2012).

My interest in multi-word units in novice academic writing grew out of my experience as a user and an instructor of academic English at university. As a first-year

student at an English-medium university, I remember encountering difficulties in finding appropriate vocabulary to express arguments. Although I wrote my assignments in English more easily as I gained experience in academic writing, the first year of university was a difficult transitional period for me. As an instructor of academic English at a Turkish university later on, I was intrigued by first-year students' challenges with writing academic essays in English. They struggled with not only how to write in English, but also how to construct disciplinary knowledge in their academic essays. As Lewis pointed out (1997, p. 259), I experienced "the frustration of reading a student's essay and thinking 'I know what you mean, but that's not the way to write it.'" During student-teacher conferences, I observed that they had a feeling of uncertainty about the conventions of academic writing and about where and which multi-word units would be most appropriate to use. Hence, these elusive aspects of multi-word units in L2 novice academic writing led me to research this area in my PhD.

English instruction has an increasingly ubiquitous role in the Turkish education system as recent educational reform has brought English classes to second grade (as opposed to fourth grade before 2012) in primary public schools (MoNE, 2011). Additionally, English-medium instruction is also on the increase in higher education, which is driven by the proliferation of private-foundation funded universities (Selvi, 2014). These changes make research into academic writing of L1 Turkish novice writers of English particularly relevant since academic essays remain a primary tool of assessment at English-medium universities in non-English-speaking countries (Hyland, 2013).

Previous studies on L2 novice writers' essays show that even advanced language learners of English lag behind their L1 English-speaking counterparts in terms of the use of multi-word units (see Paquot & Granger, 2012 for a review of previous studies). In addition to L2 novice writers, research shows that L1 novice writers face challenges of writing academic essays in terms of disciplinary knowledge, academic writing



conventions, and language features during their first year of undergraduate study (e.g. Baratta, 2006; Gilquin, Granger, & Paquot, 2007). In this study, I refer to first-year university students whose L1 is English and who have no prior undergraduate education as ‘novice writers’, since previous research shows that L1 English-speaking, first-year university students, who have little experience in academic writing, need to learn how to write academic essays, and yet their academic writing differs from that of professional academic writers (Gilquin et al., 2007; Mauranen, 2012; Römer, 2009a). Multi-word units are of particular concern since they are both register-specific (concerned with the awareness of lexico-grammatical patterns associated with the situations, i.e. formal and written registers in this study) and discipline-specific (Biber et al., 1999, Biber, 2006; Biber & Barbieri, 2007; Hyland, 2008, 2012). In terms of register-specificity, Hyland (2008) found that only a few frequently occurring multi-word units in academic writing are shared with either conversation or fiction. Similarly, only five of the most frequent four-word multi-word units were found to be common between the disciplines of electronic engineering, business, applied linguistics, and biology (Hyland, 2008). Therefore, using multi-word units in academic writing may pose difficulties for L1 novice writers. Indeed, Cortes (2004, 2006) found that L1 English-speaking university students had difficulties in using recurrent word combinations in their essays in discipline-specific academic writing. This argument necessitates longitudinal research into the use of multi-word units of L1 novice writers who are apprentices in a specific discourse community during their first year of undergraduate study.

Novice academic writers are often faced with conflicting guidance and information about how to write academic essays. This conflict is particularly relevant for multi-word units on which writing guidelines, textbooks and English language teachers may give conflicting advice. The recent debate in the *ELT Journal* on teaching of ‘formulaic sequences’ and lexis in L2 instruction between Scheffler (2015) and Jones (2015) implies

that L2 learners of English may receive different treatment of lexis in L2 contexts. It is therefore important to provide empirical evidence of lecturers' and novice writers' perceptions about the role of multi-word units in novice academic writing and how multi-word units are used in L1 and L2 novice writers' essays in order to draw implications for teaching English and academic writing at English-medium universities in both Turkey and in other non-English-speaking countries. Additionally, novice writers' perceptions of the use of multi-word units and their self-reported discourse functions of them in their own academic writing can provide contextual insights into their learning process and the rationale behind their choices of multi-word units. Hence, this study complements corpus research by adding an emic perspective in order to explore the situated nature of academic writing, particularly the use of multi-word units in novice academic writing in two similar degree programmes at a UK and Turkish university.

## **1.2 Definition of key terms**

### *1.2.1 Multi word units, lexical bundles, and phrase frames*

It is important to establish the key terms that will be used throughout the study and review the terminology that is used to refer to multi-word units before presenting the aims of my study. I use the term 'multi-word units' to refer to lexical bundles (e.g. 'as a result of') which can be defined as "recurrent expressions, regardless of their idiomaticity, and regardless of their structural status." (Biber et al., 1999, p. 990) and phrase frames (p-frames) which can be defined as sets of n-grams with a variable slot (e.g. 'it is \* that') (Römer, 2010). 'Multi-word units' and 'phrases' are used interchangeably to refer to lexical bundles and p-frames in this study. Multi-word units encompass a wide range of linguistic features, including phrasal verbs and idioms; however, this study is limited to lexical bundles and p-frames. There are over fifty terms that are used for recurrent word

combinations in the literature (Wray, 2002). These include ‘prefabricated routines or prefabs’ (Erman & Warren, 2000), ‘recurrent word combinations’ (Altenberg, 1998), ‘lexical phrases’ (Nattinger and DeCarrico, 1992), and ‘multi-word patterns’ (Sinclair, 1991). A variety of terms imply the important and contentious nature of research on multi-word units in the literature. A general consensus is that these units have a single meaning or function, and they are multi-word items which consist of three or more words, as the term itself suggests (Wood, 2015).

Another term which has often been associated with multi-word units is ‘formulaic sequence’. Wray (2002, p. 9) defines it as “a sequence, continuous or discontinuous, of words or other elements, which is, or appears to be prefabricated: that is stored and retrieved whole from the memory at the time of use, rather than being subject to generation or analysis by the language grammar”. This definition is difficult to operationalise because recent psycholinguistic evidence suggests that such ‘holistic’ storage could depend on several variables, including frequency (Sivanova-Chanturia & Martinez, 2014). In fact, “frequency leads to familiarity and hence should be deemed as a primary characteristic of multi-word units” (Sivanova-Chanturia & Martinez, 2014, p. 17). Frequency is also considered an indicator of prefabricatedness (Biber, 2009; Biber & Barbieri, 2007). Hence, I follow the frequency-based approach for multi-word units in this study. The psychological reality of multi-word units is not addressed in this study, but previous studies have provided evidence for the psychological reality of frequently occurring multi-word units (e.g. Arnon & Snider, 2010; Ellis, Simpson-Vlach, & Maynard, 2008).

### *1.2.2 Discourse community*

Discourse community, which “consists of a group of people who link up in order to pursue objectives that are prior to those of socialisation and solidarity” (Swales, 1990, p. 24), is another important concept for this study. Accordingly, the English Language

Education degree programme at an English-medium university in Turkey and the English Language for Education degree programme at a UK university where data for this study were collected can be regarded as two academic discourse communities. The characteristics of these two discourse communities are described in the methodology chapter.

### *1.2.3 Register and genre*

There has been terminological confusion over the terms of ‘register’ and ‘genre’ (Biber, 2006; Biber & Conrad, 2009; Lee, 2001). Many previous studies have exclusively used one term or the other (Biber & Conrad, 2009). Following Lee (2001), I use the terms ‘register’ and ‘genre’ as two different, but complementary perspectives. Biber and Conrad (2009, p. 15) regard register and genre as two different “perspectives for analysing text varieties, not as different kinds of texts or varieties”. The term ‘register’ has been referred to as a language variety associated with pervasive lexico-grammatical features which serve important functions (Biber & Conrad, 2009), while the term ‘genre’ is associated with the socio-culturally built-in ways of discourse community membership, which encompasses general register characteristics (Biber & Conrad, 2009). Accordingly, academic writing can be regarded as a register (Biber, 2006), and the students’ academic essays can be considered as a genre family (Gardner & Nesi, 2013; Nesi & Gardner, 2012). Further details about students’ essays are provided in the methodology chapter.

## **1.3 Aims of the study**

The primary aim of the study is to give a comprehensive picture of the use of multi-word units in academic essays written by L1 Turkish-speaking students of English over one academic year. Their essays are compared and contrasted with L1 English-speaking students’ academic essays in order to identify to what extent the use of multi-word units

between these two groups converge/diverge. In order to depict patterns of change in multi-word units in both groups, the frequency analyses of multi-word units in both L1 and L2 novice writers' essays are also informed by the frequency information of the same multi-word units in a part of the British Academic Written English (BAWE) corpus which includes first-year university students' writing in the Arts and Humanities and Social Sciences disciplines which received 'merit' or 'distinction'.

This study also aims to provide insights into trajectories of L1 Turkish-speaking students of English in terms of the use of multi-word units by identifying "the idiosyncratic nature of learners' development" (Belz & Vyatkina, 2008, p. 34). This is of great benefit to both learners and teachers because it indicates changes in learners' use of multi-word units and uncovers specific problems associated with them. The use of a controlled longitudinal learner corpus can broaden our knowledge of developmental patterns of multi-word units that would not have been extracted in a larger and less controlled corpus that is compiled at one point in time. Therefore, the longitudinal learner corpus can contribute to the field of second language acquisition, since it gives us the opportunity to reveal the most problematic and successful areas of change in language learners' writing in an English-medium university context in comparison to the corpus of L1 novice writers' essays. Additionally, given that lexico-grammatical features undergo changes in L1 novice writers' academic writing during their first-year of study at university (Staples, Egbert, Biber, & Gray, 2016), a longitudinal study on L1 and L2 novice academic writing may enable us to identify areas for academic writing instruction in two discourse communities.

The longitudinal corpora are complemented with student interviews so as to gain a deeper insight into the students' use of multi-word units in writing. Interviews provide a deeper understanding into the sociocultural context and enable the study to be more

pedagogically useful. There has been strong criticism of corpus-based approaches for failing to consider the sociocultural context (Flowerdew, 2005). In this study, as the corpus is compiled by the researcher, the sociocultural context will be integrated within the study with the help of interviews. Semi-structured interviews are conducted with both lecturers and novice writers in order to capture the views of both writers and readers of academic essays in two discourse communities. Moreover, novice writers' self-reported discourse functions of multi-word units that they use in their own writing are tracked through stimulated recall protocols. This helps uncover novice writers' reasons behind their choices of multi-word units, which in turn would contextualise the textual analysis of essays.

This study aims to provide an understanding of the use of multi-word units by first-year novice writers in their academic essays over one academic year, and novice writers' self-reflections on multi-word units in academic writing as well as lecturers' perceptions of their students' use of multi-word units in their essays in two discourse communities. In light of the review of previous studies and the research gaps identified in the literature, this study aims to address the following research questions:

1. To what extent, if any, do lexical bundles in the essays of L1 and L2 novice writers change with regard to frequency, structural categories and discourse functions over one academic year?
2. To what extent, if any, do phrase frames in the essays of L1 and L2 novice writers change with regard to frequency, structural categories, discourse functions, internal variability and predictability over one academic year?
3. What are the differences and similarities in the use of lexical bundles and p-frames between the essays of L1 and L2 novice writers over one academic year in terms of the aspects stated in the previous two questions?

4. How do the frequencies of lexical bundles and p-frames identified in the essays of L1 and L2 novice writers correlate with those in the sub-corpus of BAWE over time?
5. a) To what extent, if any, do the L1 and L2 novice writers' perceptions of the use of multi-word units and their self-reported discourse functions of multi-word units change over one academic year?  
b) What are the lecturers' perceptions and expectations of the use of multi-word units in novice academic writers' essays in the two discourse communities?

My hypotheses that were informed by previous studies in the literature are presented at the beginning of Chapter 3.

#### **1.4 Significance of the study**

The originality of this study lies in the fact that it tracks the same L1 and L2 novice writers' essays over one academic year in order to make an empirical contribution to how multi-word units are used in academic essays in the discipline of English Language Education. Although cross-sectional studies on multi-word units have given insights into the characteristics of learner language since the 1990s, little attention has been paid to the use of multi-word units in both L1 and L2 novice academic writing from a developmental or longitudinal perspective. Even though there has been an increase in quasi-longitudinal studies that investigate multi-word units in groups of different proficiency levels or different levels of graduate and undergraduate study (e.g. Ädel & Römer, 2012; Chen & Baker, 2014), there are very few longitudinal studies that investigate second language learners' development of multi-word units (Li & Schmitt, 2009, 2010; Macqueen, 2012). These longitudinal studies have been mostly limited to one or multiple case studies that examine one or several students' written outputs at higher intensity and more frequent

intervals, which may indicate that there are developmental<sup>1</sup> rather than longitudinal in nature (Li & Schmitt, 2009; Macqueen, 2012). Many scholars have acknowledged the need for more longitudinal or developmental studies in the field of second language writing and phraseology research (Granger, 2004; Ortega & Byrnes, 2008; Paquot & Granger, 2012). As Byrnes (2009, p. 64) argues, longitudinal research “has the potential of capturing the dynamic nature of language use, language development, and the language system”.

To the knowledge of the researcher, no studies have focused on multi-word units in academic written discourse of L1 Turkish-speaking students of English at an English-medium university. Also, little is known about the extent of change/stability in multi-word units in essays of L1 novice writers of English. During the first year of university, students encounter transitional challenges with academic writing. Hence, an investigation of multi-word units in novice academic writing during the first year of university would give empirical evidence of the degree of stability and change in the use of multi-word units with regard to frequency, structural categories and discourse functions over one academic year. Although one academic year may not be long enough to regard this study as longitudinal, research on multi-word units in novice academic writing during a transitional period has the potential to depict the trajectories of the use of multi-word units in both L1 and L2 novice writers’ essays and inform areas for pedagogical instruction in academic writing.

Another significance of this study lies in its ‘methodological pluralism’ (McEnery & Hardie, 2011, p. 227) and the combination of different analytical techniques, as Römer (2016) recommends in phraseology research. In this study, not only continuous sequences, i.e. lexical bundles, but also discontinuous sequences, i.e. p-frames are investigated in L1 and L2 novice writers’ essays. Furthermore, a combination of corpus linguistics and computational linguistic methods are used in this study. A script in the Python language is

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<sup>1</sup> Belz and Vyatkina (2008) argue that a developmental corpus refers to data collected at frequent intervals (e.g. twice in a month) while a longitudinal corpus refers to data collected at wide intervals (e.g. the beginning of the first semester, the end of the first semester).



written to extract p-frames in order to take into account the range criterion and record frequencies of multi-word units for each text in my corpora. The internal variability of p-frames is calculated using entropy which is a measure used in information theory known as a branch of mathematics. Additionally, occurrences of multi-word units are recorded in each text, as Granger (2015) recommends. The recording of occurrences of multi-word units in each text allows me to use a relatively new powerful statistical technique called growth curve modelling (Mirman, 2014; Singer & Willett, 2013), which is a multilevel/mixed-effects model used to track the patterns of change in use of multi-word units in both L1 and L2 novice writers' essays. To my knowledge, there has been no application of growth curve modelling in phraseology research.

Textual analysis of essays is complemented by discourse-based interviews conducted with novice writers at the first and second semesters of the first year of university in order to gain insights into their self-reported discourse functions of the multi-word units that students use in their own essays and their perceptions of the use of the multi-word units in academic essays. There are few studies which have integrated students' perspectives into the investigation of the use of phrases. Li and Schmitt (2009) interviewed an L1 Chinese-speaking MA student studying in the UK and analysed lexical phrases in her essays in English, and they found that although the participant relied on a limited repertoire of phrases, she increased her confidence in using phrases and learned to use phrases more appropriately over one academic year. Similarly, Macqueen (2012) tracked phrases in essays of four language learners from pre-university courses to the first-year of study at a university in Australia and interviewed them about their linguistic choices over about a year. Both phrases and learners' accounts of their linguistic choices were dynamic, showing both linear and non-linear developmental patterns. Hyland (2015), however, has identified the lack of emic perspective as a research gap in corpus studies on written academic English and emphasised the need to involve the writers and readers of the texts

in the analysis. This study fulfils this research gap through interviews with both lecturers and novice writers. Semi-structured interviews with lecturers on their expectations and the role of the multi-word units in novice academic writing at a UK and Turkish university add to the understanding of context-specific factors of multi-word units that play a role in novice academic writing. Including the voices of the researched within this longitudinal design can enhance the interpretation of textual analysis and offer important insights into the relationship between the institutional context and changes in phraseological patterns in novice writers' essays. This combination of quantitative and qualitative methodologies has the potential to offer a methodological framework by providing context-specific explanations of longitudinal inter-group variations and similarities in the use of multi-word units, which would otherwise be difficult to identify.

### **1.5 Outline of the thesis**

In this chapter, I have provided background to my study and defined the key terms that are used throughout my study. This chapter has also presented the research questions and described the aims and significance of this study.

Chapter 2 begins with presenting the theoretical approaches that underpin the patterned nature of language, namely, Sinclair's idiom principle (1991) and Hoey's lexical priming theory (2005) as well as usage-based approaches to language learning (e.g. Barlow & Kemmer, 2000; Ellis, 1998). The second section of Chapter 2 reviews the previous empirical studies of multi-word units in published academic writing and novice L1 and L2 academic writing.

Chapter 3 describes the design of the study and procedures for data collection that are followed for novice writers' essays and interviews conducted with lecturers and novice writers. The procedures for the analysis of essays and interviews are also explained.

Towards the end of the chapter, the steps which are undertaken to increase the validity, reliability and trustworthiness of this study are discussed.

Chapter 4 presents the frequencies, discourse functions, and structural categories of lexical bundles in both L1 and L2 novice writers' essays and compares these features between the two groups over one academic year. In Chapter 5, the frequencies, discourse functions and structural categories, internal variability and predictability of p-frames in L1 and L2 novice writers' essays are presented and compared between the two groups over one academic year.

Chapter 6 reports the lecturers' perceptions and expectations of their students' use of multi-word units in their academic essays in the two discourse communities. L1 and L2 novice writers' perceptions of their use of multi-word units in academic writing and their self-reported discourse functions of multi-word units that they use in their own essays are also explored.

In Chapter 7, I discuss the key quantitative and qualitative findings of this study in relation to the previous literature and categorise my interpretations into different factors. This chapter emphasises the complex interrelatedness of factors which are responsible for variation in the use of multi-word units in novice academic writing.

Finally, Chapter 8 outlines the contributions of this study and provides teaching implications for English language and academic writing classes. The limitations of the study are described, and suggestions for further research on multi-word units in novice academic writing are also offered.

## Chapter 2 Literature Review

“The phrase, the whole phrase  
and nothing but the phrase.”

(Sinclair, 2008, p. 407)

This chapter begins with theoretical accounts of the role of multi-word units in the English language. Then, I move on to discussing previous empirical research on multi-word units in academic writing. Finally, studies on novice writers’ and lecturers’ perceptions of the use of multi-word units in novice academic writing are reviewed.

### 2.1 Theoretical approaches to multi-word units

There is no uniform theory of phraseology (or multi-word units as referred to in this study) as the definition and identification of phraseological items vary across theoretical approaches in linguistics (Gries, 2008; Wood, 2015). As this study takes a frequency-based approach to multi-word units, the most relevant theoretical approaches that are based on the premises of the frequent co-occurrence of words and interrelatedness of lexis and grammar (Römer, 2009b) are reviewed in this section. These include idiom and open choice principles (Sinclair, 1991), lexical priming (Hoey, 2005), and usage-based approaches to language (e.g. Barlow & Kemmer, 2000). Pattern grammar, which is defined as “all the words and structures which are regularly associated with the word and contribute to its meaning” (Hunston & Francis, 2000, p. 37) is not covered in this study because Biber (2009) argues that the units of analysis in pattern grammar studies are pre-defined by linguistic categories, such as ‘N that’ (e.g. ‘argument that’) pattern.

### *2.1.1 Idiom and open choice principles*

Sinclair, who took a leading role in large-scale data-driven language analysis, formulated two principles of language: the idiom principle and open choice principle. The idiom principle, which is grounded in intertwinement of lexis and grammar, posits that meanings are created by co-selection of words rather than individual words. As Sinclair (1991, p. 110) states, “a language user has available to him or her a large number of semi-preconstructed phrases that constitute single choices, even though they might appear to be analysable into segments”. For instance, ‘in terms of’ can be considered as a single choice, though each word can further be analysed. This model accounts for the “phraseological tendency” of language (Sinclair, 2004, p. 29), and it is based on the premise of the frequency of co-occurrence of words. No explicit claim about the psychological reality of those “large number of semi-preconstructed phrases” (Sinclair, 1991, p. 110) is made. The open choice principle, on the other hand, holds that individual lexical words are selected to fill slots, restrained by grammaticality. For example, ‘put the t-shirt in my wardrobe’ (‘put \* in \*’) can be regarded as a slot-and-filler way of constructing meaning.

According to Sinclair (1991), language primarily operates according to the idiom principle, and only when “there is good reason, the interpretative process switches to the open-choice principle, and quickly back again” (Sinclair 1991, p. 14). Hence, Sinclair (1991) notes that L1 speakers’ language use reflects the idiom principle, whereas L2 speakers tend to produce their spoken or written output according to the open choice principle. Similarly, Siepmann (2011) argues that L1 language users tend to conform to the conventions of language, and open choice principle is at work when language users are not capable of following the conventions of language, or when language users deliberately break the conventions of language.

Corpus research on phraseology has provided empirical validation for the idiom principle (Römer, 2009b). However, it seems that no sharp distinction can easily be made between the idiom and open choice principle, and there tends to be a cline from the idiom to the open choice principle (Granger & Paquot, 2008; Gries & Mukherjee, 2010). Accordingly, even though lexical bundles are not meaningful units in most of the cases, they are recurrent word combinations and situated at the interface of lexis and grammar. As Biber, Conrad and Cortes (2004, p. 399) notes, “lexical bundles are a fundamentally different kind of linguistic construct from productive grammatical constructions”. P-frames, which allow an internal variation (Römer, 2009b), are not continuous sequences, but they can be interpreted as the manifestation of idiom choice principle to a large extent because internal lexical variation and internal syntactic variation are characteristics of the semi-preconstructed phrases (Sinclair, 1991). P-frames allow restricted variability, as variants tend to be semantically related (‘it is \* to’ – ‘important’, ‘crucial’, ‘necessary’, etc.) (Erman & Warren, 2000; Römer, 2009b).

### *2.1.2 Lexical priming*

Lexical priming builds on the idiom principle, and “priming contextualises theoretically and psychologically Sinclair’s insights about the lexicon” (Hoey, 2005, p. 158). Lexical priming holds that whenever a language user encounters a word, its lexical, grammatical, semantic and pragmatic associations are stored in the mental lexicon for use later. As Hoey (2005, p. 8) notes, “as a word is acquired through encounters with it in speech and writing, it becomes cumulatively loaded with the contexts and co-texts in which it is encountered”. Lexical priming theory is also extended to word sequences, which is termed “nesting” (Hoey, 2005, p. 8). Lexical priming occurs at different levels of language, which means that words or word sequences are primed for their co-occurrences with other words, the semantic sets they occur with, their pragmatic functions, their grammatical patterns, their cohesive and semantic relations, and their textual positioning in

a text. For instance, ‘a + word + against’ is primed to occur with ‘say’ or ‘hear’, occur with the semantic set of ‘communicative interchange’, occur with the pragmatic function of ‘hypotheticality’ and ‘denial’ and occur with the patterns of modal auxiliaries and occur in sentence-final position (Hoey, 2005). In order for these patterns to be primed, the language user has had to encounter these patterns in their contexts a number of times.

Like the idiom principle, lexical priming dissolves the distinction between grammar and lexis and puts the lexicon at the centre. Lexical priming, however, goes further than the idiom principle and makes psychological claims about these associations. It should be noted that words or word sequences are not primed per se, but they are primed for individuals. Hence, corpora can give indirect evidence for these primings, because special corpora reveal shared primings that occur in a discourse community; however, corpora do not indicate the primings of each individual because each language user’s experience of language is unique. Hoey (2005) also emphasises that primings are genre- and domain-specific. For instance, the use of ‘recent research’ is generally specific to academic writing and news that present research.

Certain characteristics of primings are important to account for language learning. First, primings are not static for language users, since encountering the same word or word sequence in different contexts or co-texts from the prior ones weakens the existing primings, while encountering them in similar contexts or co-texts reinforces them. This process is referred to as ‘a drift in the priming’ (Hoey, 2005). Alternatively, ‘a crack in the priming’ occurs when language users are exposed to conflicting primings of a word or a word sequence, and they cannot resolve the conflict. The conflict may stem from self-reflexive grammar or outside factors, such as education, media, dictionaries and other reference materials. For instance, explicit guidance from the teacher may cause conflict with the primings of the language user that already exist. Language users resolve the conflict either by adapting the original priming or dismissing the recent one. If language

users cannot resolve the conflict, they remain in a state of confusion and uncertainty about the use of a word or word sequence. However, when a member of a discourse community is exposed to the language of that community, harmonising primings are likely to be greater. The primings of a discourse community tend to harmonise through education, as Hoey (2005, p. 182) notes:

“Mastery of a subject is mastery of the collocations, colligations and semantic associations of the vocabulary of the discipline, mastery, in fact, of the domain-specific and genre-specific primings, and the job of teachers is to prime the learners’ vocabulary appropriately.”

Priming applies to both L1 and L2 speakers of language, so language users are in a constant process of learning. There are, however, differences in primings of L2 speakers resulting from learning a second/foreign language. It is likely that primings of L1 words or word sequences influence primings of the translational equivalents of those words or word sequences in L2<sup>2</sup> (Hoey, 2005). Additionally, the amount and type of data that L2 speakers are exposed to are likely to influence primings of L2 speakers. It seems that both input and output reinforce primings. Hence, it is expected that increased academic reading and writing experience would lead to primings of multi-word units that are typically used in a specific discipline.

Hoey (2005) also provides teaching implications based on the lexical priming theory. The shortcuts to primings are teaching lexis in context and exposing learners to naturally occurring data. Learners are likely to become successful when they notice, understand, and produce multi-word units (Hoey, 2014). Primings of word or word sequences take place when language users repeatedly encounter them in discourse (Hoey,

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<sup>2</sup> It should be noted that there is no explicit focus on L1 influence on multi-word units in L2 novice academic writing in this study, although there is a brief discussion on that in Chapter 7. L1 influence requires a systematic investigation of intra-L1 group homogeneity, inter-L1 group heterogeneity, and intra-L1-group-congruity in the use of multi-word units (see Paquot, 2017a).



2005). Lexical priming also offers implications for L1 language users. L1 novice academic writers may not possess the mental lexicon of multi-word units that are typically used in academic writing, since they may not necessarily have enough exposure to academic prose (Paquot, 2013). Hoey (2005) gives no psycholinguistic evidence to support the arguments for primings; however, he points out that corpora can only represent primings of language users indirectly en masse.

### *2.1.3 Usage-based approaches to language*

Usage-based approaches to language (Langacker, 1987) include a number of perspectives, such as construction grammar (Goldberg, 1995) and Dynamic Systems Theory (de Bot, Lowie, & Verspoor, 2007; Ellis, 2008), which hold that a language user's linguistic system is linked to usage events which can be described as "instances of a speaker's producing and understanding language" (Barlow & Kemmer, 2000, p. viii). This suggests that the linguistic system is shaped by usage events, and it shapes usage events at the same time. Hence, the linguistic system is not static but rather emergent and dynamic.

One fundamental tenet that usage-based approaches hold is that emergent linguistic representations appear in the linguistic system through usage events. Usage-based approaches to language learning share other fundamental tenets, including the importance of frequency and non-linguistic contexts. Because the linguistic system is driven by usage events, frequency is a primary factor for language learning (Ellis, 2002). Frequent exposure to constructions, conventionalised pairings of form and meaning or function would result in entrenchment, i.e. cognitive routinisation or habit formation, which leaves traces that would promote the use of constructions (Goldberg, 1995). Usage-based approaches to language hold that language that people produce is the primary object of study, and corpora can show which constructions are entrenched in language users' linguistic system (Bybee, 2008). However, a corpus cannot reflect the exact input to which

language users are exposed (Barlow & Kemmer, 2000; Hoey, 2005). Ellis (2002) points out that language users are sensitive to frequency, recency and contexts of constructions. The more frequently and recently language users are exposed to a construction, the more fluently the construction is accessed. The implication of this tenet is that high frequency constructions are learnt and processed more easily than lower frequency ones (e.g. MacWhinney, 2001). Additionally, constructions are likely to become associated with their context. These tenets of usage-based approaches to language echo Hoey's (2005) lexical priming theory which posits that each word or word sequence is "cumulatively loaded with the contexts and co-texts in which it is encountered" (Hoey 2005, p. 8). Within usage-based approaches to language, frequency effects are present at different levels of language, from smaller units (e.g. morphemes) to larger units (e.g. idioms) (Barlow & Kemmer, 2000; Goldberg, 1995), and thus usage-based approaches to language dissolve the distinction between grammar and lexis, as in idiom principle (Sinclair, 1991) and lexical priming (Hoey, 2005).

The other commonality which usage-based approaches to language share is that they emphasise the importance of non-linguistic contexts in addition to the linguistic ones (Barlow & Kemmer, 2000). Linguistic repertoires emerge in ways that are shaped by individual and contextual factors. Ellis (2015, p. 63) argues that constructions are "attentionally- and socially-gated, situated and encultured". For L2 learning, for instance, instruction and teachers' guidance can play an important role in linguistic systems of learners. The premises of usage-based approaches to language that have been stated above apply to both L1 and L2 learning. However, usage-based approaches to language recognise the differences of L2 learning from L1 learning which is predicated upon implicit learning defined as unconscious and automatic induction of knowledge (Ellis, 1994). L1 influences are likely to be present during L2 learning, because L1 is entrenched (MacWhinney, 1997). Even equivalent constructions in a language learner's L1 may be different from those of

L2; therefore, construction learning in L2 are subject to L1 influences (Ellis, Römer, & O'Donnell, 2016). In an L2 context, learners may not be exposed to enough input for automatization to take place. In this case, adult L2 learners may need explicit knowledge and instruction of constructions in addition to learning them implicitly (Ellis, 2002).

Within the usage-based approaches to language, two approaches, construction grammar and Dynamic Systems Theory, are worth exploring in more detail as they are most relevant to the scope of this study.

### Construction Grammar

Constructionist usage-based approaches to language posit that language can be described as constructions which are pairings of form and meaning or function (Goldberg, 1995). Constructions can range from a morpheme (e.g. '-ing') to an entire sentence, or they can be specific (word – 'a pen') or abstract as in the example of passive constructions ('subject + auxiliary + VPpp') and covariational conditionals ('the Xer, the Yer' constructions – 'the more you run, the sooner you will get fit.'). As Ellis et al. (2016, p. 42) note, "constructions cannot be defined purely on the basis of linguistic form, *or* semantics, *or* frequency of usage *alone*". This study operationalises multi-word units solely based on frequency; however, other determinants of construction learning, including contingency and semantic prototypicality may apply to multi-word units.

In both L1 and L2 learning, linguistic system develops from fixed exemplars to partially-fixed and unfilled constructions, namely abstract schemas. For instance, 'it is important that' can be considered as a filled construction that is a fixed exemplar; 'it is + adjective + that' is a partially-fixed construction; and a passive construction ('subject + auxiliary + VPpp') is an unfilled construction (abstract schema). Learning gradually progresses from fixed and concrete exemplar constructions to schematic ones as learners encounter exemplar constructions (Bybee, 2010; Ellis et al., 2016; Goldberg, 2006).

However, this does not mean that a proficient language user would only have representations of schematic constructions because being a proficient language user involves knowing constructions at different levels of complexity and schematisation (Bod, Hay, & Jannedy, 2003).

The more frequently a language user encounters constructions, the more entrenched constructions become. Learning is mainly driven by type frequency (the frequency of distinct lexical items that can be substituted in a slot within a construction) and token frequency (the frequency of a specific construction) of constructions (Bybee & Hopper, 2001). High token frequency constructions lead to entrenched representations which are likely to be the more prototypical members of a category. Entrenched constructions can be concrete or abstract, and they can be referred to as conventional units. As Langacker (2000, p. 8) states, a language user's linguistic knowledge consists of "a structured inventory of conventional linguistic units". Language learners are sensitive to the statistical probabilities of constructions and frequency of co-occurrence (Ellis, 1996), and thus they can learn constructions as 'chunks' (Miller, 1956). Zipfian distribution, which holds that highest frequency constructions account for the majority of the tokens in language and that frequency of the words decreases as they rank in terms of frequency (Zipf, 1935), makes constructions learnable. Accordingly, learners first learn most frequent, prototypical and exemplar constructions (Ellis et al., 2016). The other determinant of construction language learning is coherent semantics of constructions. When learners have a certain semantic association of a construction (e.g. 'it is important that', 'it is crucial that' – 'it is \* that' - importance), constructions are likely to become more learnable than those which language users are not primed to have a coherent semantic association (Hoey, 2005). Although usage-based construction grammar emphasises frequencies of constructions, it does not make use of corpus data (Goldberg, 1995, 2006) as much as the approaches of idiom principle and lexical priming in empirical investigations of language use (Römer, 2009b).

## Dynamic Systems Theory

Dynamic systems theory, also referred to as complex dynamical systems theory in the literature (de Bot & Larsen-Freeman, 2011; de Bot et al., 2007), views language as a continuously dynamic and complex adaptive system (e.g. Ellis, 2008; Verspoor & Behrens, 2011). This theory emphasises interconnectedness of dynamic contextual, learner and environmental factors and the linguistic system. These factors are divided into two main categories: Internal resources refer to the language learners' time, capacity and motivation to learn, whereas external resources include input, types of exam, the surrounding environment, materials, and external motivation resources (de Bot et al., 2007). Change in a dynamic system which depends on initial conditions is considered to be non-linear, and the system changes in relation to both external and internal resources, although it is possible that the L2 system shows temporary periods of stability (Larsen-Freeman, 2006). Complex systems can also show continuous and smooth or dramatic and sudden changes.

Within a dynamic usage-based approach to language, language development involves both variation, i.e. the difference between different learners and variability, i.e. change over time within a learner. Variability has been regarded as an indication of development or developmental transition (Verspoor, Lowie, & Van Dijk, 2008), and variability tends to be low in a relatively stable system. Verspoor, Schmid and Xu (2012) find that variation in L2 writing occurs at beginner levels more than at advanced levels. The notion of 'emergence' which can be defined as "the arising of novel and coherent structures, patterns, and properties during the process of self- organization in complex systems" (Goldstein, 1999, p. 49) is a central dimension of dynamic-usage based approaches to L2 learning. In longitudinal studies, it is possible that some learners may show fairly stable developmental patterns, while the use of certain lexico-grammatical patterns may show both increase and decrease in some learners' output over time, which may result in diverse individual trajectories over time (Roehr-Brackin, 2015; Verspoor et

al., 2012). As Lowie and Verspoor (2015, p. 84) convincingly point out, “language development is an inherently individual and dynamic process and there can be no logical expectation that the pattern found in generalizations at the group level is the same as the actual development of the individual learner”.

Studies situated within dynamic usage-based approaches to language make use of dense data collected at frequent interval times over a long period of time within a case or multi-case study design and take internal and external resources into consideration in order to capture the trajectories of language use and development (e.g. Eskildsen, 2009, 2012; Larsen-Freeman, 2006; Macqueen, 2013; Roehr-Brackin, 2014; Yuldashev, Fernandez, & Thorne, 2013). This study has only three waves of data from two cohorts of first-year university students; however, dynamic systems theory informed the longitudinal aspect of this study and semi-structured interviews with both students and lecturers which aimed to account for internal and external resources in the patterns of change in the language system.

## **2.2 Previous studies on multi-word units in academic writing**

### *2.2.1 Multi-word units in published academic writing*

A large and growing body of literature has investigated phraseology by taking a corpus-driven approach in published English academic writing (Biber et al., 1999; Biber et al., 2004; Biber, 2009; Biber & Barbieri, 2007; Cortes, 2013; Gray & Biber, 2013; Hyland, 2008, 2012; Pan, Reppen, & Biber, 2016). Most of these studies have focused on four-word lexical bundles and examined their discourse functions in academic prose of English with reference to other registers, while Hyland (2008) examined disciplinary variation in the use of lexical bundles in published academic writing.

The pioneering research in this field is Biber et al.'s study (1999) that took a frequency-driven approach to the study of lexical bundles in the Longman Spoken and Written English Corpus which encompassed both spoken and written registers, including a 5.3-million corpus of academic prose. The patterns of lexical bundles were compared between conversation and academic prose. Three- to six-word sequences were extracted on the condition that they had to occur in at least five different texts and had a frequency threshold of 10 times per million words (this threshold was reduced to 5 times pmw for longer sequences). Three general trends emerged from the analysis: Firstly, lexical bundles occur more frequently in conversation than academic prose in that 30% of conversation is comprised of these recurrent expressions, while they constitute 21% of academic prose. Secondly, lexical bundles cannot be considered as complete structural units since less than 5% of lexical bundles were found to be complete structural units, and 15% of them represented structural units in conversation. Thirdly, lexical bundles in conversation are largely verb phrase or dependent clause fragments, while academic prose favours noun or prepositional phrases.

The lexical bundle approach has been followed in many other studies to date. Biber et al. (2004) focused on lexical bundles in classroom teaching and textbooks registers in comparison to conversation and academic prose. A taxonomy of discourse functions of lexical bundles was presented. Accordingly, functions could be categorised as “referential expressions” (e.g. ‘the use of’) which refer to entities or textual content, “discourse organisers” (e.g. ‘as a result of’) which act as text organisers between different parts of a text, and “stance expressions” (e.g. ‘it is important to’) that refer to writers’ attitudes towards propositional content. The functional analysis revealed that referential bundles are the most common in academic prose, followed by stance expressions. The least common bundles in academic prose are discourse organisers. Following this line of research, Biber and Barbieri (2007) expanded the corpora of university spoken and written registers and

included classroom management, office hours, service encounters, study groups, course management, and institutional writing in addition to academic prose, classroom teaching, and textbooks. Interestingly, the number of lexical bundle types in academic prose was found to be lower than any other register examined in the study. A relatively infrequent use of lexical bundles in academic prose was attributed to the limited communicative goals of academic writing in that “informational communication” (Biber & Barbieri, 2007, p. 273) could be regarded as the primary goal of academic prose which mostly involves referential content.

Following the lexical bundle approach, Hyland (2008, 2012) took a closer look at four-word sequences in a 3.5-million-word corpus of research articles, doctoral dissertations, masters’ theses in the disciplines of electrical engineering, biology, applied linguistics, and business studies. Notable differences were found in terms of frequency, structures and discourse functions among these disciplines (Hyland, 2008). For instance, there were only five common lexical bundles (‘on the other hand’, ‘as well as the’, ‘in the case of’, ‘the results of the’ and ‘at the same time’) that were shared across these disciplines in the top-50 lexical bundles of each discipline. This suggests that the use of lexical bundles is discipline-specific, and discipline should be controlled if any other variables are investigated. With regard to discourse functions, Hyland (2008) developed a parallel taxonomy for lexical bundles to that of Biber et al. (2004). The categories of “research-oriented”, “text-oriented” and “participant-oriented” were used in place of referential bundles, discourse organisers and stance expressions with a slight change of the subcategories from Biber et al.’s (2004) extensively used taxonomy. Hyland (2012) also pointed out that there was considerable genre variability between masters’ theses, doctoral dissertations and research articles in the frequency of bundles and distribution of bundle functions. Lexical bundles were more common in masters’ theses (5.1%) than doctoral dissertations (3.8%), and research articles included the smallest number of lexical bundles



(3.1%). However, participant-oriented bundles, i.e. stance bundles were more frequent in the research articles than the other two genres. This may be attributed to greater academic writing experience of writers of research articles and greater need to convey authorial presence in research articles due to the competitiveness of publishing in journal articles. Hyland (2012, p. 166) noted “these features suggest that gaining control of academic discourse requires a sensitivity to published users’ preferences for certain sequences of words over others that might seem equally possible.” In order to identify disciplinary variations, Hyland (2008) combined the three different genres. Nevertheless, it seems questionable as to what extent masters’ theses represent published academic writing. This could be even valid for doctoral dissertations, to some extent. Also, the language background of the writers remained unstated.

Unlike previous studies that examined short lengths of n-grams, Cortes (2013) extended the analysis to longer n-grams, including four-word to nine-word lexical bundles in a one million corpus of research article introductions of different disciplines. She found that longer bundles had a relationship with research moves, i.e. “establishing the field, summarizing previous research, preparing present research, and introducing present research” (Cortes, 2013, p. 33) in the sense that lexical bundles led into the communicative functions of moves, or they were part of these communicative functions. Cortes (2013) suggested that a set of lexical bundles that help convey particular communicative functions in moves could be introduced to students in academic writing classes.

Multi-word units, of course, are not just comprised of continuous sequences. Discontinuous sequences also constitute an important part of multi-word units. Indeed, discontinuous sequences with internal variable variants (i.e. A\*CD – e.g. ‘the \* of the’ and AB\*D – e.g. ‘it is \* to’) were found to make up over 50% of all the multi-word sequences, and they are much more common than lexical bundles (over 30%) in academic writing

(Biber, 2009; Gray & Biber, 2013). Variable variants were almost always filled by content words in academic writing, and fixed variants were almost always filled by function words.

Gray and Biber (2013) took a closer look at lexical frames, which were used synonymously with phrase frames (Römer, 2010), with internal variable variants in academic prose and conversation, and directly identified recurrent four-word frames rather than employing the bundles-to-frames approach as in the previous studies. It was argued that this method offered a more complete picture of frames since some of the frames may not be associated with a recurrent lexical bundle (Gray & Biber, 2013). A structural analysis of the frames revealed that academic writing relied on both function word frames (e.g. 'the \* of the') and verb based frames (e.g. 'may be \* as'), while verb-based frames were primarily found in conversation. Content-based frames (e.g. 'it \* necessary to') were found to be very infrequent in English academic writing. With regard to internal variability of frames, approximately half of them were variable in academic writing, whereas 80% of them were fixed in conversation. Interestingly, as the frequency threshold decreased for the identification, the variability of frames increased in both registers. These findings suggest that academic writing mostly relies on variable frames which consist of function words (e.g. 'the \* of this'). One of the key implications of this study is that using function word and variable frames could be an important milestone for novice academic writers given the high frequency of such frames in academic prose.

It is worth noting that academic writing has been changing, like other genres. It has undergone different types of changes, including nominalisation, heavy reliance on phrasal modification, reliance on noun phrase structures and a decline in dependent clauses, but these changes were more pronounced in science and social science disciplines than in humanities disciplines (Biber & Gray, 2013). Change occurred largely due to demands of economy which require concise and efficient writing. Biber and Gray (2013) also stated that changes could be attributed to the highly informational communicative purpose of

academic writing. The demands of popularisation have had little effect on academic writing. This could be inferred from the very small increase in the use of colloquial features in academic prose over the centuries (Biber & Gray, 2012).

Based on the phraseological characteristics of academic writing in English stated above, Biber, Gray and Poonpon (2011) hypothesised the following developmental features for student writing development: Novice writers would show less reliance on clausal features, namely verb-based phraseological patterns and show more reliance on noun and prepositional phrases in their academic writing over time. This hypothesis is valid for both L1 and L2 novice writing, but they argue that this progression may be slower for L2 novice writers.

Many other studies have compared phraseological patterns in published academic writing with L1 and/or L2 novice writing. A review of these studies is given in the next section.

### *2.2.2 Multi-word units in novice academic writing*

This section presents an overview of the studies of phraseological patterns in L1 and L2 students' academic writing. I considered undergraduates as well as MA students as novice academic writers, since they have less experience in academic writing in comparison to published academic writers. There is a large volume of published studies on novice academic writers' use of multi-word units. Hence, I classify them under the subheadings of bipartite comparisons and multiple comparisons.

#### Bipartite comparisons

Bipartite comparisons mostly involved the investigation of multi-word units in learner corpora with reference to published writing or L1 English-speaking students' writing.

Earlier studies relied on corpus-based methods (Granger, 1998b; Howarth, 1998; Lorenz, 1999; Hewings & Hewings, 2002) or native-speaker intuition (Yorio, 1989) to extract certain multi-word units predefined by the researchers. Lorenz (1999) and Yorio (1989) took the L1 student writing as the norm for L2 student writing. Lorenz (1999) focused on intensifier adjective combinations and calculated the mutual information (MI) score of these sequences in both L1 and L2 student writing. In a comparative study of published writing and L2 students' writing, Howarth (1998) investigated verb + noun patterns, and Hewings and Hewings (2002) focused on anticipatory *it* clauses. Unlike these studies, Granger (1998b) compared French learners' essays in English with a reference to L1 writing which combined both novice and published academic writing. In a corpus-driven study, De Cock (2000) extracted two- to four-word lexical bundles in both L1 and L2 novice writing and compared the lexical bundle tokens and types used in a small corpus of L1 and L2 novice writing. Despite the different methods and data sources, several general trends emerged from these studies in relation to the phraseological patterns of learner writing. There was a heavy reliance on a limited number of multi-word units in learners' essays. A lack of idiomaticity in the use of some these sequences or inappropriacy was observed. Moreover, the use of multi-word units seemed to be error-prone in the learners' essays since semantic misuse and problematic aspects regarding their discourse and pragmatic functions were reported. Granger (1998b) affirmed that the excessive use of multi-word units was problematic as well as the lack of them in the learners' essays. 'I think that', for instance, was found to be overrepresented in L1 French-speaking students' writing in English.

Another strand of research compared university students' writing with published academic writing by using the lexical bundles approach (Cortes, 2002, 2004). Cortes (2002) investigated four-word lexical bundles of first-year students' academic writing in comparison to the conversation and academic prose sections of the Longman Corpus of

Written and Spoken English. Lexical bundles in freshman composition showed a greater similarity with bundles in academic prose than those typically found in conversation. However, the functions of the lexical bundles in novice academic writing differed from those in published academic writing although their grammatical patterns were found to be very similar. Cortes (2002) argued that heavy reliance on temporal or location markers could stem from the descriptive nature of the students' writing. In a similar vein, Cortes (2004) compared the use of four-word lexical bundles between published writing and novice academic writing which included both undergraduate and postgraduate students' writing. She concluded that there was a very infrequent use of lexical bundles and repetitive use of the same bundles in student writing in comparison to published writing. Though there was generally no developmental pattern across student levels, functional use of the bundles at graduate level writing approximated to published academic writing more than undergraduate writing. Cortes (2004) stated that seeing these lexical bundles in the reading materials had almost no effect on the students' use of these sequences. In both studies, though the students' writing was collected at an American university, the L1 or L2 status of the participants remained unstated. As the essays were collected at an American university, we might speculate that this group of novice writing is likely to represent L1 novice students' writing more than that of L2.

Using a 'function-first' approach to extract 'formulaic language', Durrant and Mathews-Aydinli (2011), analysed 94 essays of MA students from the British Academic Written English Corpus (BAWE) and 94 research articles from prestigious journals. Their definition of 'formulaic language' slightly differs from frequency-based approaches as it was associated with a particular communicative function in academic writing. At the first stage, they manually identified the moves and steps of the articles and essays according to Swales' (2004) CARS (creating a research space) model, and their analysis was limited to the introduction sections of the papers. After the initial categorisation of the moves and

steps, they identified common phraseological patterns through which communicative functions were expressed. For instance, they found abstract constructions, such as text + verb patterns (e.g. ‘the paper begins with’) and pronoun + verb patterns (e.g. ‘we conclude with’), and then the frequency of such patterns in each category was presented. The research articles were found to be much more formulaic than the essays. This finding could be attributed to the method of the extraction of formulaic language since moves and steps of the research articles may not feature in undergraduate academic writing. Although the functions of the formulaic language identified in this study have a crucial importance for novice academic writers, the implementation of this method may be more useful for research articles rather than novice academic writing.

A different methodology was used to determine the discourse functions of four-word lexical bundles in L1 Czech MA students’ theses in English in the fields of literature, methodology and linguistics with reference to 30 target bundles that were compiled from the previous empirical studies on lexical bundles in published academic writing (Dontcheva-Navratilova, 2012). Interestingly, Dontcheva-Navratilova (2012) found that the frequency of discourse-organising bundles was low in L1 Czech MA students’ theses in English, which was attributed to L1 Czech writing conventions that seemed to have a reader-oriented approach, unlike Anglo-American writing conventions. The low frequencies of resultative/inferential bundles were traced back to underdevelopment of L1 Czech writers’ argumentation and rhetorical skills. Similarly, there was a low rate of stance bundles in L1 Czech writers’ MA theses. The linguistics thesis writers used more discourse-organising and stance bundles than the writers of the other fields, which shows that disciplinary variations in lexical bundles were present even in similar fields (linguistics and literature), and that explicit linguistic knowledge of the writers of linguistics theses may have contributed to a greater use of target bundles in MA theses in linguistics.

Lexical bundles were also analysed to investigate L1 influence in the essays of L2 learners with L1 French background (Paquot, 2013, 2014). Jarvis' methodological framework (2000) was applied for the examination of L1 influence on French learners' writing. Three-word lexical bundles that included a lexical verb (Paquot, 2013) and two- to four-word lexical bundles were investigated in the French subcomponent of the International Corpus of Learner English (ICLE) with reference to other nine learner corpora of different L1 backgrounds in the ICLE. Paquot (2013, 2014) found important L1 transfer effects, not only of frequency, collocation and lexico-grammatical patterns, but also of discourse conventions, though these transfer effects caused no obvious errors in the essays. These results were supported by consultation of French corpora. Hence, Paquot (2013) noted that Hoey's "transfer of primings" (2005, p. 183) could be clearly observed in the French learners' writing. Paquot (2017a) gave further evidence for L1 frequency effects on the use of three-word lexical bundles in the argumentative essays in English written by L1 Spanish and L1 French learners of English. These frequency effects were more pronounced for discourse-organising bundles in that the more frequent the translational equivalent of the discourse-organising bundles in learners' L1 were, the more frequent the English equivalents of the bundles were found in learners' writing in English. These findings indicate that "language learners bring their knowledge of L1 lexicon" to their writing in second language (Paquot, 2013, p. 411).

Comparing L1 English and L2 English students' essays, Ädel and Erman (2012) examined four-word lexical bundles in first year and second year undergraduates' essays written by L1 Swedish novice writers of English and in second and third year undergraduates' essays written by L1 novice writers. L1 writers employed a wider range of lexical bundles than L2 writers in terms of both tokens and types. Though both groups used a similar proportion of referential bundles, L1 writing contained a greater proportion of stance bundles and a smaller proportion of discourse organisers. Informal vocabulary of L2

writing suggested that they had difficulties with genre and register awareness.

Additionally, Ädel and Erman (2012) argued that L2 writing made little use of “unattended *this*, existential *there*, hedging, negations, passive structures, and fact-headed bundles” (p. 90), while L1 writers used a greater number of different types of bundles which can be seen as typical of published academic writing.

In a more recent study, Ebeling and Hasselgård (2015) compared the types of discursial categories of three-word and four-word recurrent word combinations (referred to as n-grams) in L1 English and L1 Norwegian students’ academic writing in the disciplines of linguistics and business. In the discipline of linguistics, L1 novice writers were found to employ a greater number (types) of stance (referred to as evaluative) and a lower number of discourse-organising (referred to as organisational) recurrent word combinations than L2 novice writers. This finding is in line with that of Ädel and Erman (2012). Also, they found that L2 novice writers used a larger number of referential (called informational) n-grams than L1 novice writers. However, it should be noted that the type comparisons may not be reliable in their study because of the very different sizes of the four different corpora used. They also commented that noun phrases were used more in L1 novice writing and that clausal phrases were more frequent in L1 novice writing than L2 novice writing, though actual figures were not presented.

“The issue of the degree of overlap between novice native writers and non-native writers has far-reaching methodological and pedagogical implications and is clearly in need of further empirical study” (Gilquin et al., 2007, p. 323); however, L1 novice academic writers may not be necessarily good models for L2 student writers. There is evidence that academic language might be more closely linked with academic writing proficiency rather than the status of L1 since all novice writers are exposed to academic discourse depending on their local institutions, and L1-English speakers also learn academic phraseology (Mauranen, 2012; Römer, 2009a). Previous work has indicated that



L1 novice writers could also have problems with academic vocabulary and phraseology due to limited genre and register awareness (Chen & Baker, 2010; Gilquin et al., 2007; Paquot, 2010). Indeed, apart from L1 and L2 status, there can be a number of different factors and an interplay of different factors that can influence the phraseological patterns in L1 and L2, including proficiency level and teaching-induced influence for L2 learners, as can be seen in Figure 1.

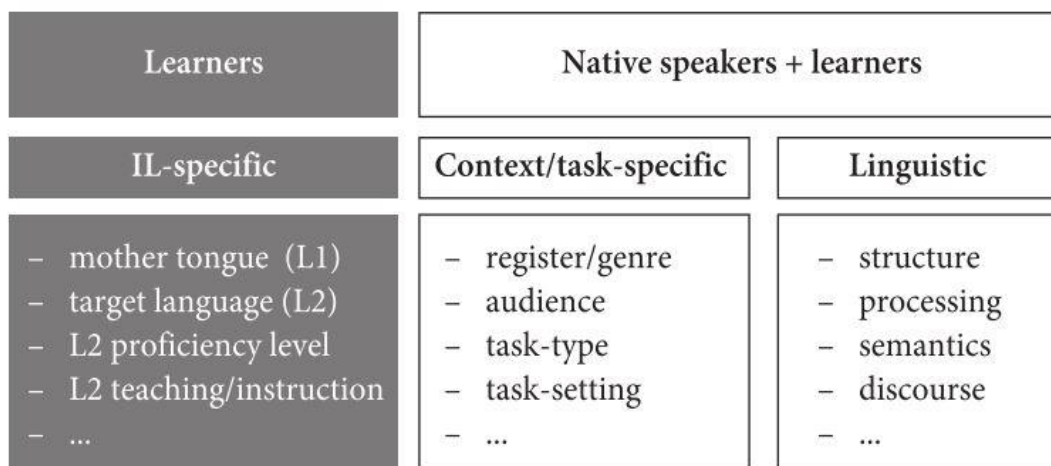


Figure 1. Some of the determinants of lexico-grammatical variation in L1 and L2 writing (Callies, 2013, p. 359).

For both L1 and L2 writers, context and task-specific features, more specifically register, genre, audience and task conditions as well as linguistic characteristics of phraseological patterns can be driving forces for lexico-grammatical variation in L1 and L2 writing (Callies, 2013). This suggests the need to further explore both L1 and L2 novice academic writing with a longitudinal design by taking contextual factors into account.

### Multiple comparisons

Multiple comparisons involved published academic writing, L1 and L2 novice academic writing (Chen & Baker, 2010; Gilquin et al., 2007; O'Donnell, Römer, & Ellis, 2013; Römer, 2009a, 2009b).

All these studies found great similarities between L1 and L2 novice academic writing, though different methods and approaches were used to extract phraseological

patterns. Gilquin et al. (2007) looked at phraseological patterns in both L1 and L2 novice academic writing with a comparison of speech and published academic writing. The problems with semantic misuse, register awareness, pragmatic appropriacy, and discourse features were reported to exist in both L1 and L2 novice academic writing. They noted that an overuse of certain lexical patterns (e.g. ‘for example’ and ‘to my mind’) was peculiar to L2 novice academic writing.

Chen and Baker (2010) looked at four-word lexical bundles in the essays of L1 Chinese-speaking novice writers of English and L1 novice writers and in L1 published academic writing. L1 and L2 novice academic writing exhibited strong similarities in that there were more VP-based bundles and discourse organisers than L1 published academic writing, though qualitative examinations showed that Chinese learners used fewer hedging bundles and overused some certain connectors. Both L1 and L2 novice academic writing differed from L1 published academic writing which made use of a greater range of NP-based and referential bundles. Likewise, L1 German-speaking and L1 English-speaking novice academic writing in English showed great similarities in the use of introductory *it* patterns (Römer, 2009b), as well as n-grams and phrase frames of different lengths (Römer, 2009a). Nevertheless, both L1 and L2 novice academic writing again deviated from published academic writing.

In a further step to triangulate different methods to extract ‘formulaic sequences’, O’Donnell et al. (2013) investigated the effects of frequency, association and native norm in apprentice and published academic writing, both of which included L1 as well as L2 groups. Expertise in academic writing had a significant effect on MI-defined, frequency-defined and native norm defined, which was based on the Academic Formulas List of Simpson-Vlach and Ellis (2010), formulaic sequences. For only frequency-defined formulas, formulaic sequences occurred slightly more in L2 writing, but it was argued that this could be largely due to the topic- or prompt-bound lexical bundles. With regard to p-

frames, no effect was found for expertise or L1/L2 status. The authors recommended a more in-depth study of p-frames with their variants as p-frames themselves could give almost no information about the variability of variants. These studies have shown that both L1 and L2 English-speaking students are apprentices of academic writing. Römer (2009a, p. 99) persuasively argued that “the native academic writer does not seem to exist” as the expertise in academic writing plays a more crucial role when L2 writers have an advanced level of English proficiency. Therefore, successful undergraduate writing could be a better reference for cohorts of L1 and L2 novice academic writing that is not controlled for academic writing quality.

A lexico-grammatical analysis was conducted by taking into consideration the writing quality of essays written by L1 English, L1 Arabic and L1 Chinese first-year university students (Staples & Reppen, 2016). Staples and Reppen (2016) overall found that higher language ratings were positively correlated with a greater frequency of noun phrases (e.g. noun + that clauses) and with a lower frequency of verb-based phrases (e.g. causative adverbial clauses) in students’ essays. The L1 groups showed no significant difference in the frequency and variety of verb clauses, which supported Biber et al.’s (2011) hypothesis of developmental sequences of phraseological features in students’ writing in that novice writers were able to use verb-based phraseological patterns similarly at an early stage during their first year of study at university. Although L1 novice writers were found to employ more noun + that clauses than two other L2 groups, Staples and Reppen (2016) argued that all L1 groups of first-year students were still novices in the use of lexico-grammatical features. Hence, it is necessary to study the patterns of change in multi-word units in both L1 and L2 novice academic writing during their first-year of study at university.

### *2.2.3 Pseudo-longitudinal and longitudinal studies on multi-word units in novice academic writing*

The pseudo-longitudinal and longitudinal studies on multi-word units in both L1 and L2 novice academic writing are reviewed in this section. It is difficult to compare and contrast these studies as the definition of multi-word units and methods used are very different, as seen below.

The longitudinal intervention studies that kept track of the use of multi-word units in academic writing reported that there was no improvement in the production of multi-word units of the novice student writers (Cortes, 2006; Jones & Haywood, 2004). Jones and Haywood (2004) examined the use of ‘formulaic sequences’ of 21 students in two classes, who were taking an intensive pre-sessional EAP course in the UK. While 10 students of one class received training in formulaic sequences, the other class had no specific training. Wray’s definition of formulaic sequence (2002) was adapted, and sequences were identified by five experienced EAP teachers. It was concluded that multi-word units in the treatment group showed no significant change in one semester. This could be attributed to the short duration period in which the study took place and the short time interval between the two essays’ time of writing, i.e. two weeks. However, the exercises in reading tasks and interviews conducted with students suggested that the majority of the students increased their awareness about the importance of phraseology and found being taught formulaic sequences useful to improve their academic writing.

Similarly, Cortes (2006) focused on four-word lexical bundles in the written assignments of eight L1 English-speaking students in the field of history in a ten-week period. The results showed that there was no improvement in the use of lexical bundles in L1 students’ papers, which is in line with the results of Jones and Haywood’s study (2004). The only improvement was observed in their heightened awareness of lexical bundles’ high frequency and functions in published academic writing in the discipline of history. These

two studies suggest that it seems difficult for both L1 and L2 novice academic writers to use multi-word units in the way that published academic writers use.

More promising results have been revealed in recent longitudinal intervention studies. AlHassan and Wood (2015) reported that explicit instruction to ‘formulaic sequences’ over a ten-week period with twelve learners in the EAP program at a Canadian university from different L1 backgrounds led to an increase in the number of formulaic sequences in learners’ paragraphs and better rating of these paragraphs at the post-test stage. The explicit instruction involves consciousness-raising activities in which formulaic sequences were presented to learners and practice activities which learners completed tasks by using the formulaic sequences. In a similar vein, Peters and Pauwels (2015) found that 29 L1 Dutch-speaking business students made significant gains in the post-test and assignments after a five-week focused-instruction of formulaic sequences which involved recognition activities, cued output activities (e.g. using the formulaic sequences in a sentence) and a combination of these two activities. However, it should be noted that five and ten weeks are short durations, and it remains uncertain whether these explicit instructional activities would have an impact on learners’ use of the multi-word units in their academic writing in the long term.

More recent attention has been turned to phraseological patterns in pseudo-longitudinal study designs, i.e. research on learners across different proficiency levels rather than the same learners over time, which investigated the use of multi-word units of foreign/second language learners/users across different levels (Ädel & Römer, 2012; Chen & Baker, 2014; Garner, 2016; Granger & Bestgen, 2014, Huang, 2015; Staples et al., 2016; Staples, Egbert, Biber, & Mclair, 2013). Chen and Baker (2014) analysed the English essays of Chinese students taken from the Longman Learner Corpus (LLC) in terms of four-word lexical bundles, their structures and discourse functions. Granger and Bestgen (2014) examined bigrams in the English essays of German, French and Spanish students

taken from the International Corpus of Learner (ICLE). In both studies, the essays were rated on the basis of Common European Framework, and then as a result of these ratings, different proficiency levels were set. Garner (2016) compared and contrasted four-p-frames in the essay written by L1 German-speaking learners of English taken from the EF-Cambridge Open Language Database across five different proficiency levels. These three studies found important differences across proficiency levels. Granger and Bestgen (2014) concluded that high-frequency collocations were overused, and lower-frequency but strongly associated collocations were underused in intermediate levels essays in comparison to advanced ones. Likewise, Chen and Baker (2014) found that lower-level writing had more in common with conversation in terms of structure and discursal aspects (e.g. heavy reliance on verb-phrase-based lexical bundles), whereas more proficient writing was more in line with structural and discursal characteristics of academic prose (e.g. a similar proportion of noun-phrase-based lexical bundles). In a similar vein, Garner (2016) reported that as the proficiency level increased, L1 German learners of English used more variable and less predictable p-frames, and p-frames served more diverse discourse functions. These studies overall suggest that increasing proficiency may lead to developmental patterns in the L2 learners' use of multi-word units in academic writing.

Somewhat contradictory findings have been reported in two studies on lexical bundles in L2 novice academic writing (Huang, 2015; Staples et al., 2013). Huang (2015) identified only quantitative increase in token and type frequencies of three- to five-word bundles between the essays of junior year and senior year L1 Chinese writers of English, and accuracy was not improved, though accuracy, which was defined as grammaticality, semantic and functional appropriacy, was arguably open to the subjectivity of the researcher. Surprisingly, Staples et al. (2013) found that lower level writing relied on lexical bundles more than higher level writing, though no significant differences were found in terms of the discourse functions and variability of the lexical bundles across three

levels of writing taken from the TOEFL iBT writing section. These differences can be attributed to methodological procedures followed in these two studies because Huang (2015) removed topic-related bundles while topic-related bundles were not excluded in Staples et al.'s study (2013). Nonetheless, even when topic-related bundles were removed, the highest proficiency level writing contained fewer bundles than lower level writing (Staples et al., 2013). This difference may stem from the discrepancy in proficiency levels of L2 novice writers. It may be the case that highest TOEFL scorers may have more advanced proficiency than senior year L1 Chinese writers of English because Ellis (2002) posits that as proficiency level increases, L2 learners tend to move towards more variable and self-constructed patterns in their academic writing.

In addition to these developmental patterns in L2 novice writers' academic writing, L1 novice writing at different levels of study in the British Academic Written English corpus was found to show developmental phraseological patterns in their academic writing (Staples et al., 2016). As the level of study increased, the fewer clausal features, i.e. verb-based multi-word units and more noun phrases occurred in L1 novice academic writing, which supported Biber et al.'s (2011) developmental hypothesis for phrasal features in L1 and L2 novice academic writing. Staples et al. (2016) also found disciplinary variations in that despite this general trend for the phrasal features, arts and humanities as well as social sciences writing relied on clausal features, i.e. verb-based multi-word units more than science writing. This allowed L1 novice writers of arts and humanities and social sciences disciplines to convey stance overtly and provide extended elaborations and justifications of the arguments presented in their academic writing.

Unlike these studies, Ädel and Römer (2012) found more similarities of the phraseological patterns across the four different levels of university students (final year undergraduates, first year graduates, second year graduates and third year graduates). This pattern also emerged when students' academic writing was compared to published

academic writing in Hyland's research articles corpus. It could be argued that this study represents the phraseological performance of novice academic writing better as both n-grams (three-, four- and five-word sequences) and phrase frames (three-, four-, and five p-frames) were analysed. As these students were studying at a US university, it is likely that they might have acquired the phraseological patterns of English academic writing.

There have been relatively few studies that are truly longitudinal in a sense that they investigated the same students' production of multi-word units over a time period (Bestgen & Granger, 2014; Li & Schmitt, 2009, 2010; Macqueen, 2012, 2013; Zheng, 2016). There is a case study in which an L1 Chinese-speaking student who was studying towards an MA degree in ELT in the UK was tracked in terms of the development of the use of lexical phrases, and it provided some evidence for the argument that multi-word units could be learned incrementally (Li & Schmitt, 2009). The researchers followed Nattinger and DeCarrio's definition of lexical phrases (1992, p. 1) as "multi-word lexical phenomena which are conventionalised form/function composites that occur more frequently and have more idiomatically determined meaning than the language that is put together each time". The method used to extract lexical phrases was different from the earlier studies in that three judges from different backgrounds identified these phrases. The appropriacy of phrases was judged by five L1 English-speaking teachers based on a five-point scale of "very appropriate", "appropriate", "OK", "less appropriate" and "not appropriate", all of which were explained briefly. It should be noted that before the appropriacy judgement occurred, the data were changed slightly in that "the sentences around target lexical phrases were sometimes modified slightly in that spelling mistakes, obvious semantic mistakes occurring outside the lexical phrase, and grammatical mistakes were corrected" (Li & Schmitt, 2009, p. 90). This could raise the question as to what extent the grammar or semantics of the surrounding co-text could influence the appropriacy of lexical phrases. These analyses were complemented with semi-structured interviews with



the participant. The interviews revealed the various acquisition sources of lexical phrases, including previous learning in China and the UK, academic reading, feedback, peers, dictionary, spoken language, etc. The participant felt more confident in the use of multi-word units, and the incremental learning was observed with regard to the increase in the appropriacy of multi-word units. Although the participant learned new phrases, the frequency or the diversity of the lexical phrases showed no consistent improvement.

Taking a more qualitative perspective, Macqueen (2012) sought to apply dynamic systems theory and Vygotskian sociocultural theory to emergent patterns in the English essays of four international students entering an Australian university over a three-month period. She argued that lexico-grammatical patterns in their writing were complex, and the development tended to be often in a non-linear and unpredictable way. Likewise, Macqueen (2013) kept track of one Chinese student's lexico-grammatical patterns in academic writing. While some lexico-grammatical patterns of Chinese students remained fixed, others changed in accordance with the aims of the student writer and contexts. Both of these studies employed an analytical method "lexical trail" defined as "all the uses of a single lexeme and its surrounding pattern/s in a chronological order" (Macqueen, 2012, p. 100). The stimulated interviews and lexical trail analysis indicated that patterns largely undergo "adaptive imitation" which involves noticing, imitating and using the patterns in new contexts to meet the new communicative goals of the genres. This process entails both "chunk-making" and "chunk-breaking" which are realised through construction and destruction of the phrases. Macqueen (2012, 2013) highlighted that ethnographic methods could offer different interpretations to the text analysis by revealing personal goals, the social and educational context. The stimulated recalls in both studies revealed that L2 novice writers started to experiment by using a wider variety of lexico-grammatical patterns, felt more confident in their use of lexico-grammatical patterns over time and adapted these patterns in accordance with feedback they received and academic sources

they read. It should be noted that there was no use of corpus-based or corpus-driven methods for the analysis in these two studies. Hence, the lexical trail method employed by the researcher could raise the issues of subjectivity in the identification of phraseological patterns.

In a multiple-case study approach, Li and Schmitt (2010) focused exclusively on the use of adjective – noun combinations in four Chinese MA students' writing in English in the UK. In a corpus of 149,587 words, the type-token ratio of collocation types, t-score and MI score were calculated as well as the proportion of “robust collocations” that were found to be both frequent and highly-associated on the basis of the written academic section of the BNC. Over one academic year, very little change occurred in the use of adjective-noun collocations. Though the percentage of robust collocations showed a slight increase, there was almost no change in the collocations with high MI scores. Moreover, there was a decrease in the diversity of collocations over one year, which suggests that the collocations were more repetitively used towards the end of this period. One of the most interesting findings of this study was that the mean scores were largely inconsistent with those of the individual participants. The individual scores showed a great deal of variation although the participants had very similar backgrounds. It was argued that even though the number of participants was not sufficient to reflect group development, adjective-noun combinations largely showed non-linear developmental patterns.

In Bestgen and Granger's (2014) study, a different technique called CollGram, which was calculated through the t-scores and MI value, and the proportion of absent bigrams that do not occur in the reference corpus (Bestgen & Granger, 2014), was employed for the study of collocations to quantify their collocational status. These three indices, based on “text-external measures” (p. 38) that involved consulting a large reference corpus (i.e. the COCA), were employed to extract bigrams in the Michigan State University Corpus of second language writing that was made up of 57, 358 words. Another

aim of the study was to determine to what extent there would be a correlation between the quality of the essays and phraseological competence of the ESL writers. Two sets of essays of 57 students were examined. The longitudinal analysis revealed that though almost no change was observed in the collocations identified by the MI score, the students used gradually fewer collocations that consisted of very high-frequency words over one semester. The quality of the essays was determined on the basis of the two raters' assessment of language use subscale, vocabulary subscale, and combined scores. A positive correlation was found between the MI scores of bi-grams and quality of the essays, while the proportion of absent bi-grams was negatively correlated with the quality of the essays.

In a purely quantitative longitudinal study of lexical use by L1 Chinese-speaking novice writers of English, Zheng (2016) reported a U-shaped curve in the frequencies of target-like lexical bundles in 15 undergraduate essays at eight different time points over a ten-month period. Although the frequent time intervals of data collection are to be commended, there was no focus on the discourse functions, structural categories or any individual lexical bundles used in students' academic writing.

As can be seen above, longitudinal studies of L2 phraseology in writing are still in their infancy, and further research is necessary to provide a better picture of developmental patterns in phraseological performance. Previous research has emphasised that more truly longitudinal studies are needed to gain a deeper insight as to what extent or how multi-word units are developed by second/foreign language learners/users with different L1 backgrounds (Li & Schmitt, 2009, 2010; Paquot & Granger, 2012).

#### *2.2.4 Related studies in the Turkish EFL context*

Very little is known about multi-word units of English language learners with L1 Turkish background in academic writing. Though a few studies included the essays of

Turkish learners as a part of their learner corpora (Durrant & Schmitt, 2009; Gilquin et al., 2007), the results were conflated with those of other learners from different L1 backgrounds. Durrant and Schmitt (2009) focused on adjacent premodifier-noun word pairs in four sets of essays which included L2 long, L2 short as well as L1 long and L1 short essays. L2 long group consisted of the essays of international postgraduates from different L1 backgrounds at a British university and essays of Turkish undergraduates. The findings were in agreement with the early studies that found L2 writers used high-frequency collocations at a similar rate with L1 writers, but low-frequency collocations were underused by L2 writers. L1 Turkish-speaking students' collocations were reported together with L2 postgraduates from different L1 backgrounds. The study included only 12 essays from L1 Turkish-speaking students, and the only finding specifically attributed to Turkish students was that they made use of collocations to a lesser extent than the other groups, except for L1 short essays. Gilquin et al. (2007) investigated academic vocabulary in the International Corpus of Learner English, which included the essays of learners from 16 different L1 backgrounds, including Turkish. Merging all these essays into one set of data gave a general overview of learner corpora characteristics in terms of phraseology, but this could be of little use to reveal certain L1 group characteristics.

In a cross-sectional study that examined exclusively lexical bundles in American, Chinese, and Turkish university students' academic writing in English, Karabacak and Qin (2013) found that the number of lexical bundle tokens was very similar between the essays of American students and those of Turkish counterparts, although the American students used slightly more different types of lexical bundles. On the other hand, in the essays of Chinese students who were at a similar academic level with the other two groups, the number of lexical bundles and tokens was considerably lower than the other two sets of essays. In this study, each set of data consisted of only 17 essays, and the analysis was

limited to only the number of bundle types and tokens. The language proficiency of those participants also remained unstated.

To my knowledge, there has been no other study that has analysed the use of multi-word units in academic writing in the Turkish EFL context. Hence, it is necessary to keep track of L1 Turkish-speaking students' use of multi-word units in English academic writing over a time period. Focusing on novice academic writers with the same L1 background could provide a detailed picture of interlanguage features and has the potential to be pedagogically more useful at English-medium universities in Turkey and other non-English-speaking countries.

### **2.3 Novice writers' and lecturers' perceptions of the use of multi-word units in academic writing**

Considerable research has investigated L2 novice writers' academic writing experiences during their first year at university in the Anglophone world (e.g. Knoch, Rouhshad, & Storch, 2014; Leki, 2007; Morton, Storch, & Thompson, 2015). These studies have identified various challenges for students in relation to content, organisation, the presentation of argument, and the language features of academic writing. Based on the students' interviews, it was concluded that lecturers' feedback played an important role in students' process of demystifying academic writing in their discourse communities.

Relatively few studies have paid attention to L2 writers' perspectives on academic writing in English-medium instruction contexts in non-English speaking countries (e.g. in Hong Kong – Evans & Morrison, 2011; in Qatar – Pessoa, Miller, & Kaufer, 2014). In Evans and Morrison's (2011) longitudinal study, L2 novice writers found academic writing the most challenging aspect of their university study. They also had difficulties in "using appropriate academic style" (Evans & Morrison, 2011, p. 203) in academic writing as well

as understanding and using appropriate vocabulary, among the other difficulties at an English-medium university in Hong Kong. In a similar vein, Pessoa, Miller and Kaufer (2014) found that L2 novice writers faced challenges in understanding the characteristics of academic register, genre expectations of the assignments and using appropriate vocabulary, among other challenges during their first year. Commonality exists in these studies in that L2 novice writers found the academic register and vocabulary to be one of the important hurdles for academic writing. Arguably, as academic register is characterised by pervasiveness of lexical bundles and p-frames (Biber, 2009; Gray & Biber, 2013), those challenges may involve the use of multi-word units, though there was not a direct focus on them in these studies.

As reported in the previous sections (see 2.2.3), very few studies have incorporated students' perspectives into research on the use of multi-word units in academic writing (Li & Schmitt, 2009; Macqueen, 2012, 2013). Li and Schmitt (2009) interviewed one L1 Chinese-speaking MA student after each assignment that she wrote nine times over one academic year at a UK university and focused on lexical phrases highlighted in her assignments during the interviews. It was reported that the student was aware of the importance of academic reading sources in addition to other learning sources, including previous English language instruction in China, and feedback from lecturers and dictionaries (Li & Schmitt, 2009). Based on the students' interviews and stimulated recalls in a multiple case study in an Australian context, L2 novice writers' phraseological patterns were found to be shaped by their new language experiences, feedback from lecturers, their L1s, dictionaries and other academic sources (Macqueen, 2012, 2013). These studies indicate dynamic characteristics of phraseological patterns which are influenced by internal and external factors in the L2 novice writers' language system. Of course, "it is impossible to verify the actual point of learning or the precise source" for the phraseological patterns because they are learned incrementally (Li & Schmitt, 2009, p. 93).

Nonetheless, it is worthwhile to gain insights into students' perspectives on the use of multi-word units and their learning experiences in order to offer pedagogical implications and understand their academic needs.

The first-year university students are not the only agents of change in terms of academic writing or the use of multi-word units because they learn about 'good writing' through their lecturers' feedback, guidance and disciplinary conventions (Hyland, 2013). Although it has been emphasised that the notion of good writing may change from one institution to another and even within one institution (Harwood & Hadley, 2004; Hyland, 2003), Nesi and Gardner (2006) provided empirical support for university lecturers' similar opinions about what constitutes 'good writing' and skills they value in student writing across disciplines. The interviews with the lecturers revealed that these characteristics of good writing involved "argument, structure, clarity, understanding, adherence to academic conventions" (Nesi & Gardner, 2006, p. 113). As lecturers' views may not necessarily be consistent with those of their students, it is necessary to explore both of the agents' perspectives on good writing and the use of multi-word units. As Lillis (2001, p. 56) notes, there may be a "gap between institutional demands and students' understanding of these demands".

Lecturers' and writing instructors' approaches to helping first-year students may also play an important role in the students' understanding of academic writing, and more specifically, the use of multi-word units in academic writing. Genre-based approaches to academic writing, which seems to be the dominant approach in teaching L2 academic writing (Wingate & Tribble, 2012), emphasise the novice writers' need for explicit understanding of disciplinary texts and lexico-grammatical choices along with their discourse functions (Hyland, 2003). On the other hand, academic literacies, which is an influential approach in UK higher education (Wingate & Tribble, 2012), takes a critical approach to the central role of disciplinary text models and suggest "alternative ways of

meaning making” (Lillis & Scott 2007, p. 13). Wingate (2012, 2014) argues that it is difficult for both L1 and L2 novice writers to take a critical perspective on the conventions of academic writing before they exactly know what they are, and she suggests a combination of these two models in higher education. These approaches can have direct implications for the use of multi-word units in novice academic writing because genre-based approaches advocate explicit teaching of phraseological patterns, including lexical bundles to novice writers (Tribble & Wingate, 2013) while such explicit instruction may not have a place in an academic literacies approach. Hence, it is important to understand whether these approaches are applied in the institutional context.

To my knowledge, there has been one study that explored lecturers’ perceptions of novice academic writing with an explicit focus on phraseological patterns. Davis and Morley (2015) examined the academics’ acceptability of university students’ reuse of phrases that are taken from the University of Manchester Phrasebank at two UK universities in a number of different disciplines by using surveys and interviews. The interviews with eight academics revealed that lecturers perceived phrases as useful for organising students’ essays and improving their academic style. Hence, Davis and Morley (2015) suggest the need for explicit advice/instruction on phrases and learning phrases through reading academic sources for both L1 and L2 novice academic writers.

As can be seen, there is limited understanding of students’ and lecturers’ perspectives on the role of multi-word units in novice academic writing. This study aims to address this gap by taking these contextual factors into account through interviews.



## 2.4 Summary and conclusions

This chapter has presented the relevant theoretical approaches to multi-word units to this study and a review of previous empirical studies in academic writing.

Idiom principle (Sinclair, 1991), lexical priming (Hoey, 2005) and usage-based approaches to language (e.g. Barlow & Kemmer, 2000) suggest “the inseparability of grammar and lexis” and patterned nature of the English language (Römer, 2009b, p. 1). Frequency effects are important phenomena that shape the language system (Ellis, 2002; Hoey, 2005), which in turn may influence both L1 and L2 writers’ use of multi-word units in their academic writing. According to dynamic systems theory (e.g. de Bot et al., 2007), the language system is subject to both external (e.g. teachers’ feedback) and internal influences (e.g. language proficiency) and the interplay of both influences, which can contribute to patterns of change in the use of multi-word units. Hence, it is necessary to examine the use of multi-word units in both L1 and L2 novice academic writing by taking a discourse community approach.

Much of the research was primarily based on lexical bundles. However, lexical bundles provide a limited understanding of phraseological patterns. In fact, Biber (2009) reported that lexical bundles constituted approximately 30% of all the multi-word patterns in academic prose. More than 50% of the patterns were phrase frames with internal variable variants (Römer, 2010). Hence, more research using these two methods together is needed to give a fuller picture of L2 and L1 phrasicon.

Some of the studies found commonalities between L1 and L2 phraseology in academic writing. It could be argued that the research context was the key factor as L2 novice writers in immersion settings (the UK or USA) exhibited a great number of similarities with L1 novice writers (e.g. Chen & Baker, 2010; O’Donnell et al., 2013; Römer, 2009a, 2009b). However, the gaps seemed to remain when the research context

was an EFL environment (i.e. Sweden) (Ädel & Erman, 2012). It would be interesting to see to what extent these similarities or differences could be observed in English as a medium of instruction (EMI) contexts. EMI contexts, where the subjects are taught in English, and students are exposed to relatively richer input, differ from EFL contexts where English is only taught as a foreign language.

Phraseological patterns of published academic writing pose a great challenge not only for L2, but also for L1 novice academic writers. This suggests that these patterns are not very salient for novice academic writers. Even longitudinal studies have reported little, if any, change in the development of L2 novice academic writers to date. The duration of the longitudinal studies is a crucial factor since one semester was inadequate to observe any changes even in immersion settings (Bestgen & Granger, 2014; Jones & Haywood, 2004). Furthermore, these longitudinal studies primarily relied on collocations. Hence, multi-word patterns are worth investigating as they might have a relatively more salient nature, and a noticeable change could be observed. Having said this, evidence suggests that language is a complex adaptive system (Larsen-Freeman & Cameron, 2008). Therefore, any development is likely to occur in non-linear patterns (Macqueen, 2012, 2013), though incremental learning of lexical phrases was also observed in the literature (Li & Schmitt, 2009).

Finally, the majority of the previous studies took a quantitative approach to the study of phraseological patterns (e.g. Granger & Bestgen, 2014; Zheng, 2016). More importantly, they remained at the level of frequency, overuse and underuse judgements. A more fine-grained analysis is needed to depict the developmental features of learner writing and inform EAP teaching practices. Qualitative insights in the form of retrospective interviews about the essays could enrich the interpretation of findings and provide an understanding of students' perspectives on the use of multi-word units.

## Chapter 3 Methodology

“Change is a measure of time.”

Edwin Way Teale

This chapter presents my research questions and hypotheses, outlines the design of my study, and explains the sources of data. I also discuss ethical considerations and provide a reflective account of my role as a researcher. Then, I describe data analysis procedures and statistical testing. Lastly, issues of validity, reliability, and trustworthiness are discussed.

### 3.1 Hypotheses and research questions

Based on the results of the previous studies, this study has the following hypotheses:

1. Consistent with the theory of lexical priming (Hoey, 2005) and usage based approaches to language (e.g. Ellis, 2002) which emphasise frequency effects on language use, the frequencies of lexical bundles and p-frames in both L1 and L2 novice writers' essays would be more similar to those in the sub-corpus of BAWE, i.e. successful undergraduate writing in similar academic disciplines over time.
2. In line with Biber et al.'s (2011) hypothesis on the patterns of change in noun phrases and clauses, i.e. verb phrases in novice academic writing, the frequencies of NP-based bundles would show an increase in L1 and L2 novice writers' essays over time, and the frequencies of VP-based bundles would exhibit a decrease in both groups over time. Based on Biber et al.'s (2011) developmental hypothesis of the structural patterns in academic writing, the frequencies of verb-based p-frames would decrease over time in both groups,

and the frequencies of function-based p-frames would exhibit an increase over time in both groups.

3. Based on the results of the previous studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010; Ebeling & Hasselgård, 2015), discourse-organising multi-word units would occur more frequently in L2 novice writers' essays than in L1 novice writers' essays over time. On the other hand, L1 novice writers would use stance expressions more frequently in their essays than L2 novice writers over time.
4. In parallel with Ellis' argument (2002) that L2 speakers would use a larger inventory of patterns as their proficiency increased, the internal variability of the p-frames would increase and the predictability of them would decrease in L2 novice writers' essays over time. However, these two aspects would not show any changes in L1 novice writers' essays over time.
5. Finally, all these aspects stated above would become more similar in L1 and L2 novice writers' essays over time.

In light of the review of previous studies and the research gaps identified in the previous chapter, this study aims to address the following research questions:

1. To what extent, if any, do lexical bundles in the essays of L1 and L2 novice writers change with regard to frequency, structural categories and discourse functions over one academic year?
2. To what extent, if any, do phrase frames in the essays of L1 and L2 novice writers change with regard to frequency, structural categories, discourse functions, internal variability and predictability over one academic year?
3. What are the differences and similarities in the use of lexical bundles and p-frames between the essays of L1 and L2 novice writers over one academic year in terms of the aspects stated in the previous two questions?

4. How do the frequencies of lexical bundles and p-frames identified in the essays of L1 and L2 novice writers correlate with those in the sub-corpus of BAWE over time?
5. a) To what extent, if any, do the L1 and L2 novice writers' perceptions of the use of multi-word units and their self-reported discourse functions of multi-word units change over one academic year?  
  
b) What are lecturers' perceptions and expectations of the use of multi-word units in novice academic writers' essays in the two discourse communities?

### **3.2 Design of the study**

In order to address the research questions above, this study adopted a longitudinal panel design in which data from the same L1 and L2 novice writers were collected at similar three time points over one academic year. One of the strengths of this approach lies in its comparative longitudinal panel study design which has a number of advantages over a cross-sectional one (Zhu & David, 2008). The longitudinal panel study design provided comprehensiveness in that it was possible to capture developmental patterns and changes within groups and between groups over time (Zhu & David, 2008). Additionally, as stated in the previous chapter, due to the demanding nature of data collection processes involved in the longitudinal design (Ortega & Brynes, 2008; Paquot & Granger, 2012; Thewissen, 2013), there is a scarcity of truly longitudinal learner corpora research which aims to keep track of the same participants over time. Hence, this study addresses the gap in the literature by collecting essays of two groups at three times and utilised essays and interviews as two data sources. Although one academic year may not be regarded as sufficient, this study fits Ortega and Ibarra-Shea's (2005) definition of a longitudinal study based on the three characteristics: the collection of multi-waves (at least three) of data, the focus on patterns of change and the investigation of the phenomenon in its context rather

than through experimental conditions. Ortega and Iberri-Shea (2005) argued that the duration of longitudinal studies in applied linguistics can range from three months to six years.

In order to address my research aims, I found two similar degree programmes - English Language for Education in the UK and English Language Education in Turkey- and collected the essays of the same Turkish university students whose L1 was Turkish and the essays of British university students whose L1 was English. The essays were collected at three times over one academic year from both the same Turkish and British participants. Thus, these sources can be referred to as repeated-measures data (Zhu & David, 2008). The first stage of essay collection took place in the beginning of November in 2014 (Month 3 in academic year) when both groups wrote the first essays for their assignments. The second stage of essay collection occurred in the beginning of January in 2015 (Month 5 in academic year), and the final data collection took place at the end of May 2015 (Month 9) when both groups wrote the final essays for their assignments. I chose these three time points to match the assignments and dates of their submission as closely as possible in both contexts. The details on the number of participants and texts are given in section 3.4.

The student interviews were also conducted after the first and final stage of essay collection in both contexts with the same participants. No interviews were carried out after the second stage of data collection because of practical constraints and short time interval between the first and second stage of data collection.

One interview was carried out with the two lecturers in each context. The interviews with the lecturers were not longitudinal, as it is likely that lecturers' perceptions and expectations of academic writing practices in relation to the use of multi-word units would remain more or less the same over one academic year. Arguably, as many lecturers are academic writers themselves, they would bring their own perceptions of the use of

multi-word units and academic writing into their processes of guidance and feedback on students' essays.

### 3.3 The use of the mixed methods research approach

This study is a sequential mixed methods research, as can be seen in Figure 2 (Creswell, 2009). Mixed methods research can be defined as “the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques for the broad purpose of breadth and depth of understanding and corroboration” (Johnson, Onwuegbuzie, & Turner, 2007, p. 123).

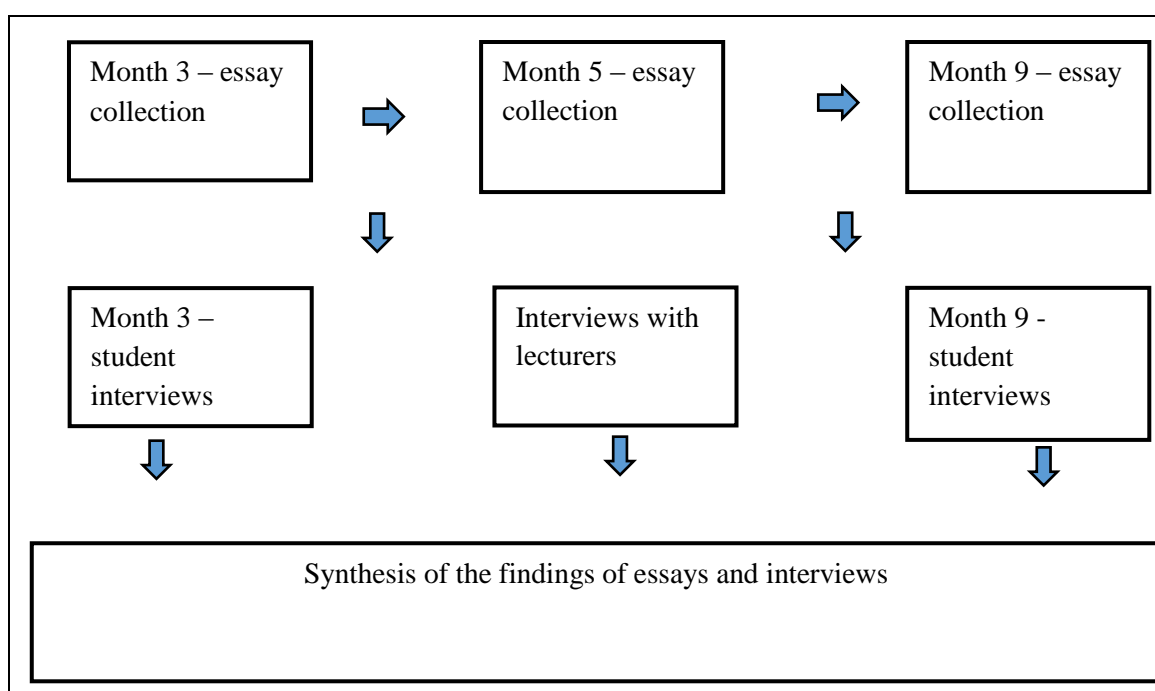


Figure 2. The mixed methods research design of this study.

What is at issue here is how and when mixing is conducted and what exactly is mixed. Creswell and Tashakkori (2007) outline four different perspectives of mixed

methods research design, which can be summarised as follows: (1) the method perspective (quantitative and qualitative data and methods); (2) the methodological perspective (combination of qualitative and quantitative research in terms of worldviews, research design, sampling, data collection and analysis procedures, conclusion); (3) the paradigm perspective (the multiplicity of worldviews and paradigms that underpin mixed methods research); (4) the practice perspective (the use of quantitative and qualitative approaches in research design). It can be said that these four perspectives are interrelated.

In the present study, the mixed methods research was driven by my research questions which aimed to both identify and understand the students' use of multi-word units in their essays. Thus, I drew on a pragmatist paradigm and used essays for both quantitative analysis (corpus linguistics methodology) and qualitative analysis (discourse analysis to identify the discourse functions of multi-word units). Interviews were carried out in order to gain understanding of academic writing practices from both students' and lecturers' perspectives, and to contextualise and shed light on the findings of essays. Likewise, interviews can provide additional information to explore the role of instruction in the use of multi-word units and how these sequences were learned. The students' self-reported accounts were later quantified as much as possible to reveal main themes. In the discussion chapter, synthesis of the findings of essays and interviews is presented.

This design also addressed the three elements of Greene, Caracelli and Graham's framework (1989) for mixed methods research, which were development, complementarity, and triangulation. For development, students' essays helped me shape some of the interview questions and influenced the focus of the interviews. To illustrate this point, the multi-word units that students used in their essays guided my questions and focus during the interview. In terms of complementarity, interviews contributed to elaboration and enhancement of the results of essay analyses. For triangulation, I mixed the



findings of essays and interviews at the interpretation stage, as seen in the discussion chapter.

### **3.4 Data collection procedures**

Data collection procedures for the student essays and interviews are presented in this section.

#### *3.4.1 Constructing two corpora of student essays*

In order to achieve my research aims in this longitudinal study design, I built two longitudinal corpora myself because there was not any available truly longitudinal corpus of L1 novice writers' and L1 Turkish-speaking novice writers' essays in English. The first corpus consists of the essays of L1 Turkish learners of English who were first-year university students at an English-medium university in Turkey, and the second one consists of the essays of native speakers of English who were also first year university students at a UK university. A second reason for constructing my corpora was to build a bridge between the text and context (Lillis, 2008) and take a discourse community approach as the context-sensitive studies could have the potential to prove pedagogically more useful.

Contextualisation has a very broad spectrum of meaning (Lillis, 2008). In this study, the contextual features of writing instruction, writing practices in the specific institutional context, teachers' and students' views of phraseology in academic writing, students' demographic data and academic writing experiences are taken into account to enhance interpretation of findings. In both English-medium higher education contexts, the requirement to produce essays remains as one of the main forms of assessment, together with exams. This makes it necessary to investigate academic essay genre in more context-specific studies. Therefore, I investigated multi-word units in the essays of first-year L1

and L2 novice writers within a discourse community approach in order to reveal the interplays of those factors mentioned above. The two contexts in which data were collected in this study can be considered two discourse communities. Swales (1990, p. 24-27) identified six characteristics of a discourse community:

1. *A discourse community has a broadly agreed set of goals.*

The goals of two degree programmes are to provide undergraduate students with an understanding of the fields of education and the English language.

2. *A discourse community has mechanisms of intercommunication among its members.*

Both degree programmes involve lectures, seminars and an online learning platform, i.e. Blackboard where students and lecturers can communicate with each other.

3. *A discourse community uses its participatory mechanisms to provide information and feedback.*

While lecturers provide students with oral and written feedback, students fill out course unit evaluations online, which are then sent back to lecturers.

4. *A discourse community utilizes and hence possesses one or more genres in the communicative furtherance of its aims.*

In both contexts, written academic essays, including critiques, analytical exposition, etc. are utilised for assessment purposes; however, specific expectations of these texts may differ between these two contexts.

5. *In addition to owning genres, it has acquired some specific lexis.*

Two discourse communities use specific lexis, including 'noun clause', 'social development theory', and 'language acquisition'.

6. *A discourse community has a threshold of members with a suitable degree of relevant content and discursal expertise.*

First-year university students enter their discourse communities as apprentices, and they are expected to gain expertise as they learn the norms and conventions of academic writing in their discourse communities. During this process, lecturers, expert members of this community, help novice students to gain relevant content and discursual expertise.

Swales (2016, p. 9) expanded the concept of discourse community and added two additional characteristics:

7. *A discourse community develops a sense of “silential relations”* (Becker, 1995).

“Silential relations” refer to a process of selection in which a set of things do not need to be said or do not need to be spelled out, due to the communally-constructed and/or culturally-determined context of silence (Swales, 2016). In this respect, there may be differences between “silential relations” of the two discourse communities because of the culturally-determined context of silence. For instance, L1 Turkish-speaking novice writers of English may avoid criticising published work in their academic essays due to perceived hierarchy.

8. *A discourse community develops horizons of expectation.*

The two discourse communities arguably have a set of expectations from students for academic essays they submit. Students can also expect their lecturers to provide guidance and feedback on academic writing. At a general level, two discourse communities would expect first-year students to improve their organisation, content and language features of academic writing, but specificities of these features may vary from one discourse community to another.

Table 1 shows the characteristics of the two corpora. The two corpora of student essays could be considered tiny in the era of ‘big data’. As Carter and McCarthy affirmed (2001, p. 337), however, “size is not everything”. Even a small corpus is of great use to reveal recurrent expressions as they tend to be very common (McCarthy & Carter, 2002). Because my investigation focuses on recurrent phraseological patterns, the specialized

corpora could be seen as adequate to achieve my research purposes. TE refers to the essays written by L2 novice writers, and BE refers to the essays written by L1 novice writers. As can be seen in Table 1, eight students' essays were missing in the TE corpus at Month 9, and two students' essays were missing at Month 5 in the BE corpus, and three students' essays were missing at Month 9 in the BE corpus. Participant attrition is a common issue in longitudinal research, and in this study, it occurred because of the student drop-out from their degree programmes (eight participants in total) or non-submission of the assignments (three participants at a Turkish university). The number of tokens is similar in both corpora except Month 9 in which L2 novice writers were asked to submit a longer essay. However, at the data analysis stage, I normalised the results per 300 words of text at each time point and took this difference into account while interpreting the results.

Table 1. Characteristics of the two corpora.

|  | Number of tokens | Number of types | Number of texts | Mean word length per text | Type/token ratio | Standardised type/token ratio |
|--|------------------|-----------------|-----------------|---------------------------|------------------|-------------------------------|
| TE corpora (L2 novice writers' essays) |                  |                 |                 |                           |                  |                               |
| Month 3                                | 50,703           | 3,738           | 98              | 517                       | 7.38             | 39.76                         |
| Month 5                                | 56,477           | 3,510           | 98              | 576                       | 6.21             | 36.07                         |
| Month 9                                | 160,013          | 9,461           | 90              | 1,778                     | 5.92             | 37.15                         |
| Total                                  | 267,193          |                 | 286             |                           |                  |                               |
| BE corpora (L1 novice writers' essays) |                  |                 |                 |                           |                  |                               |
| Month 3                                | 55,926           | 3,118           | 41              | 941                       | 5.58             | 32.34                         |
| Month 5                                | 67,130           | 4,997           | 39              | 1,264                     | 7.45             | 37.27                         |
| Month 9                                | 65,139           | 4,981           | 38              | 1,122                     | 7.65             | 37.20                         |
| Total                                  | 188,195          |                 | 118             |                           |                  |                               |

Interestingly, the standardised type token ratios (STTR), i.e. type-token ratio per every 1000 words, show that there is no statistical significant difference across time within TE and BE corpora and between the two corpora at each time point ( $p = 1$ ).

The essays of two corpora were written as a part of students' assessment in that students received grades and feedback on them. Before the corpora were constructed, all references and quotations of full sentences were removed so as to focus on students' own

phraseological patterns. This procedure was also undertaken in previous studies (Durrant & Schmitt; 2009; Li & Schmitt, 2009).

No annotation was conducted in the corpora since a purely corpus-driven approach was taken for the analysis of phraseological patterns (see Sinclair, 2004).

### *3.4.2 Comparability of the two corpora*

Bhatia's (1993) external criteria of genre were used as a basis for comparability of the two corpora. These external criteria of genre involve temporal factors (time of composition and the age of the writers), sociological factors (educational background of the writers), writer- and reader-related factors, such as intended audience, writer-reader relationship and aims of the writer, and topic.

In this study, I took a macro-genre perspective in the notion of academic essay which can be defined as “relatively short pieces of writing on a single subject, which offer an evaluation of ideas or opinions presented as ‘claims’ or ‘generalizations’” (Hewings, 2010, p. 253). Although previous studies have identified types of academic essay genres based on internal content structures and overall rhetorical purposes (Coffin & Hewings, 2003; Nesi & Gardner, 2012), the naming of the academic essay genres can be somewhat elusive and idiosyncratic (Bruce, 2010). In the present study, the written assignments can be defined as ‘analytical exposition’ essays (Baratta, 2006; Coffin, 1996) which involved engaging with and evaluating the previous literature, comparison and synthesis of the arguments presented in the literature, and development of the students’ own positioning in their essays. Analytical exposition essays correspond to the genre family of ‘essay’, i.e. exposition and ‘critique’, i.e. academic paper review in Nesi and Gardner’s (2012) taxonomy of the genres in discipline-specific student writing in UK higher education. Nesi and Gardner (2012, p. 37) state that critiques focus on “the ability to evaluate and/or assess [its] significance”, and essays focus on “the ability to construct a coherent argument and employ critical thinking skills” (p. 38). The first two assignments in both corpora were

similar in that students were required to analyse previous studies or a script and write their critiques in relation to the previous literature. The last assignments in both corpora were slightly more evaluative than the first two essays, as they were required to review related literature on a given topic and argue for a position in their essays (please see Appendix A for the instructions of the assignments).

In terms of temporal factors, all the writers of corpora were university students of approximately the same age (17 to 22 for L2 writers and 17 to 26 for L1 writers). The timing of the composition of the essays was also very comparable. With regard to sociological factors, both groups were first year students at major universities, both of which are leading public research-universities in central urban contexts. The writers' discipline was also very similar in that L2 novice writers were studying English Language Education and L1 novice writers were studying English Language for Education. Furthermore, concerning writer-and reader-related factors, as students all wrote academic essays, they were all expected to present their arguments well, persuade their audience, refer to related literature and develop their own positioning in their texts.

The audience of academic essays were the same although the notion of intended audience and writer-reader relationship may differ from one culture to another. For instance, students' perceived hierarchy of lecturers at a Turkish university could be stronger than that of lecturers at a UK university, since Turkey scores higher (66) on Hofstede's (2001) power distance dimension, which is concerned with hierarchy and unequal power distribution, than the United Kingdom (a score of 35 out of 100). The topic of the essays was not exactly the same even within one group, as the students were allowed to choose their own topic in one area (i.e. education or language). However, both groups wrote their essays on similar topics, such as language acquisition, inequalities in education, technology and social media use in education. This small variation in the essay topics posed no important challenge for this study as I excluded prompt- and topic-bound

phraseological patterns in both corpora. The size of the corpora is another important criterion for comparability. The number of the participants was higher in the TE corpus; however, as the essays were shorter (approximately 500 words) in the TE corpus than in the BE corpus, the size of the two corpora was akin to each other.

Taking Bhatia's criteria (1993) into account, there are great similarities between these two corpora in terms of the contextual factors that they share. As outlined above, the academic essays of both groups were similar in terms of the writers' discipline and educational status, contents and organisation of the texts, the intended audience, motivations, expectations and time of the composition of the texts (Moreno, 2008). Hence, it can be argued that comparison of these two corpora is relatively reliable.

### *3.4.3 Participants*

I used convenience sampling in this study in that I had access to the research sites at a UK and Turkish university in similar degree programmes through my contacts. I purposefully chose two similar degree programmes in order to match corpora with each other, as explained below. L2 novice writers of English and L1 novice writers are the two participant groups in this study.

#### Turkish participants

The Turkish participants shared many characteristics with each other: The 98 Turkish participants of this study, whose second language was English, were first-year students studying English Language Education at an English-medium university in Turkey at the time of data collection in the 2014-2015 academic year. All of them had graduated from Anatolian teacher training high schools<sup>3</sup>. Their age ranged from 17 to 22. 83% of the participants were female, while 17% of them were male. At the time of the data collection,

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<sup>3</sup> Anatolian teacher training high schools, which offered free tuition and boarding, were turned into science or religious high schools in 2014. In addition to the standard curriculum of Anatolian high schools, those schools used to provide classes on educational science and classes to teach a second foreign language.

none of the students had stayed in an English-speaking country for more than one month. Also, none of them had advanced language proficiency in another language, although some of the students reported elementary proficiency in different languages, including German, French, Mandarin, and Arabic. Only the essays of the students whose L1 was Turkish were included for this study.

All students studied in the foreign language division at high school and entered the national university entrance examination. The Ministry of National Education stated that the proficiency level of these students would be B2 or even C1<sup>4</sup> according to the Common European Framework of Reference for Languages (CEFR) (Council for Cultural Co-operation, 2001) when they completed their high school education (MoNE, 2011). At the time of their high school education, the attainment targets of the curriculum in relation to writing in English are to be able to write stories, poems, announcements, diaries, blogs, reports, e-mails, text messages, biographies, slogans, advertisements, short texts, petitions, instructions, invitations, notes, opinion and argumentative essays. Specifically, in relation to phraseology in writing, the attainment targets of the curriculum stated are as follows (MoNE, 2011):

- Students are able to use formulaic expressions appropriate for the topic and context (B1 level).
- Students are able to use sentence patterns correctly (B1 level).
- Students are able to use grammatical and sentence patterns that they have learned correctly (B2 level).
- Students are able to avoid repetition of the phrases in their writing (B2 level).

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<sup>4</sup> The CEFR scales describe the English language proficiency groups with can-do-statements at a broad level. B2 level can be considered as upper-intermediate proficiency, and it covers IELTS 5.5-6.5 scores. C1 level can be considered as advanced proficiency, and it covers IELTS 7.0-8.0 scores ([https://www.ielts.org/researchers/common\\_european\\_framework.aspx](https://www.ielts.org/researchers/common_european_framework.aspx)).



These statements are directly translated from the Turkish language. It remains unclear how sentence or grammatical patterns were operationalised. However, it is probable that “formulaic sequences” were taught at high school, since they were one of the attainment targets of MoNE (2011). Of course, there may not be a complete match between the attainment targets of the curriculum and what students can do in reality. As the students prepared for the university entrance examinations which included multiple-choice items during their high school education, it is likely that there was less focus on the development of writing skills than the curriculum prescribed. In fact, English language instruction at secondary level state schools in Turkey is mostly based on grammar and reading, though there have been reforms to introduce English language teaching that would aim towards a functional level of English for communicative purposes (British Council & TEPAV, 2013). Based on these English language teaching practices and my own insider experiences and insights, we can say that these students had very little experience in academic writing at the start of their university education. The students began their undergraduate education at the English-medium university where they were expected to internalise academic discourse and begin academic socialisation through academic writing and reading. In this case, it is likely that their academic writing practices can change during their first year which can be considered as a transition stage from secondary school to university (Wingate & Tribble, 2012). As Ortega and Iberri-Shea (2005) stated, longitudinal research in language learning is “better motivated when key events and turning points in the social or institutional context investigated are considered” (p. 38). Accordingly, their first year involved a transition experience from high school to university, with a focus on academic expectations in the English language, which represents “ecological transition” (Macqueen, 2013, p. 499) that may manifest itself as emergence of patterns and patterns of change in the language system (Larsen-Freeman & Cameron, 2008).

All participants received high scores in the English section of the university entrance examination. Furthermore, before embarking on their studies at the university, they had to pass the English proficiency test of the university with a good score which was the equivalent of an overall band of 6.5 in IELTS (Academic) with no less than 6.5 in writing. Students could also submit their IELTS (at least 6.5) or TOEFL IBT (at least 79) test reports. These scores are the equivalents of B2 level of the CEFR. In their first year at the university, the students took English language courses to brush up on their English language skills. At the English-medium university, the students submitted all their assignments and took their exams in English during their undergraduate education except two Turkish language courses. Despite all the commonalities of the education and language learning background of the L2 novice writers, there may be variation among their proficiency levels. As the previous researchers suggested, learner corpora can indeed be heterogeneous (Granger, 1998b; Gries, 2006; Li & Schmitt, 2010). Though these students were language users who used English in their studies at the English-medium university where all the classes were conducted in English, and assignments were submitted in English, they were learners at the same time. For instance, in Introduction to Education and Introduction to Psychology classes, the students were users of English in that the class discussions and assignments were in English. On the other hand, the Turkish participants had not completed their formal study of the English language, since they took ‘English Grammar’ and ‘Developing Communicative Competence in English’ classes during their first year at the university.

### British participants

The second corpora consist of the essays of British students whose L1 is English since my goal was to find a comparable degree course with that of L2 novice writers. These first-year students were studying towards a BA (Hons) degree in English Language for Education at a UK university. Their age ranged from 17 to 26. They all completed their

secondary education in the UK. Out of 41 students, only 2 of them were male. None of them had advanced proficiency in another language. Only the essays of the students whose L1 was English were included for this study.

The British participants shared several features with the L2 novice writers. The discipline of study was very similar between the two groups. They also took similar classes in their first year. ‘Academic Writing’ was a compulsory course unit for both Turkish and British participants during the first semester. Also, the Turkish participants took ‘Research and Study Skills’ course unit, and the British participants took ‘Understanding Research’ course unit during the second semester. The other courses taken, such as Key Issues in Education/Introduction to Education, Listening and Speaking, and Grammar throughout their first year were also similar in both contexts during their first year at the university.

Similar to the Turkish participants, this group was also novice in academic writing; however, they might have had slightly more experience in academic writing prior to their university studies, as reported in the interviews. Like the L2 novice writers, they were also in a transition process that involved academic integration, academic reading and writing practices required by the academic expectations of the university. However, unlike L2 novice writers, the British participants used their first language in their academic writing. There is evidence that L1 English-speaking students could acquire academic phraseology incidentally in an incremental way (Mauranen, 2012; Römer, 2009b). Therefore, their essays were also collected at three different time points over one academic year, unlike the previous studies, most of which did not include longitudinal data of L1 speakers.

#### *3.4.4 Stimulated recall protocols and semi-structured interviews*

The corpus-driven study of two groups of novice academic writing was complemented with student interviews in order to gain a deeper insight into students’ use of multi-word units in writing. I conducted the stimulated recall protocols and interviews in

a semi-structured format with both L1 and L2 novice writers. At both Month 3 and Month 9, the same ten volunteer L2 novice writers and five volunteer L1 novice writers were interviewed. This sample constituted 10% of the Turkish participants and 12% of the British participants. I aimed to interview at least 10% of the participants in both groups, and it was not possible to interview more students due to time and logistical constraints. The participants were randomly selected from the pool of the essay writers who provided their e-mails on the participant profile questionnaire (please see Appendix B for the e-mail invitation). The interviews had a retrospective nature as they took place after the students submitted their essays (please see Appendix C for my interview questions for the students). It should be noted that retrospective interviews are subject to memory constraints and distortion and/or reinterpretation of the interviewees' thought processes (Cohen, Manion, & Morrison, 2013). Despite this caveat, stimulated recalls are useful to explore novice academic writers' perceptions of the use of multi-word units in their own writing and in academic writing in general, especially when combined with textual analysis (Macqueen, 2012). The interviews were conducted within two weeks after submission at a café on university campus in both contexts since this informal setting is likely to be conducive to natural conversation (Cohen et al., 2013).

Before the interviews took place, I underlined six multi-word units that consisted of three- to five-word sequences in both L1 and L2 novice writers' essays after initial identification of lexical bundles and p-frames (please see section 3.7.2). I only focused on discourse organisers and stance expressions in the stimulated recall protocols; therefore, three<sup>5</sup> discourse organisers and three stance expressions were underlined in each essay. This stimulated recall format enabled me to focus on specific examples in a text (please see Appendix D for a short extract from one of the interviews). Just before the interviews, I asked the participant to read his/her essay. Stimulated recall protocols could aid recall of

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<sup>5</sup> The number of discourse organisers and stance expressions was limited to three each because in many of the essays at Month 3, no more than three discourse organisers and stance expressions were found.

students' own use of multi-word units in their writing (see Odell, Goswami, & Harrington, 1983). These stimulated recall (retrospective) protocols were helpful to understand not only what happened, but also why it happened (Greene & Higgins, 1994). I conducted the interviews with Turkish participants in Turkish and with British participants in English so that they could express their views with ease. However, the same interview protocols, which were written in English, were used to ensure comparability of the interviews. As the L1 Turkish students had an advanced level of proficiency in English, they were able to understand the questions in English, and they answered them in Turkish. Each interview lasted between 30 and 45 minutes, and between 45 and 60 minutes at Month 3 and Month 9, respectively. All the interviews were audio-recorded. The same procedures were followed in the second set of interviews.

I aimed to elicit students' own accounts of why they used specific multi-word units in their essays by employing in-depth semi-structured interviews which could enable them to express their own opinions on multi-word units and purposes which lay behind their choices of using these sequences (Cohen et al., 2013). Before the interviews, I introduced the concept of multi-word units to students through examples in their own essays. The stimulated recall protocols and interviews were designed in a semi-structured format that included open-ended questions. Open-ended questions allowed the participants to explain what they really feel or think rather than just saying yes or no, and they offered the possibility to "encourage rapport and co-operation" between the researcher and interviewees (Robson, 2001, p. 276). Although I made use of a certain set of interview questions in the interviews, they were just guidelines, as some questions were added, removed or refined according to the participants and/or flow of the interviews. For instance, additional questions, such as 'can you say more about that?' and 'why do you think so?' were asked in order to enable students to elaborate their answers. In order to prompt students' actual responses, I explained that I was interested in their perspectives,

and that there were no right or wrong answers to the questions of the semi-structured interviews. During the interviews, I tried to be an active listener in that I checked my understanding of participants' responses through reformulation which triggered extension of their previous responses (see Cohen et al., 2013).

In order to provide a multi-dimensional perspective into the role of multi-word units in novice student academic writing, and thus to enhance triangulation, I also interviewed two lecturers each in both contexts in a semi-structured interview format. These lecturers were the teachers of the students whose essays made up the two corpora. I recruited my participants through an e-mail invitation (please see Appendix E for the e-mail invitation). One lecturer interviewed in both contexts was a course instructor of academic writing class, and at the same time, they delivered other discipline-specific course units in the same degree programmes. The interviews with lecturers helped me to compare and contrast students' and lecturers' views of academic writing practices, with a specific focus on multi-word units (please see Appendix F for my interview questions for the lecturers). Thus, they added weight to the pedagogical value of this study.

### **3.5 Ethical considerations**

The ethical approval from the Research Ethics Committee of the University of Manchester was obtained prior to any data collection. In both contexts, I followed all the ethical guidelines of the Manchester Institute of Education Ethical Protocol and the British Educational Research Association (BERA, 2011). At the initial stage of my study, I gained access to the research sites after I had sent an e-mail to the lecturers, who were also my contacts, in order to obtain permission for data collection in their programme. I adhered to informed consent which involves voluntarism, full information, and comprehension (Cohen et al., 2013). In both contexts, I distributed written consent forms and participation information sheets to the university students which included information about my study,

research procedures, reporting and dissemination, and my contact details (please see Appendix G). They were also given the participant profile questionnaire at the same time (please see Appendix H). I also explained that the participation was voluntary, and participants had the right to withdraw from the study at any time, and I asked them whether they had any questions before they signed the consent forms and answered their queries. Only essays of students who signed the written consent forms were used for this study.

The recruitment of the participants for the interviews was conducted through an e-mail. The e-mail invitation was sent to those who provided their e-mail addresses on the participant profile questionnaire for the essay collection at Month 3. For the interviews, I used a different version of participant information sheets and consent forms (please see Appendix I and J). Before the interviews, participants were asked to read the information sheet and sign the form if they wished to participate in interviews.

At all time points of my research, privacy, confidentiality, and anonymity were ensured in that all the names and student numbers were removed from the data, and the personal information and data were not shared with any third party. The essays were given numbers, such as 1-TE-1 (the essay written by an L1 novice writer at Month 3).

### **3.6 The position of the researcher**

It is important to acknowledge the position of the researcher, especially when one of the data sources (interviews) is qualitative in nature. It is likely that the various categories of an insider/outsider on a continuum can be ambiguous (see Cohen et al., 2013). Therefore, it is necessary to have a researcher account to reflect this situation.

In the Turkish context, I consider my researcher role as a partial outsider as I probably shared some experiences with the students about academic writing as a previous student at that university with similar educational background, i.e. the same programme of study at the university. On the other hand, I had no contact with the student participants

before the process of data collection. My position as a partial outsider could have an advantage in that I was already familiar with the research context, i.e. both the university and educational system at secondary level. My shared background helped me to build rapport with my interview participants in this context. However, this shared background might have influenced the informants' responses during the interviews (Robson, 2001).

In the British context, I was an informed outsider as there was no common background in terms of first language, education, and national culture and no rapport was established with the British students at the beginning of the study. Though I was a PhD student at a UK university, the undergraduate students' experiences about academic writing were considerably different from those of PhD students. However, I had knowledge of academic writing practices and assignments at the undergraduate level.

It is possible that the role of the researcher can change in longitudinal research (Cohen et al., 2013). There was a slight change in my positionality in the second set of the interviews with the students, since I had already developed some rapport with my participants. During the second set of interviews, the students sometimes made vague statements, which ended with "you know", and they expected me to understand their writing experiences without elaboration. In those cases, I asked the students to clarify their responses so that my interpretations of the interview data could reflect what the participants had told me rather than what I thought. At the same time, my rapport building with the participants also positively influenced the second set of interviews, since the students were more willing to share their academic writing experiences with me, as the interviews took longer, and the participants shared their concerns and challenges in relation to academic writing in English in more detail.



### **3.7 Data analysis procedures**

This section describes the analytical framework (contrastive interlanguage analysis) taken in the analysis of multi-word units, the extraction of multi-word units and taxonomies used for coding the structural categories and discourse functions of multi-word units that were identified in this study. I then explain the analysis procedures of the interviews.

#### *3.7.1 Contrastive interlanguage analysis*

Contrastive interlanguage analysis involves the comparison of L1 with a corpus of learner language/interlanguage and comparison of different learner language with other learner languages of different L1 backgrounds (Granger, 1996, 1998a). Though contrastive interlanguage analysis method has been used in a wide range of learner corpora studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010), it has also been subjected to criticism regarding concerns of the notion of ‘comparative fallacy’ and the issue of the norm (Granger, 2015). As Larsen-Freeman (2014, p. 217) argued, “[by] continuing to equate identity with idealised native speaker production as a definition of success, it is difficult to avoid seeing the learner’s IL as anything but deficient”. This suggests that the so-called native speaker ideal should be treated with caution when learner language is investigated. However, there are also valid arguments to counter these criticisms. The assessment of second language learners’ proficiency is generally conducted with an L1 target. As Sung Park (2004, p. 3) stated, “any SLA study implicitly has a built-in notion of interlanguage with the target language lurking in the background.” This study addresses the criticism of comparative fallacy, as both L1 and L2 corpora were studied in their own right longitudinally, in addition to L1 and L2 comparisons.

The second criticism is concerned with the notion of norm. In learner corpus studies, the use of native English-speaking data as a reference corpus has been equated with the recognition of one single monolithic norm (Granger, 2015); however, a reference

language variety does not necessarily mean that it should be the norm for L2 learners. Since learner corpora studies have a strong pedagogical orientation, it is perfectly valid to describe advanced learners' characteristics of language in comparison to a reference corpus to shed light on where and to what extent deviations from L1 use occur.

Granger (2015) proposed a newer version of contrastive interlanguage analysis and introduced the term 'reference language variety' instead of native speaker language and 'interlanguage variety' as learner language. She focused on the concept of variation in this model and emphasised the value of comparison of these varieties. As White (2003, p. 27) notes, "it is not the case that one should never compare L2 speakers to native speakers of the L2 (...). What is problematic is when certain conclusions are drawn based on failure to perform exactly like native speakers." In line with this view, this study addresses the problem of 'native speaker fallacy', i.e. the tenet of native speaker language as the benchmark, and avoids using native English-speaking language use in academic writing as the norm. As Granger (2015) recommended, the terms 'overrepresentation' and 'underrepresentation' are used in this study instead of 'overuse' and 'underuse' which may suggest prescriptivism and have negative connotations. Therefore, I conceptualised both L1 and L2 English-speaking university students as novices in academic writing. In fact, previous studies point out that lexico-grammatical features in second language writers' academic writing show more similarities rather than differences with those in L1 academic writing when second language writers have advanced proficiency in English (Ädel & Römer, 2012; Çandarlı, Bayyurt, & Martı, 2015; Römer, 2009a, 2009b). Given that both native and non-native first year university students learn how to write academic essays, it is necessary to discover recurrent patterns in both L1 and L2 novice academic writers' essays in order to inform pedagogical practices.

In addition to the contrastive interlanguage analysis method, I used a sub-corpus of the British Written Academic English corpus (BAWE), which consists of 382 texts of

780422 words, for consultation (Alsop & Nesi, 2009), in order to determine the relationship of the frequencies of multi-word units between L1 novice writers and sub-corpus of BAWE writers as well as between L2 novice writers and sub-corpus of BAWE writers. To ensure comparability, I included first-year students' texts classified as essays and critiques from Arts and Humanities and Social Sciences disciplines in the sub-corpus of the BAWE. This corpus was selected, since it is large and recent<sup>6</sup> enough, and it contains both L1 and L2 English-speaking first-year students' essays and critiques which received 'merit' or 'distinction' (Nesi & Gardner, 2012), though two thirds of the papers were written by L1 writers. There is no conclusive evidence on the association between the overall writing quality/grades of essays and use of multi-word units. However, there is some evidence that greater use of noun phrases (noun + that clauses) was associated with high language use ratings (Staples & Reppen, 2016) and that more frequent use of noun and prepositional phrases contributed to higher language use and content ratings (Taguchi, Crawford, & Wetzel, 2013). A corpus of research articles was not used for consultation in this study, since there are register differences between journal articles and student essays. As Lorenz (1999, p. 14) points out, it would be "both unfair and descriptively inadequate" to set expert academic writing as the benchmark for novice academic writing.

### *3.7.2 Methods for analysis of the multi-word units in the essays*

This section presents a brief overview of the methods used in the identification of multi-word units and methodological procedures followed in order to extract and analyse lexical bundles and p-frames.

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<sup>6</sup> The texts were collected between the years of 2005-2007 (Alsop & Nesi, 2009).

## Review of methods used in the identification of multi-word units

There are five main approaches to the identification of multi-word units: phraseological approaches, psychological approaches, function-first, native norms and frequency-based approaches. (Durrant & Mathews-Aydinli, 2011, O'Donnell et al., 2013). The phraseological approaches focus on the degree of non-compositionality of sequences, and these sequences are viewed along a continuum from free collocations (e.g. 'kick the ball') to idioms (e.g. 'kick the bucket') (Cowie, 1988; Howarth, 1998).

The psychological approaches are concerned with psychologically salient sequences which language users may process as a whole. Psycholinguistic experiments, including generative free association tasks and verbal fluency tasks (see Ellis, O'Donnell, & Römer, 2014) and an MI score which is a measure of association between words (Ellis, Simpson-Vlach, & Maynard, 2008; O'Donnell et al., 2013) have been found to reflect the psycholinguistic saliency of multi-word units. The MI score, however, may not be a reliable way to identify sequences that are longer than two-word sequences, since it tends to extract multi-word lexical collocations (just content words)<sup>7</sup> (Biber, 2009).

The function-first approach starts with annotating the communicative functions of the texts (e.g. 'general topic background') and then identifying multi-word sequences within these communicative functions (Durrant & Mathews-Aydinli, 2011). However, this method is suitable for small sets of data and it may be time-consuming to apply this method in a large number of different texts.

Native norms use the lists of multi-word units, including the Academic Formulas list (Simpson-Vlach & Ellis, 2008), multi-word constructions in academic written English (Liu, 2012), and the phrasal expressions list (Martinez & Schmitt, 2012) in order to

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<sup>7</sup> In my pilot study, I also used an MI score to identify multi-word units. However, as Biber (2009) noted, it mainly identified content words that were very infrequent in the corpora.

determine to what extent English language learners use these native-like multi-word units (O'Donnell et al., 2013). One limitation of this method is that we can only find what we look for, and this gives a limited picture of the recurrent word combinations in learner writing.

Finally, the frequency-based approaches focus on the frequency of multi-word units without any predefined linguistic categories (Biber et al., 1999; Sinclair, 1991). Within frequency-based approaches, there are different approaches, including continuous/fixed sequences, i.e. lexical bundles (e.g. 'as a result of') (Biber et al., 1999), discontinuous/semi-fixed sequences, i.e. phrase frames (e.g. 'it is \* that' – 'it is important that') (Römer, 2009b), and non-contiguous sequences (Cheng, Greaves, & Warren, 2006) in terms of both the constituency (AB, ACB – 'it focuses', 'it also focuses') and position (AB, BA – 'you can', 'can you'). As this study aims to analyse recurrent word combinations in both L1 and L2 novice writers' essays, it focuses on lexical bundles and p-frames derived from the essays of L1 and L2 novice writers. I combined these two approaches because it is best to use more than one method of identification for phraseological patterns (Römer, 2016). It should be noted that there is no single method that can fully capture multi-word units in English.

#### Identification of lexical bundles and p-frames

The first method used to extract multi-word units was the lexical bundles approach. Previous studies restricted their analysis to four-word lexical bundles (Ädel & Erman, 2012; Chen & Baker, 2010; Cortes, 2004; Gray & Biber, 2013; Hyland, 2008; Pérez-Llantada, 2014). Biber et al. (1999, p. 992) argued that four-word lexical bundles and above "are more phrasal in nature and correspondingly less common". However, Gries (2013) noted that most studies arbitrarily define *n* as one number [4] in lexical bundles, and it would be insightful to check a wider range of them. Therefore, three- to five-word sequences were investigated as in several previous studies (Hyland, 2012; O'Donnell et al.,

2013; Simpson-Vlach & Ellis, 2010). Biber et al. (1999) noted that sequences that were longer than five-word bundles were infrequent, and a large proportion of lexical bundles was found to be realised through three- to five-word sequences.

The two other criteria that were applied to identify the multi-word units were range and frequency threshold. As described below, I used dynamic frequency thresholds and range criteria in order to make more reliable comparisons across the data sets. Application of these two criteria varies greatly in the literature (Hyland, 2012). Regarding the range criterion, the general trend is that a sequence must occur in at least five different texts in the corpus (Biber et al., 2004; Cortes, 2013), three to five texts in small corpora (Chen & Baker, 2014) or 10 percent of the texts (Hyland, 2008) to avoid any idiosyncratic usage by individual authors. In this study, the cut-off point for range was kept at five different texts for the first two time points of essay sets in the learner corpus, since the corpora were relatively small for the cut-off point to be five or 10 percent to be applied. At Month 9, the individual texts became much longer, and thus I used the cut-off point of six different texts. In order to ensure reliability of comparison between the two corpora, I kept the cut-off point of range at three different texts in the essays of L1 novice writers as the number of essays was fewer in the BE corpus than in the TE corpus.

For the frequency threshold, the cut-off point has ranged from 10 to 40 times per million words in the literature (Hyland, 2012), and it was as low as 2 or 3 for smaller corpora (Altenberg, 1998; De Cock, 1998). It should be noted that the frequency cut-off is “somewhat arbitrary” in studies on lexical bundles (Biber & Barbieri, 2007, p. 267). As my corpus was small, the cut-off frequency point of five was applied to both corpora at Month 3, and it remained the same for the TE corpus at Month 5. Then, I adjusted the cut-off frequency points in proportion to the corpus size. Therefore, the cut-off was six for the BE corpus at Month 5 and Month 9. The cut-off frequency point for sequences for the Month 9

of the TE corpus was 11<sup>8</sup>, as the corpus was relatively much larger. All lexical bundles were extracted by using WordSmith Tools Version 6.0 (Scott, 2012).

After I identified lexical bundles, the context-dependent bundles with proper nouns were manually removed (e.g., *English school system* and *Turkish education system*), as in previous studies (Ädel & Erman, 2012; Chen & Baker, 2010). I also removed topic-bound or multi-word lexical collocation which included only content words, such as *second language acquisition*. Likewise, overlapping lexical bundles with the same frequency were merged when they were subsumed into a longer phrase as in the case of *the other hand*, which was subsumed into *on the other hand*. In other subsumption cases, a subtractive method was employed to determine the exact frequency of phrases (Martinez & Schmitt, 2012). For instance, the phrase *in terms of the* was identified as a four-word lexical bundle, and *in terms of* was also in the three-word lexical bundles' list in the first instance. In order to determine the exact frequency of *in terms of*, the number of occurrences of *in terms of the* was subtracted from that of *in terms of*. The same procedure was followed in both corpora.

The second method that was employed to extract multi-word units involved phrase-frames (p-frames). The definition and method of extracting p-frames have been dealt with differently in the literature. P-frames can be defined as variants of n-grams that are identical except for one word (Fletcher, 2007) and they can be regarded as semi-fixed sequences. P-frames that can reveal the variability in lexical frames (Stubbs, 2002) are based on Sinclair and Renouf's (1991) notion of collocational framework that consists of function words with a variable lexical slot (e.g. 'a + ? + of' – 'a number of'). Römer (2009a, 2009b, 2010) examined p-frames with internal variable variants (e.g. 'A\*CD',

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<sup>8</sup> The cut-off frequency point would be 15 if I had adjusted this in proportionate to the corpus size. However, my repeated experiments with the data and previous literature (e.g., Chen & Baker, 2010) indicated that standardised frequency cut-off points extract fewer sequences in a relatively larger corpus in comparison to a smaller one. Therefore, I decided on the cut-off frequency point of 11 after I had experimented with my data.

‘AB\*D’), and Biber (2009) analysed p-frames with internal as well as initial and final variable variants. I adapted Römer’s (2009a) definition of p-frames and analysed three-, four- and five- word sequences with internal variants. A script in the Python language was written to extract p-frames in order to apply the criteria described below for identification of p-frames and to make data recording easier for individual files. Similar procedures can be followed by using the KfNgram tool (Fletcher, 2007) or WordSmith Tools Version 6.00 (Scott, 2012).

There are many more p-frames than lexical bundles (Gray & Biber, 2013); therefore, I doubled the frequency thresholds that I used for lexical bundles (i.e., 10 times for all p-frames in the TE corpus at the first two time points, 22 times for p-frames in the TE corpus at Month 9; 10 times for all p-frames in the BE corpus at Month 3, 12 times for all p-frames in the BE corpus at Month 5 and Month 9). These frequency thresholds adopted for phrase-frames were proportional to the word count of the essays at each time point. Third, the same dynamic range criterion of the lexical bundles of each time point in both corpora was applied for extraction of p-frames. It is worth noting that no filtering was done for p-frames of different word lengths that overlap or are subsumed into longer p-frames because unlike lexical bundles, it is difficult to identify these subsumption or overlapping cases in the case of p-frames which are mostly comprised of the function words (e.g. ‘the \* of the’).

#### Frequency analysis: “Advancedness”

Frequency analysis involves the comparison of frequencies of lexical bundles and p-frames that were extracted from both BE and TE corpora at each stage with those of the sub-corpus of BAWE. The same lexical bundles and p-frames that were found in TE and BE corpora at three waves of data collection were searched for in the sub-corpus of the BAWE which included the first-year university students’ texts classified as essays and



critiques from Arts and Humanities and Social Sciences disciplines, and their frequencies were recorded per 1000 words in the sub-corpus. The aim was to determine whether L1 and L2 English novice writers of this study would approximate to the reference sub-corpus of BAWE in terms of the use of multi-word units in academic writing.

I borrow Ortega and Byrnes' (2008) term of "advancedness" and operationalise it as conformity in the use of multi-word units in academic writing which encompasses linguistic and non-linguistic dimensions of academic writing. This is in line with a discourse community approach (Swales, 1990) in that first-year university students are expected to achieve the communicative goals of academic writing through their organisation, content, and language use, including the use of multi-word units. This definition resonates with Wulff and Gries' (2011, p. 61) definition of accuracy as a "proficient selection of constructions in their preferred constructional context in a particular target genre", which is seen as a "gradual, probabilistic phenomenon that transcends a native-non-native speaker divide". Hence, the conformity of the frequencies of the multi-word units in TE and BE corpora with those in the sub-corpus of BAWE corresponds to development of advancedness in this study. Also, the use of 'development' and 'developmental changes/patterns' in this study refers to changes in L1 and L2 students' use of multi-word units towards the frequencies in the sub-corpus of BAWE and the typical characteristics of multi-word units identified in previous studies in English academic prose (Biber, 2009; Gray & Biber, 2013). The term 'advancedness' for frequencies is in line with phraseological sophistication which is "operationalized as the frequency of lexical items in the corpus under investigation against the frequency of use in external reference corpora" (Paquot, 2017b, p. 4). Paquot (2017b) also argues that phraseological sophistication entails the use of phraseological patterns suitable for the style and topic of academic writing rather than the use of nuclear vocabulary (Stubbs, 1986), i.e. high-frequency patterns that do not reflect the style of academic writing. When the

frequencies of multi-word units in TE and BE corpora conform to those of the sub-corpus of BAWE, they are referred to as ‘unmarked’ (Lyons, 1977; Tardy, 2012). On the other hand, they are referred to as ‘marked’ in the cases of deviation from the frequencies in the sub-corpus of BAWE (Lyons, 1977; Tardy, 2012). The visuals created from the correlations (please see section 3.8), log-likelihood statistics and log ratio value, i.e. the effect size measure of log-likelihood statistics (Hardie, 2015) informed whether the multi-word units were marked (Rayson & Garside, 2000). The terms ‘marked’ and ‘unmarked’ are used in reference to the correlations of frequencies of multi-word units between corpora unless specified otherwise<sup>9</sup>.

The term “advancedness” is preferred over accuracy because accuracy is a highly contested term in language learning, and it is challenging to operationalise and identify it (see Housen & Kuiken, 2009). The construct of accuracy may encompass functional and/or semantic appropriacy, in addition to being grammatically error free (Huang, 2015), and the measurement of appropriacy may involve subjective judgement of raters. The notion of “preferred constructional context” (Wulff & Gries, 2011, p. 61) or semantic or functional appropriacy is beyond the scope of this study.

The normalised frequencies of multi-word units in TE and BE corpora at each stage were correlated with those of the sub-corpus of BAWE to assess development of advancedness in the use of multi-word units in academic writing. All the four- and five-word multi-word units (both lexical bundles and p-frames) and 70% (token frequency) of the three-word multi-word units in each data set were included in this analysis. Crossley and Salsbury (2011) also investigated “accuracy development” of bigrams in L2 English learners’ speech in comparison to those in the Santa Barbara Corpus and the normalised frequencies of the bi-grams were correlated with each other to examine whether L2

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<sup>9</sup> I used the term ‘unmarked’ for the functional use of only two bundles ‘on the other hand’ and ‘as a result of’ in Chapter 4 and specified its use in its co-text.

learners' use of bigrams would begin to parallel those of L1 speakers of English over time. Similar methodologies were also used in Römer, O'Donnell and Ellis' (2014) study to investigate the knowledge of verb-argument constructions of L2 English learners of German, Spanish and Czech speakers with reference to that of L1 English speakers. Additionally, Paquot (2017a) correlated the normalised frequencies of three-word lexical bundles in the texts of L2 English learners of French and L2 English learners of Spanish in order to assess the relationship between the use of multi-word units in these two groups.

### Structural analysis

The lexical bundles were classified structurally drawing on the taxonomy of previous studies (Biber et al. 1999; Chen & Baker, 2010). The categories with examples from my data are as follows:

1. Noun phrase-based (NP-based) bundles: *the use of the*
  - 1.a. Noun phrase with of-phrase fragment: *the nature of the, the size of the*
  - 1.b. Noun phrase with other post-modifier fragment: *the fact that, the difference between the*
  - 1.c. Other noun phrase: *all over the world*
2. Prepositional phrase-based (PP-based) bundles: *in relation to*
  - 2.a. Prepositional phrase with embedded of-phrase fragment: *as a result of, at the end of*
  - 2.b. Other prepositional phrase: *at the same time*
3. Verb phrase-based (VP-based) bundles: *see for example*
  - 3.a. (Noun phrase +) Copula be + Noun phrase/adjectival phrase: *is one of the, is due to the*
  - 3.b. Verb phrase with active verb: *has a number of, we can get*

3.c. Anticipatory it + Verb phrase/Adjectival phrase + (complement clause): *it is possible to, it can be said that*

3.d. Passive verb + (Prepositional phrase fragment): *is based on the, can be seen in*

3.e. (Verb phrase +) that-clause fragment: *this suggests that, should be noted that*

4. Others: *as well as the*

The structural categorisation of phrase-frames adopted here follows Gray and Biber's (2013) taxonomy of the structural categories:

1. Content word based phrase-frames (frames with nominals, but no verbs): *a \* part of*

2. Verb based phrase-frames (frames with modal, auxiliary, or modal verb): *it is \* that*

3. Function word based phrase-frames (frames that include only function words): *the \* of the*

All the lexical bundles and phrase-frames identified in this study were hand-coded according to these structural categories.

### Functional analysis

Several functional taxonomies have been developed to describe the discourse functions of multi-word units (e.g. Biber et al., 2004; Hyland, 2008). Based on Halliday's (1985) model of the macrofunctions of language (i.e., ideational, interpersonal and textual functions), Biber et al. (2004) argued that the lexical bundles could be classified into three main categories: 1) referential expressions, which specify propositions, frame quantities, time, place, and introduce abstract and concrete entities and "determine [authors'] way of looking at things" (Cortes, 2004, p. 401); (2) discourse organisers, which establish relationships between different parts of text and mark introductory, transitive, causative and inferential textual relations; (3) stance expressions, which express writers' (un)certainly and commitment (epistemic stance) and convey writers' attitudes towards propositions (attitudinal stance) and express obligations, directives or ability (modality

stance). Within stance expressions, hedges mitigate writers' certainty/commitment towards propositions, while boosters increase writers' certainty and commitment (Hyland, 2005).

Hyland (2008) developed a somewhat different classification from Biber et al.'s taxonomy (2004) and introduced three main categories. Research-oriented, text-oriented and participant-oriented functions were created with their own sub-categories. As Hyland (2008) noted, these three categories could be considered as equivalent to referential expressions, discourse organisers, and stance expressions, respectively. However, Hyland's (2008) taxonomy seems to be more appropriate for journal articles because it was developed specifically for research articles.

Biber et al.'s taxonomy (2004) of discourse functions of lexical bundles is widely adopted in a great number of studies of phraseology in the literature (Cortes, 2013). The taxonomy was adapted in two ways. First, I added the subcategory of descriptive bundles, which signal concrete and abstract entities and qualities (e.g. 'the role of the'), into referential expressions, as in Cortes' study (2004). Second, Hyland's (2008) resultative signals (text-oriented bundles) were incorporated into the subcategory of discourse organisers as inferential/resultative bundles, which signal inferential or causative relations between propositions. The multi-word units were coded according to the taxonomy below:

1. Referential expressions: *in terms of, at the same time*
  - 1.a. Identification/focus: *one of the most, one of the major*
  - 1.b. Specifying attributes (quantifying and framing): *in terms of, in the case of (framing); a large number of, a wide range of (quantifying)*
  - 1.c. Descriptive: *the use of the, the nature of the, the quality of the, the characteristics of the, the role of the*
  - 1.d. Place/time/text-deictic: *at the same time, all over the world*

2. Discourse organisers: *in this essay, on the other hand*
  - 2.a. Topic introduction/focus: *in this essay, in this paper*
  - 2.b. Topic elaboration/clarification/transition: *on the other hand, in more detail*
  - 2.c. Inferential/resultative: *due to the, because of the*
3. Stance expressions: *likely to be, an important role in*
  - 3.a. Epistemic stance: *more likely to, it is clear that*
  - 3.b. Attitudinal stance/modality: *it is important to/we should not be*
4. Others: Multi-word units that cannot be classified into the categories above.

Several researchers have noted the multi-functionality of multi-word units and functional overlap between these categories (Ädel & Erman, 2012; Biber et al., 2004; Simpson-Vlach & Ellis, 2010). While coding the functions, context was taken into consideration. Accordingly, when a phraseological item had multiple functions, I coded the predominant function (Biber et al., 2004). On the basis of this taxonomy, I coded all the four-word and five-word lexical bundles and five- and four-p-frames according to their discourse functions in context. 70% (token frequency) of the three-word lexical bundles in each data were also included in the analysis (please see Appendix K and L for top-ten most frequent lexical bundles and p-frames in both groups). The analysis of the discourse functions of three-p-frames was not conducted because my preliminary analysis revealed most of them were multi-functional or some of them were unclassifiable for any functions.

#### Internal variability and predictability analysis

The internal variability and predictability of p-frames were measured at each time period in order to determine whether the degree of fixedness of phraseological patterns in L1 and L2 novice writers' essays would change over time. In previous studies, internal

variability was calculated by using type-token ratio (Garner, 2016; Gray & Biber, 2013). Gray and Biber (2013) recommended using entropy in future research as type-token ratio is sensitive to overall token frequencies. Entropy measure, which has been underutilised in corpus linguistics research (Gries, 2015c), “is considered to be the most useful general measure of the effective number of species in a community” (Jarvis, 2013, p. 98). I therefore used entropy as a measure of the internal variability of p-frames. Entropy can be briefly defined as an information-theoretic measure of the variability of a distribution (Eeg-Olofsson & Altenberg, 1994). The closer the entropy score is to 1, the more variable the phrase-frame is. Entropy can be calculated as follows:

$$E(S) = - (X_1 \log_2 X_1 + X_2 \log_2 X_2 + \dots)$$

If the p-frame ‘to \* extent’ has a total frequency of 14 with the variant of ‘some’ (n=9) and ‘certain’ (n=5), then  $E(S) = - (5/14 \log_2 5/14 + 9/14 \log_2 9/14)$ , and  $E(S)$  will be 0.94. The calculations were done through a script in the Python language. All the p-frames were classified into four categories in terms of internal variability: highly variable, if the internal variability of a p-frame was larger than .70; variable, if the internal variability of a p-frame was between .30 and .70; fixed, if the internal variability of a p-frame was smaller than .30 (Gray & Biber, 2013).

The predictability of p-frames measures the degree of percentage of all occurrences of the most frequent variant within a p-frame (Biber, 2009; Gray & Biber, 2013). For example, if the p-frame ‘it is \* that’ occurs 70 times with the most frequent variant of ‘important’ (n=25), the predictability of the frame will be  $25/70 = 35\%$ . All the p-frames were categorised into four quartiles: highly predictable, if the percentage was greater than 75%; predictable, if the percentage was between 50% and 75%; unpredictable, if the percentage was between 25% and 50%; highly unpredictable, if the percentage was less than 25%.

### 3.7.3 Methods for analysis of the stimulated recall protocols and semi-structured interviews

I transcribed and coded all the stimulated recall protocols and interviews using NVivo 10. The interview transcripts in Turkish were not translated into English, but I coded the data in English by using my competence in both languages during meaning-making process of Turkish interviews that also included code-switching practices between Turkish and English. This process of researching multilingually in qualitative research may contribute to the trustworthiness of the data (Stelma, Fay, & Zhou, 2013). All participants are given pseudonyms, as Cohen et al. (2013) recommends.

Table 2. Coding scheme used for semi-structured interviews.

| Interviews with novice writers   |
|--|
| 1. Novice writers' perceptions of the use of multi-word units in academic writing                    |
| 1.1 Students' definition of good academic writing  |
| 1.2 Self-evaluative comments on their use of multi-word units  |
| 1.3 Learning process of multi-word units and students' strategies                                    |
| 2. Novice writers' self-reported discourse functions of multi-word units                             |
| Interviews with lecturers  |
| 1. Lecturers' perceptions of essential skills in novice academic writing                             |
| 2. Teaching approaches to multi-word units   |
| 3. The role of multi-word units in novice academic writing   |
| 4. The self-reported effect of the students' use of multi-word units on lecturers' grading practices |

The semi-structured interviews generated qualitative data which were examined through thematic analysis. As shown in Table 2, the categories were guided by the interview questions of study. I conducted thematic analysis together with the methodological procedures of constant reading and comparison to further interpret the data (Strauss & Corbin, 1998). The analytical procedures which were applied for semi-structured interviews with lecturers and novice writers are as follows: First, I read the interview transcripts to familiarise myself with them. I made notes about the general themes and separate cases. Then, I iteratively coded each interview into themes and patterns. The coding scheme was neither totally pre-determined, as in Guest, MacQueen and Namey's (2012) conceptualisation of thematic analysis within a positivist framework,



nor was it purely based on an open-coding approach, as in grounded theory. Both pre-existing and inductive coding was employed in analysing the qualitative data (Johnson & Christensen, 2014). Though most of the themes were driven by my interview questions and research aims, certain themes, i.e. students' strategies for the use of multi-word units emerged from the data analysis. These steps were recursively conducted after both the first and second set of interviews. Interim analysis was intended to gain a greater understanding of the data (Miles & Huberman, 1994). The common themes were quantified per participant at each time point. Later on, I systematically compared and contrasted the themes and patterns across the same participants at two time points, and between the groups. Finally, I refined my themes, identified relational and temporal connections and relations between them.

The interview data are grouped by themes in Chapter 6. Although presentation of interview findings by themes may cause decontextualisation (Cohen et al., 2013), the themes are contextualised with quotations from the interview transcripts and any further contextual information about the interviews.

### **3.8 Statistical testing**

Several different statistical tests were employed in order to capture the changes of the use of multi-word units over one academic year in both groups. Three-, four- and five-word lexical bundles and p-frames and their structural and discoursal categories, which further were classified into the abovementioned subcategories, were normalised and recorded for each text per 300 words with the help of the scripts written in the Python language, as Durrant and Schmitt (2009) and Granger (2015) recommend recording results individually for each text (please see Appendix M for the descriptive statistics for these categories). This allowed me to treat texts as separate units rather than the corpus as a whole, which is “a necessary step if learner corpus work is going to enable generalisations

about learners' language systems" (Durrant & Schmitt, 2009, p. 60). Treating the corpus as a whole would only allow the use of monofactorial analysis, which can "only be a dangerous shortcut" in corpus linguistics research (Gries, 2015b, p. 62). Gries (2015b, p. 64) characterises multifactorial analysis as "maybe the most important recommendation for the field's future development."

In order to capitalise on the richness of longitudinal data, I used a relatively novel statistical technique called 'growth curve modelling' (Singer & Willett, 2003), namely, 'growth curve analysis' (Mirman, Dixon, & Magnuson, 2008; Mirman, 2014). Growth curve modelling is a variant of mixed-effects/multi-level modelling (see Baayen, 2008) that quantifies both group-level and individual-level patterns within a single analysis, and it additionally includes time coefficients to assess change over time (Mirman, 2014; Singer & Willett, 2003). Given that mixed-effects modelling is highly recommended for corpus linguistics research (Gries, 2015a, 2015b), this analysis is a valuable approach to depict trajectories of individuals and groups in terms of the use of multi-word units over time. Growth curve modelling is superior to traditional statistical tests, including Friedman's Test or One-Way ANOVA (Mirman, 2014; Singer & Willett, 2003) in several ways. First, growth curve modelling is robust enough to account for variation and variability over time in small groups even with 15 participants drawn from relatively homogenous populations, including university students, and it is powerful enough to handle unbalanced datasets in which time waves are unequally spaced (Singer & Willet, 2003), as in this study. Second, unlike traditional tests, growth modelling does not assume normal distribution or homogeneity of variance of data sets, and it is flexible enough to handle missing data on the condition that data are missing completely at random (Little & Rubin, 1987; Singer & Willet, 2003). In this study, the attrition rate for the L2 novice writer group was 8% (n= 8) at the last wave of data collection, and it was 5% (n= 2) at the second wave and 7% (n= 3) at the last wave of data collection for the L1 novice writer group. Most of these students

(n= 8 in total) dropped out of the university, but the reason for non-submission of the essays for three students in total remained uncertain. In longitudinal panel studies, data attrition is a common phenomenon (Singer & Willet, 2003), and it is unlikely that the reason for attrition can be traced to the model parameters in longitudinal panel studies (Young & Johnson, 2015); therefore, frequency data were considered missing completely at random in this study.

It is important to distinguish between fixed effects and random effects in the model structure of growth curve analysis. Fixed effects refer to those that are fixed properties of the world and are expected to have a systematic influence on the dependent variable (Mirman, 2014). Fixed effects can be continuous (time) or categorical (group- L1-English vs L2-English). In this study, time, group, bundle and p-frame length (three or four- word), the structural and discoursal category of bundles and p-frames (e.g. NP-based bundles, content-based p-frames) were treated as fixed effects. Therefore, following Barr, Levy, Scheepers, and Tily's (2013) recommendation, the design of this study informed the fixed effects in the models rather than using the exploratory data-driven approach. Random effects refer to those that are intended to reflect random variation in the population, and they capture the nested structure of the data in the longitudinal studies (Mirman, 2014). Participants can be treated as fixed or random effects. It is recommended that participants should be treated as random effects when participants are sampled from a relatively homogenous population (university students) and when the aim is to generalise from a sample to a larger population so that individual variability in the sample can reflect variability in the population (Mirman, 2014). Hence, participants (novice writers) in this study were treated as random effects. Furthermore, the random effects structure reflected the nested nature of the data in this study. For example, the random effects structure "1 | Group: Bundle\_length: ID" allows different random intercepts (initial state) for each

participant for both types of bundles (three-word and four-words) in two groups (L1-English and L2-English) separately.

There have been inconsistencies in the literature in relation to the mixed-effects model selection. For confirmatory hypothesis testing, Barr et al. (2013) found that “maximal models” random effects structure which includes random intercepts and slopes (rate of change) for all independent variables and their interactions performs better than models selected through data-driven approaches. The random slope for participants is crucial in a longitudinal study design in order not to create a spurious significant fixed effect on the dependent variable (Linck & Cunnings, 2015). However, in a recent study, Bates, Kliegl, Vasisth and Baayen (2015) argue that maximal models may lead to nonconvergence or overparameterisation, which creates uninterpretable models. They further maintain that Barr et al.’s (2013) recommendations are “atypical for real data” (p. 1), and “the information in the data may not be sufficient to support estimations of such complex models and may result in singular covariance matrices” [perfectly correlated random effects] (p. 24). Taking these two studies into consideration, I first attempted to create ‘maximal models’ with all the fixed effects of my interests stated above and the random effects with random intercepts and slopes for all independent variables and their interactions because these random effects are expected to account for variation in a longitudinal panel study (Barr et al., 2013; Lincks & Cunnings, 2015). However, most of these models resulted in singularity, which means that random effects were perfectly correlated, and the random slope variances for participants were estimated to have no variability. Bates (2010, p. 62) noted that “a correlation must be between  $-1$  and  $1$ ” for random effects. Therefore, I had to drop the random slope and created random intercepts only model for most of the cases (please see Appendix N for the steps followed for each model selection). This indeed validates Bates et al.’s (2015) arguments about the atypicality of Barr et al.’s (2013) recommendations for real data. At first, eight growth

curve models were fitted to describe trends in both groups for the frequency of lexical bundles, p-frames, structural categories of lexical bundles and p-frames, and discorsal categories of lexical bundles, internal variability and predictability of p-frames. When one model did not fit for two groups for structural categories of lexical bundles and p-frames, and discorsal categories of lexical bundles due to the different random effects structures in two groups, separate models were fitted for these frequency data for the two groups.

All of the growth curve analyses were carried out in R version 3.3.2 using the lme4 package version 1.1.10 (Bates, Mächler, Bolker, & Walker, 2015). The steps followed for each model selection were as follows: First, exploratory data analysis was conducted via graphs to examine overall trends in the data. No transformation for the dependent variable was conducted. Treatment coding was used for all the categorical variables in which L2-English group was used as a baseline, and other parameters were compared to this baseline. Time variable was centred on its initial status in order to prevent spurious correlations of random intercepts and slopes (Baayen, 2008; Singer & Willet, 2003). Then, following the recommendations of the previous studies (Gries, 2015a; Zuur, Ieno, Walker, Saveliev, & Smith, 2009), the model selection first involved selecting the optimal random effects structure. The models with different random effects structures were compared by using the restricted maximum likelihood estimation, which estimates random effect parameters, and all the possible fixed effects were added while keeping them at constant (Singer & Willet, 2003). This comparison involved information-theoretic measures (Akaike information criterion - AIC) (Akaike, 1974). Accordingly, AIC provides a relative goodness of fit of different models (Bolker et al., 2011), and the smaller AIC value is, the better the model provides a fit for the data. Although the likelihood ratio test was used for model comparisons in the previous studies (e.g. Mirman, 2014), it may be unreliable for small sample sizes (Pinheiro & Bates, 2000). After I found the optimal random effects structure, determined through AIC values, I checked whether dropping any of the fixed effects

improved the fit of the models and compared the models through maximum likelihood estimation, which “maximises the probability of the observed data” (Bolker et al., 2009), and it is useful to compare models with different fixed effects. Once I built each optimal model,  $R^2$  values of each model, which provided an estimate of the explanatory power of the models were calculated by using the formula in Nakagawa and Schielzeth’s (2013) study. Accordingly,  $R^2$  marginal provides an estimate of the fit for fixed effects only, and  $R^2$  conditional provides an estimate of the fit for both fixed and random effects of the model (Gries, 2015a). It should be noted that it is only possible to build linear growth curve models with just three waves of data. In order to build a non-linear growth curve model, at least four waves of data collection are necessary (Singer & Willet, 2003). In this study, when one of the categorical variables showed a non-linear trend over time, as in the example of VP-based bundles in L1-English group, the model did not provide a very good fit. These cases are discussed in the results chapter. The p values of the parameters in each model were estimated from the t distribution by using the formula in Baayen’s study (2008).

Although growth curve models have less strict assumptions than traditional statistical tests, the assumptions of normal distribution and homogeneity of variances for residuals, the normal distribution and homogeneity of variances of random effects should be met in order to provide precise inferences from the models (Singer & Willet, 2003). These assumptions were checked for each model through plots in R (please see Appendix O for an example), and no major deviations from these assumptions were found, although there were minor deviations from the normal distribution for residuals when there was a slight non-linear trend for one variable over time in the models. However, Gelman and Hill (2006) note that linear mixed effect models have some tolerance to violated assumptions, especially in the case of non-normal distribution of errors. Therefore, it can be argued that growth curve models provide precise estimates for the data in this study.

I also used Kendall's tau, a non-parametric correlation test that is suitable for a small data set with quite a few tied ranks in order to assess the relationship between the frequencies of lexical bundles and p-frames in TE and BE corpora at three waves separately with those in the sub-corpus of BAWE. According to Howell (1997), Kendall's tau is a better estimate of the correlation in the population than Spearman's statistic. Correlation coefficients were regarded as very weak if they were between .00-.19; weak if they were between .20-.39; moderate if they were between .40-.59; strong if they were between .60-.79; and very strong if they were between .80-1.00. First, due to the Zipfian nature of frequency distribution, the normalised frequencies per 1000 words in each corpus were log-transformed in order to decrease scale differences between most frequently and least frequently occurring multi-word units, as done in previous studies (Ellis, Römer, & O'Donnell, 2016; Paquot, 2017a; Römer et al., 2014). Before they were log-transformed, 0.01 was added to all the frequency rates of the multi-word unit, since the logarithmic frequency of the zero frequencies of some of the multi-word units in the sub-corpus of BAWE would have resulted in infinity. I also visualised the correlations for each group at each stage in R and used the *ggrepel* package (Slowikowski, 2016) in order to avoid overplotting multi-word units in the graphs and make the sizes of multi-word units relative to the logarithmic frequencies found in L1 and L2 novice writers' essays. Crossley and Salsbury (2011) compared the independent correlation coefficients ( $r_s$ ) by using  $z$  conversion and  $p$ -values in order to judge whether correlations of bigram frequencies between the first and final waves were statistically significantly different. There is a potential pitfall in this comparison because the possibility of having significant  $p$ -values increases when the sample size becomes larger (Levshina, 2015). Also, it may not necessarily be meaningful to compare the two correlations of the same variables (Baguley, 2012). In order to test this, Kendall's tau correlation coefficients were first converted to Pearson's  $r$  correlation coefficients (Walker, 2003). Then, by using the *cocor* package

(Diedenhofen & Musch, 2015) in R, I compared the correlation coefficients of the frequencies of five-word lexical bundles between the BE corpus and the sub-corpus of BAWE at Month 3 and Month 5 and found that these correlations were not statistically significantly different between these two time periods. However, when I doubled the number of bundles and redid the analysis, the correlations became statistically significantly different. Therefore, only Kendall's tau coefficients (effect sizes) were reported, as correlation coefficient "is often amply serviceable as a purely descriptive statistic" (Lindstormberg, 2016, p. 753).

The final statistical testing I used was the chi-square test of independence in order to determine whether the proportions of each discorsal category of p-frames in the TE corpus differed from those of the BE corpus at each time point. It should be noted that there was not enough data to build a growth model for this unit of analysis as only four- and five-p-frames were analysed for their discourse functions<sup>10</sup>. When the standardised residual value was greater than 1.96 or smaller than -1.96, it was concluded that the cell made a significant contribution to the chi-square value at the significance level of 0.05 (Field, Miles, & Field, 2012). The chi-square test of independence assumes that observations are independent.

Cochran's Q test, which is used when there are more than two matched samples, was performed to compare the proportions of each discorsal category of p-frames within each group over time (Cochran, 1950). When a significance effect was found, post hoc tests were conducted in order to determine at which time points the proportions of discorsal category of p-frames differed within the groups by using McNemar's test with adjusted p-values with the Bonferroni correction (Field et al., 2012).

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<sup>10</sup> Please note that three-p-frames were not analysed for their discourse functions since there were only very few three-p-frames which had a single discourse function, and most of the p-frames were multifunctional.



### 3.9 Validity, reliability, and trustworthiness

In mixed methods research, there are two differing viewpoints on how to address reliability (or consistency in qualitative research) and validity (or trustworthiness in qualitative research) (Cohen et al., 2013). One approach requires separately addressing these aspects in quantitative and qualitative parts of the study, though the distinction between these two parts may not always be clear-cut (Creswell, 2009). The second one is that legitimation (or validity) needs to be addressed overall in mixed methods research (Onwuegbuzie & Johnson, 2006). I deal with both approaches below. The elements of legitimation and my explanations of how I addressed them can be seen in Table 3.

Methodological triangulation for the analysis of phraseological patterns, i.e. both lexical bundles and phrase-frames was adopted to ensure that multi-word units in novice writers' essays were identified as much as possible in the data (Wray, 2009). I asked another rater, a PhD candidate in English Language Education, to recode the discourse functions of 25% (token frequencies) lexical bundles and p-frames in both groups. In order to measure the agreement between the two raters, Cohen's (1960) kappa statistic was used, yielding a value of .94. According to Landis and Koch (1977), this value indicates "almost perfect agreement" (p. 165).

The analysis of essays was complemented with the student interviews for data triangulation to increase validity of the study. Additionally, in order to increase reliability of the data analysis procedure, another researcher, a PhD candidate in the field of education, was asked to check my coding of 25% of the data, i.e. randomly selected five interviews in total, which resulted in Cohen's kappa value of .90 suggesting "almost perfect agreement" between the two raters (Landis & Koch, 1977, p. 165). The instances of disagreement were resolved through discussion, and then I looked at the rest of the transcripts taking into account the previous disagreements. Additionally, I recoded all the data three months later after the initial coding in order to ensure diachronic reliability (Kirk

& Miller, 1986). The obtained Cohen's kappa statistic was .97, which means "almost perfect" intra-coder agreement (Landis & Koch, 1977, p. 165). Further to this, I also interviewed the lecturers in an attempt to understand and explain similarities and differences between the views of students and lecturers, which could enhance triangulation. I described data collection and analysis procedures as well as the findings accurately in detail in order to address descriptive validity.

Table 3. Elements of legitimation (Onwuegbuzie & Johnson, 2006) and explanations of how I addressed them in this study.

|   |   |
|---|---|
| <i>Inside-outside validity</i> is concerned with the researcher's good use of emic and etic perspectives.                   | During my data collection and analysis procedures, I developed a good understanding of my participants' views and my own viewpoints.  |
| <i>Paradigmatic/philosophical validity</i>  | As I drew on pragmatism, I used mixed methods in this study. In other words, I was not attached to positivism or interpretivism per se.   |
| <i>Commensurability approximating validity</i> is the extent to which inferences reflect a mixed worldview.                 | I tried to interpret my findings within the scope of mixed worldview in the discussion chapter.   |
| <i>Weakness minimisation validity</i> refers to compensation of the weaknesses of one method with the strengths of another. | The interviews provided additional and illuminating information on the use of multi-word units in students' essays, which would have been impossible to gain from the analysis of essays. |
| <i>Sequential validity</i>  | Sequential validity was established, since both quantitative and qualitative aspects of the study built on the previous time points of data collection and analysis.                      |

|   |   |
|---|---|
| <p><i>Conversion validity</i> has to do with quantifying qualitative data and qualitisng quantitative data.</p>   | <p>Conversion was applied in both types of data transformation, as I described these procedures above.</p>  |
| <p><i>Sample integration validity</i> is concerned with appropriacy of conclusions and generalisation.</p>  | <p>I am aware that the views of interview participants may not reflect the views of my sample, since I interviewed approximately 10% of my participants.</p>                          |
| <p><i>Socio-political validity</i> refers to the extent to whether interests and values of multiple stakeholders are addressed.</p>   | <p>This may not be applicable to my study, as my research is concerned with the students' essays, their viewpoints and their lecturers' viewpoints on academic writing practices.</p> |
| <p><i>Multiple validities</i> can be described as resolution of validity and reliability (or trustworthiness) issues of both qualitative and quantitative aspects of the study.</p> | <p>I tried to address different kinds of validity and trustworthiness for this study, as I explained above.</p>   |

### 3.10 Summary

In this chapter, I have outlined my research design and explained the rationale for choosing a mixed methods longitudinal research design. This research design was selected in order to give a comprehensive account of the multi-word units in L1 and L2 novice academic writing during their first year of study in two discourse communities at a Turkish and UK university. I have described how the data collection procedures were carried out. I have further presented my two sets of corpora, together with information about the two groups of participants. The data analytical procedures were also described with examples. In the final section, I have discussed how I addressed ethical issues, validity, reliability and

trustworthiness in my study. I present the findings of lexical bundles in L1 and L2 novice academic writing in the next chapter.

## Chapter 4 Lexical Bundles in L1 and L2 Novice Academic Writing

“Things have changed.”

Bob Dylan

This chapter presents the findings of the analysis of lexical bundles in L1 and L2 novice writers’ essays. I report the results in terms of frequency, discourse functions, and structural categories. Lastly, I summarise the main findings regarding the use of lexical bundles in novice writers’ essays.

### 4.1 Frequency of lexical bundles

This section reports the frequency analysis of five-word, four-word and three-word lexical bundles in both TE and BE corpora with reference to that of the sub-corpus of BAWE.

#### 4.1.1 *Five-word lexical bundles*

The frequency of five-word lexical bundles was overall low in novice writers’ essays across over time, and L2 novice writers used five-word lexical bundles less frequently than L1 writers at each wave, as shown in Table 4 and 5. Both L1 and L2 writers used five-word bundles more frequently at Month 9 than at Month 3 and 5.

In TE corpora, low frequencies/absence of five-word lexical bundles at the first two time points might be due to the overall word length of the essays (about 500 words). Also, it may be harder for L2 writers to use longer sequences in their essays in comparison to their L1 counterparts. At Month 9, five-word lexical bundles occurred slightly more frequently in the TE corpus, and more students started to use them in their essays. It is interesting that the lexical bundle ‘when we look at the’ occurred seven times at Month 3,

while it did not occur even once at Month 5, and it did not occur enough to be identified as a lexical bundle at Month 9. This suggests that certain lexical bundles might have a fluid nature.

Table 4. Five-word bundles in L2 novice writers' essays across over time.

| Month 3             |               |                          | Month 5         | Month 9                  |               |                          |
|---------------------|---------------|--------------------------|-----------------|--------------------------|---------------|--------------------------|
| Lexical bundles     | Raw frequency | Frequency per 1000 words | Lexical bundles | Lexical bundles          | Raw frequency | Frequency per 1000 words |
| when we look at the | 7             | 0.14                     | -               | is one of the most       | 18            | 0.11                     |
|                     |               |                          |                 | it can be concluded that | 12            | 0.07                     |
|                     |               |                          |                 | it can be said that      | 12            | 0.07                     |
|                     |               |                          |                 | when it comes to the     | 11            | 0.07                     |

In BE corpora, there was no common five-word lexical bundle over time, as Table 5 shows. However, there were common bundles across two time points, such as 'due to the fact that' at both Month 3 and Month 9, 'in this essay I will' at both Month 3 and Month 9, 'it could be argued that' at both Month 3 and Month 9, and 'it can be argued that' at both Month 5 and Month 9. Overall, there was a shift from five-word lexical bundles that expressed information about the metatext or structure of the essay ('the purpose of this essay' and 'in this essay I will') to the lexical bundles that conveyed an argument ('it can be argued that' and 'it could be argued that').

Table 5. Five-word bundles in L1 novice writers' essays across over time.

| Month 3                   |               |                          | Month 5                      |               |                          | Month 9                 |               |                          |
|---------------------------|---------------|--------------------------|------------------------------|---------------|--------------------------|-------------------------|---------------|--------------------------|
| Lexical bundles           | Raw frequency | Frequency per 1000 words | Lexical bundles              | Raw frequency | Frequency per 1000 words | Lexical bundles         | Raw frequency | Frequency per 1000 words |
| due to the fact that      | 11            | 0.20                     | it can be argued that        | 8             | 0.12                     | it can be argued that   | 17            | 0.26                     |
| this may be due to        | 7             | 0.13                     | in this essay I will         | 6             | 0.09                     | it could be argued that | 15            | 0.23                     |
| the purpose of this essay | 6             | 0.11                     | it could be suggested that   | 6             | 0.09                     | as a result of this     | 8             | 0.12                     |
| in this essay I will      | 5             | 0.09                     | the structure of the article | 6             | 0.09                     | due to the fact that    | 6             | 0.09                     |
| it could be argued that   | 5             | 0.09                     |                              |               |                          | example of this can be  | 6             | 0.09                     |

As shown in Figure 3<sup>11</sup> below, there was no statistically significant relationship between the frequencies of five-word lexical bundles in the TE corpus at Month 9 and those in the sub-corpus of BAWE,  $r_t = 0.54$ ,  $p = 0.27$ <sup>12</sup>, but there was a moderate effect size.

<sup>11</sup> In each figure, the sizes of multi-word units are relative to the frequency of them in the TE corpus when y-axis shows the TE corpus, and they are relative to the frequency of multi-word units in the BE corpus when y-axis shows the BE corpus.

<sup>12</sup> The results of the correlation tests with a very small number of multi-word units should be treated with caution, as statistical power is low, and it is likely that the p value could be significant if the number of multi-word units were larger (see Levshina, 2015).

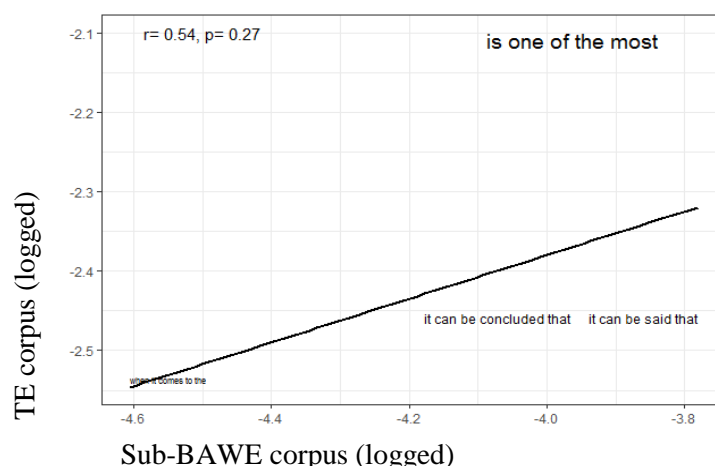


Figure 3. Correlations of five-word bundles between L2 students' essays and sub-BAWE corpus at Month 9.

The most frequently used five-word lexical bundle at Month 9 was ‘is one of the most’ in L2 novice writers’ essays. ‘Is one of the most’, which occurred statistically less frequently<sup>13</sup> in the sub-corpus of the BAWE (0.01 times per 1000 words) than in L2 novice writers’ essays (0.11 times per 1000 words; log ratio: 6.75), was used in the introduction paragraphs to state the importance of the topic or give some background of the topic on which L2 novice writers were writing, as the example shows below:

(1) Nowadays, English *is one of the most* commonly used languages. (90-TE-3)

As it is seen, Turkish learners of English used five-word lexical bundles to explicitly make links between the discourse (‘when we look at the’, ‘when it comes to the’), to claim centrality of the topic (‘is one of the most’), to offer their own argument (‘it can be said that’) and concluding remarks (‘it can be concluded that’) in their essays. This suggests that these five-word lexical bundles play a role in conveying these communicative functions above in novice academic writing, as Cortes (2013) found that longer lexical bundles are generally constituents of moves and genres in research articles.

<sup>13</sup> All the statistical comparisons between the corpora were made by using Rayson’s log-likelihood calculator (Rayson & Garside, 2000), and log ratios were reported as an effect size measure (Hardie, 2015).



Figure 4<sup>14</sup> shows correlations of five-word bundles between L1 writers' essays and the sub-corpus of BAWE. Although there was not a statistically significant relationship between the two groups at each wave ( $p = 0.44$  at Month 3;  $p = 0.17$  at Month 5;  $p = 0.11$  at Month 9), strong effect size was present at both Month 5 ( $r_t = .70$ ) and Month 9 ( $r_t = 0.66$ ). This may give evidence for development of advancedness in the frequency of five-word lexical bundles in L1 novice writers' essays.

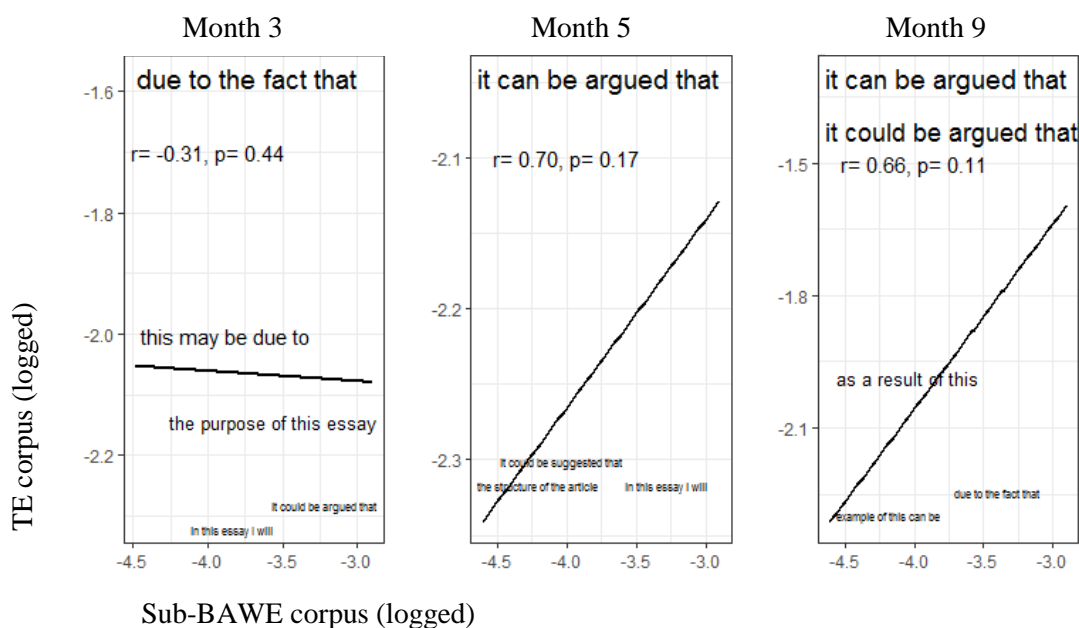


Figure 4. Correlations of five-word bundles between L1 students' essays and sub-BAWE corpus.

It is interesting to note that the frequencies of 'due to the fact that' (log ratio: 2.62 at Month 3), 'it can be argued that' (log ratio: 1.67 at Month 5; 2.54 at Month 9), and 'it could be argued that' (log ratio: 2.36 at Month 9) were overrepresented in L1 novice writers' essays with reference to the sub-corpus of BAWE. 'It can be argued that' and 'it could be argued that' were used to make an overall comment on the academic sources that students referred to in their essays or to draw a conclusion in the final paragraph of the

<sup>14</sup> In each graph that illustrates correlations of the multi-word units, the multi-word units that are above and to the left of the diagonal were overrepresented in novice academic writing of this study in reference to the sub-corpus of BAWE (see Römer et al., 2014). The multi-word units that are below and to the right of the diagonal occurred less in novice academic writing of this study in reference to the sub-corpus of BAWE, but the difference was not always statistically significant.

students' essays. The example below was taken from the last sentence of the student's essay, and it served as the concluding sentence:

(2) *It can be argued that* all these factors [...] contributes to diminishing the amount of freedom school leaders, especially those of academies, have to do as they wish in their school. (2-BE-3)

It can be said that L1 and L2 novice writers became more similar in their use of five-word bundles over time, since Turkish learners of English used a similar number of different types of five-word lexical bundles as L1 novice writers did at Month 9, although L2 writers used them with a lower frequency than the L1 novice writers. Additionally, L1 and L2 writers showed some similarities in the use of five-word bundles at Month 9 in that both groups used passive verb clauses, including 'it can be concluded that' (TE), 'it can be said that' (TE), 'it can be argued that' (BE), 'it could be argued that' (BE) which conveyed student writers' own comments or arguments about the topic they were writing, although this pattern was more dominant in the BE corpus.

#### *4.1.2 Four-word lexical bundles*

In this section, the findings of growth curve modelling for the frequency of four- and three-word lexical bundles are presented. Then, I take a closer look at four-word lexical bundles.

A linear growth curve model with fixed effects of time and bundle length as well as their interactions and random effects of participant-by-bundle-length in each group on the intercept was built to analyse the frequency of four- and three-word lexical bundles over time. The data and model fits are shown in Figure 5. As shown in Table 6, the mean frequency of both four- and three-word bundles showed significant variance in intercepts across participants,  $SD = .74$  (95%  $CI: .58, .90$ ); however, the mean frequency was regarded invariant in slopes across participants. As expected, four-word bundles were overall less frequent than three-word bundles in novice writers' essays ( $b = -7.38, SE = .17, t(613) = -42.02, p < .001$ ). There was a significant effect of time ( $b = -.31, SE = .12, t(550) = -10.53, p < .001$ ) on the frequency of three-word bundles, indicating that overall frequency of three-word bundles decreased over time in both groups, but there was no significant effect of group (L1 vs L2) on the frequency of bundles. There was a significant interaction between the two fixed effects, group and bundle length, which shows that four-word bundles were affected by time differently from three-word bundles. As seen in Table 6, the overall rate of decrease in the frequency of four-word bundles over time was lower than that of three-word bundles ( $b = .24, SE = .04, t(550) = 5.88, p < .001$ ).

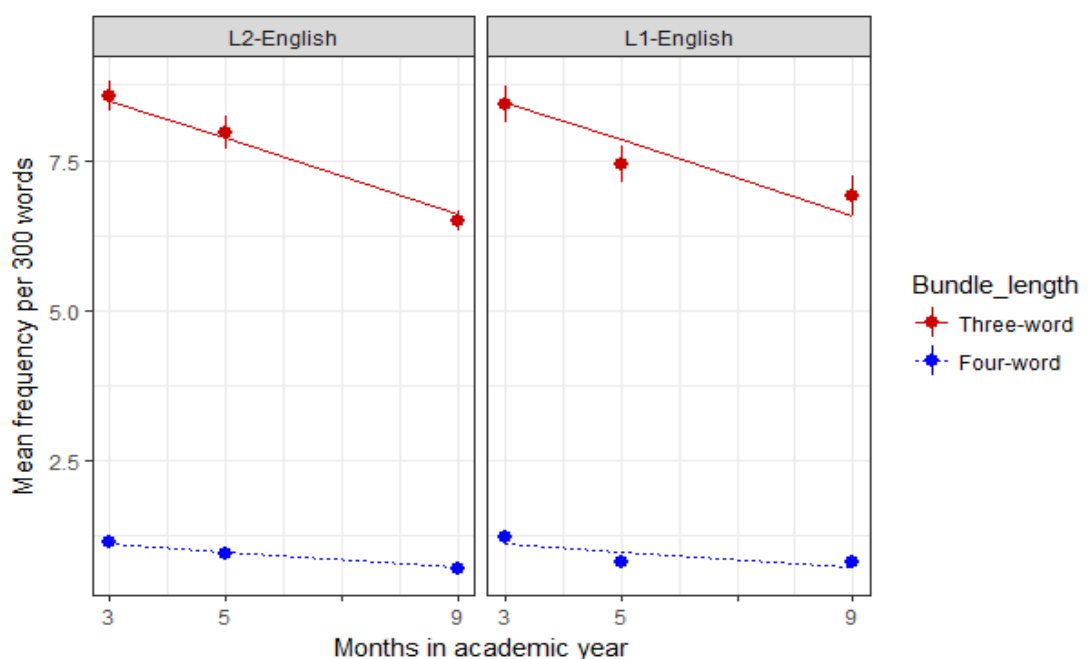


Figure 5. Observed data (symbols, vertical lines indicate  $\pm SE$ ) and growth curve model fits for the frequencies of four-word and three-word lexical bundles in two groups over time.

Table 6. Parameter estimates for growth curve model for the frequencies of three- and four-word bundles.

| Parameters      | Fixed effects |      |         | Random effects              |      |
|-----------------|---------------|------|---------|-----------------------------|------|
|                 | Estimate      | SE   | t       | By participants (Intercept) |      |
| Intercept       | 8.48          | 0.12 | 68.32*  | 0.55                        | 0.74 |
| Time            | -0.31         | 0.03 | -10.53* |                             |      |
| Four-word       | -7.38         | 0.17 | -42.02* |                             |      |
| Time: Four-word | 0.24          | 0.04 | 5.88*   |                             |      |

Model formula: Frequency ~ Time\* Bundle\_length + (1 | Group:Bundle\_length:ID). \* p < .001.  $R^2_{\text{marginal}} = 0.81$ ,  $R^2_{\text{conditional}} = 0.85$ .

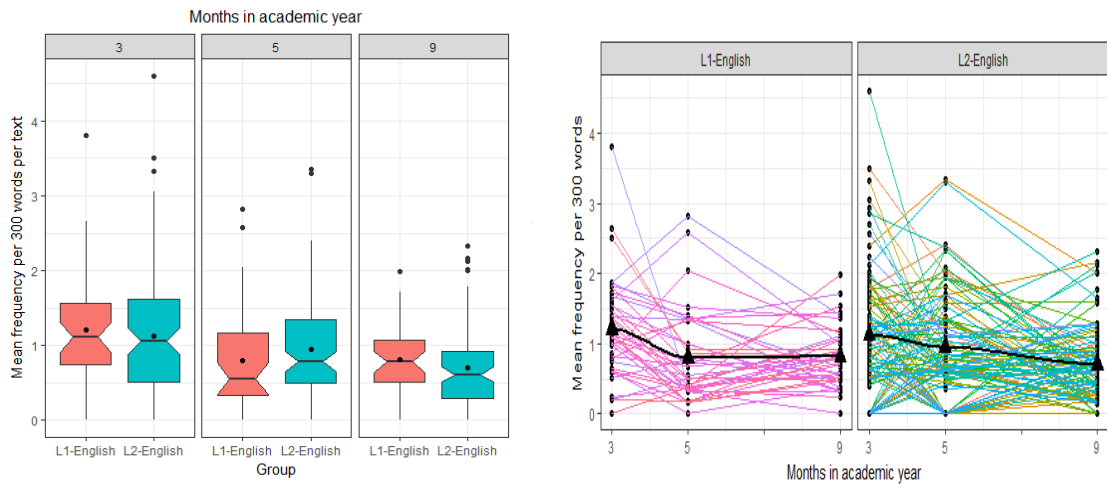


Figure 6. The distribution of four-word lexical bundles in novice writers' essays over time at group and individual level.

Overall, it can be said that L1 and L2 novice writers' essays showed similarities in terms of the frequencies of three- and four-word bundles over time, as illustrated in Figure 6. Variance in the frequencies of four-word lexical bundles was greater at Month 3 than the other two time periods in both groups. It is worth noting that variance between participants was slightly larger in L2 novice writers' essays than in L1 novice writers' essays, especially at Month 3, as can be seen in Figure 6.

With regard to frequencies of four-word bundles, there was a significant relationship between the frequencies of four-word bundles in L2 novice writers' essays and those in the sub-corpus of BAWE ( $r_t = .41, p < .05$  at Month 5;  $r_t = .52, p < .05$  at Month 9), except at Month 3 ( $r_t = .33, p = .09$ ), as shown in Figure 7. This suggests L2 novice writers showed advancedness in their use of four-word bundles over time.

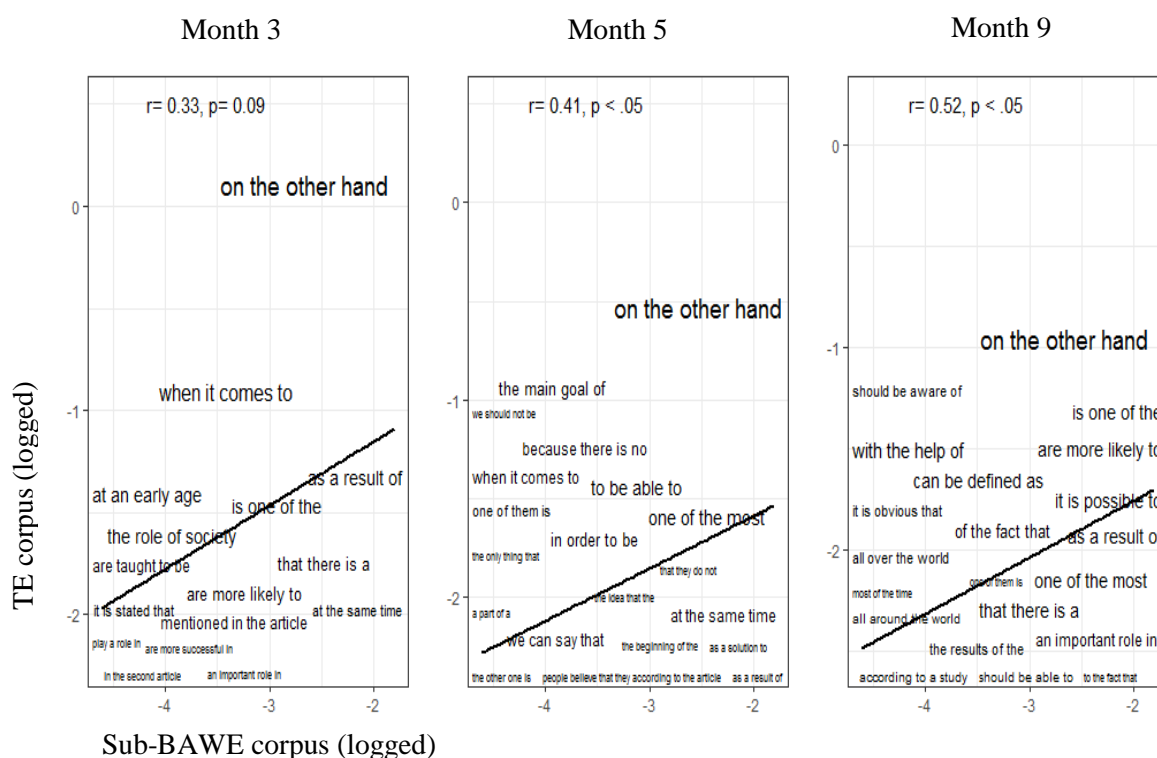


Figure 7. Correlations of four-word bundles between L2 students' essays and sub-BAWE corpus.

The most frequent four-word lexical bundle 'on the other hand', which was one of the only two common bundles in TE corpora over time, remained marked (overrepresented) in L2 novice writers' essays over one academic year, though this markedness became less strong over time (log ratio: 2.84 at Month 3, 1.79 at Month 5; 1.26 at Month 9,  $p < .0001$  for all time periods). On the other hand, the other common bundle 'as a result of' was unmarked over time in L2 novice writers' essays. The bundle 'when it comes to' was regarded marked (overrepresented) with reference to the sub-corpus of BAWE at Month 3 (log ratio: 5.94) and Month 5 (log ratio: 4.27), but non-occurrence of 'when it comes to' as a lexical bundle at Month 9 resulted in non-significant log-likelihood value (log ratio: -1.04). Hence, it can be argued that while L2 novice writers started to

show conformity with that of successful student writing in the UK context (sub-corpus of BAWE) in certain aspects, some bundles ('on the other hand') were likely to remain resistant to changes towards advancedness in novice academic writing. Additionally, some of the VP-based bundles (e.g. 'when it comes to' and 'it is stated that' at Month 3; 'we should not be', 'because there is no' at Month 5; 'should be aware of', 'it is obvious that' at Month 9) were characterised as marked (overrepresented) bundles, and their frequencies deviated significantly from those of the sub-corpus of BAWE. These VP-based bundles served to introduce a topic shift and express a cause-effect relationship ('when it comes to', 'because there is no') or to convey writers' commitment to the propositions ('we should not be', 'it is obvious that'). Thus, L2 writers were likely to have difficulties with expressing relations between the preceding and subsequent discourse in their text and conveying their own arguments in a way that may be seen as more typical of successful undergraduate academic writing.

Table 7 shows the common four-word lexical bundles in L2 novice writers' essays. 'On the other hand' and 'as a result of' were the only two common four-word lexical bundles over time. The other lexical bundles in the table were common across two time points.

Table 7. Common four-word lexical bundles in L2 novice writers' essays in order of overall frequency.

| Common lexical bundles | Month 3       |                          | Month 5       |                          | Month 9       |                          |
|------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
|                        | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words |
| 1 on the other hand    | 56            | 1.10                     | 30            | 0.53                     | 59            | 0.37                     |
| 2 as a result of       | 11            | 0.22                     | 5             | 0.09                     | 19            | 0.12                     |
| 3 at the same time     | 6             | 0.12                     | 7             | 0.12                     | -             | -                        |
| 4 is one of the        | 10            | 0.20                     | -             | -                        | 20            | 0.12                     |
| 5 that there is a      | 9             | 0.18                     | -             | -                        | 19            | 0.12                     |
| 6 are more likely to   | 8             | 0.16                     | -             | -                        | 19            | 0.12                     |

|    |                      |    |      |    |      |    |      |
|----|----------------------|----|------|----|------|----|------|
| 7  | an important role in | 5  | 0.10 | -  | -    | 15 | 0.09 |
| 8  | when it comes to     | 20 | 0.39 | 7  | 0.12 | -  | -    |
| 9  | one of the most      | -  | -    | 12 | 0.21 | 20 | 0.12 |
| 10 | one of them is       | -  | -    | 6  | 0.11 | 11 | 0.07 |

The frequency of ‘on the other hand’ decreased steadily in L2 novice writers’ essays over time. Examination of concordance lines revealed that ‘on the other hand’ at Month 3 was used for different purposes: Turkish learners of English used ‘on the other hand’ to offer a completely different perspective than what the previous sentence conveyed, to add a similar line of argument with that of the preceding discourse, and to compare the differences between two entities. In the example below, ‘on the other hand’ was used to link two similar ideas put forward by the same person, which made its use in context marked.

(3) Turkle claim that people create their virtual identity and like it more than the one in their real life. For example, an introvert person can be bold, a plain one can be glamorous in his or her virtual life. *On the other hand*, Turkle suggests that people meet technology in their early ages; for example, parents give a phone to their children and expect to access them always (89-TE-1).

Chen and Baker (2014) reported a similar marked use of ‘on the other hand’ by Chinese learners of English at B1 and B2 levels. “The learners’ all-time favourite” bundle ‘on the other hand’ was overrepresented in various learner groups’ essays from different L1 backgrounds (Chen & Baker, 2014, p. 13). Similar to the findings of Chen and Baker’s study (2014) which reported that Chinese learners at C1 level employed ‘on the other hand’ more appropriately than the ones at B1 or B2 levels, the functional use of ‘on the other hand’ became unmarked in L2 novice writers of this study at Month 5 and Month 9. Markedness (overrepresentation) in terms of the frequency also became less pronounced in L2 novice writers’ essays over time.

The other common four-word lexical bundle was ‘as a result of’. ‘As a result of’ was used in an unmarked way to describe effects and/or results over time except for one case at Month 3:

(4) Seppala focuses on men’s and women’s brains on compassion. *As a result of* the brain imaging study, men and women show the same compassion. When we look at the brain images...(11-TE-1)

In this example, the student used ‘as a result of’ to state what the researcher found in the brain imaging study rather than describe any effects.

The number of different types of four-word lexical bundles was lowest at Month 3 in L2 novice writers’ essays; however, it should be noted that type-comparison is unreliable between corpora of different sizes since “type distributions are not linear”, and “it is not possible to directly normalize the number of lexical bundle types” (Biber & Barbieri, 2007, p. 268).

Unlike the L2 group, non-linearity was found with regard to correlations between the four-word bundles in L1 novice writers’ essays and those in the sub-corpus of BAWE over time. As shown in Figure 8, there was a significant weak relationship between the frequencies of four-word bundles in the TE corpus and those in the sub-corpus of BAWE at and at Month 5 ( $r_t = .38, p < .05$ ); however, correlations were not statistically significant at Month 3 ( $r_t = .20, p = .20$ ) and at Month 9 ( $r_t = .05, p = .8$ ), and effect sizes were smaller at Month 3 and at Month 9 than at Month 5.



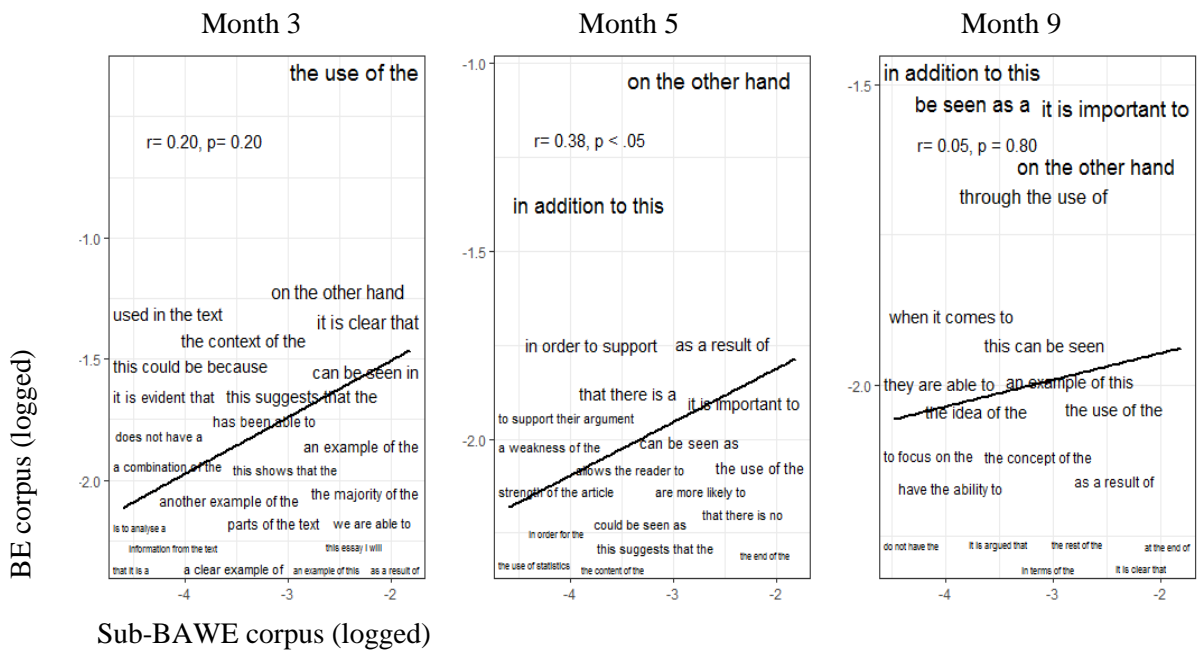


Figure 8. Correlations of four-word bundles between L1 students' essays and sub-BAWE corpus.

The reason for markedness of four-word bundles is the overrepresentation of the discourse-organising bundles ('on the other hand', 'this could be because' at Month 3; 'on the other hand', 'in addition to this', 'in order to support' at Month 5; 'in addition to this', 'when it comes to' at Month 9) and the bundle 'the use of the' (log ratio: 5.56 at Month 3; 1.41 at Month 5; 1.45 at Month 9) in comparison to the sub-corpus of BAWE at each time period. On the other hand, one of the common four-word bundles 'as a result of' remained unmarked in L1 novice writers' texts, as in L2 novice writers' texts. Unlike the L2 English group, no markedness was found in L1 novice writers' use of this bundle in context although 'on the other hand' was overrepresented at Month 3 and at Month 5. The example below shows that 'on the other hand' was employed to indicate the other side of the debate on equal rights to education:

(5) It also shows how C.S. see all children as having equal right to education regardless of their social backgrounds. *On the other hand*, Bernstein (1970) explains how "education cannot compensate for society" which may suggest social class as equality in

schools does not change the fact that children with wealthier backgrounds will always be at an advantage in society. (15-BE-2)

L1 novice writers showed a clear preference for explicit discourse-organising bundles in their essays over time, and this trend was slightly more pronounced at Month 9, which caused the frequencies of four-word lexical bundles to be marked (overrepresented) with reference to the sub-corpus of BAWE.

Table 8 presents all the common four-word lexical bundles in L1 novice writers' essays. The general overall trend of the frequency of common four-word lexical bundles was a slight decrease over time; however, a non-linear change in the frequency of the bundles took place for 'on the other hand' and 'as a result of'. The biggest change occurred in the frequency of 'the use of the' which decreased rapidly from Month 3 to Month 5. Also, the frequency of 'it is clear that' decreased from Month 3 to Month 9. The only bundle that showed an increasing trend in terms of frequency was 'it is important to'.

Table 8. Common four-word lexical bundles in L1 novice writers' essays.

| Common lexical bundles   | Month 3       |                          | Month 5       |                          | Month 9       |                          |
|--------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
|                          | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words |
| 1 the use of the         | 39            | 0.70                     | 8             | 0.12                     | 8             | 0.12                     |
| 2 on the other hand      | 16            | 0.29                     | 23            | 0.34                     | 12            | 0.18                     |
| 3 as a result of         | 5             | 0.09                     | 11            | 0.16                     | 7             | 0.11                     |
| 4 this suggests that the | 9             | 0.16                     | 7             | 0.10                     | -             | -                        |
| 5 it is clear that       | 15            | 0.27                     | -             | -                        | 6             | 0.09                     |
| 6 an example of this     | 5             | 0.09                     | -             | -                        | 8             | 0.12                     |
| 7 in addition to this    | -             | -                        | 17            | 0.25                     | 14            | 0.21                     |
| 8 it is important to     | -             | -                        | 9             | 0.13                     | 14            | 0.21                     |

The second biggest change occurred in the frequency of 'it is clear that' over time.

Given that the frequency of this bundle was regarded marked (overrepresented) at Month 3

(log ratio: 1.76) and it became unmarked at Month 9, the development of advancedness can be seen for this bundle. It may be the case that L1 novice writers refrained from making assertive statements through using this bundle. L1 novice writers used ‘it is clear that’ to draw inference and make an argument in a certain tone, mostly in the conclusion paragraphs of their essays, as the example shows:

(6) In conclusion, *it is clear that* the education system does put pressure on teachers and leaders to act in a certain way. (39-BE-3)

When we compare the four-word bundles in L1 and L2 novice writers’ texts, only two common bundles were found over time: ‘on the other hand’ and ‘as a result of’. No statistically significant difference was found in the frequency of ‘as a result of’ over time between the two groups (log ratio: 1.28 at Month 3; -.89 at Month 5; .14 at Month 9). ‘On the other hand’ was overrepresented in L2 novice writers’ texts at Month 3 and at Month 9 in comparison to L1 novice writers’ texts. This finding is consistent with the results of previous studies that reported learners’ use of certain bundles with a much higher frequency than their L1 English-speaking counterparts (see Paquot & Granger, 2012). Overall, based on the correlation results presented above, it can be argued that L2 novice writers used four-word lexical bundles at a frequency rate, which was more consistent with the writers in the sub-corpus of BAWE than L1 novice writers. Nonetheless, the frequency gives a limited picture of the use of bundles in context, since markedness was found in terms of the functional use of bundles in L2 novice writers’ texts, as in the case of ‘on the other hand’ and ‘as a result of’.

#### 4.1.3 Three-word lexical bundles

Like four-word lexical bundles, the overall frequencies of three-word lexical bundles decreased steadily over time in both L1 and L2 novice writers’ essays, as Figure 9 below and the growth curve model above show. Variance between participants in the

frequencies of three-word bundles was greater in L2 novice writers' essays at Month 3 and at Month 5 than in L1 novice writers' essays. As shown in Figure 9, whereas this variance became smaller in L2 novice writers' essays at Month 8, it became slightly larger in L1 novice writers' essays.

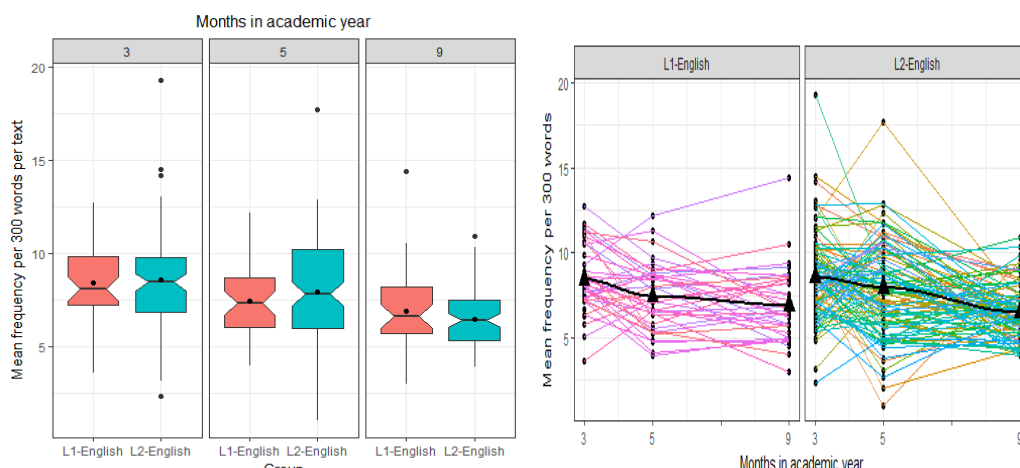


Figure 9. The distribution of three-word lexical bundles in novice writers' essays over time at group and individual level.

There was no statistically significant relationship between the three-word bundles in L2 novice writers' essays and those in the sub-corpus of BAWE, and effect sizes were very weak over time, as Figure 10 shows ( $r_t = .15$ ,  $p = .13$  at Month 3;  $r_t = .07$ ,  $p = .48$  at Month 5;  $r_t = .14$ ,  $p = .15$ ). The most frequent bundle of all the three time periods 'in order to' remained marked over time in that it was underrepresented in L2 novice writers' essays at Month 3 (log ratio:  $-.79$ ), and it became overrepresented at Month 5 (log ratio:  $1$ ) and Month 9 (log ratio:  $1.06$ ) in reference to the sub-corpus of BAWE. 'In other words', 'there are some', 'first of all', 'as well as' and 'a lot of' were among the other most frequently occurring common bundles over time that continued to be marked (overrepresented) in L2 novice writers' essays. For example, an L2 novice writer made a vague statement about other studies by using 'there are some', and no reference was given to those studies, as can be seen in example 7:

(7) Although *there are some* studies about 'Internet language', there is not a study on word changes. (91-TE-3)

Markedness (overrepresentation) of ‘in other words’, ‘first of all’, ‘as well as’ in L2 novice writers’ essays over time is not surprising, since Paquot (2010, p. 174) characterised learner writing as ‘chains of connective devices’. However, there was a linear developmental pattern in the frequencies of ‘to sum up’, ‘all in all’ and ‘that is why’ in that their frequencies became unmarked at Month 9; hence, advancedness can be observed in the frequency of these three discourse-organising bundles.

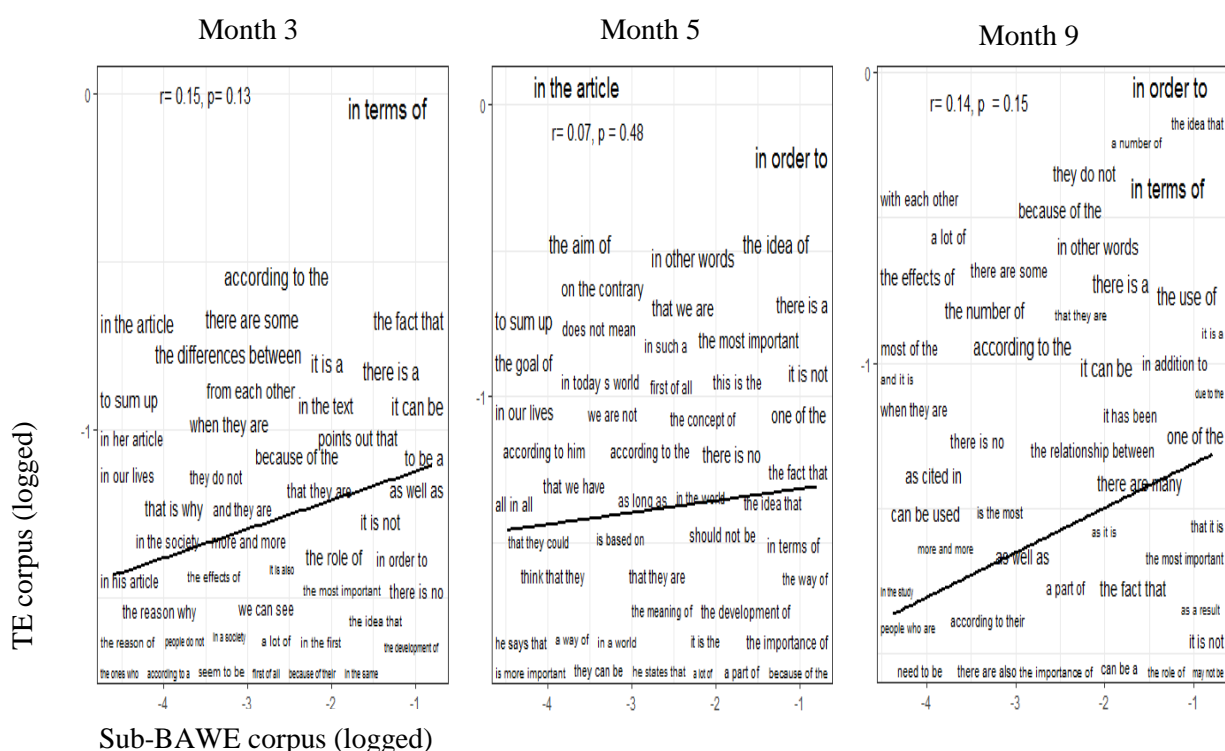


Figure 10. Correlations of three-word bundles between L2 students' essays and sub-BAWE corpus.

Non-linear developmental patterns of the three-word bundles was also found in that the common bundles ‘because of the’, ‘most of the’, ‘in terms of’ in L2 novice writers’ essays were marked (overrepresented) at Month 3 and Month 9, but they were regarded as unmarked at Month 5. This gives evidence that the bundles can show both linear and non-linear developmental patterns.

Table 9 presents the most frequently occurring common three-word lexical bundles in L2 novice writers’ essays. As can be seen, even the common three-word lexical bundles had markedly different frequencies at each time. This suggests that the same lexical

bundles demonstrate fluidity in terms of frequency within the same group of users over time.

Table 9. Common three-word lexical bundles in L2 novice writers' essays in order of overall frequency.

| Common lexical bundles | Month 3       |                          | Month 5       |                          | Month 9       |                          |
|------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
|                        | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words |
| 1 in order to          | 13            | 0.26                     | 50            | 0.89                     | 147           | 0.92                     |
| 2 in terms of          | 45            | 0.89                     | 12            | 0.21                     | 95            | 0.59                     |
| 3 in the article       | 23            | 0.45                     | 58            | 1.03                     | 13            | 0.08                     |
| 4 according to the     | 27            | 0.53                     | 13            | 0.23                     | 65            | 0.41                     |
| 5 there is a           | 23            | 0.45                     | 19            | 0.34                     | 54            | 0.34                     |
| 6 the fact that        | 24            | 0.47                     | 13            | 0.23                     | 35            | 0.22                     |
| 7 it can be            | 20            | 0.39                     | 6             | 0.11                     | 63            | 0.39                     |
| 8 in other words       | 7             | 0.14                     | 23            | 0.41                     | 44            | 0.27                     |
| 9 one of the           | 8             | 0.16                     | 18            | 0.32                     | 48            | 0.30                     |
| 10 it is not           | 14            | 0.28                     | 18            | 0.32                     | 29            | 0.18                     |

The only three-word bundle that showed a steady (increasing) trend is 'in order to' which was also subject to a prominent change in the frequency rate from Month 3 to Month 9, which resulted in increased markedness (overrepresentation) with reference to the sub-corpus of BAWE. 'In the article', which remained marked (overrepresented), had the biggest change in the frequency rate in that it only occurred 0.08 times per 1000 words at Month 9, while it occurred 0.45 times per 1000 words at Month 3, and it occurred 1.03 times per 1000 words at Month 5. This can be attributed to the referencing conventions of which students were probably largely unaware at Month 3 and Month 5. As can be shown in the example below, 'in the article' was used to name the article students were referring to in their essays. Similarly, L2 novice writers used the bundle 'according to the', which was marked (overrepresented) over time, in a similar way, as example 9 shows. This

suggests that L2 novice writers were slow to adapt the referencing conventions in their own academic writing.

(8) Hirschberg also states *in the article* “The Rhetoric of Advertising” that advertisers use some specific words to make people buy the product. (32-TE-2)

(9) *According to the article* “Who Are Smarter? Boys or Girls?” on Current Science, a scientific team from Harvard made an experiment in which 11,5-month-old children’s reactions to a repeated act were monitored. (78-TE-1)

One overall pattern that can be observed in the use of three-word lexical bundles in L2 novice writers’ English essays over time is that there was a gradual shift from ‘existential *there*’ constructions (‘there are many’ and ‘there is a’) and ‘*it*-clauses’ (‘it is a’) to lexical bundles that relied predominantly on noun phrases during Month 5 and Month 9. Although ‘there is a’ also occurred at Month 5 and Month 9, it occurred less frequently than at Month 3. This shows that as writing experience of Turkish learners of English increased, they tended to use lexical bundles that are typically frequent in the academic prose of English, since Biber (2009) found that academic writing in English relies on noun and prepositional phrases. In L1 novice writers’ essays, the three-word lexical bundles were not significantly correlated with those in the sub-corpus of BAWE at Month 3 ( $r_t = .15$ ,  $p = .18$ ), and effect size was very weak, which is in line with the correlations of the three-word bundles between L2 novice writers’ essays and the sub-corpus of BAWE. However, there was a weak significant relationship between the three-word bundles in L1 novice writers’ essays and those in the sub-corpus of BAWE at Month 5 ( $r_t = .26$ ,  $p < .05$ ) and at Month 9 ( $r_t = .29$ ,  $p < .001$ ), as shown in Figure 11. Thus, L1 novice writers were more likely to move towards advancedness in terms of the frequencies of three-word bundles than L2 novice writers over time.

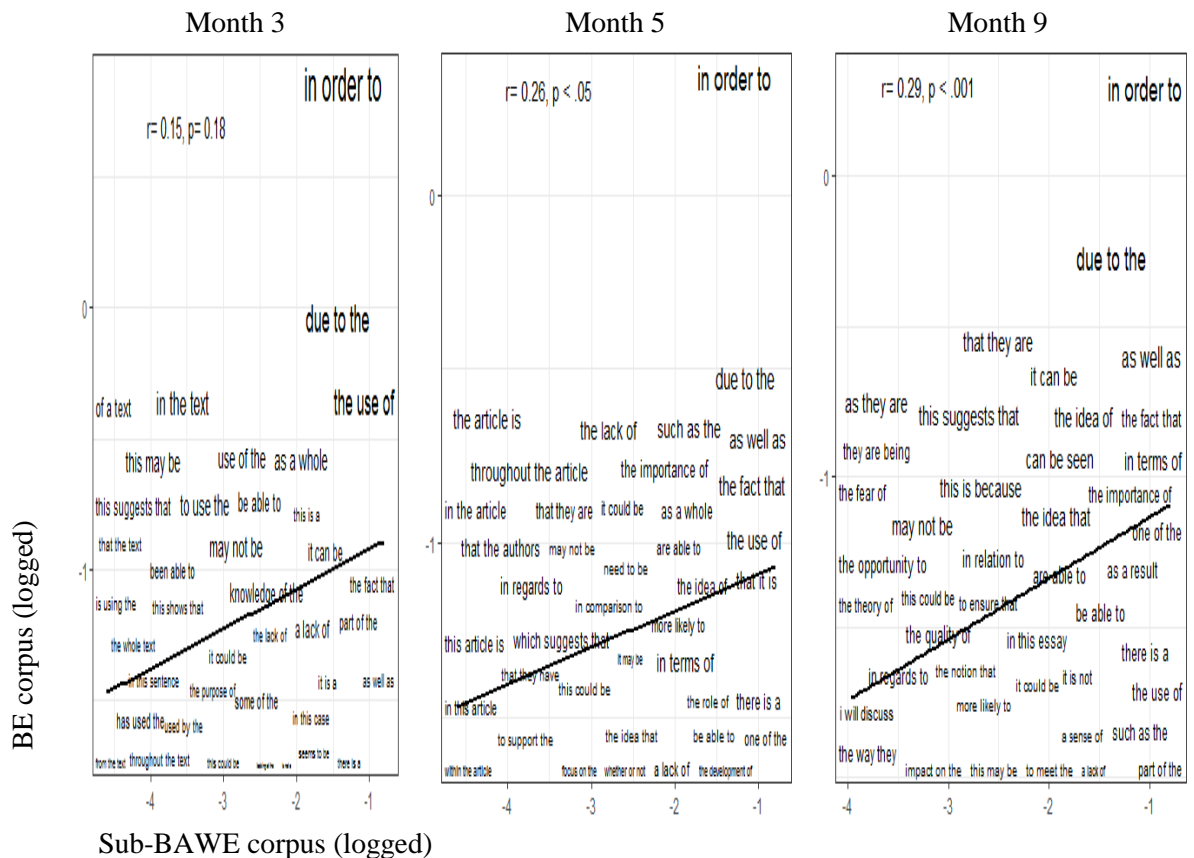


Figure 11. Correlations of three-word bundles between L1 students' essays and sub-BAWE corpus.

As Table 10 shows, the most frequently occurring three-word bundles ‘in order to’ (log ratio: 2.39 at Month 3; 1.62 at Month 5; 1.49 at Month 9) and ‘due to the’ (log ratio: 1.67 at Month 3; 1.03 at Month 5; 1.59 at Month 9) remained marked (overrepresented) over time with reference to the sub-corpus of BAWE. ‘This suggests that’, ‘this may be’, ‘this shows that’, ‘in regards to’, ‘this is because’, ‘this could be’ were among the other most frequently occurring common bundles that were marked (overrepresented) over time. Thus, it can be said that L1 novice writers preferred to make explicit links between the prior and subsequent discourse and made inference and explanations explicitly through these bundles. Especially at Month 9, more bundles in the top-ten list expressed inference (e.g. ‘due to the’, ‘this suggests that’, ‘as they are’, ‘this is because’) than at Month 3 and Month 5. This implies that L1 novice writers drew inference and provided justifications through lexical bundles in their essays at the end of their first year in comparison to their



earlier writing. As the example shows below, ‘this suggests that’ was used to make inference from the previous statement:

(10) Both the teachers, John and Sally, draw on their own intimate learning experiences to offer a model of their teaching identities. *This suggests that* teaching approaches are largely shaped through the teacher’s personal experiences and the identity they have developed. (3-BE-3)

Table 10. Common three-word lexical bundles in L1 novice writers’ essays in order of overall frequency.

| Common lexical bundles | Month 3       |                          | Month 5       |                          | Month 9       |                          |
|------------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
|                        | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words | Raw frequency | Frequency per 1000 words |
| 1 in order to          | 130           | 2.32                     | 91            | 1.36                     | 81            | 1.24                     |
| 2 due to the           | 48            | 0.86                     | 37            | 0.55                     | 53            | 0.81                     |
| 3 the use of           | 43            | 0.77                     | 23            | 0.34                     | 14            | 0.21                     |
| 4 as well as           | 12            | 0.21                     | 31            | 0.46                     | 31            | 0.48                     |
| 5 the fact that        | 15            | 0.27                     | 27            | 0.40                     | 16            | 0.25                     |
| 6 this suggests that   | 16            | 0.29                     | 12            | 0.18                     | 26            | 0.40                     |
| 7 may not be           | 20            | 0.36                     | 14            | 0.21                     | 17            | 0.26                     |
| 8 the idea of          | 10            | 0.18                     | 18            | 0.27                     | 24            | 0.37                     |
| 9 be able to           | 19            | 0.34                     | 14            | 0.21                     | 15            | 0.23                     |
| 10 as a whole          | 24            | 0.43                     | 17            | 0.25                     | 6             | 0.09                     |

Among the most frequent common bundles, the biggest change over time took place in the frequency rate of ‘as a whole’ which occurred 0.43 times per 1000 words at Month 3, 0.25 times per 1000 words at Month 5, and 0.09 times per 1000 words at Month 9. As shown in the example below, ‘as a whole’ was used to summarise the main points of the articles that students gave reference to. The substantial decrease in its frequency suggests that students increasingly avoided making generalisations or general statements by using this bundle.

(11) The article *as a whole* clearly illustrates the lack of attention that the disabled children receive. (24-BE-2)

Finally, several key differences and similarities of the three-word bundles between L1 and L2 novice writers should be highlighted. Over time, the similarities between L1 novice and L2 novice writers' essays showed an increasing trend in that 31% of the three-word lexical bundles in the TE corpus matched with those in the BE corpus at Month 9, while this figure was just 16% at Month 3 and 19% at Month 5. This shows that L2 novice writers started to use lexical bundles more similarly to L1 novice writers at the end of the first year. Although the lexical bundles that were regarded marked (overrepresented) in both L1 and L2 novice writers' essays were primarily those that served to organise their essays, the bundles' characteristics were different in nature between these two groups. While L1 novice writers relied on bundles that helped them to draw inference and provide explanations ('this shows that', 'this suggests that'), the bundles ('first of all', 'as well as') that were marked (overrepresented) functioned as text organisers that allowed L2 novice writers to structure their essays. Additionally, the two bundles 'in order to' and 'due to the' were underrepresented in L2 novice writers' essays than in L1 novice writers' essays at each time period, though these two bundles remained marked (overrepresented) in L1 novice writers' essays in comparison to the sub-corpus of BAWE.

An important difference lies in the much more frequent use of bundles of 'existential *there* constructions' (e.g. 'there are many', 'there are some') and '*it*-clauses' (e.g. 'it is a', 'it is also') in the TE corpus than in the BE corpus over time. This can be partly explained by developmental features of the second language of L1 Turkish-speaking novice writers. Additionally, VP-based bundles predominantly occurred with the modal auxiliary 'may' in the BE corpus, whereas VP-based bundles incorporated 'copula be' or 'can' in the TE corpus. This may indicate that Turkish learners of English tended to exert

more certainty with their claims by using such bundles and/or they may not have been proficient enough to use lexical bundles that incorporate modal auxiliaries at Month 3.

The nuclear (Stubbs, 1986) three-word lexical bundles, such as ‘in our lives’, ‘in today’s world’ and ‘people do not’ only occurred in L2 novice writers’ essays over time. This is in line with Hinkel’s (2002) argument that the greatest difference between L1 and L2 novice writing at university level is overrepresentation of vague nouns, including ‘people’, ‘world’, ‘lives’. Although these three bundles became unmarked at Month 9 with reference to the sub-corpus of BAWE, they still occurred at Month 9. Thus, it can be said L2 novice writers moved towards norms in the use of these bundles, but this development of advancedness seemed slow.

A deeper insight into the use of multi-word units can be gained from examining the discourse functions of them. The next section presents the findings of discourse functions of lexical bundles in L2 novice writers’ essays over time.

#### **4.2 Discourse functions of lexical bundles**

Two separate linear growth curve models were built in order to describe the trajectories of referential, discourse-organising and stance bundles in L1 and L2 English novice writers’ essays over time, since the growth model that I initially fit provided a very poor fit for two groups due to different random effects structures in two groups.

For the L2 English group, a linear growth curve model with fixed effects of time and discursal category as well as their interactions and random effects of participants and participant-by-discursal category on the intercept was built to analyse the frequency of referential, discourse-organising and stance bundles over time. The data and model fits are shown in Figure 12. As seen in Table 11, the mean frequencies of referential, discourse-organising and stance bundles showed significant variance in intercepts across participants

( $SD = .25$ , 95%  $CI$ : .00, .40 for each category separately;  $SD = .22$ , 95%  $CI$ : .00, .34 for all three categories as a whole); however, the mean frequencies were regarded invariant in slopes across participants. As expected, referential expressions were overall more frequent than discourse organisers, which were followed by stance expressions in L2 in novice writers' essays, ( $b = 3.83$ ,  $SE = .09$ ,  $t(710) = 41.98$ ,  $p < .001$ ). There was a significant effect of time ( $b = -.13$ ,  $SE = .02$ ,  $t(582) = -5.54$ ,  $p < .001$ ) on the frequency of referential expressions, indicating that their frequencies decreased over time. Additionally, there was a significant interaction between the two fixed effects, time and bundle length, which shows that discourse organisers and stance expressions were affected by time differently from referential bundles. As seen in Table 11, the overall rate of decrease in the frequency of discourse organisers over time was slightly lower than that of referential bundles ( $b = -.006$ ,  $SE = .03$ ,  $t(583) = -.17$ ,  $p = .86$ ), although this difference showed no statistical significance. The overall rate of decrease in the frequency of stance expressions was significantly lower than that of referential bundles ( $b = .11$ ,  $SE = .03$ ,  $t(583) = 3.32$ ,  $p < .001$ ).

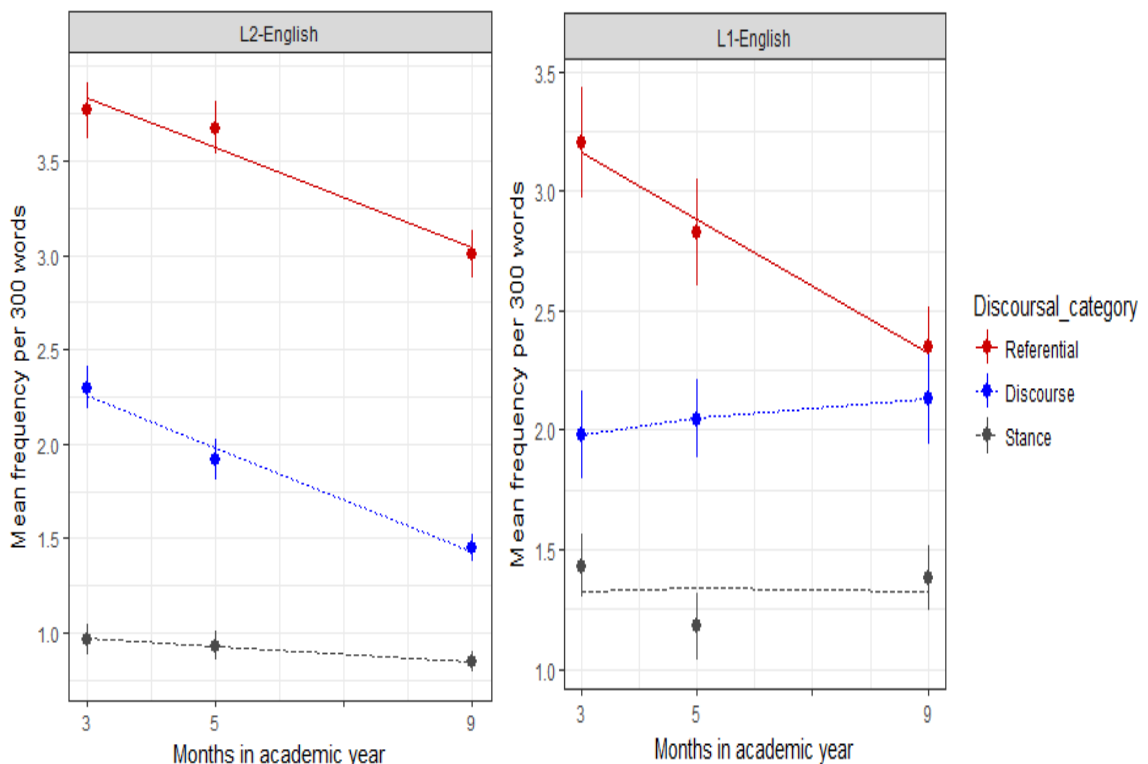


Figure 12. Observed data (symbols, vertical lines indicate  $\pm SE$ ) and separate growth curve model fits for the discourse functions of lexical bundles in two groups over time.

For the L1 English group, I built a linear growth curve model with fixed effects of time and discursal category as well as their interactions and random effects of participants on the intercept and slope and participants-by-discursal category on the intercept in order to describe the trajectories of referential, discourse-organising and stance bundles over time. The data and model fits are shown in Figure 12. As seen in Table 11, the mean frequencies of referential, discourse-organising and stance bundles showed significant variance in intercepts across participants and in slopes across participants for all the three bundle categories ( $SD = .56$ , 95%  $CI$ : .41, .72 intercept for each category separately;  $SD = .51$ , 95%  $CI$ : .28, .76 intercept for all three categories as a whole;  $SD = .09$ , 95%  $CI$ : .04, .15 slope for all three categories as a whole). The slopes and intercepts for all the three bundle categories were negatively correlated ( $corr = -.44$ ), indicating that the essays written by participants who used these bundles more frequently at Month 3 showed a more rapid decrease in the frequency of all the discursal categories over time. Referential expressions were overall more frequent than discourse organisers, which were followed by stance expressions in L1 novice writers' essays ( $b = 3.16$ ,  $SE = .15$ ,  $t(130) = 19.80$ ,  $p < .001$ ). There was a significant effect of time ( $b = -.14$ ,  $SE = .03$ ,  $t(143) = -4.22$ ,  $p < .001$ ) on the frequency of referential expressions, indicating that their frequencies decreased over time. Additionally, there was a significant interaction between the two fixed effects, time and discursal category, which shows that discourse organisers and stance expressions were affected by time differently from referential bundles. As seen in Table 11, in contrast to referential bundles, there was an overall slight rate of increase in the frequency of discourse organisers over time ( $b = .16$ ,  $SE = .04$ ,  $t(197) = 3.87$ ,  $p < .001$ ). On the other hand, the overall rate of decrease in the frequency of stance expressions was much lower than that of referential bundles ( $b = .13$ ,  $SE = .04$ ,  $t(197) = 3.22$ ,  $p < .01$ ). It should be noted that stance expressions, in fact, showed a non-linear change over time in L1 novice writers' essays in that their frequencies decreased at Month 5 and increased at Month 9, but

it was not possible to build a non-linear growth model with just three waves of data. Figure 13 shows the distribution of each discorsal category of bundles at group and individual level over time. As seen in Figure 13, variance between the participants in the frequencies of referential expressions, discourse organisers and stance expressions became less over time in L2 novice writers' essays. On the other hand, in L1 novice writers' essays, variance between the participants became greater for discourse organisers, and it was fairly stable for stance expressions over time. The frequencies of referential expressions became more similar among the participants over time in L1 novice writers' essays.

Table 11. Parameter estimates for growth curve model for the discourse functions of lexical bundles.

| L2-English                        |          |      | L1-English |              |              |        |
|-----------------------------------|----------|------|------------|--------------|--------------|--------|
| Fixed effects                     |          |      |            |              |              |        |
| Parameters                        | Estimate | SE   | t          | Estimate     | SE           | t      |
| Intercept                         | 3.83     | 0.09 | 41.98*     | 3.16         | 0.15         | 19.80* |
| Time                              | -0.13    | 0.02 | -5.54*     | -0.14        | 0.03         | -4.22* |
| Discourse                         | -1.57    | 0.12 | -12.60*    | -1.18        | 0.19         | -6.07* |
| Stance                            | -2.8     | 0.12 | -22.88*    | -1.83        | 0.19         | -9.40* |
| Time:Discourse                    | -0.06    | 0.03 | -0.17      | 0.16         | 0.04         | 3.87*  |
| Time:Stance                       | 0.11     | 0.03 | 3.32*      | 0.13         | 0.04         | 3.25*  |
| Random effects                    |          |      |            |              |              |        |
|                                   | Variance | SD   |            | Variance     | SD           |        |
| Discorsal_category:ID (Intercept) | 0.06     | 0.24 |            | 0.31         | 0.56         |        |
| ID (Intercept)                    | 0.05     | 0.22 |            | 0.26         | 0.51         |        |
|                                   |          |      |            | 0.008 (Time) | 0.092 (Time) |        |

\*  $p < 001$ . Model formula for L2-English group: Frequency  $\sim$  Time\* Discorsal\_category + (1 | ID) + (1 | Discorsal\_category:ID).  $R^2_{\text{marginal}} = 0.52$ ,  $R^2_{\text{conditional}} = 0.57$ . Model formula for L1-English group: Frequency  $\sim$  Time \* Discorsal\_category + (1 + Time | ID) + (1 | Discorsal\_category:ID). Corr: -0.44.  $R^2_{\text{marginal}} = 0.25$ ,  $R^2_{\text{conditional}} = 0.60$ .

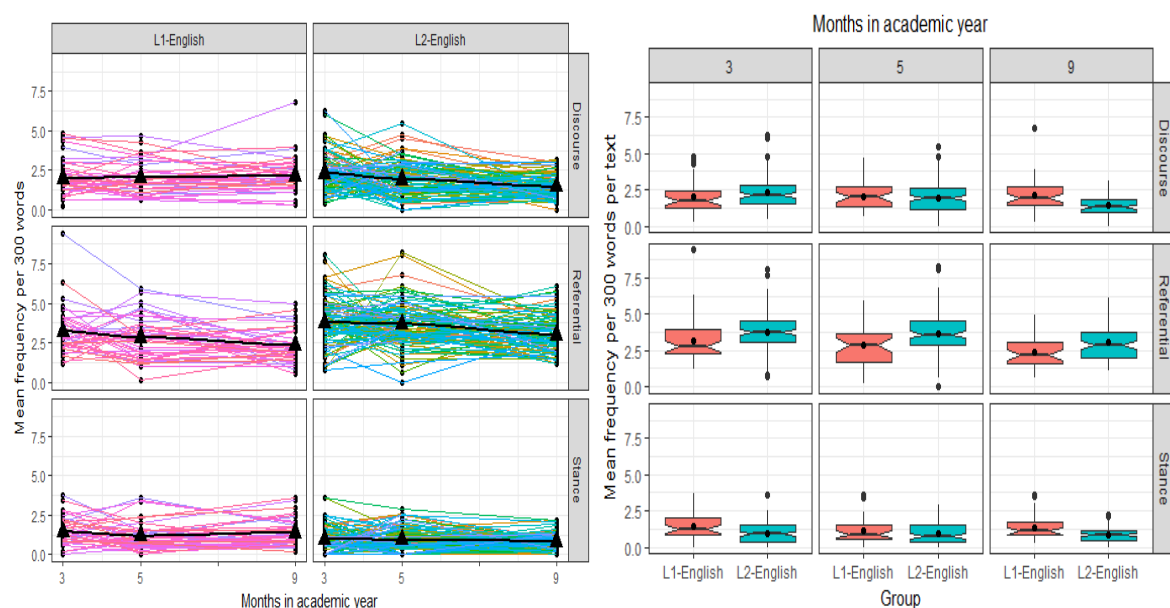


Figure 13. The distribution of each discursual category of lexical bundles (tokens) in novice writers' essays over time at group and individual level.

The most striking similarity between the two groups over time is a steady decrease in the frequencies of referential expressions (e.g. ‘in terms of’, ‘the theory of’), which may reflect overall decreasing trend of the frequencies of lexical bundles in the two groups. Despite this overall similarity, L2 novice writers used referential bundles more frequently than L1 writers over time. Substantial changes also occurred within the subcategories of referential bundles in two groups and differences existed within these subcategories between the two groups, as Table 12 shows. For example, the proportions of descriptive bundles (e.g. ‘the purpose of’, ‘the idea of’) remained lower in L2 novice writers’ essays than in L1 novice writers’ essays over time, though their proportions showed an increase in L2 novice writers’ essays. Descriptive bundles, which are mostly noun phrases at the same time, allow writers to refer to an entity or concept, as the example (‘the use of the’) shows below:

(12) *The use of the* noun “surveillance” is particularly significant as it emphasises how Ofsted can be perceived negatively.

Descriptive bundles serve to package abstract information concisely in academic writing. L2 English writers of this study were unlikely to be as advanced as L1 writers to

use these abstract nouns in their writing, though there was a linear development for the frequency of descriptive bundles in their essays.

The other subcategory which distinguished between the two groups is quantifying and framing bundles (e.g. 'in relation to', 'the majority of') which proportionally occurred more in L2 novice writers' essays than in L1 novice writers' essays except at Month 5. Novice writers employed these bundles to specify their knowledge claims and describe the quantities of entities that they referred to in their essays, as the example 'in terms of', which was one of the most frequently used referential bundles in L2 novice writers' essays, shows below:

(13) Flege (1987) states that Critical Period Hypothesis is likely to be valid *in terms of* acquiring native-like pronunciation successfully but not *in terms of* other aspects such as grammar (93-TE-3).

Surprisingly, the proportional trends for place/time/text-deictic bundles ('at the same time', 'in the text') showed similarities at Month 3 and at Month 9 between the two groups. A greater proportion of these bundles at Month 5 in L2 novice writers' essays resulted from reliance of the bundle 'in the article' when L2 novice writers referred to the articles they gave reference to. This shows that phraseological patterns were also shaped by the knowledge of the genre conventions.



Table 12. The proportions of each discoursal category of lexical bundles in two groups over time (tokens).

|  | L2-English |             |            |             |            |             | L1-English |             |            |             |            |             |
|--|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|  | Month 3    |             | Month 5    |             | Month 9    |             | Month 3    |             | Month 5    |             | Month 9    |             |
|  | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages |
| 1. Referential expressions                           |            |             |            |             |            |             |            |             |            |             |            |             |
| 1.a. Identification/focus                            | 187        | 30%         | 243        | 35%         | 609        | 38%         | 105        | 18%         | 226        | 36%         | 142        | 28%         |
| 1.b. Specifying attributes (quantifying and framing) | 184        | 29%         | 63         | 9%          | 463        | 29%         | 61         | 10%         | 87         | 14%         | 98         | 19%         |
| 1.c. Descriptive                                     | 109        | 17%         | 170        | 25%         | 418        | 26%         | 285        | 48%         | 213        | 34%         | 244        | 48%         |
| 1.d. Place/time/text-deictic                         | 152        | 24%         | 218        | 31%         | 117        | 7%          | 145        | 24%         | 99         | 16%         | 22         | 5%          |
| 2. Discourse organisers                              |            |             |            |             |            |             |            |             |            |             |            |             |
| 2.a. Topic introduction/focus                        | 36         | 10%         | 18         | 5%          | 27         | 3%          | 13         | 3%          | 19         | 4%          | 39         | 9%          |
| 2.b. Topic elaboration/clarification/transition      | 262        | 70%         | 312        | 87%         | 612        | 78%         | 267        | 72%         | 348        | 76%         | 280        | 60%         |
| 2.c. Inferential/resultative                         | 76         | 20%         | 29         | 8%          | 147        | 19%         | 93         | 25%         | 93         | 20%         | 145        | 31%         |
| 3. Stance expressions                                |            |             |            |             |            |             |            |             |            |             |            |             |
| 3.a. Epistemic stance                                | 143        | 91%         | 141        | 80%         | 369        | 86%         | 270        | 100%        | 236        | 89%         | 271        | 89%         |
| 3.b. Attitudinal stance/modality                     | 15         | 9%          | 35         | 20%         | 60         | 14%         | -          | -           | 29         | 11%         | 34         | 11%         |

The most salient difference between the two groups over time occurred in the frequencies of discourse organisers in that their frequencies showed a steady decrease in L2 novice writers' essays while there was an opposite trend in L1 novice writers' essays. It should be noted that realisations of discourse organisers were also different between the two groups. L2 novice writers relied on transitions and connectives, including 'on the other hand', 'in other words', 'first of all', 'to sum up', 'all in all', albeit less frequently at Month

9. L1 novice writers, on the other hand, relied on inferential/resultative bundles (e.g. ‘this shows that’, ‘this means that’, ‘this suggests that’, ‘due to the’) more than L2 novice writers at each time period, and the proportion of these bundles increased at Month 9 while the proportions of topic elaboration/clarification/transition bundles decreased at Month 9. The example below illustrates that ‘this shows that’ was employed to draw inference and provide justifications for the argument presented.

(14) The authors claim that the United States also does not have a definite definition of disability... (2000: 77). *This shows that* it is not just the ‘southern countries’ that have an incoherent view of inclusion and EFA, but also large western countries...(17-BE-2)

Realisations of inferential/resultative signals in L2 novice writers’ essays differed from those in L1 novice writers’ essays since L2 novice writers used such bundles as, ‘because of the’, ‘as a result of’, ‘due to the’, and ‘that is why’, as the example shows:

(15) This is partly *because of the* society’s attitude as modern society judges people according to what they have instead of how they are. (4-TE-2)

Within discourse organisers, topic introduction/focus bundles (‘in this essay’, ‘this essay is’) were the most infrequent of the three categories, and their proportions showed an increasing trend in L1 novice writers’ essays, but they showed a decreasing trend in L2 novice writers’ essays.

The final discoursal category, stance bundles (‘seem to be’, ‘the most important’) followed interesting patterns of change in both groups over time. While they showed non-linear developmental patterns in L1 novice writers’ essays, they had a slightly decreasing trend in L2 novice writers’ essays over time. More importantly, L1 novice writers used stance bundles more frequently than L2 novice writers at each time period, which aligns with the previous research that found limited use of stance bundles in L2 novice writers’

essays in comparison to their L1 counterparts (e.g. Ädel & Erman, 2012). It should be noted that the proportional distribution of the subcategories of stance bundles became very similar in two groups at Month 9. Although L2 novice writers employed proportionally more attitudinal stance bundles ('is more important', 'an important role in', 'the most important') over time than L1 novice writers, they showed development towards L1 novice writers' stance-taking patterns at Month 9.

The attitudinal stance bundle 'the most important', which did not exist in L1 novice writers' essays, conveyed the writer's judgement and/or attitudes towards to the proposition in an evaluative way:

(16) We cannot say one of these are *the most important* factor. (16-TE-1)

L1 novice writers used only 'it is important to' and 'the importance of' as attitudinal stance bundles at Month 5 and Month 9, and their rhetorical functions differed from those in L2 novice writers' essays. These two bundles primarily served to direct the readers' attention to the argument they presented, as the example shows below:

(17) However, *it is important* to note that low academic achievement is not just due to these factors but a combination of individual determination, quality of schooling and the support given to each child. (22-BE-2)

The final subcategory of stance bundles, epistemic stance expressions, showed the greatest similarities between the two groups in terms of the proportional distributions at Month 9. However, within epistemic stance expressions, there was a considerable difference between the token proportions of hedges and boosters between the groups over time. While the token proportions of hedging expressions were 83% at Month 3, 78% at Month 5 and 79% at Month 9 in L1 novice writers' essays, these figures remained at 41%, 58%, and 65% in L2 novice writers' essays, respectively. This finding shows that L1 novice writers used multi-word units that served as hedges more frequently than L2 novice

writers, though L2 novice writers showed linear developmental patterns in the use of hedging expressions. L2 novice writers used bundles that emphasised their certainty and/or commitment to the propositions ('the fact that', 'it is clear that') and bundles that mitigated the certainty of their claims ('may not be', 'are more likely to', 'it is possible to') in a very similar way that L1 novice writers did in their essays at Month 9, as the example illustrates below:

(18) For non-native speakers there *may not be* many opportunities to practice the language they are learning. (34-TE-3)

L1 novice writers were fairly stable in their use of epistemic stance expressions over time, though such bundles as 'it could be argued that' and 'it can be argued that' became more frequent at Month 9. Even though L2 novice writers were able to use bundles that conveyed both certainty and uncertainty ('seemed to be', 'tend to be'), they were able to incorporate modal verbs, such as 'may' into the lexical bundles ('may not be') only at Month 9 and even at Month 9, 'could' did not emerge in any of the hedging bundles in L2 novice writers' essays unlike in L1 novice writers' essays which included hedging expressions that contained the modal verb 'could' (e.g. 'could be seen as', 'this could be'). Such hedging bundles served to open a dialogue with the reader and avoid making generalisations, as can be seen in example 18.

Taken together, both L1 and L2 writers' essays showed dynamic patterns in the frequencies of discoursal categories of lexical bundles, in their distributional proportions of their subcategories and the lexical realisations of these bundles over time. More importantly, at the end of their first year, both L1 and L2 novice writers became more similar in terms of all these aspects, which may suggest that L2 novice writers approximated to L1 novice writers in terms of their use of discoursal types of bundles.

### 4.3 Structural categories of lexical bundles

As in 4.2, two separate linear growth curve models were built in order to describe the trajectories of NP-based, PP-based and VP-based bundles in L1 and L2 English novice writers' essays over time because of different random effects structures in two groups.

For the L2 English group, a linear growth curve model with fixed effects of time and structural category as well as their interactions and random effects of participants and participant-by-structural category on the intercept was used to examine the frequency of NP-based, PP-based and VP-based bundles over time. The data and model fits are shown in Figure 14. As seen in Table 13, the mean frequencies of NP-based, PP-based and VP-based bundles showed significant variance in intercepts across participants ( $SD = 9.69e-08$ <sup>15</sup>, 95%  $CI$ : .00, .28 for each category separately;  $SD = .25$ , 95%  $CI$ : .11, .36 for all three categories as a whole); however, the mean frequencies were regarded invariant in slopes across participants. VP-based bundles were overall more frequent than PP-based bundles, which were followed by NP-based bundles in L2 in novice writers' essays ( $b = 1.45$ ,  $SE = .13$ ,  $t(757) = 11.34$ ,  $p < .001$ ). There was a significant effect of time ( $b = .06$ ,  $SE = .03$ ,  $t(764) = 2.18$ ,  $p < .05$ ) on the frequency of NP-based bundles, indicating that the frequencies of NP-based bundles increased over time. Additionally, there was a significant interaction between the two fixed effects, time and discursal category, which shows that PP-based and VP-based bundles were affected by time differently from NP-based bundles in that their frequencies decreased over time ( $b = -.25$ ,  $SE = .04$ ,  $t(757) = -7.05$ ,  $p < .001$  for change in PP-based bundles;  $b = -.15$ ,  $SE = .04$ ,  $t(757) = -4.05$ ,  $p < .001$  for change in VP-based bundles). It is worth noting that VP-based bundles underwent a non-linear

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<sup>15</sup> Although variance was small here, the mixed-effect model, i.e. growth curve model provided a better fit for the data than a linear regression model, which was judged by using AIC values. This shows the need for the use of mixed-effect models to account for random effects.

change in L2 novice writers' essays in which their frequencies decreased at Month 5 and then slightly increased at Month 9, as illustrated in Figure 14.

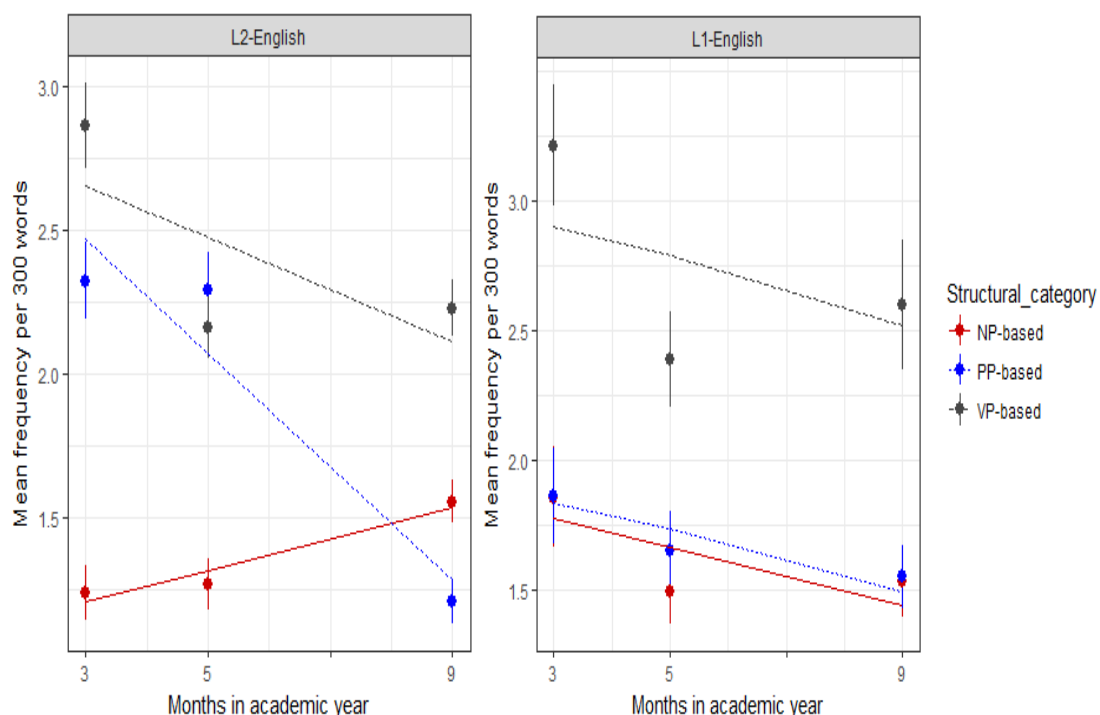


Figure 14. Observed data (symbols, vertical lines indicate  $\pm$ SE) and separate growth curve model fits for the structural categories of lexical bundles in two groups over time.

For the L1 English group, I built a linear growth curve model with fixed effects of time and discursal category and random effects of participants on the intercept and slope and participants-by-structural category on the intercept and slope in order to describe the trajectories of NP-based, PP-based and VP-based bundles over time. The data and model fits are shown in Figure 14. As seen in Table 13, the mean frequencies of NP-based, PP-based and VP-based bundles showed significant variance in intercepts and slopes across participants and participants-by-structural category ( $SD = .51$ , 95%  $CI$ : .17, .80 intercept across participants;  $SD = .08$ , 95%  $CI$ : .00, .15 slope across participants;  $SD = .72$ , 95%  $CI$ : .48, .96 intercept across participants-by-structural category;  $SD = .11$ , 95%  $CI$ : .01, .23 slope across participants-by-structural category). The slopes and intercepts for the frequencies of these three types of bundles were negatively correlated ( $corr = -.29$  across participants;  $corr = -.78$  across participants-by-structural category), indicating that the

essays written by participants who used these bundles more frequently at Month 3 showed a more rapid decrease in the frequency of all these structural categories over time. VP-based bundles were overall more frequent than PP-based bundles, which were followed by NP-based bundles in L1 novice writers' essays ( $b = 1.08$ ,  $SE = .15$ ,  $t(80) = 6.91$ ,  $p < .001$ ); however, there was not a significant difference between the frequencies of NP-based and PP-based bundles ( $b = 0.06$ ,  $SE = 0.16$ ,  $t(80) = 0.36$ ,  $p = 0.72$ ). There was a significant effect of time ( $b = -.06$ ,  $SE = .02$ ,  $t(39) = -2.53$ ,  $p < .001$ ) on the frequencies of NP-based bundles, indicating that their frequencies decreased over time. Although Figure 14 shows decreasing tendencies for the frequencies of PP-based and VP-based bundles, there was not a significant effect of time. It should be noted that both NP-based and VP-based bundles, in fact, showed a non-linear change over time in L1 novice writers' essays in that their frequencies decreased at Month 5 and then slightly increased at Month 9, but it was not possible to build a non-linear growth model with just three waves of data. Figure 15 shows the distribution of each structural category of bundles at group and individual level over time. The variance between participants in the frequencies of NP-, PP- and VP-based bundles became smaller over time in L2 novice writers' essays, as Figure 15 illustrates. In L1 novice writers' essays, there was greater variance between participants in the frequencies of VP-based bundles over time. Variance became smaller in the frequencies of PP-based bundles over time, and it showed a non-linear pattern for NP-based bundles over time in L1 novice writers' essays.

Table 13. Parameter estimates for growth curve model for the structural categories of lexical bundles.

| L2-English                            |           |           |         | L1-English   |             |         |
|---------------------------------------|-----------|-----------|---------|--------------|-------------|---------|
| Fixed effects                         |           |           |         |              |             |         |
| Parameters                            | Estimate  | SE        | t       | Estimate     | SE          | t       |
| Intercept                             | 1.20      | 0.09      | 12.84** | 1.79         | 0.15        | 11.87** |
| Time                                  | 0.06      | 0.03      | 2.18*   | -0.06        | 0.02        | -2.53*  |
| PP-based                              | 1.26      | 0.13      | 9.89**  | 0.06         | 0.16        | 0.36    |
| VP-based                              | 1.45      | 0.13      | 11.34** | 1.08         | 0.15        | 6.91**  |
| Time:PP-based                         | -0.25     | 0.03      | -7.05** | -            | -           | -       |
| Time:VP-based                         | -0.15     | 0.04      | -4.05** | -            | -           | -       |
| Random effects                        |           |           |         |              |             |         |
|                                       | Variance  | SD        |         | Variance     | SD          |         |
| Structural_category:ID<br>(Intercept) | 0.0000009 | 0.0000009 |         | 0.52         | 0.72        |         |
| ID (Intercept)                        | 0.06      | 0.25      |         | 0.01 (Time)  | 0.11 (Time) |         |
|                                       |           |           |         | 0.25         | 0.50        |         |
|                                       |           |           |         | 0.006 (Time) | 0.08 (Time) |         |

\*  $p < .05$ , \*\*  $p < .001$ . Model formula for L2-English group: Frequency  $\sim$  Time\* Structural\_category + (1 | ID) + (1 | Structural\_category:ID).  $R^2_{\text{marginal}} = 0.20$ ,  $R^2_{\text{conditional}} = 0.24$ . Model formula for L1-English group: Frequency  $\sim$  Time + Structural\_category + (1 + Time | ID) + (1 + Time | Structural\_category:ID). Corr: -0.78, -0.29.  $R^2_{\text{marginal}} = 0.17$ ,  $R^2_{\text{conditional}} = 0.57$ .

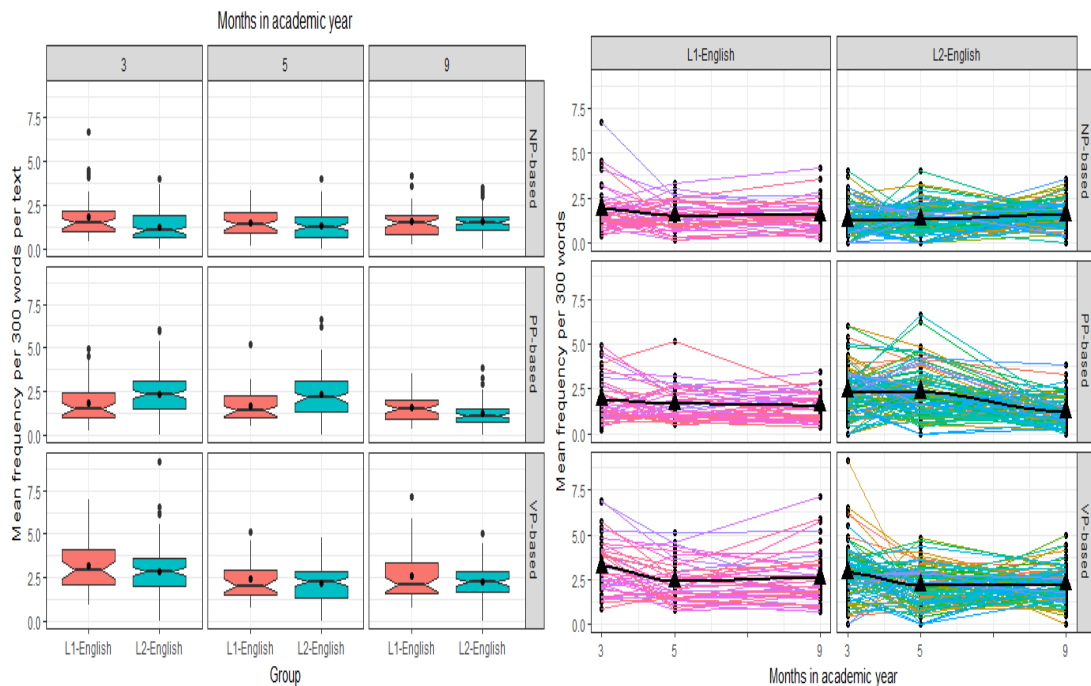


Figure 15. The distribution of each structural category of lexical bundles (tokens) in novice writers' essays over time at group and individual level.



The most surprising dynamic patterns of change in both groups occurred in the frequency of NP-based bundles, which are regarded one of the most important constructs of academic writing in English (Biber & Gray, 2010). The frequencies of NP-based bundles exhibited linear growth in L2 novice writers' essays over time, which provided support for Biber et al.'s (2011) hypothesis that proposed a gradual development from clausal structures to noun phrases in L2 academic writing. L1 novice writers' essays, on the other hand, showed a non-linear change over one academic year. Interestingly, the frequencies of NP-based bundles became more similar between the groups (most similar at Month 9) over time. Hence, the decreasing trend of the frequencies of NP-based bundles does not mean that L1 novice writers have regressed in the use of NP-based bundles. In line with the frequency data, the proportional distribution of the subcategories between the two groups became closer over time (closest at Month 9). L1 and L2 novice writers' essays included proportionally fewer noun phrases with other post-modifier fragments ('the relationship between', 'the fact that', 'an increase in') than noun phrases with of-phrase fragments except at Month 3 for L2 novice writers' essays. Noun phrases with of-phrase fragments ('the idea of', 'the use of', 'the way of'), were proportionally lower in L2 novice writers' essays than in L1 novice writers' essays; however, L2 novice writers developed the use of noun phrases with of-fragments steadily over time. As can be seen in the example below, the noun phrases refer to the entities or proposition and enable writers to package abstract information in a concise way:

(19) However, I believe that *the role of society* on this difference is greater than the gender because the conception of people about women and men has a huge effect on their position in the community. (2-TE-1)

Table 14. The proportions of each structural category of lexical bundles in two groups over time (tokens).

|  | L2-English |             |            |             |            |             | L1-English |             |            |             |            |             |
|--|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|  | Month 3    |             | Month 5    |             | Month 9    |             | Month 3    |             | Month 5    |             | Month 9    |             |
|  | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages | Raw tokens | Percentages |
| <b>1. Noun phrase-based (NP-based) bundles</b>                             |            |             |            |             |            |             |            |             |            |             |            |             |
| 1.a. Noun phrase with of-phrase fragment                                   | 102        | 50%         | 214        | 86%         | 578        | 70%         | 308        | 88%         | 266        | 80%         | 226        | 68%         |
| 1.b. Noun phrase with other post-modifier fragments:                       | 101        | 50%         | 34         | 14%         | 206        | 25%         | 29         | 9%          | 66         | 20%         | 86         | 26%         |
| 1.c. Other noun phrases  | -          | -           | -          | -           | 43         | 5%          | 12         | 3%          | -          | -           | 21         | 6%          |
| <b>2. Prepositional phrase-based (PP-based) bundles</b>                    |            |             |            |             |            |             |            |             |            |             |            |             |
| 2.a. Prepositional phrase with embedded of-phrase fragment                 | 79         | 20%         | 26         | 6%          | 172        | 26%         | 14         | 4%          | 34         | 9%          | 63         | 19%         |
| 2.b. Other prepositional phrases   | 310        | 80%         | 405        | 94%         | 478        | 74%         | 335        | 96%         | 333        | 91%         | 274        | 81%         |
| <b>3. Verb phrase-based (VP-based) bundles</b>                             |            |             |            |             |            |             |            |             |            |             |            |             |
| 3.a. (Noun phrase +) Copula be + (Noun phrase/adjectival phrase)           | 225        | 47%         | 187        | 47%         | 511        | 44%         | 96         | 16%         | 119        | 22%         | 94         | 17%         |
| 3.b. Verb phrase with active verb  | 145        | 30%         | 101        | 25%         | 367        | 31%         | 360        | 60%         | 211        | 40%         | 271        | 47%         |
| 3.c. Anticipatory it + verb phrase/Adjectival phrase + (complement clause) | 6          | 1%          | -          | -           | 57         | 5%          | 28         | 5%          | 33         | 6%          | 58         | 10%         |
| 3.d. Passive verb + (Prepositional phrase fragment)                        | 28         | 6%          | 10         | 2%          | 111        | 10%         | 35         | 6%          | 44         | 8%          | 39         | 7%          |

|   |    |     |     |     |     |     |    |     |     |     |     |     |
|---|----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|
| 3.e. (Verb phrase +) that-clause fragment | 61 | 13% | 103 | 26% | 111 | 10% | 74 | 12% | 127 | 24% | 105 | 18% |
| 3.f. Others                               | 14 | 3%  | -   | -   | -   | -   | 8  | 1%  |     |     | 8   | 1%  |

PP-based bundles displayed similar decreasing trends in both L1 and L2 novice writers' essays. Interestingly, L2 novice writers used PP-based bundles more frequently than L1 novice writers at Month 3 and at Month 5. The frequencies of PP-based bundles were most similar between the two groups at Month 9. As for the proportional distribution of the subcategories of PP-based bundles, the proportions of prepositional phrases with embedded of-phrase fragments ('in terms of', 'as a result of') were much lower than other prepositional phrases ('with respect to', 'at the same time') over time in both groups. Except at Month 3, the proportional distribution of the two subcategories of PP-based bundles was found to be close at Month 5 and at Month 9. As evident from example 20, the prepositional phrase 'at the same time' expresses temporal relationship between the two ideas. Prepositional phrases also serve to provide elaboration of entities and propositions ('in relation to', 'in regards to') and represent cause-and-effect relationships ('because of the', 'as a result of') in the essays.

(20) The author addresses to the problem of human existence, claiming that today's society is practising "radical hedonism" and "egoism" *at the same time*. (97-TE-2)

The most obvious similarity between L1 and L2 novice writers' essays is that they shared a similar trend for VP-based bundles, and both groups became more similar over time in the frequency of VP-based bundles, although L1 novice writers used more VP-based bundles than L2 novice writers over time. However, the proportional distribution of subcategories within VP-based bundles was different from each other at each time period. For example, L2 novice writers' essays contained the subcategory 'copula be phrases' proportionally more than L1 novice writers at each time period, and the distribution of this category displayed a little change over time in both groups. L2 novice writers' reliance on

‘copula be phrases’ can be traced to the frequent use of ‘*existential* there’ bundles (‘there is a, there are some’, ‘there are many’) and ‘*it*-clauses’ (‘it is a’, ‘it is not’). These bundles also occurred in L1 novice writers’ essays, albeit less frequently, as the proportions showed in Table 14. As the example shows below, L2 novice writers used such bundles to introduce a new entity and refer to a proposition in context.

(21) *There is a* suggestion for this situation that girls should be taught some games in order to be aggressive and competitive in schools. (2-TE-1)

Unlike the ‘copula be’ verb phrases, verb phrases with active verbs (‘seems to be’, ‘I will discuss’, ‘focuses on the’) proportionally occurred more in L1 novice writers’ essays than in L2 novice writers’ essays, though a steady decrease in their proportional distribution was observed in L1 novice writers’ essays over time. It may be argued that L2 novice writers had a more restricted repertoire of verbs to use in their essays.

The other subcategory of verb phrases that differentiated L2 novice writing from L1 novice writing is anticipatory *it* clauses (or introductory *it* clauses). L2 novice writers’ essays included proportionally fewer anticipatory *it* clauses (‘it is important to’, ‘it is clear that’, ‘it is possible to’), which are often used to convey writers’ attitudes and (un)certainty in academic writing (Ädel, 2014; Hewings & Hewings, 2002; Römer, 2009b), than L1 novice writers’ essays over time. However, it is important to note that both groups showed similar developmental characteristics for anticipatory *it* clauses, since their proportions increased at Month 9 in both groups, although the proportion for the L2 group remained at 5%. This implies that novice writers gradually started to interpret and evaluate the subject matter more frequently through anticipatory *it* patterns which are commonly used in published academic writing. As the example suggests below, the writer put emphasis on their proposition and increased their commitment to it by using ‘it is clear that.’

(22) *It is clear that* more effective strategies need to be adopted in order to combat the issue of inclusive education. (10-BE-2)

The proportion of passive verb phrases ('can be defined as', 'can be seen' 'could be seen as'), was close in the two groups over time except at Month 5, though their proportion was slightly higher in L2 novice writers' essays at Month 9. The final subcategory of verb phrases, verb phrases + that-clause fragments ('points out that', 'this suggests that', 'we can say that') followed similar proportional trends in the two groups at Month 3 and at Month 5, but their proportion became greater in L1 novice writers' essays at Month 9. These clausal structures enable writers to express overt stance in their academic writing and construct their argument (Staples & Reppen, 2016), as can be seen in the example below:

(23) To sum up, *we can say that* both people and advertisements have same goals in life and only way for advertisements to achieve their goal can be done with persuasive language.

Overall, both the frequencies and distributional proportions of each structural category of lexical bundles underwent changes in the two groups which showed more similarities over time, especially at Month 9. Although some of the subcategories of structural categories of bundles, such as anticipatory *it* verb phrases and verb phrases with active verbs distinguished L1 novice writing from L2 novice writing at each time period, the decrease in the VP-based bundles in both groups suggests that novice writers started to use lexical bundles that are structurally more typical of academic writing in English (see Biber, 2009).

#### 4.4 Summary and conclusions

In this chapter, I reported the findings of five-, four- and three-word lexical bundles in both L1 and L2 novice writers' essays over time in terms of their frequencies, discourse functions and structural categories.

The results suggest that five-word lexical bundles distinguished L1 novice academic writing from L2 novice writing. Even at Month 9, L2 novice writers used fewer five-word lexical bundles than L1 novice writers, and the lexical bundles had different lexico-grammatical realisations than those in L1 novice writers' essays. Both four-word and three-word lexical bundles displayed a steady decreasing trend in both L1 and L2 novice academic writing. As both L1 and L2 novice student writers had more writing experience, they showed slightly less reliance on them. Advancedness in terms of frequencies developed in the use of four-word lexical bundles in L2 novice writers' essays and in the use of three-word lexical bundles in L1 novice writers' essays. However, frequency-based measures give a limited picture of advancedness. Both L1 and L2 novice writers' use of discourse organising bundles (e.g. 'on the other hand', 'in order to' for L2 group; 'in order to', 'this shows that' for L1 group) were marked (overrepresented) over time in reference to the sub-corpus of BAWE. Additionally, the bundles 'on the other hand' and 'as a result of' exhibited markedness in context in L2 novice writers' essays, since 'on the other hand' was used in a marked way to express addition at Month 3 and at Month 5, and 'as a result of' was employed to describe what was found in a study rather than convey cause-effect relationships at Month 3. The finding that L2 novice writers relied on '*existential* there' bundles and '*it*-clauses' which acted as "islands of reliability" (Dechert, 1984) and nuclear bundles (Stubbs, 1986) (e.g. 'in today's world', 'in our lives') especially at Month 3 and at Month 5 differentiated L2 novice writing from L1 novice writing, though L2 novice writers moved towards norms in the use of these bundles at Month 9. These findings suggest that lexical bundles identified in novice writers' essays

reveal a complex and multi-faceted nature of dynamic patterns that occurred in novice academic writing.

The discourse functions of lexical bundles showed interesting dynamic patterns in the two corpora over time. The frequencies of referential bundles showed a steady decrease in both groups, although L2 novice writers used them more frequently in their essays than L1 novice writers over time. The most surprising dynamic patterns were observed in the frequencies of discourse organisers which showed a steady increase in L1 novice writers' essays and a steady decrease in L2 novice writers' essays. Although discourse organisers occurred more frequently in L2 novice writers' essays at Month 3 than in L1 novice writers' essays, L1 novice writers employed more discourse organisers than L2 novice writers at Month 5 and at Month 9. Within discourse organisers, L1 novice writers relied on inferential/resultative bundles ('this is because', 'this shows that') over time, whereas L2 novice writers relied on topic elaboration/clarification/transition bundles ('on the other hand', 'in other words'), albeit to a lesser extent at Month 9. The other salient difference lies in the use of stance expressions, as L1 novice writers used them more frequently than L2 novice writers over time, though both groups showed an overall decrease in the use of stance bundles over time. The greater proportion of attitudinal stance bundles in L2 novice writing in comparison to L1 novice writing was a defining characteristic of L2 novice writing, though the distribution proportion of stance bundles became akin in both groups at Month 9.

Regarding the structural categories of lexical bundles, both L1 and L2 novice writers improved their use of lexical bundles over time as VP-based bundles, which typically occur much more frequently in conversational English than academic prose of English (Biber, 2009), decreased slightly over time in their essays. Despite this similarity, the greater proportions of 'copula be' phrases and the smaller proportions of verb phrases with active verbs and anticipatory *it* verb phrases in L2 novice writing remained as the

distinctive features of L2 novice writing. L2 novice writers used more NP-based bundles in their essays over time, which followed the developmental hypothesis of noun phrases in L2 writing (Biber et al., 2011). Over time, L2 novice writers also increased their use of noun phrases with of-phrase fragments which were proportionally equal to noun phrases with other post-modifier fragments at Month 3. Although L1 novice writers used steadily fewer NP-based bundles in their essays, the frequency rate of NP-based bundles at Month 9 became the closest to L2 novice writing (1.53 per 1000 words for L1 group and 1.55 per 1000 words for L2 group). The frequency patterns of change in PP-based bundles were similar in both groups, and their distributional proportion of PP-based bundles became similar in both groups at Month 5 and at Month 9. Overall, these findings show that the frequency patterns of change in the structural categories of lexical bundles in both groups led to more similarities with each other over time and enabled both groups' writing to show increasingly more structural similarities with those in the academic prose of English (see Biber, 2009).

In summary, the findings of lexical bundles emphasise the dynamic nature of phraseological patterns in both groups. These dynamic patterns are discussed in relation to the different discourse community practices, novice writers' (un)awareness of the genre conventions of academic writing, cultural factors, and interlanguage developmental features of L2 in the discussion chapter. In the next chapter, the findings of p-frames are reported in terms of their frequency, discourse functions, structural categories and internal variation and predictability in order to give a more comprehensive picture of the dynamicity of phraseological patterns in novice academic writing.



## Chapter 5 Phrase Frames in L1 and L2 Novice Academic Writing

“Change is inevitable.”

Benjamin Disraeli

This chapter presents the findings of my analysis of phrase frames in L1 and L2 novice writers’ essays over time. I then report the results in terms of frequency, discourse functions, structural categories, internal variation and predictability. Lastly, I summarise the main findings of the use of phrase frames in students’ essays.

### 5.1 Frequency of phrase frames

This section reports the frequency analysis of five-word, four-word and three-word p-frames in both TE and BE corpora with reference to that of the sub-corpus of BAWE.

#### 5.1.1 Five-word phrase frames

Like five-word bundles, the frequencies of five-p-frames were higher in L1 novice writers’ essays than in L2 novice writers’ essays over time, as shown in Table 15 and Table 16. The mean frequency of five-p-frames remained fairly stable over time in L2 writers’ essays, though there were slightly fewer five-p-frames at Month 5. On the other hand, in L1 novice writers’ essays, the frequency rates of five-p-frames remained similar at Month 3 and 5, but they slightly increased at Month 9.

Table 15. Five-word phrase frames in L2 novice writers’ essays across over time.

|         | Phrase frames        | Raw frequency | Frequency per 1000 words | Most frequent variant |
|---------|----------------------|---------------|--------------------------|-----------------------|
| Month 3 | there is a * between | 16            | 0.32                     | link                  |
|         | it can be * that     | 10            | 0.20                     | said                  |
| Month 5 | even if * do not     | 13            | 0.23                     | they/you              |
| Month 9 | it can be * that     | 45            | 0.28                     | concluded/said        |
|         | in order to * the    | 26            | 0.16                     | understand            |

Table 15 shows all the five-p-frames that occurred in L2 novice writers' essays across over time. There was one common p-frame between Month 3 and Month 9: 'it can be \* that'. Interestingly, the most frequent variant of this p-frame ('said') remained the same across time. Although this p-frame was unmarked at Month 3 with reference to the sub-corpus of BAWE, it became marked (overrepresented) at Month 9 (log ratio: 1.37).

Table 16. Five-word phrase frames in L1 novice writers' essays across over time.

|         | Phrase frames        | Raw frequency | Frequency per 1000 words | Most frequent variant |
|---------|----------------------|---------------|--------------------------|-----------------------|
| Month 3 | due to the * of      | 17            | 0.30                     | use                   |
|         | the * as a whole     | 15            | 0.27                     | text                  |
|         | it could be * that   | 12            | 0.21                     | argued                |
|         | due to the * that    | 12            | 0.21                     | fact                  |
|         | this * be due to     | 11            | 0.20                     | may                   |
|         | that the * is a      | 10            | 0.18                     | text                  |
| Month 5 | in order to * the    | 26            | 0.39                     | support               |
|         | the * of the article | 19            | 0.28                     | structure             |
|         | it could be * that   | 17            | 0.25                     | suggested             |
|         | due to the * of      | 14            | 0.21                     | lack                  |
|         | it can be * that     | 13            | 0.19                     | argued                |
| Month 9 | it can be * that     | 28            | 0.43                     | argued                |
|         | it could be * that   | 23            | 0.35                     | argued                |
|         | have a * impact on   | 20            | 0.31                     | negative              |
|         | in order to * the    | 19            | 0.29                     | follow/fulfil         |
|         | due to the * of      | 15            | 0.23                     | fear/pressure         |

All the five-p-frames in L1 novice writers' essays are shown in Table 16.

Interestingly, although the relationship between the frequencies of five-p-frames in BE corpora and the sub-corpus of BAWE was statistically non-significant over time ( $p = .06$  at Month 3;  $p = .5$  at Month 5;  $p = .8$  at Month 9), there was a decreasing trend for the effect size, as shown in Figure 16 ( $r_t = 0.69$  for Month 3;  $r_t = -.4$  for Month 5;  $r_t = .2$  at Month 9). The two common p-frames over time ('due to the \* of' and 'it could be \* that') remained marked (overrepresented) over time with reference to the sub-corpus of BAWE, and there was an increasing trend in the frequency of 'it could be \* that' in L1 novice writers' essays.

Additionally, ‘it can be \* that’ which was unmarked at Month 5 became marked (overrepresented) at Month 9 (log ratio: 1.98) although its most frequent variant (‘argued’) remained the same.

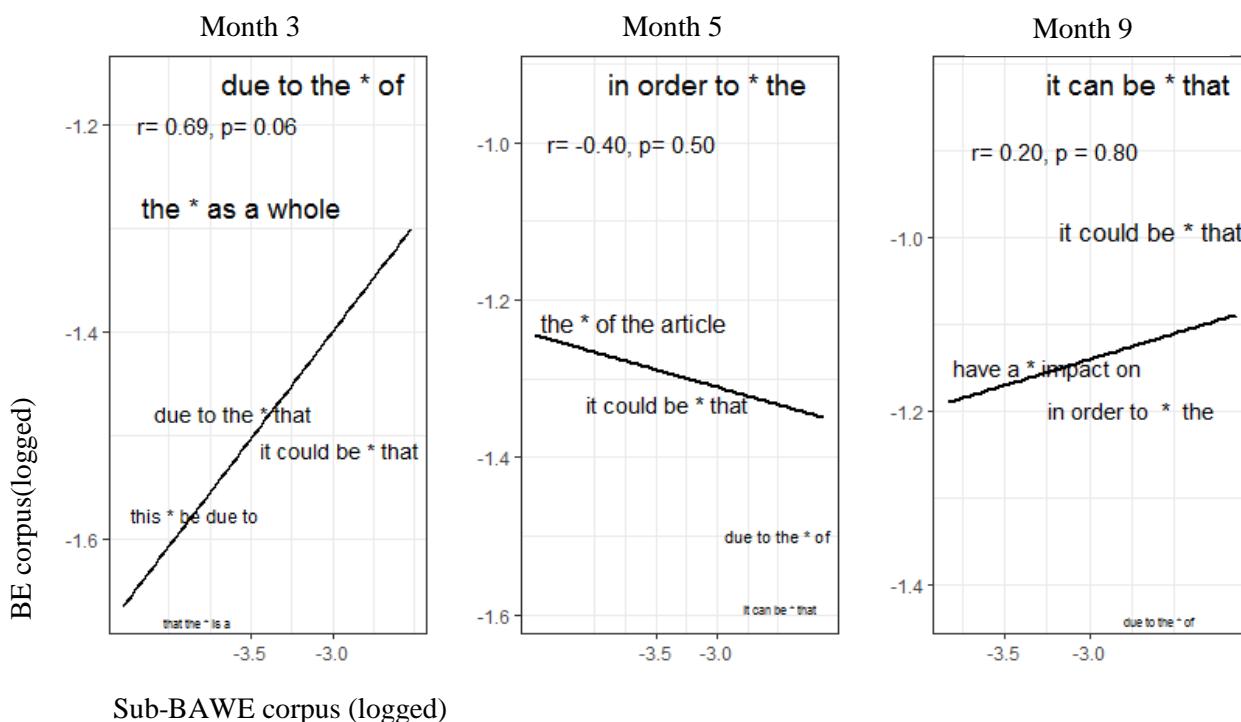


Figure 16. Correlations of five-p-frames between L1 students' essays and sub-BAWE corpus.

Over time, only two p-frames (‘it can be \* that’ and ‘in order to \* the’) were common between L1 and L2 novice writers’ essays, and these two p-frames occurred at Month 9. No statistical significance was found between the two corpora in the frequency of these two p-frames at Month 9 (LL: 2.99 for ‘in order to \* the’; LL: 3.60 for ‘it can \* be that’), though both of these p-frames were marked (overrepresented) in both L1 and L2 novice writers’ essays in comparison to the sub-corpus of BAWE. Thus, the p-frames between L1 and L2 novice writers’ essays showed more similarities at Month 9 than the first two time periods.

### 5.1.2 Four-word phrase frames

This section presents the findings of growth curve modelling for the frequency of four- and three-word p-frames. Then, I zoom in on four-word p-frames.

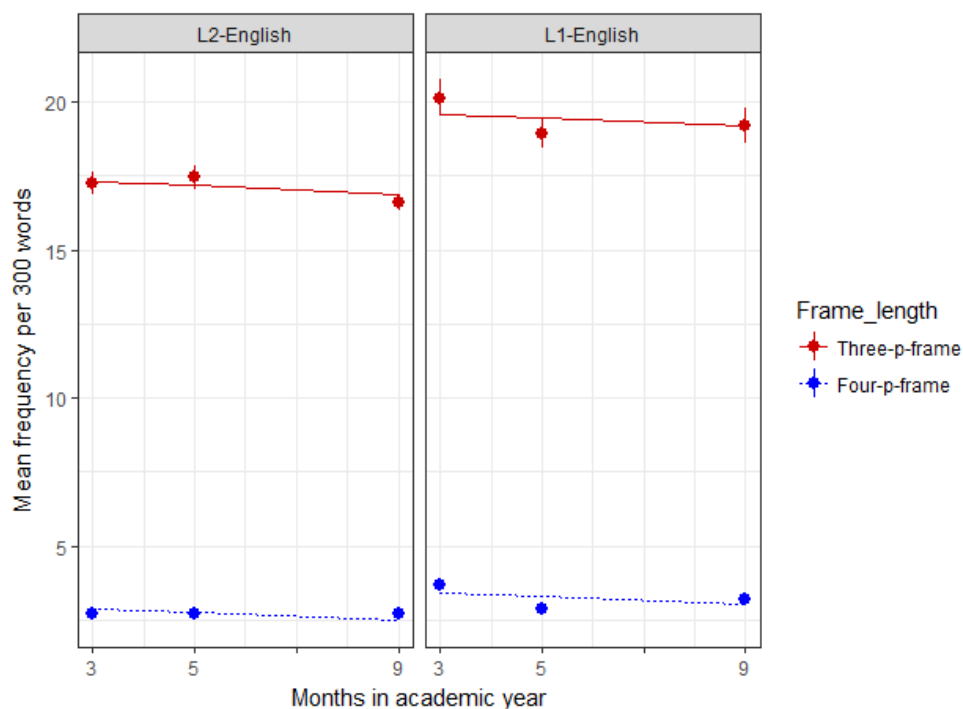


Figure 17. Observed data (symbols, vertical lines indicate  $\pm$ SE) and growth curve model fits for the frequencies of three-p-frames and four-p-frames in two groups over time.

In order to analyse the frequency of four- and three-word p-frames over time, a linear growth curve model was built with fixed effects of time, group (L1 vs L2) and frame length as well as the interactions between group and frame length and random effects of participant-by-frame-length in each group on the intercept. The data and model fits are shown in Figure 17. As seen in Table 17, the mean frequencies of both four- and three-p-frames showed significant variance in intercepts across participants,  $SD = 1.082$  (95%  $CI$ : .79, 1.34); however, the mean frequencies were regarded invariant in slopes across participants. As expected, four-p-frames were overall less frequent than three-p-frames in novice writers' essays ( $b = -14.43$ ,  $SE = .25$ ,  $t(277) = -56.67$ ,  $p < .001$ ). There was a significant effect of time ( $b = -.06$ ,  $SE = .03$ ,  $t(548) = -1.99$ ,  $p < .05$ ) on the frequency of three-p-frames, indicating that their frequencies decreased over time in both groups.

Additionally, there was a significant effect of group on the frequency of three-p-frames, indicating that L1 novice writers used three-p-frames more frequently than their L2 counterparts over time ( $b = 2.29$ ,  $SE = 0.33$ ,  $t(278) = 6.88$ ,  $p < .001$ ). There was a significant interaction between the two fixed effects, group and frame length, which shows that four-p-frames were affected by group differently from three-p-frames. As seen in Table 17, the frequencies of four-p-frames were higher in L1 novice writers' essays than in L2 novice writers' essays over time ( $b = -1.76$ ,  $SE = .47$ ,  $t(278) = -3.74$ ,  $p < .001$ ). Figure 18 shows the distribution of four-word phrase frames in novice writers' essays over time at group and individual level. As can be seen in Figure 18, variance between participants in the frequencies of four-word p-frames was slightly greater in L1 novice writers' essays than in L2 novice writers' essays over time, and this variance became smaller over time in both groups.

Table 17. Parameter estimates for growth curve model for the frequencies of three- and four-p-frames.

| Parameters                     | Fixed effects |      |          | Random effects              |      |
|--------------------------------|---------------|------|----------|-----------------------------|------|
|                                | Estimate      | SE   | t        | By participants (Intercept) |      |
|                                |               |      |          | Variance                    | SD   |
| Intercept                      | 17.31         | 0.20 | 86.31**  | 1.17                        | 1.08 |
| Time                           | -0.06         | 0.03 | -1.31*   |                             |      |
| Four-p-frame                   | -14.43        | 0.25 | -56.67** |                             |      |
| Group(L1-English)              | 2.29          | 0.33 | 6.88**   |                             |      |
| Four-p-frame:Group(L1-English) | -1.76         | 0.47 | -3.74**  |                             |      |

Model formula: Frequency ~ Time + Frame\_length \* Group + (1 | Group:Frame\_length:ID). \*  $p < .05$ , \*\*  $p < .001$ .  $R^2_{\text{marginal}} = 0.89$ ,  $R^2_{\text{conditional}} = 0.91$ .

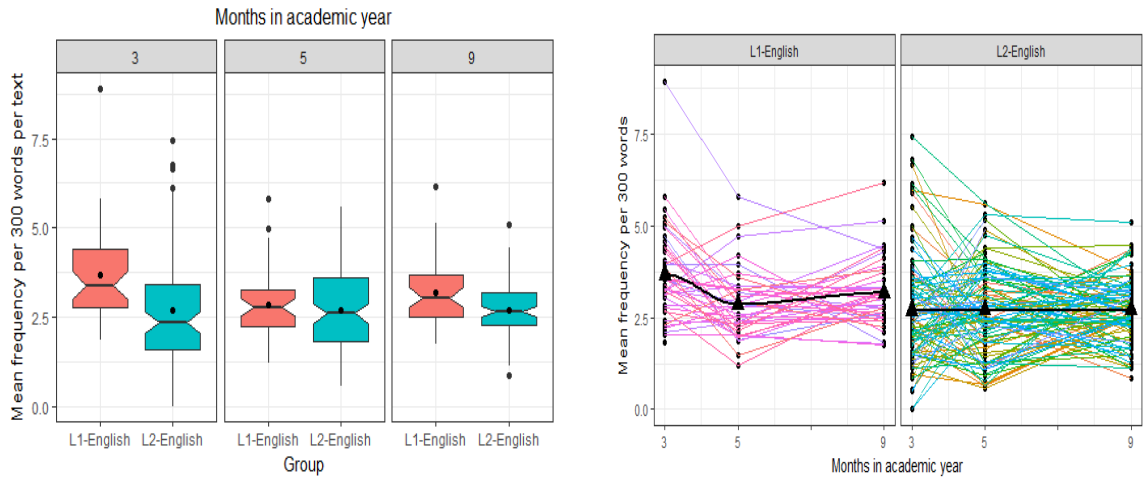


Figure 18. The distribution of four-word phrase frames in novice writers' essays over time at group and individual level.

The frequencies of four-word p-frames in L2 novice writers' essays at Month 3 were not statistically significantly correlated with those in the sub-corpus of BAWE ( $r_t = .08, p = .6$ ); however, the correlations became statistically significant at Month 5 and at Month 9, and the effect size became larger at Month 9, which indicated a moderate relationship, as shown in Figure 19 ( $r_t = .36, p < .05$  at Month 5;  $r_t = .51, p < .001$ ). Thus, this suggests that L2 novice writers developed advancedness in the frequencies of four-p-frames over time.

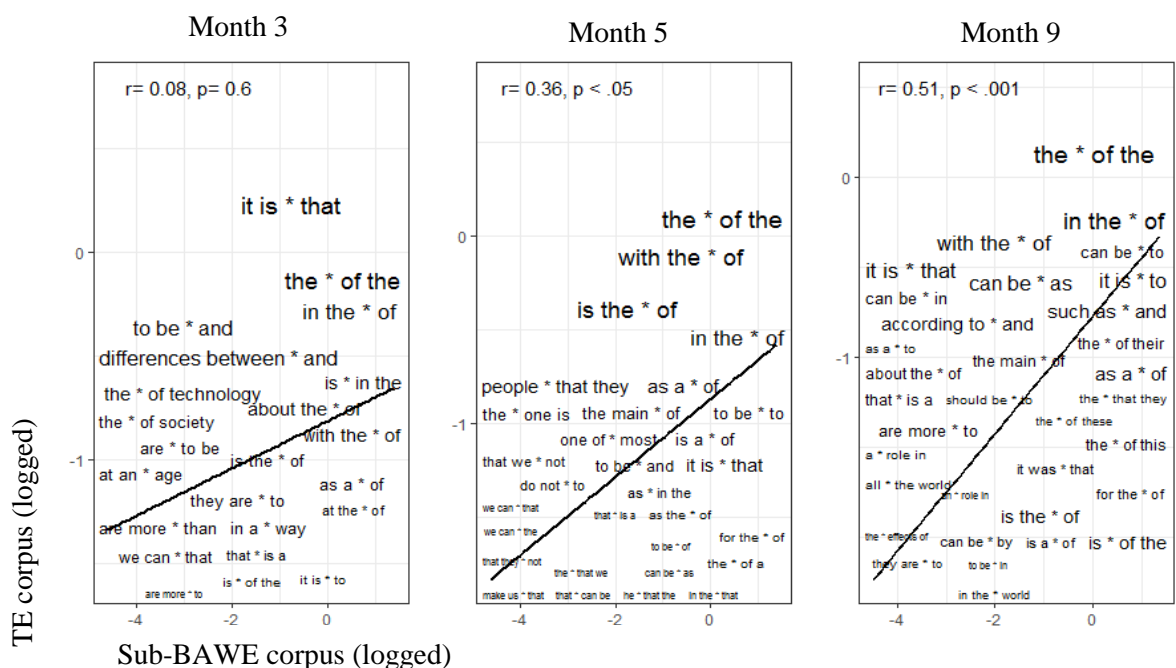


Figure 19. Correlations of four-p-frames between L2 students' essays and sub-BAWE corpus.

The most frequent p-frame ‘the \* of the’ was regarded marked over time in L2 novice writers’ essays, and it was underrepresented with reference to the sub-corpus of BAWE (log ratio: -2.29 at Month 3; -1.97 at Month 5; -1.92 at Month 9), though the degree of markedness decreased slightly over time as can be inferred from effect sizes. The p-frame ‘the \* of the’ takes a noun as its variant; hence, it can be said that L2 novice writers had difficulties using nominalisations in their academic writing in comparison to novice writers of the sub-corpus of BAWE. The other frequently occurring p-frames that remained marked in L2 novice writers’ essays over time were ‘in the \* of’, ‘for the \* of’, ‘they are \* to’, ‘are \* more to’. The first two bundles ‘in the \* of’ and ‘for the \* of’, which take nouns as their variants, were underrepresented in L2 novice writers’ essays, and the others were overrepresented except ‘are more \* to’ at Month 5. On the other hand, the p-frames ‘as a \* of’, ‘that \* is a’, ‘is a \* of’, ‘it was \* that’, ‘the \* of this’, ‘the \* of these’ remained unmarked in L2 novice writers’ essays over time.

Certain p-frames, including ‘to be \* and’, ‘it is \* to’, ‘we can \* that’, ‘we can \* the’, ‘people \* that they’ showed advancedness over time in that they became unmarked at Month 9. Except ‘it is \* to,’ which was underrepresented in L2 novice writers’ essays at Month 3 and at Month 5, the other four p-frames were overrepresented in L2 novice writers’ essays in comparison to the sub-corpus of BAWE at the first two time periods. This implies that L2 novice writers developed their use of these p-frames, which may indicate that they slowly adapted to the conventions of academic writing. On the other hand, L2 novice writers’ use of the p-frames ‘it is \* that’, ‘with the \* of’, ‘is the \* of’, ‘about the \* of’, ‘at the \* of’, ‘in a \* way’, ‘the main \* of’, ‘a \* role in’, showed non-linear patterns of change in that their frequencies were marked at two periods which were not adjacent to each other. ‘It is \* that’, for example, was overrepresented in L2 novice writers’ essays at Month 3 and at Month 9; however, no markedness was observed in its use in context at these two periods. Similarly, ‘such as \* and’ was found to be marked

(overrepresented) at Month 9, which suggests that L2 novice writers relied on this p-frame when they provided examples to illustrate their point. Thus, overrepresentation does not necessarily entail incorrect or marked use in context.

The p-frames that emerged in L2 novice writers' essays at Month 9 did not necessarily involve advancedness. For instance, the p-frames 'all \* the world' and 'in the \* world' that appeared at Month 9 were overrepresented, and thus they were marked in L2 novice writers' essays. These two p-frames can be characterised as 'nuclear' p-frames (see Stubbs, 1986), which may not be regarded as one of the typical lexico-grammatical features in English academic writing. As the example illustrates below, 'all \* the world' was used to make a general statement which remained unsubstantiated in L2 novice writers' essays.

(1) Teachers alter task-based language teaching according to students' needs and desires *all over the world*. (59-TE-3)

Table 18 shows all the common four-p-frames in L2 novice writers' essays across all the time points. 'The \* of the' was the only four-p-frame whose frequency increased steadily, as stated above. In terms of frequency, the biggest change occurred in the p-frame 'it is \* that', the frequency of which decreased sharply at Month 5, and then it increased again at Month 9. The most frequent variant was 'stated' at the first two time points, but at Month 9, 'obvious' emerged as the most frequent variant. This suggests that students showed more confidence and/or certainty in the use of 'it is \* that' at Month 9. The two p-frames whose frequencies increased at Month 5 and then decreased at Month 9 were 'with the \* of' and 'is the \* of'. The remaining three other p-frames that were 'in the \* of', 'as a \* of,' and 'that is \* a' held steady in terms of frequency over time. Additionally, the most frequent variants of 'as a \* of' and 'that \* is a' were the same at all time points. Except 'as a \* of' and 'that \* is a', dynamic changes that occurred in the most frequently occurring p-



frames in terms of their frequency rates and most frequent variants suggest that the multi-word units could have an unpredictable nature in L2 novice academic writing, which has been characterised as dynamic (e.g. Lowie & Verspoor, 2015). A linear development/change may therefore not occur in most of the p-frames over a short period of time.

Table 18. Common four-phrase frames in L2 novice writers' essays in order of overall frequency.

| Common phrase frames |         | Raw frequency | Frequency per 1000 words | Most frequent variant |
|----------------------|---------|---------------|--------------------------|-----------------------|
| the * of the         | Month 3 | 41            | 0.81                     | majority              |
|                      | Month 5 | 57            | 1.01                     | failure               |
|                      | Month 9 | 168           | 1.05                     | results               |
| it is * that         | Month 3 | 57            | 1.12                     | stated                |
|                      | Month 5 | 19            | 0.34                     | stated                |
|                      | Month 9 | 95            | 0.59                     | obvious               |
| in the * of          | Month 3 | 34            | 0.67                     | acquisition           |
|                      | Month 5 | 37            | 0.66                     | pursuit               |
|                      | Month 9 | 113           | 0.71                     | use                   |
| with the * of        | Month 3 | 17            | 0.34                     | help                  |
|                      | Month 5 | 45            | 0.80                     | advent/development    |
|                      | Month 9 | 98            | 0.61                     | help                  |
| is the * of          | Month 3 | 14            | 0.28                     | key/result            |
|                      | Month 5 | 41            | 0.73                     | essence/opposite      |
|                      | Month 9 | 42            | 0.26                     | role/use              |
| as a * of            | Month 3 | 15            | 0.30                     | result                |
|                      | Month 5 | 20            | 0.35                     | result                |
|                      | Month 9 | 51            | 0.32                     | result                |
| that * is a          | Month 3 | 12            | 0.24                     | there                 |
|                      | Month 5 | 10            | 0.18                     | there                 |
|                      | Month 9 | 29            | 0.18                     | there                 |

The other interesting differences in the use of four-word p-frames over time in L2 novice writers' essays lie in writer visibility and the passive construction incorporated into the p-frames. At Month 3, 'we can \* that' occurred 0.26 times per 1,000 words, and it occurred 0.18 times per 1,000 words at Month 5. There were three other p-frames that included 'we': 'we can \* the', 'the \* that we', 'that we \* not' at Month 5. However, there was no p-frame that contained first person singular or plural pronouns at Month 9.

Similarly, the passive construction had a higher rate of occurrence within the p-frames at Month 9, which may have been used by L2 novice writers to avoid the first person pronouns. At Month 3, there was no p-frame that included a passive construction. ‘Can be \* as’ was the only p-frame that incorporated a passive construction at Month 5. 20% of the p-frames, on the other hand, included a passive construction at Month 9; which were ‘can be \* as’, ‘can be \* in’, ‘can be \* to’, ‘can be \* by’, ‘should be \* to’, ‘it was \* that’ and ‘to be \* in’. Hence, it can be argued that L2 novice writers shifted from the p-frames ‘we can \* that’, ‘we can \* the’, ‘that we \* not’ to the p-frames that included the passive construction (‘can be \* as’, ‘can be \* in’, ‘can be \* to’, ‘can be \* by’).

The final change which can be regarded as linear development in L2 novice writers’ essays is concerned with modal verbs. At Month 3, there was only one p-frame that included a modal verb: ‘we can \* that’. At Month 5, 13% of the p-frames included a modal verb which was “can” in all the instances (‘we can \* that’, ‘that \* can be’, ‘we can \* the’, ‘can be \* as’). At Month 9, 15% of the p-frames contained a modal verb (‘can be \* as’, ‘can be \* in’, ‘can be \* to’, ‘can be \* by’, ‘should be \* to’).

In line with L2 novice writers’ essays, the frequencies of four-p-frames in L1 novice writers’ essays were significantly correlated with those in the sub- corpus of BAWE except at Month 3 ( $r_t = .26, p = .05$ ), and effect sizes increased over time, as illustrated in Figure 20 ( $r_t = .28, p < .05$  at Month 5;  $r_t = .41, p < .05$  at Month 9). This finding indicates that L1 novice writers started to use four-p-frames in a similar way with the writers of sub-corpus of BAWE in terms of the frequency rates; therefore, an increasing degree of advancedness was evident in the frequencies of four-p-frames in L1 novice writers’ essays.

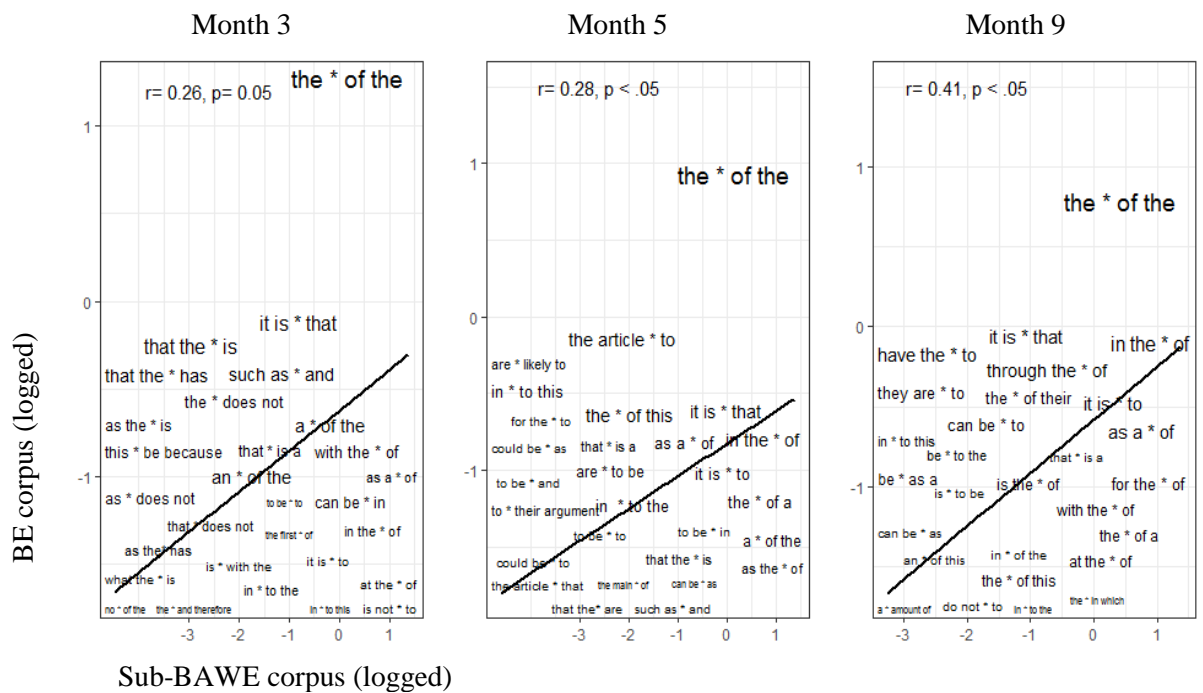


Figure 20. Correlations of four-p-frames between L1 students' essays and sub-BAWE corpus.

Interestingly, the most frequently occurring common four-p-frame ‘the \* of the’ (e.g. ‘the role of the’) remained marked in L1 novice writers’ essays over time in that this p-frame, which takes a noun as its variant, was underrepresented in L1 novice writers’ essays in comparison to the sub-corpus of BAWE (log ratios: -.22 at Month 3; -.73 at Month 5; -.85 at Month 9). It can be said that successful first-year undergraduate writing of the sub-corpus of BAWE included this noun phrase, which is the most frequently used p-frame in English academic writing (Gray & Biber, 2013), more than L1 novice writing in this study. This finding suggests that development of noun phrases that Biber et al. (2011) hypothesised in L1 and L2 novice academic writing may not involve all types of noun phrases. Similarly, one of the most frequently occurring common p-frames ‘in the \* of’ (e.g. ‘in the case of’), which takes a noun as its variant, was found to be underrepresented in L1 novice writers’ essays in comparison to the sub-corpus of BAWE (log ratios: -2.46 at Month 3; -1.67 at Month 5; -.92 at Month 9). Although the degree of markedness decreased over time, L1 novice writers of this study used it less frequently than their counterparts of the sub-corpus of BAWE. On the other hand, the other common p-frame ‘in \* to this’ (‘e.g. in addition to this’) was identified to be overrepresented in L1 novice

writers' essays with reference to the sub-corpus of BAWE, which indicates that L1 novice writers showed a marked preference to employ discourse-organising multi-word units in their essays, as noted before.

Apart from underrepresentation of noun phrases and overrepresentation of discourse-organising p-frames, linear developmental pattern was evident for the remaining common p-frames in L1 novice writers' essays. The p-frames 'it is \* that' (e.g. 'it is clear that'), 'it is \* to' (e.g. 'it is important to'), 'as a \* of' ('as a means of'), 'that \* is a' ('that there is a'), 'in \* to the' (e.g. 'in comparison to the') became unmarked over time in reference to the sub-corpus of BAWE. The frequency rates of the first three p-frames in the previous sentence became similar to those in the sub-corpus of BAWE at Month 5 and at Month 9, and the frequency rates of the other two p-frames 'that \* is a' and 'in \* to the' became parallel with those in the sub-corpus of BAWE at Month 9.

The p-frames that were specific to one time period mostly showed mixed patterns of change. For instance, the p-frame 'this \* be because' (e.g. 'this could be because') that emerged at Month 3 was marked (overrepresented) in L1 novice writers' essays whereas 'for the \* of' (e.g. 'for the benefit of') that emerged at Month 9 was found to be unmarked. It should be noted that the p-frames that emerged at Month 9 were mostly unmarked, except 'have the \* to' (e.g. 'have the opportunity to'), 'they are \* to' (e.g. 'they are expected to'), and 'be \* as a' (e.g. 'be seen as a'). This finding is in line with larger effect size of the correlation reported at Month 9 above. Hence, L1 novice writers of this study used four-p-frames more similarly to writers of the sub-corpus of BAWE in terms of their frequency rates as they gained more experience in academic writing over time.

Table 19 presents all the eight common four-p-frames in L1 novice writers' essays over time. The p-frames whose frequencies increased steadily were 'in the \* of', 'it is \* to', and 'as a \* of'. The two p-frames whose frequencies decreased steadily were 'the \* of the'

and ‘that \* is a’. It is striking that the most frequently used p-frame in English academic writing (‘the \* of the’) (Gray & Biber, 2013) occurred less frequently in L1 novice writers’ essays over time. The other two p-frames whose frequencies increased at Month 5, and then decreased at Month 9 were ‘in to \* the’ and ‘in to \* this’. Finally, the frequency rate of the p-frame ‘it is \* that’ slightly decreased at Month 5 and then increased slightly at Month 9. Overall, the most frequent variants of the p-frames remained more or less the same except ‘in the \* of’ and ‘in to \* the’. This regularity reflects patterned nature of L1 novice writers’ academic writing.

Table 19. Common four-word phrase frames in L1 novice writers’ essays.

| Common phrase frames |         | Raw frequency | Frequency per 1000 words | Most frequent variant |
|----------------------|---------|---------------|--------------------------|-----------------------|
| the * of the         | Month 3 | 190           | 3.40                     | use                   |
|                      | Month 5 | 160           | 2.38                     | use                   |
|                      | Month 9 | 143           | 2.20                     | introduction          |
| it is * that         | Month 3 | 45            | 0.80                     | clear                 |
|                      | Month 5 | 26            | 0.39                     | clear                 |
|                      | Month 9 | 32            | 0.49                     | clear/argued          |
| in the * of          | Month 3 | 13            | 0.23                     | understanding         |
|                      | Month 5 | 27            | 0.40                     | light                 |
|                      | Month 9 | 44            | 0.68                     | process/number        |
| it is * to           | Month 3 | 12            | 0.21                     | important             |
|                      | Month 5 | 24            | 0.36                     | important             |
|                      | Month 9 | 34            | 0.52                     | important             |
| as a * of            | Month 3 | 13            | 0.23                     | result                |
|                      | Month 5 | 22            | 0.33                     | result                |
|                      | Month 9 | 31            | 0.48                     | result                |
| that * is a          | Month 3 | 17            | 0.30                     | it                    |
|                      | Month 5 | 16            | 0.24                     | there                 |
|                      | Month 9 | 13            | 0.20                     | there/this            |
| in * to the          | Month 3 | 14            | 0.25                     | contrast              |
|                      | Month 5 | 22            | 0.33                     | comparison            |
|                      | Month 9 | 12            | 0.18                     | relation              |
| in * to this         | Month 3 | 10            | 0.18                     | addition              |
|                      | Month 5 | 21            | 0.31                     | addition              |
|                      | Month 9 | 15            | 0.23                     | addition              |

An interesting trend emerged in the use of four-word p-frames which subsumed the passive construction in L1 novice writers’ essays over time. At Month 3, a passive construction was subsumed under a p-frame just once (3%) (e.g. ‘can be \* in’), whereas

18% of the p-frames at both Month 5 and Month 9 included a passive construction (e.g. ‘can be \* as’, ‘could be \* as’, etc.). This suggests that L1 novice writers increasingly showed non-personal projection through the use of multi-word units.

A comparison of L1 and L2 novice writing over time reveals that both groups demonstrated similar patterns of change in that they started to use four-p-frames at a more similar frequency rate with writers of the sub-corpus of BAWE over time, as can be inferred from the correlation measures presented above. Thus, both groups’ advancedness increased in the frequency of four-p-frames over time. Lexico-grammatical realisations of p-frames between L1 and L2 novice writing became more similar since 40% of the p-frames in L2 novice writers’ essays matched with those in L1 novice writers’ essays at Month 9 while this figure was 33% at Month 3 and at Month 5. The other similarity was observed in the use of p-frames which subsumed the passive construction. Both groups increasingly showed preference for p-frames that included a passive construction (e.g. ‘can be \* as’, ‘can be \* to’) over time, especially at Month 9.

Despite these similarities, several notable differences between the two groups were observed. The most frequent common four-p-frame ‘the \* of the’, which occurs as the most frequent p-frame in English academic writing at the same time (Gray & Biber, 2013) was underrepresented in L2 novice writers’ essays over time in comparison to the L1 novice writers’ essays (log ratios: -2.07 at Month 3; -1.24 at Month 5; -1.06 at Month 9). Although L2 novice writers increasingly used ‘the \* of the’ over time, they still lagged behind their L1 counterparts in the use of this p-frame at each time period.

Another interesting difference lies in variants of the common four-p-frames in both groups. While the variants of common four-p-frames mostly changed from one time period to another in L2 novice writers’ essays, they were fairly stable in L1 novice writers’ essays, which indicates that L1 novice academic writing can be regarded as a more stable

system in this respect (de Bot & Larsen-Freeman, 2011). Furthermore, the use of p-frames ('all \* the world', 'in \* the world', 'in a \* way') which can be described as nuclear (Stubbs, 1986) multi-word units differentiated L2 novice writing from L1 novice writing. It can be said that these p-frames are less advanced than those (e.g. 'the \* of the') that reflect academic writing style in English. Even at Month 9, such p-frames were identified in L2 novice writing, and they remained marked (overrepresented) in reference to the sub-corpus of BAWE. The final difference lies in the use of discourse-organising p-frames in the two groups. The p-frames 'in \* to the', 'in \* to this' and 'as a \* of' were consistently among the common four-p-frames identified in L1 novice writers' essays while only 'as a \* of' was one of the common four-p-frames identified in L2 novice writers' essays over time. The last two differences in the use of p-frames noted here resonate with those found in the use of lexical bundles between the two groups.

### 5.1.3 Three-word phrase frames

The frequencies of three-p-frames displayed a slight decrease over time in both groups; however, L1 novice writers used three-p-frames more frequently than L2 novice writers, as Figure 21 and the growth curve model show above. It is surprising that L2 novice writers used three-p-frames less frequently over time, which suggests that their language use became less phrasal in nature over time.

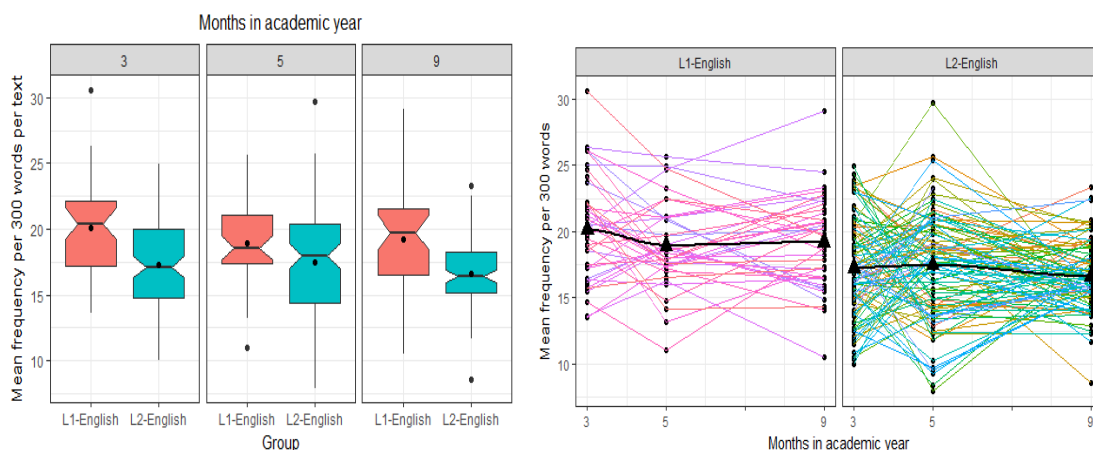


Figure 21. The distribution of three-p-frames in novice writers' essays over time at group and individual level.

Variance in the frequencies of three-p-frames between the participants showed non-linear developmental patterns in two groups in that variance was greater at Month 5 than the two other time periods in L2 novice writers' essays, while this variance was smaller at Month 5 than the other time periods in L1 novice writers' essays.

In L2 novice writers' essays, the frequencies of three-p-frames were significantly correlated with those in the sub-corpus of BAWE ( $r_t = .24, p < .05$  at Month 5;  $r_t = .57, p < .001$  at Month 9), except at Month 3 ( $r_t = .17, p = .1$ ), and the effect sizes became larger over time, as Figure 22 shows. This means that the frequencies of three-p-frames improved advancedness over one academic year in reference to the sub-corpus of BAWE. Despite the general trend of advancedness, the most frequently occurring common three-p-frames did not show advancedness, although the degree of their markedness decreased over time. To illustrate, seven p-frames out of the top-ten most frequent three-p-frames were marked (underrepresented) in L2 novice writers' essays over time. Out of these seven p-frames, L2 novice writers used the p-frames 'the \* of' (e.g. 'the use of'), 'a \* of' (e.g. 'a part of'), 'the \* and' (e.g. 'the internet and'), 'to \* the' (e.g. 'to be the') significantly less frequently than writers of the sub-corpus of BAWE. The common characteristic of these first three p-frames is that they take nouns as their variants, which indicates that L2 novice writers did not improve the use of these noun phrases and they were not able to reach at a similar level with those writers of the sub-corpus of BAWE. The frequency of 'the \* of', the most frequent p-frame in English academic English (Gray & Biber, 2013), decreased at Month 9 after its frequency had increased at Month 5, but at Month 9, its frequency became higher than the rate at Month 3, as can be seen in Table 20.



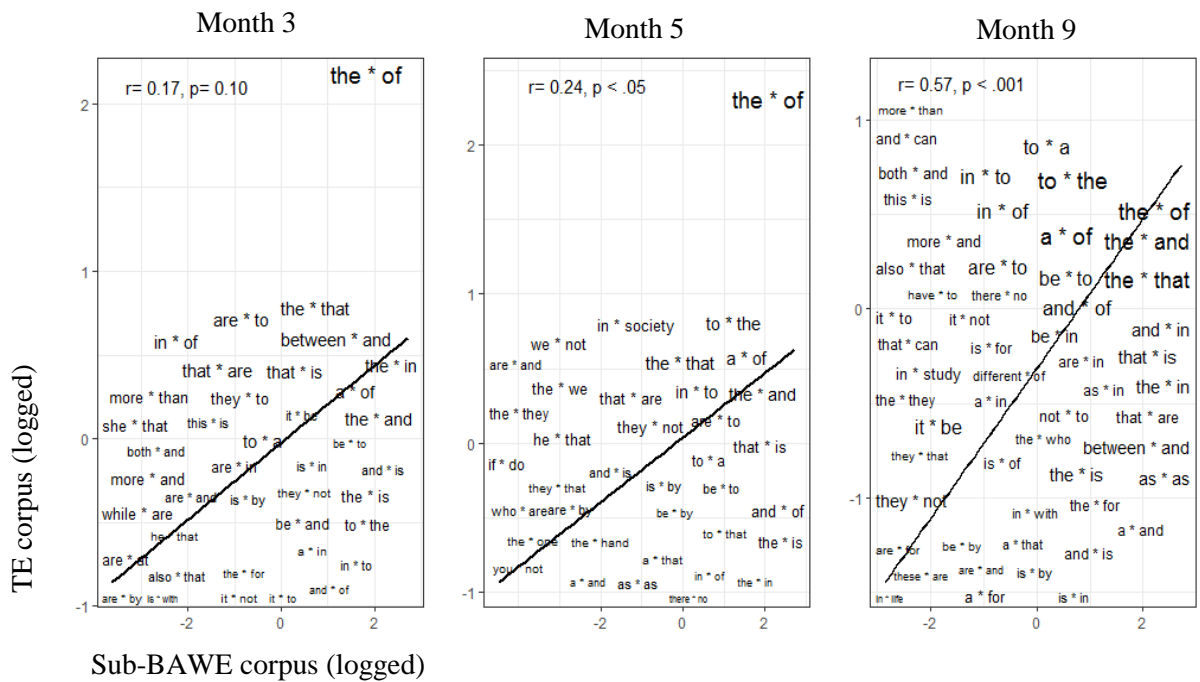


Figure 22. Correlations of three-p-frames between L2 students' essays and sub-BAWE corpus.

The other three p-frames ‘in \* to’ (e.g. ‘in order to’), ‘are \* to’ (‘are able to’), ‘that \* are’ (e.g. ‘that they are’), which were among the top-ten most frequent p-frames, remained overrepresented in L2 novice writers’ essays, except ‘in \* to’ which was underrepresented at Month 3. The second most frequently used p-frame ‘the \* that’ (e.g. ‘the fact that’) remained unmarked over time. Among the top-ten most frequent three-p-frames, the remaining three p-frames ‘that \* is’ (e.g. ‘that there is’) and ‘in \* of’ (e.g. ‘in terms of’) showed advancedness in that they became unmarked at Month 5 and at Month 9.

Table 20. Common top-ten three-word phrase frames in L2 novice writers' essays in order of overall frequency.

| Common phrase frames |         | Raw frequency | Frequency per 1000 words | Most frequent variant             |
|----------------------|---------|---------------|--------------------------|-----------------------------------|
| the * of             | Month 3 | 424           | 8.36                     | level                             |
|                      | Month 5 | 634           | 11.23                    | aim/idea                          |
|                      | Month 9 | 1466          | 9.16                     | use                               |
| the * that           | Month 3 | 84            | 1.66                     | fact                              |
|                      | Month 5 | 106           | 1.88                     | idea                              |
|                      | Month 9 | 216           | 1.35                     | fact                              |
| to * the             | Month 3 | 39            | 0.77                     | change/find/let/see/get /cover/be |
|                      | Month 5 | 115           | 2.04                     | buy                               |
|                      | Month 9 | 300           | 1.87                     | be                                |
| a * of               | Month 3 | 54            | 1.07                     | result                            |
|                      | Month 5 | 90            | 1.59                     | part                              |
|                      | Month 9 | 269           | 1.68                     | lot                               |
| the * and            | Month 3 | 62            | 1.22                     | society/internet                  |
|                      | Month 5 | 72            | 1.27                     | rich                              |
|                      | Month 9 | 259           | 1.62                     | internet                          |
| are * to             | Month 3 | 93            | 1.83                     | superior                          |
|                      | Month 5 | 50            | 0.89                     | trying                            |
|                      | Month 9 | 149           | 0.93                     | able                              |
| in * to              | Month 3 | 28            | 0.55                     | order                             |
|                      | Month 5 | 73            | 1.29                     | order                             |
|                      | Month 9 | 213           | 1.33                     | order                             |
| that * are           | Month 3 | 87            | 1.72                     | they                              |
|                      | Month 5 | 58            | 1.03                     | they                              |
|                      | Month 9 | 78            | 0.49                     | they                              |
| that * is            | Month 3 | 63            | 1.24                     | there                             |
|                      | Month 5 | 57            | 1.01                     | it                                |
|                      | Month 9 | 109           | 0.68                     | there                             |
| in * of              | Month 3 | 70            | 1.38                     | terms                             |
|                      | Month 5 | 29            | 0.51                     | terms                             |
|                      | Month 9 | 167           | 1.04                     | terms                             |

The other p-frames that showed linear developmental patterns of change were 'it \* not' (e.g. 'it is not'), 'not \* to' (e.g. 'not seem to'), 'be \* to' (e.g. 'be able to'), 'be \* by' (e.g. 'be affected by'). It is worth noting that the common characteristic of these p-frames is that their realisations are verb phrases, which suggests that unlike noun phrases, L2 novice writers were able to use these p-frames at a similar frequency rate with writers of the sub-corpus of BAWE as they gained more experience in academic writing.

Additionally, several p-frames that emerged at Month 9, including ‘be \* in’ (e.g. ‘be seen in’), ‘is \* of’ (‘is one of’), ‘there \* no’ (‘there is no’) were unmarked, which is in line with higher effect size found in the correlation of the frequencies of three-p-frames with those in the sub-corpus of BAWE at Month 9 than the earlier time periods.

In contrast to linear developmental patterns of change in three-p-frames, non-linear patterns of change were identified in certain p-frames. ‘The \* in’ (e.g. ‘the difference in’), ‘more \* than’ (e.g. ‘more important than’), ‘and \* of’ (e.g. ‘the effects of’), ‘is \* for’ (‘is important for’), ‘a \* and’ (e.g. ‘a problem and’), ‘a \* that’ (e.g. ‘a way that’) were unmarked at Month 5 or at Month 3 and at Month 9. Hence, it can be said that these non-linear patterns of change in the frequencies of p-frames may suggest variation within development of p-frames in L2 novice writers’ essays.

There are also patterns identified among the other p-frames that remained marked in L2 novice writers’ essays. For instance, the p-frames ‘both \* and’ (e.g. ‘both students and’), ‘also \* that’ (‘also states that’), ‘are \* and’ (e.g. ‘are used and’), ‘and \* can’ (‘and this can’), ‘more \* and’ (e.g. ‘more common and’) were overrepresented in L2 novice writers’ essays over time, and they functioned as discourse-organising p-frames which expressed additive relations between two propositions. Another group of p-frames that were overrepresented in L2 novice writers’ essays at Month 3 and at Month 5 included p-frames that subsumed the first person plural pronoun ‘we’: ‘we \* not’ (e.g. ‘we should not’), ‘we \* that’ (e.g. ‘we see that’), ‘the \* we’ (e.g. ‘the way we’). A closer look at these p-frames shows that L2 novice writers used them in order to include the readers in the text when they presented their argument, as the example shows below:

(2) Although there are exceptions, *we see that* boys are promising when it comes to the mathematical abilities. (98-TE-1)

Finally, the p-frames which remained overrepresented in L2 novice writers' essays over time were nuclear p-frames, including 'in \* life' (e.g. 'in our life'), 'different \* of' (e.g. 'different ways of') (Stubbs, 1986) which may not reflect the style of academic writing. By using these p-frames, L2 novice writers referred to entities in a vague manner, as the example below shows, and based on examination of the co-text of these p-frames, it can be said that no explanation was provided how different these patterns or ways were from each other in the subsequent discourse.

(3) Many studies analyzed *different patterns of* nonverbal communication. (72-TE-3)

In L1 novice writers' essays, as shown in Figure 23, the frequencies of three-p-frames were statistically significantly correlated with those in the sub-corpus of BAWE over time ( $r_t = .48, p < .001$  at Month 3;  $r_t = .52, p < .001$  at Month 5;  $r_t = .48, p < .001$  at Month 9), and effect sizes were moderate at each time period and fairly stable over time. Overall, it can be said that the frequencies of three-p-frames in L1 novice writers' essays were relatively advanced in reference to those in the sub-corpus of BAWE.

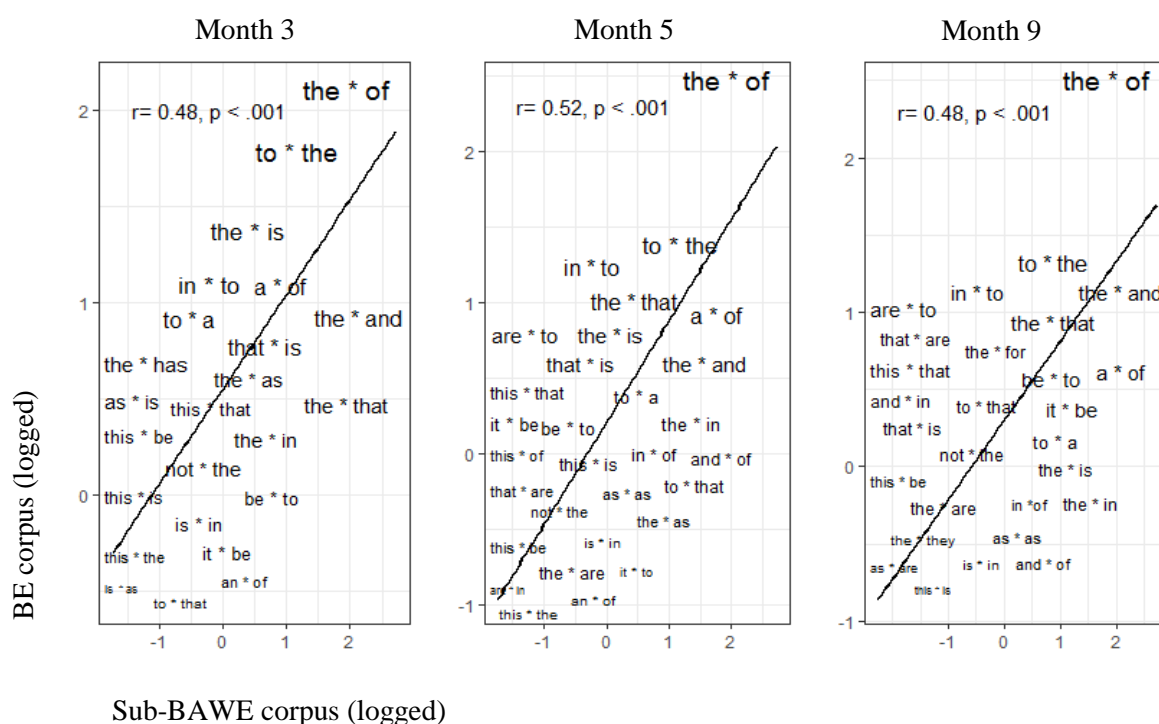


Figure 23. Correlations of three-p-frames between L1 students' essays and sub-BAWE corpus.

Interestingly, the most frequent p-frame ‘the \* of’ (e.g. ‘the use of’) remained marked and underrepresented in L1 novice writers’ essays over time (log ratios: -.87 at Month 3; -.43 at Month 5; -.39 at Month 9). Although L1 novice writers used this noun phrase more frequently over time, as can be seen in Table 21, they still lagged behind their counterparts in the sub-corpus of BAWE. Similarly, ‘the \* and’, which takes a noun as its variant, was the other p-frame among the common top-ten three-p-frames that remained underrepresented in L1 novice writing (e.g. ‘the students and’). This suggests that development of noun phrases that Biber et al. (2011) hypothesised in novice academic writing can even be slow in L1 novice writing.

Table 21. Common top-ten three-word phrase frames in L1 novice writers’ essays in order of frequency.

| Common phrase frames |         | Raw frequency | Frequency per 1000 words | Most frequent variant |
|----------------------|---------|---------------|--------------------------|-----------------------|
| the * of             | Month 3 | 466           | 8.33                     | use                   |
|                      | Month 5 | 758           | 11.29                    | use                   |
|                      | Month 9 | 758           | 11.64                    | idea                  |
| to * the             | Month 3 | 304           | 5.44                     | understand            |
|                      | Month 5 | 233           | 3.47                     | support               |
|                      | Month 9 | 207           | 3.18                     | meet                  |
| in * to              | Month 3 | 183           | 3.27                     | order                 |
|                      | Month 5 | 202           | 3.01                     | order                 |
|                      | Month 9 | 160           | 2.46                     | order                 |
| a * of               | Month 3 | 147           | 2.63                     | lack                  |
|                      | Month 5 | 153           | 2.28                     | lack                  |
|                      | Month 9 | 135           | 2.07                     | result                |
| the * and            | Month 3 | 128           | 2.29                     | text                  |
|                      | Month 5 | 146           | 2.17                     | article               |
|                      | Month 9 | 150           | 2.30                     | teachers              |
| the * that           | Month 3 | 87            | 1.56                     | fact                  |
|                      | Month 5 | 162           | 2.41                     | fact                  |
|                      | Month 9 | 148           | 2.27                     | fact                  |
| the * is             | Month 3 | 200           | 3.58                     | text                  |
|                      | Month 5 | 113           | 1.68                     | article               |
|                      | Month 9 | 62            | 0.95                     | school                |
| to * a               | Month 3 | 127           | 2.27                     | understand            |
|                      | Month 5 | 73            | 1.09                     | be                    |
|                      | Month 9 | 77            | 1.18                     | have                  |
| that * is            | Month 3 | 120           | 2.15                     | she                   |
|                      | Month 5 | 87            | 1.30                     | there                 |
|                      | Month 9 | 64            | 0.98                     | this                  |

|          |         |    |      |          |
|----------|---------|----|------|----------|
|          | Month 3 | 81 | 1.45 | text     |
| the * in | Month 5 | 74 | 1.10 | article  |
|          | Month 9 | 57 | 0.88 | students |

The three bundles ‘in \* to’ (e.g. ‘in order to’) (log ratios: 1.80 at Month 3; 1.68 at Month 5; 1.39 at Month 9), ‘this \* that’ (e.g. ‘this means that’) (log ratios: 2.16 at Month 3; 1.75 at Month 5; 2.11 at Month 9), ‘this \* be’ (e.g. ‘this may be’) were overrepresented in L2 novice writers’ essays over time. However, it is worth noting that these patterns of overrepresentation may not necessarily involve markedness in their use in context (Ädel, 2014). These three p-frames acted as discourse-organisers which enabled writers to make inference and provide explanations for the propositions put forward in the prior discourse. For instance, L1 novice writers used ‘this + verb clusters’, i.e. ‘unattended this’ (Wulff, Römer, & Swales, 2012) to construct their arguments based on the propositions they put forward in the prior discourse in their essays, as the example shows below:

(4) ...; there will come a point where inspections lessen in their frequency and teachers may regress to their previous way of teaching. *This shows that* Ofsted inspections will not raise the standards of teaching in the most efficient and long lasting way. (1-BE-3)

Apart from trends of overrepresentation and underrepresentation of three-p-frames over-time, there were linear patterns of change which resulted in unmarkedness in reference to the sub-corpus of BAWE. These p-frames are ‘to \* the’ (e.g. ‘to discuss the’), ‘to \* a’ (‘to create a’), ‘that \* is’ (e.g. ‘that there is’), ‘this \* the’ (e.g. ‘this suggests the’), ‘as \* as’ (e.g. ‘as well as’), ‘is \* in’ (e.g. ‘is used in’). Except ‘as \* as’, realisations of the other p-frames are verb phrases whose frequencies showed a steady decreasing trend over time. It seems that L1 novice writers used these verb phrases at a similar frequency rate with writers of the sub-corpus of BAWE. This finding is in line with the Biber et al.’s (2011) hypothesis which proposed that a decrease in the frequency of clausal features would be an indication of academic writing development. Of course, there were also non-

linear patterns of change in the frequencies of three-p-frames, including ‘and \* of’ (e.g. ‘and because of’), ‘this \* of’ (e.g. ‘this idea of’), ‘a \* of’ (e.g. ‘a variety of’) in L1 novice writers’ essays.

A comparison of the three-p-frames between L1 and L2 novice writing reveals that L1 novice writers used more three-p-frames statistically significantly than L2 novice writers over time as the growth curve model showed above. This indicates that the use of patterned language was greater in L1 novice writing than L2 novice writing. In the two groups, as novice writers gained more experience in academic writing, there was a slight decrease in the frequencies of three-p-frames. This finding seems counter-intuitive given that three-p-frames are very pervasive in English academic writing (Gray & Biber, 2013). In terms of advancedness of the frequencies of three-p-frames with reference to the sub-corpus of BAWE, while L2 novice writing showed linear developmental patterns, L1 novice writing was fairly stable. However, it should be noted that the frequencies of three-p-frames in L1 novice writing showed moderate correlations with those in the sub-corpus of BAWE from Month 3, while moderate correlations were present in L2 novice writing at Month 9.

Two striking similarities in the use of three p-frames between the groups emerged. First, the p-frames, the realisations of which were noun phrases (e.g. ‘the \* of’) remained underrepresented in both groups over time with reference to the sub-corpus of BAWE. The difference in the frequency of ‘the \* of’, the most frequent p-frame in English academic writing (Gray & Biber, 2013), was not statistically significant between L1 and L2 novice writing at Month 3 and at Month 5; however, this p-frame was statistically significantly more frequent in L1 novice writers’ essays than in L2 novice writers’ essays at Month 9 (log ratio: .34). The other similarity was that both groups showed advancedness in the frequencies of p-frames (e.g. ‘is \* of’), the realisations of which were verb phrases because their frequencies overall showed a decreasing trend, which resulted in unmarkedness in

reference to the sub-corpus of BAWE in both groups. These findings support Biber et al.'s (2011) hypothesis that posited a trend for decrease in the use of verb phrases. On the other hand, a trend for increase in the use of noun phrases is likely to emerge at higher levels of advanced academic writing (Staples & Reppen, 2016).

There were also differences in the use of three-p-frames between the groups. The first difference lies in the types of discourse-organising p-frames which were overrepresented in both groups with reference to the sub-corpus of BAWE. While L1 novice writers showed a marked preference for inferencing p-frames which expressed reasoning ('this \* that', 'this \* be'), L2 novice writers preferred to use additives ('also \* that', 'are \* and') which link the prior discourse with the upcoming discourse. The second difference is concerned with markedness (overrepresentation) of nuclear p-frames ('in \* life') and p-frames which included the first person plural pronoun ('we \* that') in L2 novice writers' essays with reference to the sub-corpus of BAWE. Non-occurrence of such p-frames in L1 novice writing distinguished it from L2 novice writing.

## **5.2 Discourse functions of phrase frames**

The distributional proportions of the discourse functions of five and four-p-frames are reported in both groups in this section<sup>16</sup>. As there was not enough data to build growth curve models, the results of the chi-square tests of independence are reported to compare the proportions of the discourse functions between the two groups at each time point. Additionally, the results of Cochran's Q test are reported to compare the proportions of the discourse functions within each group over time.

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<sup>16</sup> I only report the discourse functions of five- and four-p-frames in all my data, as my coding of three-p-frames revealed that most of them were either multifunctional or unclassified (others).



In L2 English novice writers' essays, referential expressions (e.g. 'the \* of the' – 'the results of the', 'in the \* of' – 'in the middle of') had the highest proportion at all the time points, as can be seen in Figure 24. The proportion of referential expressions held steady over time. In terms of proportions, referential expressions were followed by stance expressions ('a \* role in' – 'a crucial role in', 'it is \* that' – 'it is clear that'), which had the greatest change over time. The proportion of stance expressions was stable at the first two time points, and then increased at Month 9. This finding is particularly interesting because there was a decreasing trend for the token frequencies of stance bundles in L2 novice writing, which indicates that L2 learners may have started to rely on fixed sequences less in order to express stance as they gained more exposure to academic language in English over time. There was no p-frame that had a discourse organising function at Month 3, but discourse organisers (e.g. 'such as \* and' – 'such as parents and', 'in order \* to the' – 'in order to understand the') constituted 7% of the p-frames at Month 5, and they constituted 9% of the p-frames at Month 9. It is striking that L2 novice writers were unable to use any semi-fixed sequences to organise the discourse at Month 3, and development towards using variable constructions to express discursial relations in their essays was slow over one academic year. The proportions of multifunctional p-frames showed a decreasing trend over time. Nonetheless, Cochran's Q tests showed no statistical significant difference in terms of the functional distribution of the p-frame types in any of the categories (please see Table A51 in Appendix P for the results).

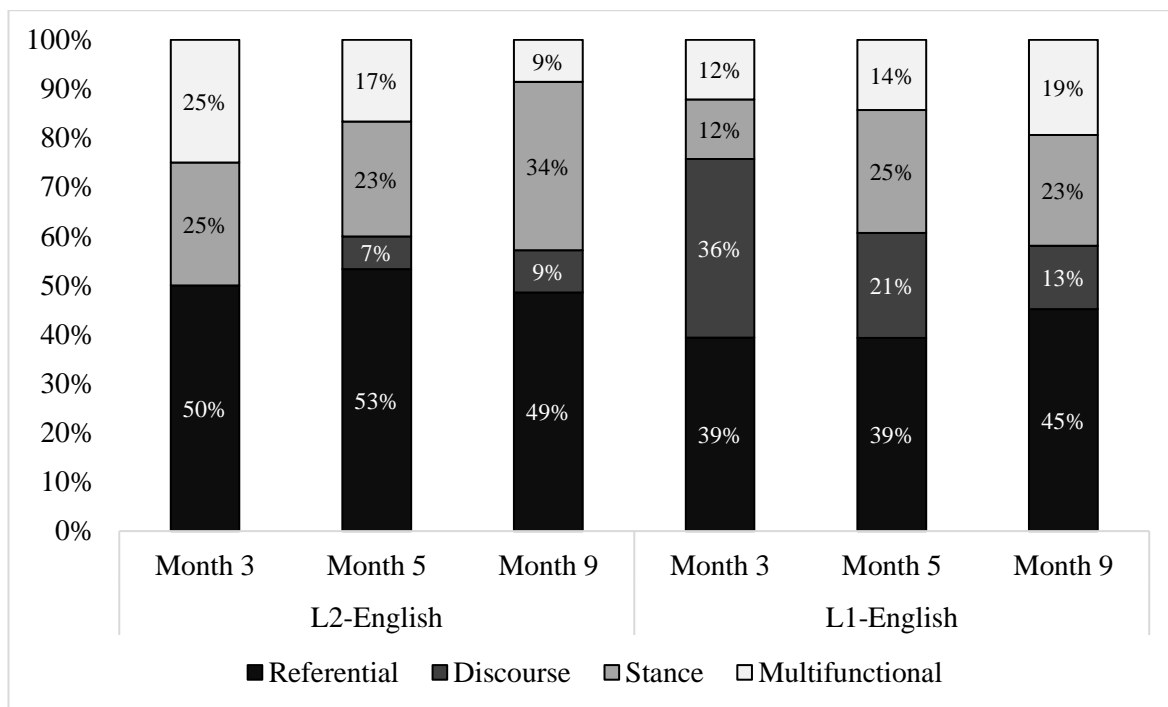


Figure 24. The proportional distribution of discourse functions of phrase frames (types) in L2 novice writers' essays over time.

In L1 novice writers' essays, referential expressions ('a \* of the' – 'a review of the', 'at the \* of' – 'at the end of') comprised the largest proportion of p-frames over time, and their proportions remained fairly stable over time. At Month 3, discourse-organising p-frames followed referential expressions; however, the proportions of discourse-organising p-frames ('in \* to this' – 'in addition to this', 'in to \* the' – 'in contrast to the') displayed a steady decrease over time. This is a striking finding given that the frequencies of discourse-organising lexical bundles showed a steady increase over time, which suggests that L1 novice writers' use of discourse organising multi-word units became more fixed over time. At Month 5 and Month 9, referential expressions were followed by stance expressions. The proportional distribution of stance expressions ('it can be \* that' – 'in can be suggested that', 'are \* likely to' – 'are less likely to') increased from Month 3 to Month 5, and then they held fairly steady at Month 9. The proportions of multifunctional p-frames showed a slight increase over time. Cochran's Q tests indicated no statistical significant difference in the functional distribution of the p-frame types, except discourse organisers,

$X^2 = 8.66$ ,  $df = 2$ ,  $p < .05$ ,  $\eta^2 = .114$  (please see Table A52 in Appendix P for the test results). McNemar's test revealed that the proportion of discourse organisers at Month 3 was statistically significantly more than that at Month 9 in L1 novice writers' essays ( $X^2 = 4.9$ ,  $df = 1$ ,  $p < .001$ , OR = .11).

When the proportions of discourse functions of p-frames are compared between L1 and L2 novice writing at each time period, a chi-square test indicated that there was a statistically significant difference in terms of the only discourse organising p-frames at only Month 3,  $X^2 = 11.71$ ,  $df = 3$ ,  $p < .05$ , *Cramer's V* = .45 (please see Table A53 in Appendix P for the standardised residuals). Although the other categories did not show any statistical difference between the groups, several trends should be noted. In line with the findings of bundles which indicated a more frequent use of referential bundles in L2 novice writers' essays, referential p-frames comprised a larger proportion of p-frames in L2 novice academic writing than L1 novice academic writing over time. This may reflect the more descriptive nature of L2 novice academic writing in comparison to L1 novice academic writing. The proportions of discourse-organising bundles were greater in L1 novice academic writing than in L2 novice academic writing. This resonates the findings of lexical bundles which indicated a more frequent use of discourse-organising bundles in L1 novice academic writing except at Month 3. Even though the proportions of discourse-organising p-frames showed a steady decrease over time in L1 novice academic writing, L1 novice writers relied on semi-fixed sequences to express discourse relations to a greater extent than L2 novice writers. The opposite trend, in which L2 novice writers tended to use proportionally more variable constructions to convey stance than L1 novice writers did, was observed for stance expressions at Month 3 and at Month 9. Most importantly, dynamic patterns of change in the proportions of the functions of p-frames occurred in both L1 and L2 novice writing over time, and the proportional distribution of the functions of p-frames became the most similar between the two groups at Month 9. Thus, it can be argued

that the change in the discourse functions of p-frames in L2 novice writing moved towards the characteristics of L1 novice writing of this study, and L2 novice writers were able to use p-frames to convey a wider range of discourse functions over time as they gained more experience in academic writing and more exposure to the English language. However, as only four-word and five-word p-frames were included in the analysis of discourse functions, the token frequencies of p-frames coded into discourse functions were too low to make any firm conclusions, except referential p-frames.

### **5.3 Structural categories of phrase frames**

As in 4.3, two separate linear growth curve models were built in order to describe the trajectories of function-based, verb-based and content-based p-frames in L1 and L2 English novice writers' essays over time because of different random effects structures in two groups.

For the L2 English group, a linear growth curve model with fixed effects of structural category, the interaction of time and structural category and random effects of participant-by-structural category on the intercept was used to examine the frequencies of function-based, content-based and verb-based p-frames over time. The data and model fits are shown in Figure 25. As seen in Table 22, the mean frequencies of function-based, content-based and verb-based p-frames showed significant variance in intercepts across participants ( $SD = .92$ , 95%  $CI: .64, 1.17$ ); however, the mean frequencies were regarded invariant in slopes across participants. Function-based p-frames were overall more frequent than verb-based p-frames, which were followed by content-based p-frames in L2 in novice writers' essays ( $b = 10.21$ ,  $SE = .21$ ,  $t(694) = 46.99$ ,  $p < .001$ ). There was a significant interaction between the two fixed effects, time and structural category, which shows that function-based p-frames were affected by time differently from content-based and verb-

based p-frames in that the frequencies of function-based p-frames increased in L2 novice writers' essays over time ( $b = .21$ ,  $SE = .05$ ,  $t(584) = 3.86$ ,  $p < .001$ ). On the other hand, the frequencies of verb-based p-frames decreased in L2 novice writers' essays over time, as seen in Table 22,  $b = -.23$ ,  $SE = .05$ ,  $t(584) = -4.30$ ,  $p < .001$ . The frequencies of content-based p-frames showed a slight decrease over time in L2 novice writers' essays, but this decrease was not statistically significant ( $b = -.08$ ,  $SE = .05$ ,  $t(584) = -1.48$ ,  $p = .13$ ), and there was non-linearity in the patterns of change in the frequencies of content p-frames, since their frequencies showed a slight increase at Month 5, and then they decreased at Month 9.

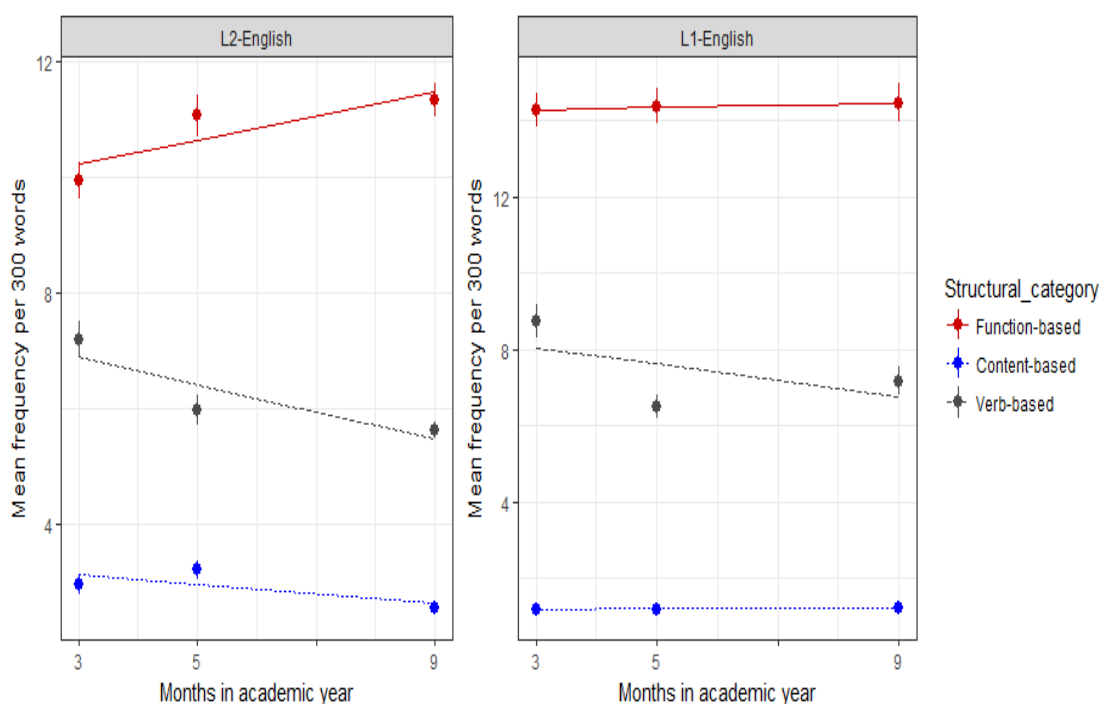


Figure 25. Observed data (symbols, vertical lines indicate  $\pm SE$ ) and separate growth curve model fits for the structural categories of p-frames in two groups over time.

For the L1 English group, I built a linear growth curve model with fixed effects of structural category, the interaction of time and structural category and random effects of participants on the intercept and slope and participants-by-structural category on the intercept and slope in order to describe the trajectories of function-based, verb-based and content-based p-frames over time. The data and model fits are shown in Figure 25. As seen

in Table 22, the mean frequencies of function-based, verb-based and content-based p-frames showed significant variance in intercepts and slopes across participants and participants-by-structural category ( $SD = 1.06$ , 95%  $CI$ : .82, 1.64 intercept across participants;  $SD = .17$ , 95%  $CI$ : .00, .31 slope across participants;  $SD = .92$ , 95%  $CI$ : .79, 1.45 intercept across participants-by-structural category;  $SD = .23$ , 95%  $CI$ : .00, .38 slope across participants-by-structural category). The slopes and intercepts for the frequencies of these three types of p-frames were negatively correlated ( $corr = -.87$  across participants;  $corr = -.26$  across participants-by-structural category), indicating that the essays written by participants who used these p-frames more frequently at Month 3 showed a more rapid decrease in the frequency of all these structural categories over time. Function-based p-frames were overall more frequent than verb-based p-frames, which were followed by content-based p-frames in L1 novice writers' essays ( $b = 14.29$ ,  $SE = .32$ ,  $t(107) = 44.54$ ,  $p < .001$ ). There was a significant interaction effect of time and structural category on the frequencies of the three categories of p-frames, indicating that verb-based p-frames were affected by time differently from the other two types of structural categories in that the frequencies of verb-based p-frames decreased over time in L1 novice writers' essays,  $b = -.21$ ,  $SE = .07$ ,  $t(116) = -2.65$ ,  $p < .05$ , but non-linearity in the patterns of change in the frequencies of p-frames was evident in that they exhibited a decrease at Month 5, and then they slightly increased at Month 9. On the other hand, there was a very slight increase in the frequencies of function-based p-frames ( $b = .02$ ,  $SE = .07$ ,  $t(116) = .34$ ,  $p = .73$ ) and content-based p-frames ( $b = .004$ ,  $SE = .07$ ,  $t(116) = .05$ ,  $p = .95$ ), but this increase was not statistically significant. Figure 26 shows the distribution of each structural category of p-frames at group and individual level over time. Variance in the frequencies of function-based, content-based and verb-based p-frames between the participants became smaller over time in L2 novice writers' essays over time, as can be seen in Figure 26. In L1 novice

writers' essays, variance for content-based p-frames was fairly stable, and variance showed non-linear patterns of development for function-based and verb-based p-frames.

Table 22. Parameter estimates for growth curve model for the structural categories of p-frames.

|                                     | L2-English |      |          | L1-English  |             |          |
|-------------------------------------|------------|------|----------|-------------|-------------|----------|
| Fixed effects                       |            |      |          |             |             |          |
| Parameters                          | Estimate   | SE   | t        | Estimate    | SE          | t        |
| Intercept                           | 10.21      | 0.21 | 46.99**  | 14.29       | 0.32        | 44.54**  |
| Content-based                       | -7.08      | 0.30 | -23.02** | -13.11      | 0.38        | 33.85**  |
| Verb-based                          | -3.32      | 0.30 | -10.80** | -6.27       | 0.38        | -16.19** |
| Time: Function-based                | 0.21       | 0.05 | 3.86**   | 0.02        | 0.07        | 0.34     |
| Time: Content-based                 | -0.08      | 0.05 | -1.48    | 0.004       | 0.07        | 0.05     |
| Time: Verb-based                    | -0.23      | 0.05 | -4.30**  | -0.21       | 0.07        | -2.65*   |
| Random effects                      |            |      |          |             |             |          |
|                                     | Variance   | SD   |          | Variance    | SD          |          |
| Structural_category: ID (Intercept) | 0.85       | 0.92 |          | 0.85        | 0.92        |          |
| ID (Intercept)                      |            |      |          | 0.05 (Time) | 0.23 (Time) |          |
|                                     |            |      |          | 1.14        | 1.06        |          |
|                                     |            |      |          | 0.02 (Time) | 0.17 (Time) |          |

\*  $p < .05$ , \*\*  $p < .001$ . Model formula for L2-English group:  $\text{Frequency} \sim \text{Time}:\text{Structural\_category} + \text{Structural\_category} + (1 | \text{Structural\_category}:\text{ID})$ .  $R^2_{\text{marginal}} = 0.63$ ,  $R^2_{\text{conditional}} = 0.68$ . Model formula for L1-English group:  $\text{Frequency} \sim \text{Time} : \text{Structural\_category} + \text{Structural\_category} + (1 + \text{Time} | \text{ID}) + (1 + \text{Time} | \text{Structural\_category}:\text{ID})$ .  $\text{Corr} = -0.26, -0.87$ .  $R^2_{\text{marginal}} = 0.85$ ,  $R^2_{\text{conditional}} = 0.91$

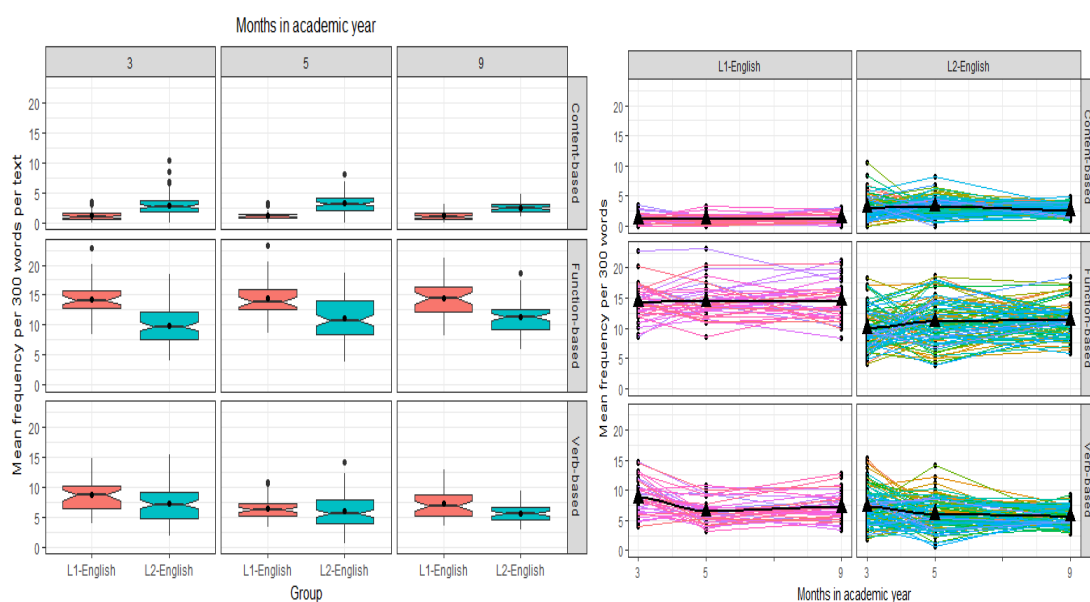


Figure 26. The distribution of each structural category of phrase frames (types) in novice writers' essays over time at group and individual level.

The most obvious similarity in the patterns of change in the structural categories of p-frames is that both L1 and L2 novice academic writing demonstrated an overall decrease in the frequencies of verb-based p-frames ('it can be \* that' – 'it can be argued that', 'this \*

is' – 'this article is'). This finding resonates with the decreasing trend for VP-based bundles in both groups. Overall, this result corroborates Biber et al.'s (2011) hypothesis for a decreasing trend of clausal structures in advanced academic writing. It may be the case that both L1 and L2 novice writers used fewer verb phrases as they gained more experience in academic writing. It should be noted L1 novice writers used verb-based p-frames more frequently than L2 novice writers over time. This suggests that L2 novice writers were closer to published academic writing than L1 novice writers in the use of verb-based p-frames (Gray & Biber, 2013).

An opposite trend was observed for function-based p-frames ('the \* of the' – 'the use of the', 'in the \* of' – 'in the case of') in that their frequencies exhibited an increase in both L1 novice writing (sharply) and L2 novice writing (slightly), though function-based p-frames occurred more frequently in L1 novice writers' essays than in L2 novice writers' essays over time. Given that realisations of function-based p-frames are noun or prepositional phrases, these trends may reflect development towards more advanced academic writing in both groups (Biber et al., 2011; Staples et al., 2016).

An interesting difference between the two groups in terms of the structural categories of p-frames lies in the frequencies of content-based p-frames ('in \* ways' – 'in different ways', 'a \* role in' – 'a crucial role in'). L2 novice writers relied on content-based p-frames to a greater extent than L1 novice writers over time, but there was a slight decrease in the frequencies of content-based p-frames in L2 novice academic writing over time. This may give evidence for development in L2 novice writing towards norms in academic writing since Gray and Biber (2013) found that content-based p-frames are very infrequent in academic writing. The overall frequent use of content-based p-frames in L2 novice writing may indicate the relatively more descriptive nature of L2 novice writing in comparison to L1 novice writing. As the example shows below, L2 novice writers



described the propositions or entities through content-based p-frames; no explanation or reason was given why those blogs or wikis play a key role in the development of skills:

(5) Some scientists hold the opinion that blogs or wikis play *a key role in* enhancement of writing and reading skills. However, those blogs and wikis associated with the development of writing and reading skills, may not be as promising as anticipated. (Lee, 2006). (58-TE-3)

Taken together, L1 and L2 novice writing displayed similar patterns of change in the frequencies of verb-based p-frames which exhibited a decrease and function-based p-frames which showed an increase over time. This may suggest development towards norms in academic writing since Gray and Biber (2013) found that academic writing in English relies on function-based and verb-based p-frames.

#### **5.4 Internal variability and predictability of p-frames**

This section reports the findings of internal variability and predictability of p-frames over time. In the methodology chapter, entropy was introduced as a measure of the degree of variability of a slot in a p-frame. As mentioned earlier, as entropy values become closer to 1, the variability of p-frames increases.

A linear growth curve model was built with fixed effects of time and random effects of p-frame variability-by-group on the intercept in order to examine the degree of internal variability of p-frames over time. The data are shown in Figure 27. As seen in Table 23, the variability of p-frames showed significant variance in intercepts across p-frames,  $SD = .05$  (95%  $CI: .00, .09$ ); however, the variability of p-frames was regarded invariant in slopes. There was a significant effect of time ( $b = .01, SE = .004, t(290) = 3.09, p < .05$ ) on the variability of p-frames, indicating that there was an increase in the internal

variability of p-frames over time in both groups. However, there was no statistically significant difference between the two groups in terms of the variability of p-frames.

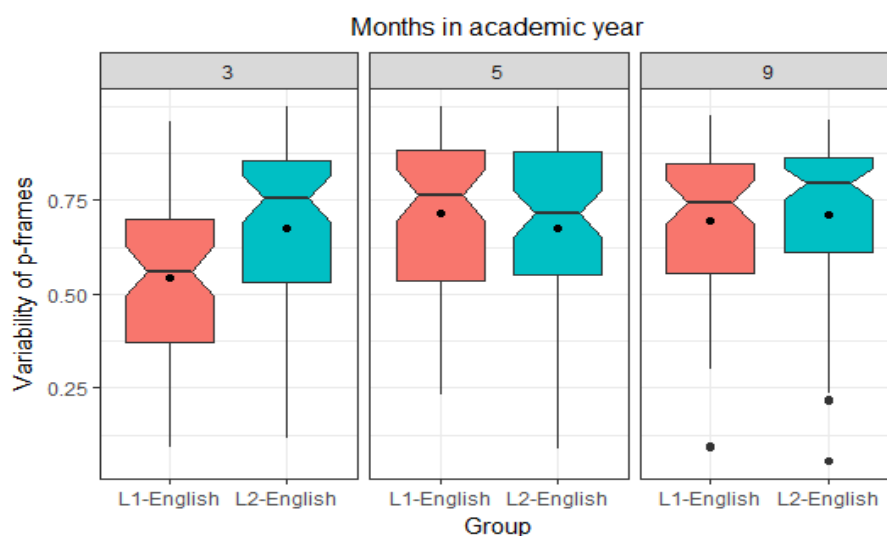


Figure 27. The variability of p-frames in both groups over time.

This finding may be expected for L2 novice writers since they had increasingly more exposure to the target language; however, it is striking that L1 novice writers also used a wider range of variants within p-frames as they gained more experience in academic writing. Given that academic writing in English relies on highly variable p-frames (Gray & Biber, 2013), these findings may indicate development towards more advanced academic writing in both groups. Although internal variability is a continuous variable (Gray & Biber, 2013), variability of the p-frames was categorised into highly variable, variable and fixed p-frames as in Gray and Biber's (2013) study. As can be seen in Figure 28, the proportion of highly variable p-frames showed an increasing trend in L1 novice writers' essays while the proportional trends of the p-frames were relatively more stable in L2 novice writers' essays than in L1 novice writers' essays over time.

Table 23. Parameter estimates for growth curve model for the internal variability of p-frames.

| Parameters | Fixed effects |       |         | Random effects          |      |
|------------|---------------|-------|---------|-------------------------|------|
|            | Estimate      | SE    | t       | By p-frames (Intercept) |      |
| Intercept  | 0.63          | 0.01  | 38.12** | Variance                | SD   |
| Time       | 0.01          | 0.004 | 3.09*   | 0.003                   | 0.05 |

Model formula: Variability ~ Time + (1 | Group: P-frame). \*  $p < .05$ , \*\*  $p < .001$ .

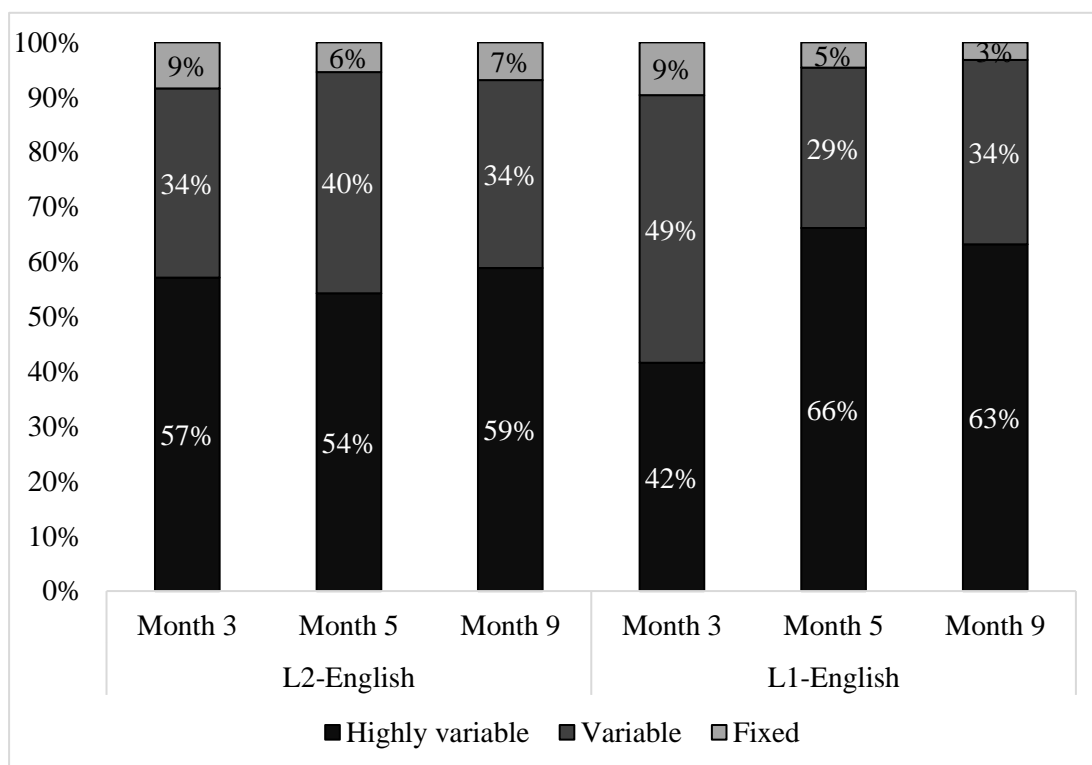


Figure 28. The distribution of highly variable, variable and fixed p-frames in both groups over time.

Predictability of p-frames is concerned with the degree of uniformity of the most frequent filler within a p-frame. A linear growth curve model was built with fixed effects of time and group and random effects of p-frame predictability-by-group on the intercept in order to examine the degree of predictability of p-frames over time. The data are shown in Figure 29. As seen in Table 24, the predictability of p-frames showed significant variance in intercepts across p-frames,  $SD = .06$  (95%  $CI$ : .01, .10); however, the predictability of p-frames was regarded invariant in slopes. There was a significant effect of time ( $b = -.01$ ,  $SE = .003$ ,  $t(289) = -2.63$ ,  $p < .05$ ) on the predictability of p-frames, indicating that there was a decrease in the predictability of p-frames over time in both groups. Although p-frames were slightly more predictable in L1 novice writers' essays

than in L2 novice writers' essays over time, there was no statistically significant difference between the two groups in terms of the variability of p-frames over time ( $b = .04$ ,  $SE = .02$ ,  $t(145) = 1.77$ ,  $p = .07$ ).

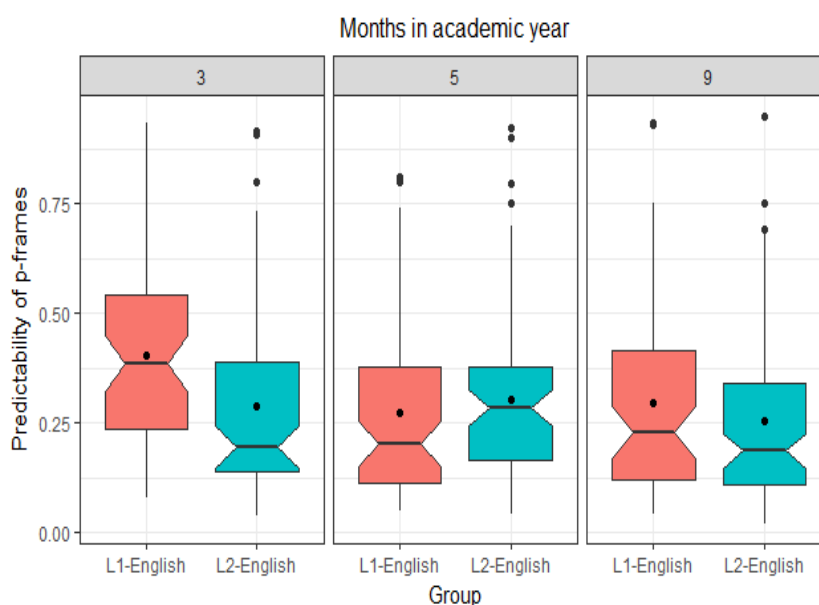


Figure 29. Predictability of p-frames in both groups over time.

Table 24. Parameter estimates for growth curve model for the predictability of p-frames.

| Parameters | Fixed effects |       |        | Random effects          |      |
|------------|---------------|-------|--------|-------------------------|------|
|            | Estimate      | SE    | t      | By p-frames (Intercept) |      |
| Intercept  | 0.31          | 0.01  | 16.01* | Variance                | SD   |
| L1-English | 0.04          | 0.02  | 1.77   | 0.004                   | 0.06 |
| Time       | -0.01         | 0.003 | -2.63* |                         |      |

Model formula: Predictability ~ Group + Time + (1 | Group: P-frame). \*  $p < .05$ .

In line with the findings of variability of p-frames, p-frames became less predictable in both L1 and L2 novice writers' essays over time. This shows that both L1 and L2 novice writers developed a more productive phraseological repertoire in their academic writing since the degree of fixedness and predictability showed a decrease over time. Like internal variability, predictability was categorised into highly predictable, predictable, unpredictable and highly unpredictable p-frames, as in Garner's study (2016). As shown in Figure 30, the proportions of highly predictable p-frames exhibited a steady decrease in

both groups, and the proportions of highly unpredictable p-frames displayed an overall increase in both groups over time.

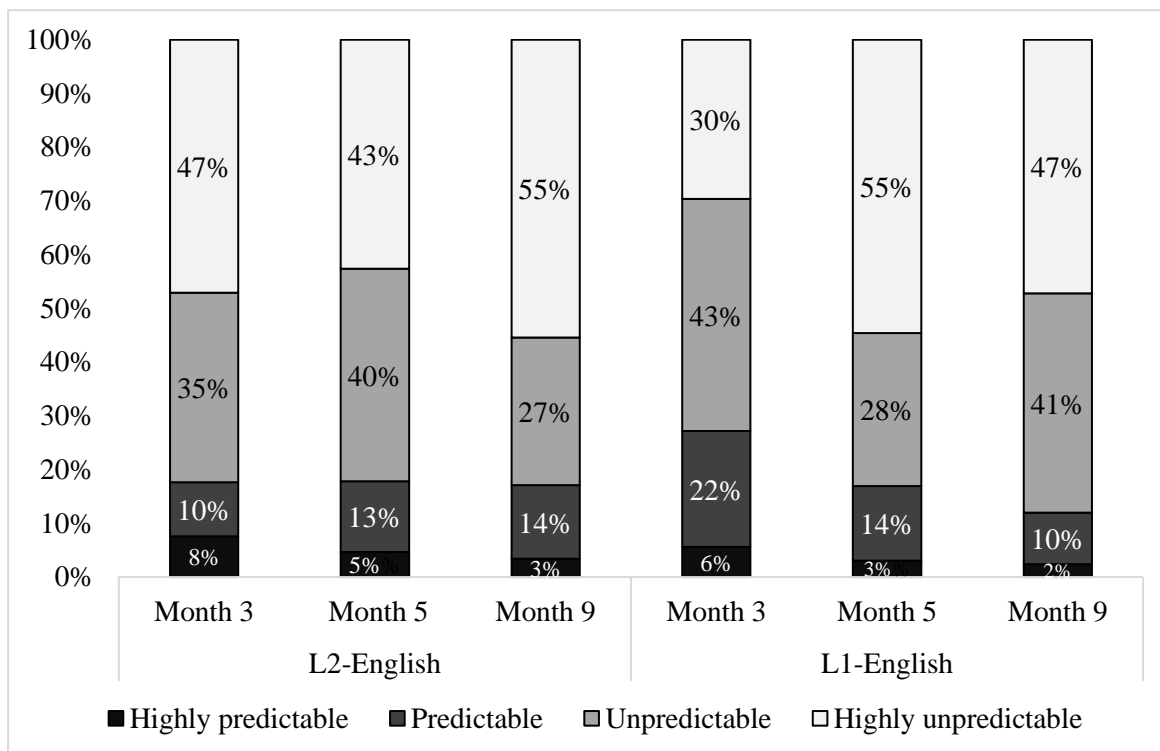


Figure 30. The distribution of highly predictable, predictable, unpredictable and highly unpredictable p-frames in both groups over time.

Both high and low-frequency p-frames can occur at every level of variability and predictability (Gray & Biber, 2013). As seen in Table 25, ‘the \* of the’, one of the most frequent p-frames, remained highly variable (> 70%) in both groups, except at Month 3 in L1 novice writers’ essays. Also, it was highly unpredictable (< 25%) at each time period in both groups, and interestingly, it became slightly less predictable in both groups over time. A low-frequency p-frame ‘is \* for’, on the other hand, showed similar tendencies with ‘the \* of the’ in that it remained highly variable, and that it became slightly less predictable in both groups over time.

Table 25. The internal variability and predictability of one high-frequency p-frame and one low-frequency p-frame in both groups over time.

|                 |                          | L2-English essays |         |         | L1-English essays |         |         |
|-----------------|--------------------------|-------------------|---------|---------|-------------------|---------|---------|
|                 |                          | Month 3           | Month 5 | Month 9 | Month 3           | Month 5 | Month 9 |
| the * of<br>the | Raw frequency            | 41                | 57      | 168     | 190               | 160     | 143     |
|                 | Frequency per 1000 words | 0.81              | 1.01    | 1.05    | 3.40              | 2.38    | 2.20    |
|                 | Internal variability     | 0.95              | 0.89    | 0.88    | 0.63              | 0.88    | 0.85    |
|                 | Predictability           | 11%               | 9%      | 8%      | 18%               | 5%      | 9%      |
| is * for        | Raw frequency            | 13                | 20      | 60      | 20                | 15      | 29      |
|                 | Frequency per 1000 words | 0.26              | 0.35    | 0.37    | 0.36              | 0.22    | 0.45    |
|                 | Internal variability     | 0.82              | 0.86    | 0.80    | 0.88              | 0.97    | 0.90    |
|                 | Predictability           | 23%               | 20%     | 12%     | 20%               | 13%     | 10%     |

Taken together, both groups shifted to using more variable and less predictable p-frames over time in their essays, which indicates shift from fixed patterns to relatively self-constructed patterns in L1 and L2 novice writers' essays. Both the variability and predictability of p-frames reached closer values in both groups over time, especially at Month 9.

## 5.5 Summary and conclusions

In this chapter, I reported the findings of five-, four- and three-p-frames with regard to their frequency, discourse functions, structural categories, internal variability and p-frames in both L1 and L2 novice writers' essays over time.

Statistically significantly more frequent use of p-frames in L1 novice writing than in L2 novice writing distinguished L2 novice writing from L1 novice writing. This indicates that the frequencies of p-frames were more distinctive than those of lexical bundles for the status of L1/L2 in novice academic writing in this study. The frequencies of p-frames showed a steady decrease over time in both groups. Growing patterns of

advancedness was observed for the frequencies of individual four-p-frames in both groups with reference to the sub-corpus of BAWE. This trend for increasing advancedness was also identified for three-p-frames in L2 novice writing. On the other hand, advancedness of three-p-frames in L1 novice writers' essays was stable, but even at Month 3, moderate significant correlations for the frequencies of three-p-frames were found in L1 novice writers' essays. Interestingly, the p-frames in both groups became more similar in L1 and L2 novice writing since proportionally more p-frames in L2 novice writers' essays matched with those in L1 novice writers' essays at Month 9.

The discourse functions of p-frames displayed relatively stable trends over time in L2 novice writers' essays. In L1 novice writers' essays, on the other hand, the proportions of discourse organisers showed a decreasing trend. Unlike the findings of lexical bundles, the proportion of stance expressions increased at Month 9 in L2 novice writers' essays. Like lexical bundles, the most salient difference between the two groups lies in the proportion of discourse organisers which had statistically significantly higher proportions in L1 novice writers' essays than in L2 novice writers' essays at Month 3.

In terms of the structural categories of p-frames, the patterns of change were more dynamic in L2 novice writers' essays in that function-based p-frames demonstrated a linear increase and verb-based p-frames displayed a decrease over time. Verb-based p-frames also showed a decrease in L1 novice writers' essays. However, a more frequent use of content-based p-frames in L2 novice writing over time singled out L2 novice writing from L1 novice writing. Both groups' use of p-frames over time showed more similarities with the structural categories of p-frames in the academic prose of English (see Gray & Biber, 2013). Similarly, both L1 and L2 novice writing displayed similar trends for increasing variability and decreasing predictability of p-frames. These two findings give evidence for development of structural categories of p-frames and a wider range of phraseological

repertoire at a slightly increasing rate in L1 and L2 novice writing during their first year at university.

In the next chapter, I present the results of students' and lecturers' interviews on the use of lexical bundles and p-frames in novice academic writing.



## **Chapter 6 Lecturers' and Novice Writers' Perceptions of Using Multi-Word Units in Academic Writing**

‘Do you suppose she will interview me?

‘Never in the world. She will not think you of enough importance.’

Henry James, *Portrait of a Lady*, 1881

This chapter presents the findings of interviews that I conducted with novice writers and their two lecturers at a UK university and two lecturers at a Turkish university on their perceptions of using multi-word units in academic writing. First, I report the two lecturers' perceptions and expectations of the use of multi-word units in their students' academic writing at a Turkish and British university, respectively. Then, I move on to the novice writers' perceptions of the use of multi-words units in their essays during the first and second semesters of their first year at university in both contexts. Finally, I briefly compare and contrast perceptions in two contexts and provide a summary of my findings at the end of this chapter.

### **6.1 Lecturers' perceptions of students' use of multi-word units in academic writing**

This section reports the findings of the semi-structured interviews with two lecturers at an English-medium university in Turkey and at a UK university, respectively.

#### *6.1.1 The Turkish university*

My interviews with the two lecturers (referred to by pseudonyms) at an English-medium university in Turkey focused on their main priorities in developing their students' academic writing, their teaching approaches to multi-word units, and the role of multi-word units in their students' writing. I also tried to gain insights into what kind of feedback they gave on the students' essays in relation to multi-word units, and their opinions about

whether their grading could be influenced by these sequences used in the students' essays. The interviews revealed some of the potentially problematic aspects of the multi-word units used by the L1 Turkish-speaking students of English as well as the dilemmas faced by the lecturers about the use of multi-word units in novice academic writing. All these aspects will be presented under main themes which emerged from my analysis below.

### Essential skills in novice academic writing

The essential skills that the two lecturers indicated they would like their students to develop showed some similarities, as shown in Table 26 below.

Table 26. Lecturers' opinions: essential skills in academic writing.

|               | Essential skills                              |   |  | Shared essential skills  |
|---------------|---|---|--|--|
| <b>Bahar</b>  | ➤ the importance of critical thinking skills  | ➤ the variety of linguistic choices                     |  | ➤ integrating different resources<br>➤ evaluating the literature |
| <b>Zerrin</b> | ➤ using quotations skilfully<br>➤ referencing | ➤ integrating their own opinion<br>➤ making transitions | ➤ the ability to use word forms, pronoun shifts, tense-verb agreements correctly | ➤ paraphrasing<br>➤ using formal language                        |

The common essential skills that were explicitly stated included integrating different resources, evaluating the literature, paraphrasing, and using formal language. However, Table 26 indicates that differences exist between these two lecturers in terms of the other essential skills that they valued in novice academic writing. For instance, while Bahar expected students to use a wide variety of language features and demonstrate their critical thinking skills, Zerrin put emphasis on using quotations, making transitions between ideas, and using grammatically standard language.

Their main priorities also differed from each other. Bahar's main priority was to help her students "write with a purpose, considering the audience, aim, and genre". On the other hand, Zerrin's main priority was to enable students to paraphrase and integrate their opinions skilfully. These differences suggest that even within one institutional context, the lecturers in the same discipline and programme could take a different approach to novice academic writing. This might give further evidence for the plurality of academic writing as situated practice (Ivanic, 1998).

Both lecturers stated that they used a hybrid teaching approach that would combine genre-based and academic literacies, but it seems that Bahar favoured academic literacies over genre-based approaches, as she affirmed the essential role of critical thinking skills in terms of both content and genre conventions of academic writing. However, this belief was accompanied by a discursive faultline. Bahar's emphasis on both critical thinking skills and writing essays according to the audience, aim, and genre points to a potential tension between criticality of genre conventions and writing an essay in accordance with the genre conventions. Learning to write an essay in accordance with the audience, aim, and genre tends to resonate with genre-based pedagogies, which could hinder critical thinking skills to some extent (Canagarajah, 2002, 2004; Luke, 1996). Luke (1996, p. 314), for instance, argues that "a salient criticism of the 'genre model' is that its emphasis of the direct transmission of text types does not necessarily lead on to a critical reappraisal... , but rather may lend itself to an uncritical reproduction of discipline." On the other hand, Hyland, one of the advocates of genre-based pedagogies, (2003, p. 25) affirms that "learning about genres does not preclude critical analysis but provides a necessary basis for critical engagement with cultural and textual practices." Hence, it could be argued that underpinnings of genre-based pedagogies could substantially differ from those of academic literacies. Although a combination of these two pedagogies is a viable option (Wingate & Tribble, 2012), the dilemma potentially faced by one of the lecturers may manifest itself

through guidance novice writers received during their first year, which in turn, might have caused conflicting attitudes of novice writers towards the use of multi-word units in academic writing.

### Teaching approaches to multi-word units

Both lecturers reported that no explicit instruction was provided on multi-word units, though they gave their students feedback and guidance on them, and there was explicit instruction on hedging during the second semester of the first year. Bahar believed that “maybe teaching those expressions can be detrimental, especially for advanced students” though she added, “I do not have sound evidence for that”. This belief manifests itself through treatment of multi-word units in the class and feedback practices, as outlined below. “I am too disappointed with the phrases taught in previous years,” reported Bahar. She explained her point with the example of ‘throughout the history’ and maintained that “the first sentence of the students’ first essays usually starts with ‘throughout the history’. It does not make sense to me. I am too frustrated to read such sentences.” This might indicate that according to Bahar, the students could fill in space with idiosyncratic multi-word units in the introductory paragraph of their essays without a clear purpose. In the essays of L2 English students of this study, ‘throughout the history’ was used in five different texts (0.10 times per 1000 words) at Month 3, and in seven different texts (0.12 times per 1000 words) at Month 5 out of 98 texts, and in three different texts (0.01 times per 1000 words) out of 90 texts at Month 9. In the sub-corpus of the BAWE, ‘throughout the history’ was employed once out of 382 texts (0.001 times per 1000 words), and it was followed by ‘of + N’, which was not the case in the learners’ texts in this study. Although this multi-word unit was not frequent enough to be examined for advancedness, structural and discoursal functions, it was overrepresented in the L2 novice writers’ essays in reference to the sub-corpus of BAWE (log ratios: 6.27 at Month 3; 6.60 at Month 5; 3.87 at Month 9), though markedness (overrepresentation) of the unit decreased at Month 9. This

suggests that the students probably used ‘throughout the history’ just to add words in the introduction paragraph of their essays or attempt to start their essay with a hook that they felt academic in nature, especially at Month 3 and Month 5.

Bahar traced perceived overuse of multi-word units to previous writing instruction and the requirements to pass the English proficiency exam. She said: “There are already lots of multi-word units in their essays. It is difficult to change their mindset about them as they are trained to pass the proficiency exam.” This implies that students’ perceptions of the use of multi-word units in academic writing could be entrenched due to previous teaching practices that mostly relied on list-based teaching of these units without much focus on their functions in context, as the students told me during the interviews. In response to my question about feedback, she reported her preference for general in-class feedback and comments rather than overt correction on paper. She stated: “After reading several papers full of the same formulaic expressions, in the classroom when I give the papers back, I say these are very common phrases I am not happy about. Try to find alternative ones.” It can be inferred from this statement that Bahar encourages her students to use a wide variety of multi-word units rather than suggest avoidance of them. It seems that she expects her students to avoid nuclear multi-word units (Stubbs, 1986) (e.g. ‘throughout the history’) which may not reflect the genre of academic writing and to use ‘advanced’ or ‘sophisticated word combinations’ which are “appropriate to the style of writing, rather than just general, everyday vocabulary” (Paquot, 2017b, p. 5).

Taking a slightly different approach to teaching multi-word units, Zerrin stated that she gave guidance on the use of reporting verbs, such as ‘as the writer suggests that’, ‘as the author claimed that’, though she reported that no explicit instruction was given for multi-word units in the first instance. She also reported that students mostly use “mention” in their academic writing, and she attributed this “inappropriate use” to students’ likely transfer from spoken language. At Month 3, ‘as I mentioned’ was used in five different

texts out of 98, but there was no such lexical bundle at Month 5 and Month 9 in L2 English novice writers' essays. Even though this multi-word unit was overrepresented in L2 novice writers' essays at Month 3 with reference to the sub-corpus of BAWE (log ratio: 6.27), non-occurrence of it at Month 5 and at Month 9 showed improvement on the part of the L2 novice writers. She also stated: "I do teach them a lot through error correction." This "error correction" was mostly carried out in the form of written feedback, as she reported. This reflects another difference in the way Bahar and Zerrin provided feedback on the students' essays in that Zerrin preferred corrective feedback on the students' use of multi-word units, while Bahar favoured general in-class comments on perceived infelicities of students' use of multi-word units. However, Bahar added that most of her feedback was concentrated on the content of the essays.

The informants' own reported practices revealed that corpus-based approaches to teaching EAP received no treatment in the writing classes. This gives further evidence for the "missing link" between pedagogy and corpus studies (Gilquin et al., 2007, p. 1).

According to Harwood and Hadley (2004),

a corpus-based critical pragmatic approach which involves both genre-based pedagogies and academic literacies, together with the consultation of corpora and discussion of discourse functions of the phrases helps students discover and understand academic writing practice. This would, in return, provide students with a solid basis for 'critical pragmatic view' (p. 372).

Bahar explicitly stated that she would recommend "a list of phrases for advanced groups of learners if there are different groups of formulaic expressions or phrases that can be categorised based on different proficiency levels". This statement could reflect another discursive faultline which would involve a list-based instruction of multi-word units in academic writing, and at the same time perceived overuse of multi-word units in the lecturer's own stated beliefs.

### The role of multi-word units in novice academic writing

Both lecturers reported that multi-word units could be helpful for students to shape the argument in their essays, at least to a certain extent. Zerrin said that “it is very important to put a distance between yourself and someone else's opinion in writing an essay”, and she stressed that multi-word units could fulfil this goal, especially when students reflected on arguments of other writers. Even though there seemed to be a reasonably high convergence on the lecturers’ views about the role of multi-word units in shaping the argument, their opinions on the function of the multi-word units as stance expressions were quite different. Bahar, for instance, linked the use of multi-word units that increased writers’ commitment (e.g. ‘it is obvious that’) with authorial confidence in academic writing, and she maintained that “our students underuse such expressions as far as I can see.” In fact, the majority of multi-word stance expressions at Month 3 and at Month 9 served as boosters in the students’ essays. On the other hand, Zerrin described “strong phrases” as mostly problematic, as she stated “We have to tackle this problem. Students have to soften their arguments by, you know, just introducing some modal verbs like may, can, be able to, etc.”

As illustrated in Table 26, Zerrin attached great importance to discourse organisers in the students’ essays, stating, “transition between ideas is still lacking although they are advanced learners of English.” Interestingly, this was not the case for Bahar. She stated that there was “no need for discourse organisers” for her to understand the essays of the students as both the students and she had “the same cultural background.” She stated that she advised first-year students to avoid using them as much as possible. This tendency for the expectation of fewer discourse organisers in L1 Turkish novice writers’ essays in English is discussed in relation to Hinds’ (1987) argument about reader-responsible and writer-responsible writing styles in Chapter 7. In line with Bahar’s guidance on discourse organisers, the bundles that functioned as discourse organisers showed a steady decrease

over time in L2 novice writers' essays, but there was a slight increase in the proportions of discourse organising p-frames, as presented in the previous chapters. This shows that L2 novice writers were not able to use discontinuous discourse organisers at Month 3, but they were able to use their concrete realisations (lexical bundles).

Both interviews centred on perceived overuse of multi-word units by L1 Turkish-speaking learners of English. Bahar stated that "I guess I am facing overuse right now. That is why I am not happy about this [the use of multi-word units]". Similarly, Zerrin noted that "overuse of them is very dangerous, I guess". At first, it seemed unclear whether they were talking about overall overuse of multi-word units, overuse of nuclear sequences (Stubbs, 1986) or repetition of the same multi-word units. The follow-up prompts suggested that Bahar was concerned about all these three aspects, while overall overuse of multi-word units appeared to be the main concern for Zerrin. Bahar lamented that "they are using multi-word units all over the place just for the sake of using them. That is something I am not happy about it." She maintained that students used the same phrases very repetitively, and they could only use "common phrases". These statements were in line with those of learner corpora studies which found these three perceived problematic aspects of learner language in academic writing (see Paquot & Granger, 2012). However, the textual analysis in this study showed that although there was an overrepresentation of a few of the higher frequency sequences (e.g. 'on the other hand', 'as a result of') in reference to the sub-corpus of BAWE, there was no overall overuse of the multi-word units in the essays of L2 English novice writers in comparison to those of L1 English-speaking novice writers.



### The self-reported effect of the students' use of multi-word units on lecturers' grading practices

Both lecturers stated that they mainly took content and organisation of their students' essays into account while they were marking their essays. This was emphasised more strongly by Bahar, stating, "I am actually interested in their ideas, but they [students] are interested in the language." Although no positive effect of the perceived appropriate use of multi-word units on grading practices was noted during the interviews, both lecturers acknowledged the negative effect of perceived overuse of multi-word units on grades. Bahar puts this well: "If this is the fifth time I see the same thing [in one essay], I would say this is going to negatively affect my grading." Bahar also reported that when a cohort of students tended to use highly frequent multi-word units (e.g. 'on the other hand') in their essays, she would encourage them to look for other alternatives, and she also said that the use of highly frequent multi-word units could negatively affect students' grades.

No explicit link between perceived under- or overuse of multi-word units with grading was reported by Zerrin, but she said that "one problem in assessment of writing is to be able to distinguish between rote-learned phrases and genuinely produced ones." She reported reading paragraphs, especially introductory ones written through memorised phrases without any content, at all. According to Zerrin, fixed multi-word units could be described as "walking aids" for the students with limited proficiency. This statement implies that as proficiency increases, the use of a wide range of variable multi-word units could be one of the expectations of the lecturers for their students' writing. There is a developmental continuum from fixed multi-word units to semi-fixed and self-constructed patterns, as proficiency increases (Ellis, 2002); however, it might be very difficult to differentiate between these types of multi-word units while grading essays, as also acknowledged by Zerrin. Some scholars argue that fixed and self-constructed or frame patterns should be seen as complementary rather than dissimilar constructs (e.g. Howarth,

1998; Schmitt, 2010; Simpson-Vlach & Ellis, 2010; Wray, 2002) since using fixed multi-word units requires skills to integrate them into their co-texts.

Both lecturers were also concerned with phraseological infelicities in the essays of L1 Turkish-speaking novice writers of English. Zerrin said “they make heavy errors in the use of collocations” despite their advanced proficiency in English. She also stated that “the students fail to use transitions skilfully”. The results of this study indicated that there was a marked functional use of ‘as a result of’ and ‘on the other hand’ at Month 3; however, L2 novice writers’ functional use of these two discourse organisers became unmarked over time. In a similar vein, Bahar pointed out potentially problematic aspects in the use of multi-word units. She illustrated her point with the example of ‘thanks to’. She said, “they use ‘thanks to’ in negative contexts, as well” though no sarcasm was intended. Students could write such sentences as “thanks to the earthquake, people died.” In fact, ‘thanks to’ was subsumed into the lexical bundle ‘thanks to the’ at Month 3 and at Month 9 in L2 novice writers’ essays in which it was overrepresented in reference to the sub-corpus of BAWE (log ratios: 3.94 at Month 3; 3.61 at Month 9); however, no marked use in which ‘thanks to the’ was followed by a word with a negative evaluative meaning was found in L2 novice writers’ essays.

These interviews provided insights on the lecturers’ perspectives on the role of multi-word units in novice students’ academic writing at an English-medium university in Turkey. Though these two lecturers shared some similar opinions on the use of multi-word units in their students’ academic writing, notable differences existed in their views on the same issue. This indicates that approaches to novice academic writing within the same institution could vary from one lecturer to another. As no observation was made in the classroom, the interviews, which relied on the informants’ self-reporting, give only a limited understanding of how these sequences were treated by the lecturers in the class.

### 6.1.2 The UK university

My interviews with two lecturers who teach first-year undergraduates and mark their assignments at a UK university aimed to gain insights into essential skills that they would like their students to develop in academic writing, their approaches to multi-word units, the role of multi-word units in their students' writing, their feedback and marking practices with a specific focus on multi-word units. The interviews indicated that the lecturers mostly had shared views and expectations of the use of multi-word units, albeit with some variation in the role of multi-word units that soften statements (e.g. 'it is possible to') in novice academic writing.

#### Essential skills in novice academic writing

The essential skills that these two lecturers valued in their students' academic writing revealed some similarities, as Table 27 shows.

Table 27. Lecturers' opinions: essential skills in academic writing.

|              | Essential skills  |                               |   | Shared essential skills   |
|--------------|---|-------------------------------|---|---|
| <b>Mark</b>  | ➤ writing in a more formal style  | ➤ using punctuation correctly | ➤ elaborating on the quotations that they use         | ➤ critical thinking skills<br>➤ critically engaging with the literature and other materials |
| <b>Sarah</b> | ➤ referencing and integrating different sources to back up their argument | ➤ constructing an argument    | ➤ the use of connectives & more objective positioning |   |

The shared essential skills that lecturers emphasised in the interviews were students' ability to demonstrate their critical thinking skills in their writing and critically analysing the previous literature and other materials for their assignments. Mark reported:

“The students need to show evidence of, you know, critically engaging with the literature, the material rather than simply copying lecture notes and repeating what I have said in the class, which does not prove they have learned anything. That is the biggest issue.” Sarah similarly stated that the students need to comment on the literature and “unpack” concepts in their writing.

Within these essential skills, the main priorities of Mark were evidence of critical thinking skills in interpretation and integration of different sources critically, and Sarah’s main priorities were developing an argument and having authority to argue a point of view in their students’ writing. Though these two perspectives seemed different in wording, they are broadly similar at the same time because developing an argument would require critical skills in interpretation and synthesis of different sources skilfully.

The essential skills reported suggest that the lecturers found both content and language features important in novice academic writing. Mark’s emphasis on a more formal style in writing is in line with Sarah’s focus on more objective positioning of the novice writers. Though Mark acknowledged that a journal article style was not expected from the first-year students, he asserted that some of the students needed to write in a more formal style, maintaining, “some of their writing almost sounds like a conversation.” Sarah, on the other hand, expressed her discontent about the students’ use of ‘*I think*’ and ‘*I believe*’ in their essays. Indeed, ‘*I believe*’ was subsumed into the bundle ‘*I believe that*’ which was overrepresented in L1 novice writers’ essays over time with reference to the sub-corpus of BAWE (log ratios: 3.00 at Month 3; 2.32 at Month 5; 2.58 at Month 9). This shows that L1 novice writers of this study tended to show more personal projection through the use of ‘*I believe that*’ in their academic writing than the novice writers of the sub-corpus of the BAWE. Sarah further stated: “They find it difficult to be objective in their writing. If they go into third person, that would push them towards more distance about they are writing and treat it more objectively.” She also affirmed that a more

objective stance could help students construct an argument: “Students think that what an argument is they write *I believe, I think.*” It can be said that both lecturers expect their students to be more formal and objective in their essays. The two lecturers’ statements are in line with the previous research that found informal and conversational features in L1 novice academic writing (e.g. Gilquin et al., 2007; Paquot, 2010).

Another important skill that they pointed out in the interviews was the use of sources and referencing. However, they had a slightly different focus on the sub-skills of these two aspects. Mark lamented that “they just simply write the quote and let it hang there,” without any interpretation, whereas Sarah regarded “opinion which is unsubstantiated or made assumptions” as a serious weakness in the students’ writing. This might imply that Mark gives more space for students’ interpretation in their writing in comparison to Sarah.

The use of discourse organisers was the other essential skill, as Sarah explicitly stated in the interview: “I think that is quite a weakness in students' writing”. In fact, the bundles that functioned as discourse organisers increased steadily over time in L1 novice writers’ essays. Although Mark did not explicitly regard the use of transitions or discourse organisers as one of the essential skills in novice academic writing, he also attached great importance to the use of discourse organisers, as discussed in the next section.

### Teaching approaches to multi-word units

The two lecturers’ approach to teaching or providing guidance on multi-word units was very similar in that they aimed to support their students’ writing through “shortcuts”. Also, based on the self-reported accounts of the lecturers, it can be said that the students were given some guidance on what to use for certain communicative purposes.

Mark reported providing guidance on connectives and some specific phrases, such as “it is suggested, this suggests that, etc.” Hedging was also covered during the first semester in the academic writing class. He said: “Without transitions, their writing sounds

like a bunch of bullet points. Some are pretty good. Others just write bullet points almost. That is how it sounds to me, at least.” In a similar vein, Sarah told the students to use ‘I argue that’ in the introduction paragraph of their essays. The results of the study showed that L1 novice writers showed preference for using “it can be argued that” and “it could be argued that” in their essays at an increasing rate over time. She reported: “I am quite specific about [language features] and I have told them to avoid ‘I think’, ‘I believe’, and the personal kinds of statements.” Despite explicit guidance, she stated that “this does not work, though. Some of them still use statements, including ‘I believe’, ‘I think’. As stated above, the frequency of ‘I believe that’ was fairly stable in L1 novice writers’ essays over time. Interestingly, she stated that her approach to novice academic writing had changed over the years. She reported: “I have become more prescriptive about this stuff just to try to give students very, very clear signposts on how to make this work for yourself, to make it really visible because I often think academic writing is quite invisible, you know, what makes good quality academic writing.”

Both lecturers also preferred their first-year students to follow academic writing genre conventions. Mark, for instance, stated:

The bottom line is they obey the conventions which we would expect in academic essay. That is why you get a first. You get a high score then at theoretical terms you show you are part of the academic community because you know what you are supposed to do. You are ticking the right boxes.

Like Mark, Sarah also reported that she would like the first-year students to follow genre conventions at this stage as they were learning how to write academic essays. This seems to be incompatible with the academic literacies approach which is regarded as the common approach to academic writing in UK higher education (Wingate, 2012). It should be noted that a practical hands-on approach to academic writing was taken in academic writing class at a UK university in this study, and neither a genre-based nor academic literacies

approach was followed in academic writing class, as reported in the interviews. However, the lecturers' expectations of conventionality in novice academic writing and an academic writing class embedded into the programme's curriculum show that genre- and a practice-focused model seemed to be favoured in this context. This model is also gaining more popularity at some other UK universities, which have taken initiatives to open writing centres and offer academic writing instruction embedded into the programme's curriculum to cater for learning needs of students that come from different backgrounds, including international students and students from underrepresented backgrounds (see Wingate, 2012).

With regard to feedback, both lecturers said that they generally provided detailed written feedback by making comments on students' essays and underlining specific parts of their assignments. Mark, for instance, emphasised the use of connectives, and would encourage students to use more if their essays lacked them. Sarah specifically referred to 'I think' and 'I believe', and said that she would often mark them in the essays and offered "it is argued" or "it can be argued" as alternatives. This may partly explain the increase in the use of 'it could be argued that' and 'it can be argued that' in L1 novice writers' essays over time.

Overall, both lecturers attached significance to providing "shortcuts" and clear guidance for their students and making conventions of academic writing more visible to the university students regardless of their first language.

#### The role of multi-word units in novice academic writing

Both lecturers found the role of multi-word units quite important in novice students' academic writing, especially with regard to discourse organisers. However, their views of the functions and the use of stance expressions differed from each other.

Both lecturers believed that phrases could play an important role in the students' essays in terms of organisation, positioning, argument, and identity of academic writing. Sarah, for instance, reported: "Typical ones I think are quite useful for them because it helps them to get into kinds of positioning and identity of academic writing." She also stated that using phrases allowed students to do critical analysis, synthesise literature and organise their essays more effectively. Likewise, Mark stated that phrases make "a big impact" on students' writing, stating, "students need to use more of connectives. They show cohesion, show us a real connection." He also reported that through the use of connectives, the students could construct an argument.

The point in which the two lecturers seemed to be in disagreement with each other was stance expressions in novice academic writing. Mark stated that hedging was a major weakness in the students' writing in that the students "under-hedge". Sarah, on the other hand, underlined the importance of having authority in constructing an argument and stated: "The ones you can actually see a lesser degree of certainty in their writing are the weaker ones." This may indicate that the students could possibly receive different feedback and guidance on the use of multi-word units that convey stance. Nonetheless, Sarah disfavoured generalisations without evidence in novice academic writing. She provided one example sentence "children from disadvantaged homes are not exposed to the same kind of talk as more advantaged kids". She maintained that these "huge generalisations" were problematic in novice academic writing. In this respect, it can be said that both lecturers expect a degree of hedging when students make general statements, but Sarah put less emphasis on hedging in novice writing than Mark. The empirical results showed that the L1 novice writers of this study used bundles that served as boosters at an increasing rate over time (frequencies per 1000 words: 0.83 at Month 3; 1.19 at Month 9; 1.69 at Month 9). Although hedging bundles exhibited an overall decreasing trend, they were more



frequent than bundles that functioned as boosters (frequencies per 1000 words: 4.00 at Month 3; 2.76 at Month 9; 2.99 at Month 9).

#### The self-reported effect of the students' use of phrases on lecturers' grading practices

Both lecturers stated that the use of phrases could affect their grading practices. Though presentation and language constitute a small part of the essay marking scheme (10%), both lecturers affirmed that the phrases indirectly affected organisation, content and other criteria, including critical analysis in the students' essays. Mark, for instance, stated that students would lose points where their writing lacked discourse organisers and formality. Similarly, Sarah reported that students would get lower scores when their writing lacked connectives which would construct the flow of their argument. Nevertheless, it is difficult to pinpoint as to what extent the grading practices trace back to the use of multi-word units in novice academic writing.

Unlike the lecturers in the Turkish context, no negative effect on grading practices was noted for repetitive use of the multi-word units in academic writing or perceived common use of highly frequent phrases (e.g. 'on the other hand') in essays of the same cohort.

#### *6.1.3 Interim summary: Lecturers' perceptions in both contexts*

In this section, I reported the two lecturers' expectations of novice academic writing and their perspectives on the use of multi-word units at a Turkish and UK university, respectively.

The lecturers' expectations of novice academic writing converged in both contexts in terms of two general expectations. All lecturers interviewed expected their students to follow conventions of academic writing and write in a more formal style. Also, the lecturers reported that their students needed to evaluate previous literature and integrate different sources into their essays. Additionally, in both contexts, the lecturers' perceptions

of the use of multi-word units in their students' academic writing were not always in line with the empirical findings of the textual analysis in this study.

As reported above, there were both intra- and inter-context differences on the perspectives on the use of multi-word units in novice academic writing. In contrast with the lecturers at a Turkish university, neither of the lecturers at a British university was concerned about perceived overuse of the use multi-word units. Indeed, Mark reported: "Overuse is quite unusual for them from my experience." Sarah, on the other hand, made no explicit mention of perceived overuse or underuse of multi-word units in the students' writing. Nonetheless, she said: "I am keen on them to use things like 'on the other hand', 'in contrast', 'by contrast', 'in addition to' and all these kinds of things I think they are quite important." These statements may imply that these two lecturers sensed no overuse of the multi-word units in their students' essays. Instead, there could be encouragement to use more of these multi-word units on the part of the two lecturers.

Unlike the lecturers at a Turkish university, the self-reported accounts of the two lecturers at a British university indicated that the students would not lose any points in the case of repetitive use of the same multi-word units in their essays. Both lecturers stated that repetition would have a relatively minor effect on their grading practices. L2 status of novice writers in the Turkish context, who were English language learners at the same time, is clearly linked with the lecturers' opinions on perceived overuse of the multi-word units and their perceived repetitive use in L2 novice writers' essays.

In the next section, I explore both L1 and L2 novice writers' perspectives on academic writing and the use of multi-word units in academic writing.

## **6.2 Changes in L2 novice writers' perceptions and their self-reported discourse functions of multi-word units**

This section presents how ten L1 Turkish-speaking novice academic writers of English perceived the use of multi-word units in their essays at Month 3 and Month 9 during their first year at university. I also explore changes in their self-reported discourse functions of discourse organisers and stance expressions they used in their own essays.

### *6.2.1 The perceptions of the use of multi-word units in academic writing*

This section reports the findings of the semi-structured interviews with ten L2 novice writers both at the beginning of the first semester and at the end of the second semester. I explored their definition of 'good' academic writing, self-evaluative comments on their academic writing and use of the multi-word units, learning process of these multi-word units, and students' strategies for using them in their essays. The interviews revealed insights into all these aspects, and more importantly, conflicts between the students and lecturers over the use and role of these phrases in their academic writing.

Eight out of ten participants defined good academic writing in terms of the characteristics of organisation and language features at Month 3. For instance, Meryem described good writing as that which includes an "effective thesis statement, good topic sentences as well as formal and advanced language." When prompted about the statement on 'advanced language', Ahu said, "I meant longer phrases and different words. If I write 'due to the fact that' instead of 'because', it would be more advanced and academic." Such conceptualisation of academic writing is likely to reinforce limited understanding of the discourse functions of the multi-word units. It is striking that only two of the students extended their definition of good academic writing beyond organisational and linguistic features of academic writing. Filiz, for instance, defined good academic writing as "the one which presents valid argument with good content, organisation and appropriate language". At Month 9, all the participants integrated content- or argument-related descriptions into

their definition of good academic writing; however, half of the participants still associated good academic writing with “long phrases, complex and advanced language.”

The participants’ evaluative comments on their academic writing and use of phrases changed from positive to negative in general over one academic year. The positive self-evaluation of the participants (seven out of ten) at Month 3 may stem from their naivety about what academic writing involves, as inferred from their definition of it, or relatively short nature of the first academic essay that the participants wrote. At Month 9, on the other hand, eight students expressed their frustration and insecurity in relation to both their academic writing in general and the use of phrases. Derya, for instance, said “I have had great difficulty in writing essays this year. It is very hard to write an academic essay, and I do not think I have improved my writing.” Similarly, Gamze stated in relation to multi-word units, “I am not good at using them. I find it difficult where to use these units. Sometimes they get crossed out on my paper, and sometimes they do not.”

In response to reasons for their negative self-evaluation, the participants’ statements revealed potential effect of three main factors: perceived low grades the participants received, varying expectations of different lecturers, and tension between their prior learning experiences and writing advice they received at the university. Berna, for example, noted: “Every lecturer has different expectations. This confuses me a lot. I am trying to shape my writing in accordance with the expectations of lecturers.” Varying expectations of their lecturers reportedly involved both multi-word units and the first person singular pronoun *I*. These different expectations may have caused two of the students at Month 9 to take “the journal articles as a model for writing” rather than following guidance of their lecturers because “it differed from one lecturer to another”. However, this caused further frustration on the part of the participants, as Hande said: “I aim to write like journal articles I read. I would like to be very good at writing, but I am not, and this makes me upset and stressed.” This implies that high self-expectations that

participants set for themselves may have caused negative self-evaluative comments regarding their writing.

Nine out of ten participants reported that they learned multi-word units through lists they were given at high school. Emre stated: “Our English teacher at high school gave us lists of phrases. I used to memorise them for the university entrance examination, and I felt that I had to use them as much as possible in my writing.” The students mostly remembered seeing multi-words categorised into groups on such lists. Filiz, for instance, said: “We know these phrases in categories. I remember ‘in spite of’, ‘all the same’, ‘on the other hand’ and other similar phrases were in one group. There were lots of other categories like this.” This could indicate that the students had little chance to see the actual use of the phrases in a context. In fact, list-based teaching may have caused the students not to gain a deeper understanding of the discourse functions of the multi-word units and to have the assumption that ‘the more multi-word units are, the better writing is’ at Month 3. Five students at Month 3 reported using multi-word units in their academic writing that they learned from non-academic sources, including songs, television series, computer games and online fashion blogs. L2 novice writers were experimenting with those multi-word units in their essays at Month 3. However, at Month 9, the same students stated that they used multi-word units in their writing that they learnt through reading academic books and journal articles, and they would not use multi-word units they learned from the sources mentioned at Month 3. This may be evidence for the participants’ increasing register awareness for academic writing. For instance, when prompted to reflect on the use of ‘it can be said that’, ‘can be defined as’, the students reported seeing these passive constructions in the journal articles that they read. This was in line with a steady increase in the proportions of passive verb-based bundles presented in Chapter 5.

The participants developed different strategies to improve their use of multi-word units in their academic writing over one academic year, and their self-reported strategies

slightly changed from Month 3 to Month 9. At Month 3, five of the participants reported using only Turkish-English dictionaries for consultation during writing, and three of them stated they would not use any dictionaries or any other tools while writing. Only two of them were using an English-English dictionary at Month 3, but this number increased to four participants at Month 9. Additionally, at Month 9, two of the students reported keeping ‘a phrase notebook’ in which they noted down multi-word units they saw in the academic books and journal articles. However, at Month 9, two other participants stated that they preferred not to use any dictionaries or tools while writing essays. Dictionaries and phrase notebooks were the only tools students consulted during writing. Four interviewees at Month 3 and three interviewees at Month 9 reported that having poor grasp of the meaning of multi-word units presented the biggest challenge for them. They also stated that it was difficult to use multi-word units appropriately in the surrounding co-text of them. Meryem said: “I often look at the English-English dictionary, but when it is a phrase, it is difficult to understand the actual meaning and context. I wish we could see them in a broader context.” This suggests that consulting an English dictionary may not be adequate for L2 novice writers to learn how to use multi-word units in context.

The L2 novice writers’ belief that phrases played a prominent role in academic writing seems to be in conflict with the teachers’ agenda over time. Interestingly, during the interviews, the same students affirmed that their lecturers asked them to focus more on content and argument in their essays. However, the students’ agenda still remained different from that of the lecturers at Month 9. Hande stated that “actually my lecturers told me to keep my sentences short and simple, but I cannot write my essays with primary school English. It is not academic.” Likewise, Emre reported that “academic writing is typically phrasal. I observed this [phenomenon] in the articles I read. I also want to write like that though our lecturers try to discourage us from using these kinds of things.” This could suggest that L2 novice writers desire to follow established conventions although the

lecturers encourage them to take a critical stance towards these conventions. Pennycook (1996) puts it well:

[L2 novice writers are those] who, while constantly being told to be original and critical, and to write things in their own words, and are nevertheless only too aware that they are at the same time required to acquire a fixed canon of knowledge and fixed canon of terminology to go with it. (p. 213)

This phenomenon could be interpreted in two ways. On the positive side, it could be argued that the students developed genre awareness of academic writing, at least to some extent. On the other hand, their views of academic writing ('the more multi-word units are, the better writing is') seemed so deeply entrenched that "it is difficult to change their mindset," as one of their lecturers told me in the interview. The students' entrenched attitudes could have stemmed from several factors that the students reported. The requirement to pass the English proficiency examination necessitated conscious efforts to use multi-word units with a greater frequency in the writing tasks. This result was in agreement with that of Macqueen (2012) who found similar tendencies with first-year L1 Chinese-speaking university students who previously took the IELTS. The expectations of the teachers in their previous instructional context and the special focus on the lists of multi-word units in English classes may also have caused these attitudes to be firmly established.

The other conflict between the students and lecturers was concerned with written feedback they received on the use of multi-word units in their writing. Four out of ten interviewees stated that they were in disagreement with their lecturers about corrective feedback on their essays at Month 9. Emel, for example, reported:

My lecturer crossed out 'due to the fact that' in my essay, and wrote 'because' instead of it. Okay, I understand it is much simpler, but I am sure I saw 'due to the fact that' in articles. I believe if the students want, they should be able to use 'due

to the fact that'. As far as I know, they have the same meaning, after all. We should not be restricted.

Similarly, Ceren noted:

I am unsure of this issue, really. When we used 'firstly' or 'first of all' at the beginning of the body paragraph, my lecturer did not like them. Then, I used 'to begin with' and she did not cross out this. There is a contradiction here. In other cases, they want simpler phrases. 'Firstly' is the simplest one here. I don't know. Maybe they want different things.

These statements suggest that written corrective feedback might have caused confusion or insecurity on the part of the students. Eight out of ten participants reported that they became hesitant to use longer multi-word units in their essays at Month 9. However, these practices tended to align with the lecturers' self-reported statements since they preferred their students to avoid verbose sequences and to make a transition from higher frequency multi-word units to lower frequency ones. From the students' perspective, it is apparent that these practices may provide them with lesser agency in L2 writing (Canagarajah, 2002), which may have resulted in L2 novice writers' more negative self-evaluative comments on their academic writing at Month 9.

### *6.2.2 The self-reported discourse functions of multi-word units in academic writing*

This section reports the self-reported discourse functions of multi-words in L2 novice writers' own essays. The same ten students were asked to identify the functions of their own multi-word units, which were limited to three discourse organisers and stance expressions, and why they specifically used them at Month 3 and at Month 9.

All the interviewees had awareness of the functions of the discourse-organising multi-word units to a certain extent at both Month 3 and Month 9. All the participants were able to at least explain the meaning of multi-word units or exemplify them, as Excerpt 1



from Month 3 illustrates. When Emel was asked why she used ‘as a result’, she exemplified it with ‘so’. Additionally, there was an emerging register awareness of academic writing which is concerned with the awareness of lexico-grammatical patterns associated with the situations, i.e. formal and written registers in this study, as Emel said ‘as a result’ sounded ‘more academic’.

Excerpt 1:

As a result, we can conclude that Turkle’s approach to the same problem was rather pessimistic and more satirical.

Emel: Well, I could have given the same meaning with ‘so’, but ‘as a result’ sounds more academic to me.

At Month 9, the participants’ explanations for their use of discourse organisers became more detailed, and seven out of ten participants established clear links between their use of discourse organisers and their function in their essays, as seen in Excerpt 2 from Month 9.

Excerpt 2:

...The main purpose of microblogging is to connect people with other people; however, it has developed a different purpose that many educators have started to use microblogging as a way of learning and teaching. In other words, microblogging has become an increasingly popular trend that many instructors have started to integrate it into their teaching methods.

Hande: In the previous sentence, I described the term ‘microblogging’. I used ‘in other words’ to explain microblogging further in the next sentence. To give an explanation.

The self-reported discourse functions of stance expressions gave a different picture from those of discourse organisers. At Month 3, only four of the interviewees articulated the meaning or function of stance expressions they used in their text. Excerpt 3 reflects the general tendency of the self-reported accounts for the stance expressions at Month 3.

Excerpt 3:

The author secondly discusses the fact that girls are more successful in the early times of education.

Interviewer: Why did you use ‘the fact that’?

Berna: To make it longer. Three more words.

Interviewer: What else can you say about it?

Berna: It sounds cool. It increases my word count.

Excerpt 3 from Month 3 shows that Berna did not articulate the meaning or function of ‘the fact that’. Instead, she focused on surface-level features, including the word count of the essay and ‘cool’ sounding nature of the lexical bundle. Hence, the interviewees’ self-reported accounts of the knowledge of the stance expressions were found to be limited at Month 3. At Month 9, Berna was requested to reflect on the use of ‘the fact that’ again. As Excerpt 4 shows, she substantially developed her understanding of ‘the fact that’:

Excerpt 4:

Although Facebook is not used in the classroom environment, the fact that students leave comments and send messages on Facebook elicits the informal learning via internet.

Berna: Here it is to emphasize my point. I wanted to emphasise that Facebook is interactive, so it can be an educational tool.

Berna focused on the function of ‘the fact that’ and made a connection between its use and the argument that was presented in the essay. This explanation therefore suggests greater understanding of ‘the fact that’ at Month 9. Berna further explained the self-reported changes in her use of the multi-word units and stated: “I am now more aware of what they do in academic writing. In my first essays, I was using them just for the sake of using. I was thinking that they would look good in my essay, and I would get a higher grade.” Apart from Berna, five other (in total six) participants also made similar explanations about their use of stance expressions at Month 9 as in Excerpt 4. This implies that six of the participants gained deeper understanding of the functions of them in academic writing.

These statements indicate that L2 novice writers showed development in terms of the self-reported discourse functions of discourse organisers and stance expressions in their own essays, though this development remained comparatively limited for stance expressions. However, it should be noted that lack of self-reported accounts for explanations of the discourse functions may not necessarily indicate lack of understanding of multi-word units (Gutierrez, 2008). It may be the case that L2 novice writers were not able to articulate explicit knowledge of the multi-word units in their academic writing.

### **6.3. Changes in L1 novice writers’ perceptions and their self-reported discourse functions of multi-word units**

In this section, I first report the findings of semi-structured interviews conducted with five L1 English novice academic writers and explore the changes in their views of the role of multi-word units in academic writing. Then, I present changes in the same five participants’ self-reported discourse functions of multi-word units that they used in their own academic writing.

### *6.3.1 The perceptions of the use of multi-word units in academic writing*

This section reports the findings of the semi-structured interviews which were conducted with five L1 novice writers at Month 3 and Month 9. The interviews explored L1 novice writers' definition of 'good' academic writing, their self-evaluative comments on academic writing and the use of multi-word units in their essays, learning process of multi-word units and their strategies. The interviews revealed that L1 novice writers' perceptions of the use of multi-word units were mostly in line with those of their lecturers, although three students expressed confusion regarding different lecturers' expectations of students' academic writing at Month 9.

L1 novice writers' definition of good academic writing involved referential, textual and linguistic dimensions of writing at Month 3. As Sophie put it, "good academic writing has a formal style and good structure. It should include researched content and my interpretation of it." Similar to L2 novice writers, L1 novice writers emphasised the formal language and the important role of "sophisticated language" which would involve "different words and phrases" at Month 3. At Month 9, on the other hand, there was no focus on "sophisticated language" features of academic writing. Instead, L1 novice writers added the good use of academic sources and evaluation of them critically at Month 9 into their definition of good academic writing. It can be said that L1 novice writers' understanding of 'good' academic writing shifted towards more criticality.

The participants' self-evaluative comments on academic writing and their own use of multi-word units in their essays remained largely positive over time, and four of the participants' self-evaluative comments were positive, indicating self-described development in their writing. Yolanda, for instance, said at Month 9: "In the first semester, I used phrases just to look like I am thinking critically but now when I write, they just come naturally". Similarly, Rachel said at Month 9: "You can always improve, but I think I am writing well enough. I am used to writing essays now". Only one participant (Lisa)

believed that she did not improve her writing much, and she had difficulties with hedging expressions (e.g. 'may not be') in academic writing. Lisa reported: "I haven't improved my writing yet. I am still learning really. I think I have problems with hedging. I am unsure to what extent I should hedge in my essays." The same participant also echoed back her lecturers' voice when asked about her use of hedging devices and stated: "This is me writing it purely just because my lecturer can see I have done hedging. This was just a case of doing it because I was told to do it, not because it was what I wanted to state. I like to be more certain in my writing." This might be traced back to students' personality. Apart from one student, other participants seemed to be content with their academic writing and the use of the multi-word units in their essays.

All the five participants reported that they received guidance on discourse organisers and hedging devices in academic writing class in the first semester. Sophie stated: "If we hadn't taken (an) academic writing class, I would not be conscious about these phrases now." This suggests that the academic writing class played an important role for L1 novice writers to improve their knowledge of multi-word units. The participants also indicated that they were provided with explicit instruction on multi-word units in academic writing during college education and their preparation for GSCE English language. Only one participant stated she would use phrases that she saw in fiction books at Month 3, though she reported: "my learning sources for academic phrases are now academic articles," at Month 9. This suggests evidence for increasing register awareness for this participant.

The strategies the participants followed involved using a thesaurus and using multi-word units from the journal articles that they read. At both Month 3 and Month 9, four of the participants reported using a thesaurus to vary their vocabulary choices (both single words and multi-word units). At Month 3, three out of the five participants reported using multi-word units that they saw in the journal articles in order to create a good impression

on the lecturers, but none of the participants followed this practice at Month 9, though incidental learning of multi-word units was likely to occur over time. Rachel, for instance, commented: “I just probably pick up some phrases by reading academic sources.”

At Month 9, there were negative comments in relation to perceived different expectations of the lecturers of academic writing. Three students expressed their confusion during the interviews, but they reported being strategic about this situation. Victoria commented: “We are in constant limbo. I have to look at my essay in terms of which lecturer I have and then adjust my writing. I am learning to be strategic about this.” Despite their confusion, the participants seemed to cope with this situation by understanding each lecturer’s expectations of students’ academic writing.

### *6.3.2 The self-reported discourse functions of multi-word units in academic writing*

In this section, the findings of the same five L1 novice writers’ self-reported discourse functions of multi-word units (discourse organisers and stance expressions) at Month 3 and at Month 9 are reported.

All the five interviewees demonstrated understanding of the functions of discourse-organising multi-word units in that they were able to establish a clear link between the use of the multi-word unit and their discourse functions in their essays at both Month 3 and at Month 9. Additionally, four of the participants’ self-reported accounts of the multi-word units in their essays extended to the ways in which articulation of how the multi-word unit contributed to writer-reader relationship and communicative purposes of academic writing at both time periods.

Excerpt 5:

*This suggests that teaching approaches are largely shaped through the teacher’s personal experiences and the identity they have developed.*

Lisa: This is to show the reader my interpretation of what I have read. Basically, it shows the reader that I am putting my views on it.

As Excerpt 5 shows, Lisa elaborated how the use of ‘this suggests that’ would contribute to both author positioning and readers’ understanding of her interpretation in the essay. The other three participants also made extensive reference to the reader and integrated communicative purposes of academic writing into their self-reported accounts of the multi-word units in their essays.

As for stance expressions, four of the five interviewees made links between the use of stance expressions and their discourse functions in their essays at Month 3 and all the interviewees made reference to the reader when they were asked to explain their use of stance expressions in their essays. Below is an excerpt of the interviewee whose self-reported account of the multi-word unit was unrelated to the meaning or discourse function of it in the essay.

Excerpt 6:

*It could be argued that* this may be because there is hardly any occasion within the text to actually apply these skills.

Interviewer: Why did you use ‘it could be argued that’ here?

Victoria: I guess lecturers like this kind of stuff, and I probably used it to boost my word count. We had to write 1500 words.

Interviewer: Is there any other reason that you would like to add?

Victoria: Hmm... no. I wanted to lengthen my essay.

It is apparent from Excerpt 6 that Victoria used ‘it could be argued that’ in response to her perceived lecturers’ expectations and to meet the required word count of the essays. In fact, all the five interviewees commented that the minimum word count resulted in the use of

longer sequences in the introduction and conclusion sections of their essays, but in the case above, this was given as the main reason for the use of ‘it could be argued that’. No elaborated explanation of the meaning or function of ‘it could be argued that’ was made despite the prompts of the researcher. At Month 9, the same participant moved beyond the surface-level features and made a link between the lexical bundle and its function in the essay.

Excerpt 7:

In a sense, *it could be argued that* there is no real ‘free choice’ given to students here.

Victoria: In this paragraph, I reviewed the previous studies, and based on them I offered this argument. This is actually my argument. ‘It could be argued’ makes that clear for the reader.

Additionally, Victoria showed awareness of the reader, by stating that the lexical bundle would make her argument “clear for the reader.” When I reminded her of her explanations at Month 3, she was of the same opinion about the lecturers’ expectations of “the big words” in the students’ essays; however, she said that she was no longer using them to increase the word count, as she was more experienced in writing academic essays.

L1 novice writers’ self-reported accounts showed that they were able to articulate the links between their use of multi-word units and their discourse functions in their essays at Month 3, and they further developed their knowledge of the multi-word units as they made greater reference to the readers at Month 9.



#### **6.4. Comparison between L2 and L1 novice writers' perceptions and their self-reported functions of multi-word units**

L1 novice writers' definition of 'good' academic writing over time is more likely to reflect norms and expectations of disciplinary academic writing in this area than that of L2 novice writers. L1 novice writers' self-evaluative comments remained positive over time, whereas those of L2 novice writers became more negative over time, which may have resulted from their perceived low grades, varying expectations of their lecturers and conflict between their prior learning experiences and academic writing instruction at university. Non-English L1 background of L2 novice writers involved different strategies (phrase notebook) from L1 novice writers who mostly benefited from lecturers' advice and using Thesaurus, though both groups seemed to learn multi-word units through reading academic sources by Month 9.

The self-reported discourse functions of multi-word units of L1 and L2 novice writers had a wider gap at Month 3 than at Month 9, when the gap between L1 and L2 novice writers' self-reported discourse functions narrowed. At Month 9, L1 novice writers showed deeper knowledge of the multi-word units than their L2 counterparts, since they made links between the readers and the discourse functions of multi-word units. At the starting point, L2 novice writers differed a lot from their L1 English-speaking counterparts, but the developmental changes over time were present for L2 novice writers. These findings echo those of the textual analysis of lexical bundles and p-frames presented in previous chapters; therefore, it is likely that the use of multi-word units goes hand in hand with the novice writers' self-reported knowledge of them. Prior learning experiences, academic writing experience, academic writing instruction and guidance first-year students received from lecturers may all have shaped the students' use and self-reported knowledge of multi-word units in their essays.

L2 novice writers' self-reported discourse functions of the multi-word units exhibited heterogeneity to a greater extent than that of L1 novice writers over time. Although all L1 novice writers showed greater self-reported knowledge of the multi-word units at Month 9, it was not the case for L2 novice writers.

These comparisons should be treated with caution, since stimulated recall protocols and interviews were conducted with only approximately 10% of the sample in the group of L2 novice writers and 12% of the sample in the group of L1 novice writers.

## **6.5. Summary and conclusions**

The interviews with both the lecturers and students offered a broader understanding of the role of multi-word units, which would be otherwise difficult to gain by just looking at the text or the results of the corpus-driven analysis.

The interviews indicated dissimilarities between the students' motives in academic writing and the lecturers' preferences in relation to multi-word units at a Turkish university. Despite the lecturers' encouragements, the students showed resistance to their lecturers' advice on the use of multi-word units, and two of them remained reluctant to change their entrenched attitudes towards academic writing and the role of multi-word units in academic writing. These two students adhered to the belief in 'the more and/or longer multi-word units are, the better academic writing is' over one academic year. This is in line with the findings of the previous studies which found that it would be hard for undergraduate students to take a critical stance on the dominant literacy practices without knowing exactly what the characteristics of those practices are (Wingate, 2012, 2014; Wingate & Tribble, 2012). In fact, these first-year university students' self-reported accounts showed that they had not built a full awareness of the discourse functions of the multi-word units yet.

The interviews at a British university gave us a different picture of how multi-word units were conceptualised by the lecturers and students. Generally, the two lecturers encouraged the students to follow academic writing genre conventions, and the students seemed to do this to a certain extent. This encouragement to follow genre conventions is interesting in that an academic literacies approach which requires criticality of genre conventions, tends to be an influential model in UK higher education (Wingate, 2012). This gives further evidence of academic writing as a situated practise that could be locally redefined, which in turn necessitates contextually sensitive research studies (Lillis & Curry, 2010).

The results of the stimulated protocols with both L1 and L2 novice writers indicate that although both groups developed their awareness of the role of multi-word units in academic writing in similar ways, L2 novice writers lagged behind their L1 English-speaking counterparts. However, this may not be solely because of their non-English L1 background. L2 novice writers' prior learning experiences of multi-word units and their comparatively less experience of academic writing may have shaped their perceptions of the use and self-reported discourse functions of the multi-word units.

## Chapter 7 Discussion

“Change begets change.”

Charles Dickens, 1843

This chapter will provide possible explanations for L1 English and L2 English novice writers’ use of multi-word units in their academic essays. I will first revisit the hypotheses of my study, outline my key findings and compare and contrast them with the previous studies. Then, I interpret my findings and categorise these interpretations into five different factors: Teaching-induced factors, register and genre awareness, interlanguage developmental factors, L1 and cultural influences, and lecturers’ and novice writers’ insights into the use of multi-word units. These factors may be interrelated with each other, and may even reinforce each other, as academic writing is characterised by a complex interplay of factors that are difficult to control for, including novice writers’ motivation or learners’ language aptitude. However, I speculate on these main dimensions based on my findings of essay analyses and interviews, and discuss the possible interplays between these dimensions as much as possible.

### 7.1 The hypotheses of the study revisited

In this section, I revisit the hypothesis of the study proposed in the methodology chapter and explain whether these hypotheses have been confirmed by the findings of this study.

1. *Consistent with the theory of lexical priming (Hoey, 2005) and usage based approaches to language (e.g. Ellis, 2002) which emphasise frequency effects on language use, the frequencies of lexical bundles and p-frames in both L1 and L2 novice writers’*

*essays would be more similar to those in the sub-corpus of BAWE, i.e. successful undergraduate writing in similar academic disciplines over time.*

This hypothesis has been confirmed to some extent. To illustrate, correlations between the lexical bundles and p-frames in L2 novice writers' essays and those in the sub-corpus of BAWE overall showed greater effect sizes over time. This supports the premises of the theory of lexical priming (Hoey, 2005) and usage based approaches to language learning (e.g. Ellis, 2002) in that language learners are sensitive to frequency effects, and they gradually learn the multi-word units that are typical of academic writing in English through exposure to them through reading and writing academic materials in English.

For L1 novice writers, although the findings of five-word and three-word bundles as well as four-word p-frames support this hypothesis, correlations of four-word bundles as well as five-word p-frames disconfirmed the hypothesis. Effect sizes of the correlations of three-word p-frames were stable, but correlations remained moderate at each time period. The overrepresentation of five-word p-frames (e.g. 'it can be \* that' – 'it can be argued that') and discourse-organising four-word bundles (e.g. 'in addition to this' and 'when it comes to') in L1 novice writers' essays at Month 9 in reference to the sub-corpus of BAWE resulted in very weak/non-significant correlations. It is worth noting that overrepresentation did not involve marked use in context (Ädel, 2014). Indeed, L1 novice writers were responsive to their lecturers' advice in their own discourse communities, as discussed below.

*2. In line with Biber et al.'s (2011) hypothesis on the patterns of change in noun phrases and clauses, i.e. verb phrases in novice academic writing, the frequencies of NP-based bundles would show an increase in L1 and L2 novice writers' essays over time, and the frequencies of VP-based bundles would exhibit a decrease in both groups over time. Based on Biber et al.'s (2011) developmental hypothesis of the structural patterns in academic writing, the frequencies of verb-based p-frames would decrease over time in*

*both groups, and the frequencies of function-based p-frames would exhibit an increase over time in both groups.*

This hypothesis has been supported by the findings of this study to some extent. Verb-based bundles and verb-based p-frames showed a decreasing tendency over time in both L1 and L2 novice writers' essays, which is in agreement with Biber et al.'s (2011) hypothesis. Biber et al.'s (2011) hypothesis proposes that novice writers rely on clausal features in novice academic writing at the beginning and then gradually move towards using noun phrases. Although L2 novice writers increasingly used NP-based bundles and function-based bundles which take nouns as their variants over time, NP-based bundles showed an overall decreasing trend in L1 novice writers' essays and the slight increase in function-based p-frames was not statistically significant in L1 novice writers' essays. Still, L1 novice writers used NP-based bundles and function-based p-frames more than L2 novice writers over time. It may be the case that L1 background plays an important role in the use of noun phrases. Additionally, one academic year may not be enough to see clear developmental trends for noun phrases since this developmental progression occurs at higher levels of academic writing (Biber et al., 2011; Staples et al., 2016).

*3. Based on the results of the previous studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010; Ebeling & Hasselgård, 2015), discourse-organising multi-word units would occur more frequently in L2 novice writers' essays than in L1 novice writers' essays over time. On the other hand, L1 novice writers would use stance expressions more frequently in their essays than L2 novice writers over time.*

The findings of this study support the hypothesis that L1 novice writers would use stance expressions more frequently than L2 novice writers over time, which is in accord with the findings of previous studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010; Ebeling & Hasselgård, 2015). This finding is discussed in relation to interlanguage developmental factors in second language learning, L1 and cultural influences below. On

the other hand, the hypothesis that L2 novice writers would use discourse organisers more than L1 novice writers was rejected because an opposite trend was found in this study. This finding contradicts those of previous studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010; Ebeling & Hasselgård, 2015). The more frequent use of discourse-organising bundles by L1 novice writers is attributed to contextual factors, particularly advice that L1 novice writers received from their lecturers, as can be evident from the findings of the interviews.

*4. In parallel with Ellis' argument (2002) that L2 speakers would use a larger inventory of patterns as their proficiency increased, the internal variability of the p-frames would increase and the predictability of them would decrease in L2 novice writers' essays over time. However, these two aspects would not show any changes in L1 novice writers' essays over time.*

The hypothesis that L2 speakers would use a larger inventory of patterns was confirmed because the internal variability of the p-frames increased and the predictability of them decreased in L2 novice writers' essays over time. This finding corroborates the constructionist usage-based approach to language learning in that progression towards exemplar constructions from reliance on concrete ones occurred over time in L2 novice writers' essays (Bybee, 2010; Ellis et al., 2016). Surprisingly, this progression also occurred for L1 novice writers; therefore, the hypothesis for L1 novice writing above was rejected. This language development for both L1 and L2 novice writers can be attributed to the premise that language users are gradually primed to use the constructions that occur frequently in the recent academic materials that they engage with (Ellis, 2002; Goldberg, 1995; Hoey, 2005). Since academic writing in English relies on highly variable and highly unpredictable p-frames, it is conceivable that L1 and L2 novice writers of this study were sensitive to the frequency of these constructions (Ellis, 2002; Ellis et al., 2016). These dynamic patterns of change also support Hoey's (2005) argument that primings are not

static for L1 or L2 language users, and encountering the similar constructions may reinforce primings over time.

5. Finally, all these aspects stated above would become more similar in L1 and L2 novice writers' essays over time.

This hypothesis is confirmed because the use of multi-word units in L1 and L2 novice academic writing overall became closest at Month 9. This shows that as L2 novice writers were exposed to the target language at an English-medium university and gained more experience in academic writing, they were able to approximate to the phraseological patterns in L1 novice academic writing.

From a dynamic systems theory perspective, the dynamic and multi-agent patterns of change and emergent properties of the multi-word units in this study are probably shaped by intertwinement of both internal and external resources (de Bot et al., 2007; Ellis, 2008; Ellis & Larsen-Freeman, 2006). As noted in the literature review chapter, Callies (2013, p. 359) presents some of the determinants of lexico-grammatical variation in L1 and L2 writing (please see Figure 1). The determinants are classified into two main categories: determinants for only learners and determinants for both learners and native speakers.

Based on the findings of both quantitative and qualitative aspects of my study, I add to the interpretation of the determinants of the differences and similarities of the use of multi-word units in L1 and L2 novice academic writing, as Table 28 illustrates.

Table 28. The determinants of the use of multi-word units in L1 and L2 novice writing.

| <b>L2 novice writing</b>              | <b>L1 + L2 novice writing</b>                             |                   |
|---------------------------------------|---|-------------------|
| <b>IL-specific</b>                    | <b>Context/task-specific</b>                              | <b>Linguistic</b> |
| ➤ Mother tongue (L1)                  | ➤ Register/genre awareness                                | ➤ Structure       |
| ➤ Cultural factors                    | ➤ Lecturers' expectations                                 | ➤ Discourse       |
| ➤ Previous L2 instruction             | ➤ Students' previous and current perceptions              |                   |
| ➤ Current L2 writing instruction      | ➤ Guidance students receive in the academic writing class |                   |
| ➤ Interlanguage developmental factors |   |                   |



As shown in Table 28, the factors that influence L2 novice writers' use of multi-word units include their L1, cultural factors and previous and current L2 instruction that they receive. I added cultural factors and previous and current L2 instruction, as the findings of essays and interview data provide evidence for the interplay of these factors. Task-type or setting were not included, since both groups were required to write academic essays as part of their course assignments. The determinants of the use of multi-word units in L1 and L2 novice writing include the discourse functions and structural categories identified under the category of 'linguistic'. It is possible that there might be other factors which would affect both groups' use of multi-word units in academic writing, such as motivation for both groups and language aptitude for L2 novice writers, but it is difficult to control all these factors in comparative studies.

In the following sections, I discuss my findings in more detail in relation to the previous studies and the factors involved in shaping academic writing practices in both contexts.

## **7.2 Comparison with previous studies**

In this section, I compare and contrast the key findings of my study with those of previous studies. To my knowledge, there have not been many previous studies with a longitudinal panel study design which used the same methodology as mine; therefore, I draw on both cross-sectional and quasi-longitudinal studies that examined multi-word units in English essays written by learners from different L1 backgrounds.

The results of lexical bundles in this study are in agreement with those of Ädel and Erman's study (2012) which examined four-word lexical bundles in disciplinary academic writing of L1 English and L1 Swedish speakers of English in that "unattended this" and hedging expressions were more frequently used in L1 English students' essays than L2

English students' essays. However, the functional distribution of lexical bundles for both L1 and L2 novice writing in this study is quite different from Ädel and Erman (2012)'s study. Great similarities were found between their L1 English and L1 Swedish novice writers, and both groups used stance expressions proportionally more than discourse organisers in their study, whereas both groups used more discourse organisers than stance expressions in my study. This difference can be attributed to the fact that I investigated three-, four- and five-word lexical bundles, while theirs was limited to four-word lexical bundles. Additionally, academic writing advice L1 novice writers get from their lecturers and previous instruction that L2 novice writers of this study received may account for this difference.

The results of my study also differ from Chen and Baker's study (2010) which focused on four-word lexical bundles in general academic writing of L1 English and L1 Chinese speakers of English in that the discourse and structural categories of lexical bundles were "surprisingly similar" (p. 43). Actually, this similarity could be anticipated because L1 Chinese speakers of English in their study were studying at a UK university, and their essays extracted from the BAWE corpus received 'merit' or 'distinction'. In my study, although the Turkish learners of English had advanced proficiency of English, they had no experience of studying or living abroad, which would decrease their chances of receiving input in their L2. In line with the results of L1 Swedish speakers of English in Ädel and Erman's study (2012), L1 Chinese speakers of English in Chen and Baker's study (2010) also diverged from their L1 English-speaking counterparts in terms of the use hedging expressions. These results are consistent with my findings, though L1 Turkish speakers of English approximated to L1 novice writers with regard to hedging expressions at the end of the first year. This gives further evidence for the interlanguage developmental features of L2 academic writing which typically contains fewer hedging expressions than

L1 academic writing. It should be noted that these two studies had a cross-sectional design, which makes direct comparisons with my study difficult.

The distribution of structural and discoursal categories of L1 Turkish students' writing over time in this study is largely in line with that of Chen and Baker's study (2014) in which L1 Chinese speakers' argumentative and expository essays in English were examined across B1, B2 and C1 levels in a pseudo-longitudinal study design. Both L1 Chinese and L1 Turkish speakers of English tended to use fewer VP-based bundles and fewer discourse organisers at C1 level and at Month 9, respectively. This indicates that L2 learners of English go through similar developmental levels with regard to the structural and discoursal characteristics of lexical bundles. Additionally, the increasing trend for the variability and decreasing trend for predictability of p-frames in this study for both L1 and L2 novice writers' essays in this study are consistent with Garner's (2016) study which found the same trends for L1 German-speaking learners' essays in English as the proficiency of the learners increased. The greater diversity of discourse functions of p-frames in L2 novice writers' essays over time was also consistent with the findings of Garner (2016) who found the similar patterns of change in the use of p-frames. It is worth noting that L2 novice writers of this study were unable to use any p-frames that served as discourse organisers at Month 3.

In another quasi-longitudinal study, Staples et al. (2013) found that ESL writers with higher TOEFL scores used fewer four-word bundles than those with lower scores in TOEFL iBT writing tasks. This seems to be in agreement with the results of this study in that L2 writers used slightly fewer bundles in this study over time, except for the five-word bundles. However, Staples et al.'s finding (2013) of a greater proportion of stance bundles in comparison to referential ones across three different proficiency levels is in stark contrast to the findings of similar studies (Ädel & Erman, 2012; Chen & Baker, 2010, 2014), including those of the present study. This is probably due to the task variable, as

Staples et al. (2003) used examination responses which might require giving less reference to abstract entities than academic essays.

Both linear and non-linear developmental patterns of bundles and p-frames identified in L2 novice writers' essays over time are consistent with the findings of longitudinal studies (Li & Schmitt, 2009, 2010) which found that a Chinese MA student developed lexical phrases in her academic essays in English in a non-consistent manner over one academic year (2009), and that collocations exhibited non-linear developmental patterns in a longitudinal multi-case study design (2010). These dynamic developmental patterns provide further support for emergent and usage-based account of learner language (e.g. Ellis, 2008). These dynamic and emergent characteristics of learner language can also point towards developmental process, since it is less likely for development to take place in stable systems (Lowie & Verspoor, 2015).

L1 novice writers' use of multi-word units was not stable over time, either since there were considerable changes in both the functional and discoursal patterns of these multi-word units. This supports Staples et al.'s (2016) findings that showed a trend for fewer verb-based multi-word units and greater frequency of noun phrases in L1 novice writing in the BAWE as their levels of study increased. Although this study found the trend for fewer verb-based multi-word units in L1 novice writers' essays over time, NP-based bundles occurred slightly less frequently over time. This may be attributed to the slow developmental patterns of noun phrases in novice academic writing as this developmental pattern is likely to occur at higher levels of academic writing (Biber et al., 2011). Indeed, it is likely that both L1 and L2 first-year university students are novices in terms of the use of phrasal features of academic writing (Staples & Reppen, 2016).

Apart from the abovementioned studies that found differences between L1 and L2 writing as well as across different proficiency levels, several studies have found more similarities than differences between L1 and L2 academic writing (Ädel & Römer, 2012;

O'Donnell et al., 2013; Römer, 2009a, 2009b). The examination of n-grams and p-frames revealed no great differences between novice academic writing of L1 German speakers of English and L1 English speakers (Römer, 2009a) and across different levels of student writing in English categorised by years of study at the university and between university students' essays and the research article corpus of Hyland (Ädel & Römer, 2012).

Although my results for lexical bundles are largely in agreement with those findings in terms of both L1 and L2 similarities and differences across levels (time for this study), the findings of p-frames in the current study are different from the findings of those studies. I found statistically significant differences between L1 and L2 writing in terms of the frequency of p-frames, though there were similarities of the ranks of individual p-frames, especially three-p-frames. This may be due to English language proficiency level of Turkish students or context specific constraints the Turkish students had, such as lecturers' expectations of a wide variety of language features in students' essays. It should also be noted that those studies used MICUSP papers which received A-grades. Hence, it would be expected that the students would use multi-word units in a more similar way with that of academic prose of English than the L1 Turkish speakers of English whose essays were not controlled for quality or grades that they received.

My findings for lexical bundles and p-frames are also in contrast to those of O'Donnell et al.'s study (2013) which found that L2 writers produced more frequency-defined n-grams than L1 writers, and L1 and L2 writers produced p-frames of similar frequencies in their essays. As the authors stated, L2 writers' slightly more frequent use of frequency-defined n-grams could be attributed to prompt- and topic-bound n-grams that their essays contained, whereas I removed all the prompt- and topic-bound bundles in the essays of my study. The discrepancy of the findings in p-frames could result from text types, language proficiency of Turkish students or contextual constraints that Turkish students experienced, as I discuss below. My findings for 'introductory it' patterns ('it is \*

that' and 'it is \* to') are different from previous research (Römer, 2009b) which revealed that no clear divide existed between L1 and L2 writers in the use of these patterns. L1 novice writers in this study used these two patterns more frequently than L2 novice writers, though L2 novice writers started to use them more at Month 9 than the first two time periods. This also gives indirect evidence that L2 novice writers' overall phraseological performance in English academic writing was lower than those of L1 English students, especially at Month 3 and Month 5. This is in stark contrast to the findings of Ädel and Römer (2012) and O'Donnell et al. (2013) who found that p-frames in the undergraduate students' papers had a great overlap with those in Hyland's research articles' corpus and that there were no effects of L1/L2 status in the frequency of p-frames, respectively. In this case, it is likely that L2 novice writers in this study had relatively lower proficiency of English, and/or they had less experience in academic writing than the participants of those studies.

In summary, the findings of this study revealed some similarities with the findings of lexical bundles in the essays of L1 Swedish speakers of English (Ädel & Erman, 2012), the developmental trajectories of lexical bundles in the essays of L1 Chinese speakers of English (Chen & Baker, 2014), and the developmental trends of p-frames in the essays of L1 German-speaking learners of English (Garner, 2016). Though the results of this study diverge from the other studies stated above in terms of the frequencies of lexical bundles and p-frames, these divergences can be partly explained by different research methodologies and designs of this study (i.e. the removal of prompt- and topic-bound multi-word units and a much smaller corpus) and contextual factors, as I explore below.

### 7.3 Teaching-induced factors in the use of multi-word units

Teaching-induced factors are those which can be attributed to second language instruction, academic writing instruction and feedback that university students receive on their essays from their lecturers in the two discourse communities.

They are present for five-word multi-word units for both groups. For the L1 English group, the two five-word lexical bundles ‘it can be argued that’ and ‘it could be argued that’ occurred relatively more frequently than they do in the sub-corpus of BAWE. As four out of five students interviewed stated that “lecturers like to see arguments in our essays”, the students were strategically trying to employ these two lexical bundles to give their lecturers an impression that they were presenting an argument. It is also possible that the requirement to meet the minimum word count was another driving factor behind this frequent use, as all the five students interviewed stated that they would prefer to use longer sequences to increase their word count. In a similar vein, but in the opposite direction, the two lecturers of L2 English students tended to discourage their students to use longer sequences in their essays through written and oral feedback, as eight out of 10 interviewees and the two lecturers interviewed told me. For instance, one of the interviewees told me that she was confused because her lecturers crossed out ‘due to the fact that’ and wrote instead ‘because’, since it filled up less space. She also maintained that she remembered reading ‘due to the fact that’ in academic sources, and she was taught this multi-word unit at high school. This caused ‘a crack in the priming’ (Hoey, 2005, p. 11) which indicated mismatch between prior learning experiences of students and current feedback and advice they received from their lecturers. This partly explains the infrequent use of five-word multi-word units in L2 English students’ essays. Another possible factor is that using longer sequences in context could be more difficult than using shorter sequences for L2 English students.

Instruction on hedging in academic writing can account for both groups' use of multi-word units that include hedging devices. For L2 English students, the increase of multi-word units that served as hedges at Month 9 can be partly attributed to instruction they received for hedging in academic writing. For instance, the emergence of 'may' within lexical bundles and 'possible' within 'it is \* to' p-frame took place in essays of L2 English students at the end of the first year. My interviews with both students and lecturers confirmed that students were taught to soften their claims during the second semester of the first year. Nonetheless, hedging is a very complex phenomenon which would be shaped by interlanguage features, L1 and cultural background, as I discuss below. Similarly, L1 English students received instruction on hedging from the beginning of the first semester in their first year, and their use of hedging expressions was higher than that of L2 English students at each time period.

Apart from five-word lexical bundles and multi-word units that convey hedging, teaching-induced factors can also be responsible for the use of certain multi-word units. For the L1 English group, 'this + verb clusters', i.e. 'this \* that' (unattended this) occurred frequently across time, partly due to writing guidance that students received from one of their lecturers. Both my student interviewees and the lecturer stated that 'this + verb clusters' received attention in the academic writing class in the first semester. 'This + verb clusters' served as discourse organisers, especially to elaborate and explain the previous statement that the students put forward in their essays. Similarly, Wulff et al. (2012) provided evidence for ongoing delexicalisation of 'this + verb clusters' into discourse organisers and suggested that pedagogical materials for academic writing would need to pay attention to 'unattended this'. On the other hand, 'unattended this' was absent in L2 English students' essays, except at Month 3 when this pattern occurred very infrequently, and students received no explicit instruction or guidance on the use of these multi-word units.



Teaching-induced factors, especially previous L2 instruction can have undesirable effects on L2 writers' use of phraseology. L2 novice writers interviewed stated that they were given lists of phrases at English classes of high school to use them in their essays. This undesirable effect was evident from their limited awareness of discourse functions of the multi-word units, as can be inferred the stimulated recall protocols, especially at Month 3.

These teaching-induced factors show that explicit teaching and/or guidance on multi-word units or academic writing in general influence students' use of these units in their essays. Interview data proved helpful to contextualise the findings of essays and provided explanations to make findings contextually more relevant, which would otherwise be difficult to do. The findings indicate that explicit teaching can be useful for students to navigate their way through writing academic essays as long as teaching and/or guidance on multi-word units is provided with specific examples and explanations of their functions.

#### **7.4 Register and genre awareness in the use of multi-word units**

I refer to register awareness as the awareness of lexico-grammatical and discoursal-semantic patterns associated with the situations, i.e. formal and written registers in this study, and genre awareness as the awareness of the locally built-in aspects of language use which would include the characteristics of that register (Lee, 2001).

Previous studies have pointed out that both L1 and L2 novice writers of English can use linguistic features of writer involvement and informality which are more typical of speech rather than written registers (Ädel, 2006; Gilquin et al., 2007; Paquot, 2010). For instance, the multi-word units, such as 'that/this is why', 'I think that', 'from my point of

view', 'first of all', 'all in all' were given as examples of speech-like lexico-grammatical features (Paquot, 2010).

In this study, the first personal pronouns *I* and *we*, the most obvious ways of writer involvement, became absent within the multi-word units at the end of the first year in L2 novice writers' texts. If I follow the line of argument of the previous studies, this absence of *I* and *we* can be interpreted as an increasing degree of register awareness. Among the multi-word units that L2 novice writers used were 'as I mentioned' (discourse organiser), 'we can \* that' (epistemic stance) at Month 3, and 'we can say that' and 'we should be' at Month 5. Students stated that they received conflicting advice on the use of the first personal pronouns, especially on *I* from their lecturers. Probably because of this confusion, they did not use them frequently, and the multi-word units did not include any first person plural pronouns. In fact, there is scope for explicit writer involvement in academic writing, and the first personal pronouns can have different rhetorical functions in academic writing (Hyland, 2001, 2002), and the different disciplines, especially humanities, could allow for more writer involvement through the first person singular pronoun (e.g. Harwood, 2005; Hyland, 2002). However, from a genre perspective, the students' avoidance of the first person pronouns at Month 9 can be seen as a strategically appropriate choice in their own local discourse community.

Apart from the first person pronouns, passive constructions, which convey impersonality, are often considered as typical of academic written registers (Callies, 2013). In this study, the proportion of passive constructions increased gradually within multi-word units in L2 novice writers' essays over one academic year. When I asked students to explain the reason for that, the students reported that they mostly saw passive constructions in journal articles they read. This suggests that L2 novice writers increased their register awareness. Similarly, L1 novice writers used passive constructions within both lexical bundles and p-frames at a steady increasing rate over one academic year, and their

perceptions of the passive constructions in academic writing were similar to those of L2 novice writers. There were no quantitative changes in the frequencies of first person pronouns within multi-word units in L1 novice writers' texts, though they received conflicting advice from their lecturers on the use of *I*, as L2 novice writers did. For instance, 'I believe that' was acceptable for one lecturer interviewed, but it was not seen as appropriate in an academic essay for the other one interviewed.

The higher frequency of VP-based bundles in comparison to NP-based and PP-based bundles has been considered as one of the characteristics of the register of conversation (Chen & Baker, 2014), since academic prose has much higher frequencies of NP- and PP-based bundles than those of VP-based bundles (Biber, 2009). L1 novice writers of this study used higher frequencies of VP-based bundles than L2 novice writers, though these frequencies overall showed a decreasing trend over time, in line with Biber et al.'s (2011) hypothesis for progression of phrasal features in novice academic writing. The same trend was also observed for verb-based p-frames in both L1 and L2 novice academic writing. With reference to the previous literature (Biber et al., 2011 & Chen & Baker, 2014), it can be said that both groups of students improved their register awareness, and L2 novice writers had slightly greater register awareness than L1 novice writers. However, if I take into account the contextual factors, this can be explained by L1 novice writers' use of verb phrases in order to convey overt stance and build argumentation as the lecturers expected them to present an argument and take a stance towards the propositions in L1 novice writers' essays. This is line with the findings of Staples et al. (2016) who found that verb phrases, which mainly express overt stance and argumentation, are more common in humanities and social sciences disciplines than in hard science disciplines.

For both groups, there was a clear sign of developing register and genre awareness with regard to their learning sources of multi-word units in academic writing over time. When I interviewed both groups at the first stage, the students' reported learning sources

for multi-word units varied greatly from fiction books to academic journal articles, though for L2 novice writers, songs and computer games were even included. At the end of the first year, both groups reported that their only learning sources for multi-word units to use in academic essays were academic books and journal articles.

Register and genre awareness of novice writers are at the intersection of the conventionalised lexico-grammatical features of academic writing and locally situated features of academic writing. Discipline-specificity could add to an interplay of complex factors. In general, based on the abovementioned points, it can be said that both L1 and L2 novice writers developed their register and genre awareness in the use of multi-word units in academic writing.

### **7.5 Interlanguage developmental factors in the use of multi-word units**

Interlanguage developmental factors refer to linguistic features of learner language shared by learners from a wide range of first language backgrounds. Although identification of interlanguage developmental features and L1 influences in a learner language requires a systematic investigation of learners' interlanguage, L1 and other learner language from different L1 backgrounds (see Paquot, 2013, 2014), I will refer to the previous literature to speculate on interlanguage developmental features of multi-word units in Turkish students' essays in English.

Interlanguage developmental features of L2 novice writers can account for the overrepresentation of certain bundles, including 'as well as', 'a lot of' and 'as a result of' in their essays in comparison to the sub-corpus of BAWE. This is a general tendency for essays of L2 novice writers, as Bestgen and Granger (2014) stated, "L2 writers overuse the bundles they are familiar with" (p. 29). In a similar vein, the less frequent use of p-frames by L2 novice writers in comparison to L1 novice writers over time can also be traced to

interlanguage developmental features of L2 novice writers. Sinclair's idiom principle (1991) suggests that language use by L1 speakers is more likely to reflect the phraseological nature of language than that of L2 speakers. Arguably, L2 novice writers had limited input for English, which manifests itself through less patterned academic language in their essays. However, this may not be the only reason, as the lecturers reportedly valued a variety of lexico-grammatical features in their essays, according to half of the students interviewed. Additionally, L2 novice writers of this study used 'nuclear' multi-word units (Stubbs, 1986) which do not reflect the style of academic writing, such as 'in today's world', 'in our lives', 'people \* that they', which were overrepresented in their essays over time in reference to the sub-corpus of BAWE. Non-occurrence of such multi-word units in L1 novice academic writers' essays indicate that the use of such vague nouns ('lives', 'people', 'world') distinguish L1 novice academic writing from L2 novice academic writing (Hinkel, 2002).

Learner language has been characterised by emergent and dynamic patterns from the perspective of usage-based linguistics (e.g. Ellis; 2008; Ellis & Larsen-Freeman, 2006; Hoey, 2005). This emergentism was obvious in L2 novice writers' use of multi-word units, since the structural categories and the most frequent variants of p-frames changed to a greater extent in L2 novice writers' essays than in L1 novice writers' essays. L2 novice writers' tendency for experimentation in their use of multi-word units, to which they had recently been exposed, can be responsible for emergent multi-word units at Month 3 and Month 5, as half of the students reported in the interviews. At Month 9, L2 novice writers tended to opt for conventionalisation for the use of multi-word units, possibly due to effects of increasing input for L2, increasing register and genre awareness and students' aim to receive better grades. For the L1 English group, the phraseological patterns in terms of structural categories and the most frequent variants of p-frames did not remain stable in their essays; therefore, this emergentism was also apparent in L1 novice writers' essays,

albeit to a lesser extent. This resonates with the usage-based constructionist framework which explains for dynamic and emergent L1 and L2 language use (e.g. Barlow & Kemmer, 2000).

L2 novice writers used lexical bundles that conveyed stance less than L1 novice writers in this study over time. The lower frequencies of stance expressions in L2 novice writers' essays can be traced to interlanguage developmental features, since the findings of similar studies for hedging expressions support this hypothesis (Ädel & Erman, 2012 for L1 Swedish speakers of English; Chen & Baker, 2010 for L1 Chinese speakers of English). The epistemic stance bundles of L2 novice writers contained "can", "should" and "need to" at Month 3 and at Month 5, and through these bundles, L2 novice writers not only showed more certainty with their claims, but also attempted to "influence the reader by emotional appeal" (Ädel, 2006, p. 78). Only at Month 9 did "may", which was subsumed within lexical bundles used by L1 novice writers over time, emerge within lexical bundles used by L2 novice writers; however, L2 novice writers' use of "may" was still limited, as compared with that of L1 novice writers. Furthermore, "could" or "would", which were present in L1 novice writers' multi-word units, were absent in L2 novice writers' multi-word units. The grammaticalised expressions of modality, including "could" and "would" appeared at later stages than other forms in learners' data (Salsbury & Bardovi-Harlig, 2000); hence, one academic year was not enough to see these expressions in L2 novice writers' essays in this study.

L2 novice writers' greater use of attitudinal stance expressions than L1 novice writers in this study can also be explained by interlanguage developmental features of L2 novice writers since L2 writers may "take moralistic and emotionally appealing approaches to argumentation and persuasion" (Hinkel, 2011, pp. 527-28). However, it should be noted that L2 novice writers became more similar to L1 novice writers at Month 9 in this respect. Besides interlanguage developmental factors, both L1 and cultural background could also

account for the use of stance expressions to a certain extent, as Hyland (2013, p. 56) argues that language and writing are “intrinsically bound up with culture” since “cultures make available certain taken-for-granted ways of organizing our understandings.” It has been found that L1 Turkish learners of English made a frequent use of expressions that conveyed attitudinal stance in their L1 and L2 writing (Çandarlı et al., 2015; Uysal, 2012).

Several specific characteristics of the use of multi-word units in Turkish students’ essays can be traced to interlanguage developmental features. At Month 3, more frequent use of ‘existential *there*’ constructions and ‘*it* clauses’ in L2 novice writers’ essays than in L1 novice writers’ essays is probably because of developmental features of interlanguage in Turkish students’ essays, as these two constructions in learner language are “universal and not [L1] language specific” (Maden-Weinberger, 2009, p. 261). These two patterns were used similarly by both groups in terms of frequency later at Month 5 and Month 9. Similarly, the more frequent and marked discursal use of ‘on the other hand’ in Turkish students’ essays at Month 3 is due to the interlanguage developmental features, as ‘on the other hand’ is “the learner’s all-time favourite” four-word lexical bundle (Chen & Baker, 2014, p. 13). In this study, the Turkish learners of English used ‘on the other hand’ similarly to their native English-speaking counterparts in terms of both frequency and discourse functions at Month 5. Although ‘on the other hand’ was still used more frequently by Turkish students than British students at Month 9, my contextual analysis revealed that the use of ‘on the other hand’ was unmarked in terms of discourse functions. This shows that L1 and L2 frequency discrepancies do not necessarily cause marked use in context. For these two patterns, it can be said that Turkish learners of English showed a linear developmental pattern and reached the level of L1 novice writers.

A final interlanguage developmental feature that led to disparities between L1 and L2 novice writers in this study was noun phrases which have been identified as a feature that shows very gradual progression in L2 novice academic writing (Biber et al., 2011).

The frequencies of NP-based bundles in L2 novice writers' essays were lower than those of L1 novice writers at both Month 3 and Month 5. The same trend was even more pronounced for function-based bundles which take nouns as their variants at each time period. Even though the frequencies of NP-based bundles in L2 novice writers' essays were close to those in L1 novice writers' essays at Month 9, the frequencies of p-frames, such as 'the \* of', 'the \* of the', which contain nouns, remained much lower in L2 novice writers' essays than in those of L1 novice writers. Given that these two p-frames, i.e. 'the \* of' and 'the \* of the' are the most frequent ones within three- and four-p-frames in the academic prose of English, respectively (Ädel & Römer, 2012; Biber, 2009), there is still need for L1 Turkish learners of English to increase the use of NP-based multi-word units their academic writing. It should be noted that these two p-frames remained underrepresented in L1 novice writers' essays over time in comparison to the sub-corpus of BAWE, which may suggest that progression towards noun phrasal features in L1 novice writing was also slow (Biber et al., 2011).

The above-mentioned interlanguage developmental features indicate that L2 novice writers of this study share some of the features of learner language found in previous studies. Although certain features showed a linear developmental pattern, the use of noun phrases and nuclear multi-word units may require pedagogic attention in academic writing classes.

## **7.6 L1 and cultural influences in the use of multi-word units**

L1 and cultural influences refer to influences of L1 background and influences of characteristics of cultural background in the use of multi-word units in L2 novice writers' essays.



The preference of “we” over “I” within the multi-word units of L2 novice writers at Month 3 and at Month 5 can be attributed to cultural background. L2 novice writers used “we” mostly in combination with modal verbs, such as “can, should, need to”. Although the differences between inclusive and exclusive “we” in my data were somewhat blurred, the majority of them served as inclusive “we” and directed the reader to undertake cognitive or real-life action. It is unlikely that L1 frequency effects were transferred for the use of “we” within multi-word units, because the frequency of translational equivalent of “I” in the written Turkish National Corpus was much higher than that of “we” in academic writing (Aksan et al., 2012)<sup>17</sup>. In this case, it is likely that cultural factors are at work. At the risk of overgeneralisation of national cultures, according to Hofstede’s cultural dimension of individualism versus collectivism (2001), Turkey, with a score of 37, is a collectivist country, whereas the United Kingdom, with a score of 89, is an individualistic country. Although this dichotomy is simplistic, and these dimensions have received much criticism (see McSweeney, 2002), Gudykunst (2004) argues that individuals can be indirectly influenced by national values; therefore, the use of ‘I’ versus ‘we’ in these groups within the multi-word units can be partly explained by these dimensions. Novice writers’ confidence in their claims and advice the students receive on personal pronouns can also account for this preference.

L2 novice writers’ essays in this study included fewer multi-word units that served as discourse organisers than L1 novice writers’ essays over time. This is in stark contrast to previous studies that have characterised learners’ texts as “chains of connective devices” (Paquot, 2010, p. 174); hence, this cannot be attributed to developmental features of interlanguage. Instead, this feature seems to be linked to cultural factors and institutional context. L2 novice writers avoided making explicit transitions through multi-word units,

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<sup>17</sup> Please note that it is difficult to directly compare the pronouns between Turkish and English since Turkish is an agglutinative language, and the pronouns in English are realised at the morphological level in Turkish. Therefore, the translational equivalents of these pronouns are searched for with the help of regular expressions in the Turkish National Corpus rather than the translational equivalents of phrases.

probably because of feedback and guidance that they received from their lecturers. To illustrate this point, one lecturer interviewed told me that “the students did not need to use connectives or transitions”, and the essays were clear to her because they “shared the same cultural background.” Similarly, the majority of the students reported that their transitions or connective devices were crossed out as redundant. On the other hand, at the UK university, both lecturers interviewed paid special emphasis to the use of connectives and transitions as well as explanation and elaboration of the prior discourse in their students’ essays. This evidence is parallel to the argument put forward by Hinds (1987), that Anglo-Saxon writing favours a more writer-responsible style which requires explicit, direct and clear relationships between ideas. On the other hand, a reader-responsible style, which leaves the interpretation of texts to readers, seemed to be preferred in the L2 context. Though Hind’s (1987) dichotomy of reader- vs writer-responsible writing traditions appears to be general and simplistic (see Matsuda, 1997), the analysis of essays and interviews gave concrete evidence to preferred styles in these two contexts. In addition to a more reader-responsible style of writing of novice L2 writers, a more descriptive style of L2 novice writing might explain why they used much fewer discourse organisers than L1 novice writers. It may be the case that L2 novice writers did not explain the quotes they used in academic essays or made use of limited reasoning when they made their arguments. The possibility of using single-word discourse organisers by L2 novice writers rather than multi-word units cannot be ruled out.

As it is seen above, it is likely that the interplay of L1 and cultural background influenced the use of multi-word units in L2 novice writers’ essays, but it is difficult to separate or pinpoint the reasons for the distinctive phraseological patterns in L2 novice academic writing.

## **7.7 Lecturers' and novice writers' perceptions of the use of multi-word units**

The lecturers' and novice writers' perceptions of the use multi-word units and academic writing in general seemed to influence students' linguistic choices in their academic writing, as discussed above in different categories. In this section, I review interactions that do not fall into categories above.

Awareness of novice writers' discourse functions of lexico-grammatical patterns can a play role in the development of such patterns (Matsuda, 2012). This can be manifested through tendency of the use of stance expressions in a stable manner in L1 novice writers' students, since L1 novice writers interviewed were aware of the discourse functions of multi-word units since the beginning of the first semester, and they received guidance on them. Though most of the L2 novice writers interviewed increased their awareness of the discourse functions of multi-word units at the end of the first year, it seems that L2 novice writers' self-reported discourse functions of multi-word units remained more limited than those of L1 novice writers. This is also reflected in differences in the use of multi-word units between these two groups.

In the L2 context, lecturers' encouragement to use a variety of lexico-grammatical features, and novice writers' belief that they would receive a better grade if they employed different multi-word units than the rest of the class can account for less frequent use of p-frames in L2 novice writers' essays than p-frames in the essays of L1 novice writers over time. Since my methodology identified discourse building blocks which were present in both groups, the L2 novice writers' effort to use novel or unusual multi-word units could lead to fewer p-frames identified in this group. It is conceivable that more focused instruction could lead to a greater degree of awareness of multi-word units, which in turn result in the use of multi-word units that are typically found in English academic writing.

In both contexts, the novice writers struggled to adjust their academic writing in accordance with the expectations of different lecturers. Students' accounts of their academic writing practices reveal that they encountered difficulties in producing the kind of writing that lecturers expected from them; as one of the students said, "we are in constant limbo." Hence, for novice writers, academic writing is similar to "a game with a bewildering set of rules, many of which are never made explicit to student writers" (Harwood & Hadley, 2004, p. 356). In this game, the novice writers tried to be strategic about their linguistic choices; however, this strategy implementation was arguably a more challenging process for L2 novice writers than L1 novice writers because L2 novice writers were trying to navigate both the target language and academic conventions at the same time. All L2 novice writers interviewed reported confusion and frustration about what to use and how to use multi-word units in their essays throughout their challenging journey in their first year during both interviews I conducted with them. Additionally, lecturers' encouragement to take a critical approach to conventions of academic writing in English might have possibly left them puzzled. Hyland (2013) notes that students should be introduced to dominant practices of academic writing as they are favoured in educational contexts, and they could be encouraged to critique these practices at the same time. Though novice L1 writers had also challenges in tailoring their academic writing according to the expectations of their essays, this process was easier for them since they had better mastery of lexico-grammatical features in English than L2 writers.

It is obvious that novice writers' and lecturers' perceptions of the use of multi-word units and academic writing in general can reinforce the complex interplay of the factors discussed above. It seems that demystification of local academic writing practices by lecturers may shape novice writers' perceptions and practices to a certain extent, which in turn could contribute to a change in the use of multi-word units in their essays.

## **7.8 Summary**

I have discussed the hypotheses of my study, compared and contrasted the findings of my study with previous studies, and explained possible factors that influence similarities and differences in the use of multi-word units in both L1 and L2 novice writers' essays over time. In line with dynamic systems theory (de Bot et al., 2007; Larsen-Freeman, 2006), this study suggests that multiple factors are involved in shaping linguistic choices of both groups.

The next chapter presents the contributions to knowledge of this study and offers teaching implications for academic writing and language instruction.

## Chapter 8 Conclusion

“All are in flux like a river.”

Heraclitus

This chapter first presents the contributions to knowledge of this study, and then offers pedagogical implications for English language instruction at high school and tertiary level in Turkey and in other non-English-speaking countries in which students are required to write assignments in English in English-medium instruction contexts. Additionally, pedagogical implications are offered for academic writing class in English-medium instruction contexts. Then, I discuss the limitations of my study and make suggestions for further research on multi-words units in novice academic writing.

### 8.1 Contributions to knowledge

This study set out to examine to what extent, if any, lexical bundles and p-frames in the essays of L1 and L2 novice writers would change with regard to frequency, structural categories and discourse functions over one academic year as well as the differences and similarities in the use of lexical bundles and p-frames between the essays of L1 and L2 novice writers over one academic year. This study also examined how the frequencies of lexical bundles and p-frames identified in the essays of L1 and L2 novice writers would correlate with those in the sub-corpus of BAWE over time. The analysis of essays was complemented with interviews that aimed to explore to what extent, if any, the L1 and L2 novice writers' perceptions of the use of multi-word units and their self-reported discourse functions of multi-word units would change over one academic year. This study also explored the lecturers' perceptions and expectations of the use of multi-word units in novice academic writers' essays in the two discourse communities. I now present the contributions to knowledge of this study.

This study has revealed dynamic, emergent, and multi-agent patterns of change in the use of multi-word units in both L1 and L2 novice academic writing even within one academic year, which is in accord with the dynamic systems theory perspective on language use (de Bot et al., 2007; Ellis & Larsen-Freeman, 2006). Considerable changes occurred in the frequencies, structural and discoursal categories of these multi-word units. Cross-sectional and even pseudo-longitudinal studies miss these dynamic patterns of change in the use of multi-word units within the same group of novice writers. Although primarily linear changes were found in the use of multi-word units, non-linear patterns of change were also evident in the data, especially for the individual lexical bundles and p-frames which had highly emergent and dynamic nature (Larsen-Freeman, 2006). What is also important is the exact date of when the essays were collected from both L1 and L2 novice writers. This study revealed greater discrepancies in the use of multi-word units between these two groups at Month 3, while both groups became more similar in the use of multi-word units at Month 9, though there were certain patterns, including ‘nuclear’ multi-word units and fewer phrase frames in L2 novice writing that singled out it from L1 novice writing at even Month 9.

The results of this study suggest that lexical bundles alone give a limited picture of the phraseological profile of advanced L2 learners in English academic writing in comparison to L1 novice writers. The results of both lexical bundles and p-frames provided a more complete picture of phraseological profile in both L1 and L2 novice academic writing in English; hence it is useful to combine different methods (O’Donnell et al., 2013; Römer, 2016). L1 novice writers employed p-frames in their essays significantly more frequently than L2 novice writers over one academic year. This finding suggests that discontinuous sequences, i.e. p-frames are more likely to distinguish L2 novice writing by advanced learners of English from L1 novice writing. At a theoretical level, this shows that Sinclair’s (1991) idiom principle which is concerned with the phraseological tendency of

language is at work in L1 novice writers' essays to a greater extent than in L2 novice writers' essays. The structural categories of p-frames and the most frequent variants of p-frames showed more dynamic patterns of change in L2 novice writers' essays than in L1 novice writers' essays. This can indicate the emergent and dynamic nature of learner language (e.g. Ellis, 2008) and represent developmental process, since change in learner language is often accompanied by development (Lowie & Verspoor, 2015).

Growth curve modelling in this study shows that there was variance within L2 novice writers' use of multi-word units in terms of initial state (intercepts). This finding is not surprising as learner data were often characterised as heterogenous (Gries, 2006). Surprisingly, variance was found within L1 novice writers' use of multi-word units in terms of both initial rate (intercepts) and rate of change (slopes) in several cases in this study. Hence, this study reveals that L1 novice writers' use of multi-word units is not homogenous and that groups can have different random effect structures which should be accounted for by using mixed-effects/multi-level modelling. Otherwise, traditional statistical tests, such as ANOVA would create spurious significant or non-significant findings because even when there was a very small variance in this study, the mixed-effects modelling, i.e. growth curve modelling provided a better fit for the data than simple linear regression. The surprisingly greater heterogeneity of L1 novice writers' use of multi-word units in comparison to that of L2 novice writers may be explained by the 'harmonising principles' (Hoey, 2005) of instruction. As the interviews suggest, L2 novice writers took an academic writing course at both first and second semester during their first-year of study and received probably more advice and feedback on the use of multi-word units, which may have restricted the students' agency in the use of multi-word units (Canagarajah, 2002).

The greater similarity of L1 and L2 novice writing at the end of the first-year than the first two periods at university suggests that L2 novice writers' increased reading and



writing experiences of academic sources and exposure to the target language at an English-medium university contributed to incidental learning of multi-word units (Li & Schmitt, 2009). This resulted in the developmental patterns of change in multi-word units in their essays. It is likely that L2 novice writers were sensitive to the primings of the contexts of multi-word units in academic writing (Hoey, 2005) and “frequency, recency and context of constructions” (Ellis, 2006, p. 105). This finding also suggests that L1 and L2 novice writers can show greater similarities rather than differences over time in the use of multi-word units (Römer, 2009a, 2009b).

Incidental learning of multi-word units typical of academic writing did not only occur in L2 novice writers’ essays, but also in L1 novice writers’ essays, as can be inferred from the decreasing trend of verb-based multi-word units and overall greater correlations of lexical bundles between novice writers of this study and writers of the sub-corpus of BAWE, successful undergraduate academic writing. Usage-based approaches to language account for these developmental patterns of change since both L1 and L2 novice writers’ patterns of change can be attributed to usage events which involve exposure to the characteristics of academic writing in English through reading and writing. This suggests that both L1 and L2 writers during their first-year of study are learning register and genre conventions of academic writing (Römer, 2009a, 2009b). Both L1 and L2 novice academic writing overall approximated to the typical characteristics of the English academic prose identified in previous studies (Biber, 2009; Gray & Biber, 2013).

L1 novice writers’ patterns of change may not only be attributed to their learning process of register and genre conventions of academic writing. The findings of this study show that p-frames became more variable and less predictable in L1 novice writers’ essays over time. From usage-based constructionist approaches to language, this suggests that language development from fixed and exemplar constructions to schematic ones (Ellis et

al., 2016) occurs even at university level for L1 speakers, and constructionist perspective may account for both L1 and L2 language use.

This study also enhances our understanding of the importance of contextual factors in the use of multi-word units in novice academic writing by taking into account the characteristics of the two discourse communities. The different phraseological patterns between the two groups cannot be explained only by L1/L2 dichotomy. Contextual factors, including lecturers' advice, may override potential effects of internal resources, including the first language. More frequent use of discourse-organising multi-word units in L1 novice writers' essays, which was in stark contrast with the findings of the earlier studies (e.g. Ädel & Erman, 2012; Chen & Baker, 2010), was evidently shaped by the lecturers' advice on the use of discourse-organising phrases, as can be inferred from the interviews in this study. Hence, taking contextual factors into account in context-specific studies provide methodological enrichments for the study of phraseological patterns (Römer, 2016). This study's qualitative aspect in the form of interviews provides a framework for the interpretation of primarily quantitative context-specific studies which would be enriched by useful insights gained from qualitative perspectives.

The interviews conducted as part of this study indicate that the lecturers' perceptions of the use of multi-word units in their students' academic writing were not always in line with the empirical findings of the textual analysis. While one of the lecturers (Bahar) at a Turkish university believed that her students underused the multi-word units which increased writers' certainty (boosters), the empirical findings showed the opposite, especially at Month 3 and Month 5. In a similar vein, two of the lecturers reportedly gave advice on the use of discourse-organising multi-word units for L1 novice writers and reported no perceived overuse of these sequences. However, discourse-organising units were found to be overrepresented in L1 novice writers' essays in comparison to the sub-corpus of BAWE, and there was a steady increase in the use of discourse-organising multi-

word units. This mismatch between lecturers' perceptions and empirical evidence has important teaching implications, as discussed in section 8.2.

My interviews with novice writers reveal that both groups reportedly increased their awareness of the discourse functions of the multi-word units that they used in their essays over one academic year. It should be acknowledged that novice writers' participation in this study might have played a role in their increasing awareness of the multi-word units. Another manifestation of increasing awareness of multi-words in academic writing was their reported learning sources for them. Although learning sources of multi-word units included novels, computer games, songs, academic books and articles in the first semester, they were limited to only academic books and articles at the end of the first year. Though L2 novice writers showed less awareness of the discourse functions of multi-word units both at Month 3 and Month 9 than L1 novice writers, they improved their awareness at the end of the first year at university. Both L1 and L2 novice writers attached great importance to multi-word units in their academic writing, though there was confusion about the individual lecturers' expectations of the use of multi-word units. This confusion was greater for L2 novice writers who were learners of academic writing in English and learners of the English language at the same time. L1 novice writers reportedly paid less attention to multi-word units as they gained more experience in academic writing.

In conclusion, this study gave a comprehensive picture of the use multi-word units in both L1 and L2 novice writers' essays over one academic year by integrating their own and lecturers' perceptions of the use of multi-word units. This research yielded promising results for the trajectories of multi-word units in L2 novice writers' essays in that they slowly progressed towards the use of multi-word units that are typically found in English academic writing and approximated to the academic prose of English in terms of the discourse functions and structural categories (Biber, 2009 & Gray & Biber, 2013). This is

probably due to their exposure to L2 input in academic register and their increasing experience in academic writing over time.

## **8.2 Pedagogical implications**

I offer pedagogical implications for teaching English at high school and tertiary level in Turkey and teaching academic writing in similar contexts, based on the results of my study. I also draw implications for academic writing guidance and advice given to students for classes in which students are required to submit assignments in English at English-medium universities.

This study has revealed that list-based teaching of multi-word units provided at high school in Turkey can have undesirable effects for students in that students may not gain awareness of their semantic and discourse functions in context through just lists of multi-word units. Also, students who are given a list of multi-word units to memorise may feel that they need to use them as much as possible in their writing, as the interviews revealed in this study in the first semester. Hence, list-based teaching of multi-word units should be abandoned unless accompanied by examples in context. This is not to say that the lists of multi-word units cannot be useful. The lists could be of benefit to teachers who would design teaching materials for these multi-word units and advanced learners of English who would wish to explore them further in their own time. However, it should be made clear to students that multi-word units should be learned through examples in context. It would be valuable to discuss the discourse functions of multi-word units in context with students in class. Corpus-based/informed lists of multi-word units have been compiled recently (see Liu, 2012; Martinez & Schmitt, 2012; Simpson-Vlach & Ellis, 2010), and they can be an effective springboard for focused instruction for multi-word units in English language teaching. However, they should not be an end in themselves.

It is evident from this study that L2 novice writers are sensitive to L1 and cultural factors in their use of multi-word units in academic writing. Besides L2 teaching sources, texts in students' L1 can be used to emphasise rhetorical differences of multi-word units or frequently used academic vocabulary so that students would be more aware of their linguistic choices, and they can develop their control over such discourse building blocks in their writing. Nonetheless, it should be pointed out that overfocus on multi-word units at high school may be perilous for students who would make the assumption that 'the more multi-word units they use, the better their essays will be', as was the case for some L2 novice writers during the first semester in this study.

In addition to corpus-based/informed lists of multi-word units, there are corpus tools available on the internet, including Writeaway, Linggle, SkeLL from SketchEngine, which students can learn to use for consultation for multi-word units and academic writing. They are relatively easy-to-use in comparison to other web-based corpora, including the COCA and BNC. The Academic Phrasebank of the University of Manchester, in which phrases are categorised based on their functions in academic writing, is another useful source for academic writers. Novice writers should be introduced to these sources and asked to practise using them in class so that they would get into the habit of benefiting from such sources. There has also been some empirical evidence that focused, explicit instruction on academic phrases leads to significant gains for the use of academic phrases in novice academic writing (e.g. AlHassan & Wood, 2015; Peters & Pauwels, 2015). Therefore, integration of recognition, cued output and repetition exercises for multi-word units could be useful in English language classes at high schools in Turkey and in other non-English-speaking contexts.

My interviews with both L1 and L2 novice writers of this study have increased participants' awareness of their use of multi-word units in academic writing to some extent, as the interviewees reported. Academic writing and English language instructors

could hold student-teacher conferences in order to learn how students approach academic writing tasks and perceive the use of multi-word units in academic writing. This practice, in turn, has the potential to shape teaching and feedback practices of instructors. Students would also benefit from their own reflective practices and teachers' comments and suggestions on their work. Additionally, it should be made clear to novice writers that academic writing is a social and discursive practice which has its own communicative goals and audience. This conception of academic writing is especially important for L2 novice writers whose main concern was task completion and language features of their texts during the first semester, as this study revealed. Obviously, the communicative goals and audience of assignments of novice writers at university differ from those of journal articles, but it is important to introduce students to genre characteristics of academic writing, no matter how hard it is to "change their mindset", as one of the lecturers reported at the Turkish university.

Corpus-based and corpus-driven activities can be employed to improve the use of multi-word units and academic writing in English language and academic classes at tertiary level in Turkey and in other English-medium contexts. The applications suggested below could also be of assistance to L1 English speaking, first year university students. Academic writing instructors, for instance, could create a corpus of their students' writing and analyse the most frequently used multi-word units with their students. In this way, both students and teachers would become more aware of which multi-word units students are using in their academic writing and how they are using them in their assignments. As this study has revealed, the lecturers' perceptions of their students' use of multi-word units in academic writing were not always in line with the corpus-driven empirical evidence for the use of multi-word units in students' writing. Specifically, the lecturers' perceptions of underuse of discourse organisers in L1 novice writers' essays were incompatible with the following empirical evidence: L1 novice writers' essays included more discourse

organisers than the academic prose of English (see Biber, 2009), and discourse-organising multi-word units were found to be overrepresented in L1 novice writers' essays than in the sub-corpus of BAWE which included successful first-year academic writing in similar disciplines. Although these perceptions can differ from one lecturer to another, it would be useful for academic writing instructors to examine their own students' essays with the help of a corpus tool to gain more objective insights into the language features of students' essays.

First year university students, especially L2 novice writers can be asked to identify multi-word units, which serve as stance expressions, especially hedges and discourse organisers in an academic text that they read in academic writing class, and they can discuss the communicative functions of these multi-word units with their instructors. This exercise can be of great benefit to L2 novice writers, as this study found that they generally used fewer discourse organisers, especially inferential multi-word units and stance expressions than L1 novice writers. L2 novice writers should also be given advice against the use of 'nuclear' multi-word units (e.g. 'in our life', 'all \* the world') that do not reflect the style of academic writing. Additionally, overt instruction on the role of noun phrases in English academic writing for both L1 and L2 novice writers may be necessary since the developmental patterns for noun phrases were found to be slow, and the most frequent noun phrases (e.g. 'the \* of the' and 'the \* of') were identified to be underrepresented in novice academic writing of this study in comparison to the sub-corpus of BAWE.

A disciplinary corpus of published writing which shares the same discipline with that of university students can be created for reference, and corpus-driven activities can be conducted in class to gain an understanding of how published writers use multi-word units as part of meaning-making practices in their own discourse community. Corpora of university students' papers in the BAWE and MICUSP can be beneficial learning and teaching sources for multi-word units and academic writing because student papers in these

two corpora represent successful student writing which received ‘merit’ or ‘distinction’ and ‘A’, in the BAWE and MICUSP, respectively. In a similar vein, web-based corpora, including the COCA and BNC can be exploited with university students to gain insights into the use of the multi-words in academic prose of English. For all the corpora, a combination of recognition, repetition, consciousness-raising, and discoursal awareness tasks for multi-word units in academic writing would be useful. There is, of course, a great amount of work for academic instructors and English language teachers to undertake corpus-based/driven activities in their classes. As there is still a big gap between corpus research and corpus-based/driven teaching practices, appropriate training to use corpora for teaching English for academic purposes should be provided for English language and academic writing instructors.

University students, regardless of their L1 background, should be given support and detailed guidance for their academic assignments in English at English-medium universities. Given that academic writing is a game that novice writers need to play during their undergraduate education (Harwood & Hadley, 2004), it may be unfair to university students who are often left unclear about the rules of the game. As this study revealed that lecturers’ expectations of academic writing differ from each other in the same programme, students, especially those in their first year should be provided with a detailed set of specifications for each assignment in terms of content, organisation and language features. Although this approach may be criticised for treating students like ‘cogs in a machine’, clear guidance, support and communication of individual lecturers’ expectations are necessary for students to develop the awareness and knowledge of locally situated academic writing practices. As this study has pointed out, novice writers are constrained by locally situated academic writing practices in both L1 and L2 contexts, which may restrict student agency in writing (Canagarajah, 2002), since students are expected to follow ‘local’ conventions of academic writing. Instead, it could be more empowering for students



if lecturers focus on the functions of the multi-word units in academic writing. For instance, when ‘due to the fact that’ has an appropriate discourse function in L2 novice writers’ essays, and it is not used frequently, it might be better for lecturers to give university students freedom to use that multi-word unit instead of crossing it out.

Novice writers may not develop critical perspective on academic writing practices before they have gained awareness of exactly what these conventional practices are (Wingate, 2012; Wingate & Tribble, 2012). Hence, a combination of corpus-based, critical pragmatic English for Academic Purposes and Academic Literacies model would be ideal for academic writing instruction at English-medium universities (Harwood & Hadley, 2004; Wingate & Tribble, 2012). While a corpus-based, critical pragmatic English for Academic Purposes would introduce students to conventional academic writing practices and invite them to question and shape these conventions, Academic Literacies model would focus on identity of writers, power relations, and context-dependent writing practices (Lillis & Scott, 2007).

Taken together, it is time to address the ‘missing link’ between corpus research and teaching practices for English and academic writing (Gilquin et al., 2007, p. 1). Arguably, university students, who are equipped with corpus skills, would be empowered as language researchers and users who can then uncover disciplinary and conventional practices, and develop critical perspective on them.

### **8.3 Limitations of the study**

This study has several limitations that need to be acknowledged. First, it was based on analysis of small longitudinal corpora of L1 and L2 novice academic writing, which restricts the generalisability of my findings. However, it should be noted that “good quality learner data are notoriously difficult to collect” (Chen & Baker, 2014, p. 30), and

compiling longitudinal L1 and L2 data from the same participants in a similar discipline is even more challenging for one researcher. Similarly, I was able to interview only 10% of my sample of student participants and two lecturers in both contexts due to logistical and time constraints. This suggests that my results cannot be generalised to other L1 or L2 novice writers of this study. However, the quantitative and qualitative findings of the use of multi-word units in L1 and L2 academic writing may resonate with English and academic writing instructors in similar degree programmes at other English-medium universities.

Another issue that was not addressed in this study was the quality of students' essays or the grades they received on their essays. Unlike the MICUSP and BAWE which represent successful student writing, the grades of novice writers were not controlled for in this study, as my aim was not to represent good quality student writing. Instead, I aimed to track one cohort of L1 and L2 novice writers' use of multi-word units over one academic year.

Methodologically, this study was limited to lexical bundles and p-frames in L1 and L2 novice writers' essays. As Römer (2016, p. 118) states, "methodological choices in corpus linguistics may have weighty consequences that researchers need to be aware of", and my choice for frequency-driven methodology can reveal the phraseological nature of academic writing to a certain extent. The knowledge claims based on the findings of lexical bundles and p-frames can account for the discourse building blocks that are frequent enough to be identified in novice academic writing. It may be the case that novice writers used more multi-word units which were not frequent overall in their cohorts. Similarly, L2 novice writers might have attempted to use more multi-word units, but deviances in the form of multi-word units, such as the misuse of articles caused them to be left unidentified in this study. My analysis was also limited to the structural categories and discourse functions of lexical bundles and p-frames. The scope of this study is restricted in

that it is possible that there might have been other differences and/or similarities in semantic preference and prosody of the same multi-word units between L1 and L2 novice academic writing. For example, ‘the fact that’, which was a common lexical bundle between L1 and L2 novice academic writing with a similar frequency of occurrence, might have exhibited different semantic prosody and preferences in L1 and L2 novice writers’ texts. Additionally, although I removed prompt-bound and topic-bound multi-word units which consisted of only content words, topic differences and assignment task effects between the two corpora might still have influenced the individual multi-word units identified in this study.

Another methodological limitation lies in the fact that the two corpora (TE and BE corpora) consisted of unequal number of texts and tokens in terms of both longitudinally within intra-group design and cross-sectionally within inter-group design. This unequalness creates issues in comparing types of multi-word units in different size of corpora (see Biber & Barbieri, 2007), which, in turn, restricts the claims to be made out of this study. I used dynamic thresholds for frequency and range in proportionate to corpus size and normalised the results per 300 words of each text for growth curve modelling. However, unequal number of texts might still be problematic for research into multi-word units, since a corpus with a greater number of texts might create bias for the results of discourse functions of multi-word units, since it would potentially include greater communicative functions than a corpus with a smaller number of texts. Nonetheless, this study was based on the trends of the discoursal and structural categories of multi-word units (tokens) rather than the number of types of multi-word units. It should be noted that “it is virtually impossible to find different corpora, of exactly the same size composed of the same number of texts, for direct comparison” (Chen & Baker, 2010, p. 43). Therefore, any comparison between different corpora is likely to be accompanied by inherent methodological pitfalls.

Unequal time intervals between the collection of essays in the two groups (i.e. a relatively short interval between the first stage and second stage, and longer one between the second and third stage) may have caused certain dynamic patterns of multi-word units not to be captured, especially for L2 writers. Additionally, although I call this study ‘longitudinal’, my corpora span over just one academic year. Nonetheless, as Ortega and Iberri-Shea (2005) argued, this longitudinal research is ideally situated in the context of key events or milestones. As the first year of university was a transition period for both L1 and L2 novice writers from high school/college to a more academic context, it is safe to argue that this study has longitudinal nature.

Despite these limitations, this study offered a comprehensive picture of multi-word units in L1 and L2 novice writers’ academic writing by taking into account their lecturers’ perceptions of the use of multi-word units in novice academic writing. This study also empowered students by giving them voice in academic writing practices in which students usually feel “at the lowest rungs of the academic ladder” (Tang & John, 1999, p. 34) and contributed to the interviewees’ reflective practices on academic writing and their awareness of discourse functions of multi-word units, to a certain extent.

#### **8.4 Suggestions for further research**

Taking these limitations of this study into account, I now would like to offer suggestions for further research. Future research using larger longitudinal corpora of both L1 and L2 novice academic writing is necessary to investigate the differences and similarities of the use of multi-word units between L1 and L2 novice writers. In a similar vein, further inquiry into novice writers’ perceptions of the use of multi-word units and their self-reported discourse functions of them would be useful to inform pedagogical

practices in different contexts. It would also be valuable to interview a more representative sample of students and lecturers in future studies.

Compiling longitudinal corpora which would cover a span of more than one academic year would be worthwhile to track developmental trajectories of the same students' use of multi-word units and the same multi-word units over time. It would also be interesting to compare low-scoring and high-scoring essays of L2 novice writers in a longitudinal design in order to monitor to what extent, if any, the use of multi-word units changes in high-scoring and low-scoring essays over time. Future research into the semantic prosody and preference of the multi-word units in L1 and L2 academic writing in cross-sectional and/or longitudinal design is also strongly recommended.

A systematic investigation needs to be carried out to reveal L1 effects on L1 Turkish novice writers' writing in English. Further studies might explore transfer of L1 frequency, discourse functions, collocational and colligational patterns, and semantic properties of multi-word units in L2 writing (see Paquot, 2013, 2014, 2017a). Using longitudinal corpora of L1 writing of L2 novice writers would allow us to track both developmental trajectories of multi-word units in L1 and L2 writing and to find to what extent, if any, cross-linguistic effects on the use of multi-word units in L2 writing would change over time.

In future studies, an algorithm can be used to divide each corpus into subsamples that would be equal in number of texts and tokens, in order to address the issues of unequal number of texts and tokens of each corpus and make comparisons between corpora more reliable, as it was applied in O'Donnell et al.'s study (2013). Lastly, lexical bundles and p-frames which are extracted in corpora used in this study are not the only manifestations of the phraseological nature of academic writing. More research into collocations, clusters, mutual information-defined multi-word units, psychologically valid formulaic sequences, target lexical bundles and p-frames which occur frequently in discipline-specific,

representative corpora is needed in essays of both L1 Turkish learners of English and other learners of English from different L1 backgrounds. This methodological triangulation would be worthwhile in order to contribute to the growing body of knowledge in second language acquisition and phraseology research, design more effective curriculum and inform English language and academic writing practices.

## References

- Ädel, A. (2006). *Metadiscourse in L1 and L2 English (Vol. 24)*. Philadelphia, PA: John Benjamins.
- Ädel, A. (2014). Selecting quantitative data for qualitative analysis: A case study connecting a lexicogrammatical pattern to rhetorical moves. *Journal of English for Academic Purposes, 16*, 68–80.
- Ädel, A., & Erman, B. (2012). Recurrent word combinations in academic writing by native and non-native speakers of English: A lexical bundles approach. *English for Specific Purposes, 31*(2), 81–92.
- Ädel, A., & Römer, U. (2012). Research on advanced student writing across disciplines and levels: Introducing the *Michigan Corpus of Upper-level Student Papers*. *International Journal of Corpus Linguistics, 17*(1), 3–34.
- Akaike, H. (1974). A new look at the statistical model identification. *IEEE Transactions on Automatic Control, 19*(6), 716–723.
- Aksan, Y., Aksan, M., Koltuksuz, A., Sezer, T., Mersinli, Ü., Demirhan, U. U., ... & Kurtoglu, Ö. (2012). *Construction of the Turkish National Corpus (TNC)* (pp. 3223-3227). In Proceedings of the 8th International Conference on Language Resources and Evaluation (LREC 2012).
- AlHassan, L., & Wood, D. (2015). The effectiveness of focused instruction of formulaic sequences in augmenting L2 learners' academic writing skills: A quantitative research study. *Journal of English for Academic Purposes, 17*, 51-62.
- Alsop, S., & Nesi, H. (2009). Issues in the development of the British Academic Written English (BAWE) corpus. *Corpora, 4*(1), 71-83.
- Altenberg, B. (1998). On the phraseology of spoken English: The evidence of recurrent word- combinations. In A. Cowie (Ed.), *Phraseology: Theory, analysis and applications* (pp. 101–122). Oxford: Oxford University Press.
- Arnon, I., & N. Snider. (2010). More than words: Frequency effects for multi-word phrases. *Journal of Memory and Language, 62*, 67–82.
- Baayen, R. H. (2008). *Analyzing linguistic data: A practical introduction to statistics using R*. Cambridge: Cambridge University Press.
- Baguley, T. (2012). *Serious stats: A guide to advanced statistics for the behavioral sciences*. Basingstoke: Palgrave Macmillan.
- Baratta, A. (2006). *A developmental analysis of features of academic writing*. Unpublished PhD thesis. University of Manchester.
- Barlow, M., & Kemmer, S. (Eds). (2000). *Usage-based models of language*. Stanford, CA: CSLI Publications
- Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language, 68*(3), 255–278.

- Bates, D. M. (2010). *lme4: Mixed-effects modeling with R*. Retrieved from <http://lme4.r-forge.r-project.org/IMMwR/lrgprt.pdf>
- Bates, D. M., Kliegl, R., Vasishth, S., & Baayen, H. (2015). *Parsimonious mixed models*. Retrieved from <http://arxiv.org/abs/1506.04967> (ArXiv e-print)
- Bates, D. M., Mächler, M., Bolker, B., & Walker, S. (2014). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1-48.
- Becker, A. L. (1995). *Beyond translation: Essays toward a modern philology*. Ann Arbor, MI: The University of Michigan Press.
- Belz, J. A., & Vyatkina, N. (2008). The pedagogical mediation of a developmental learner corpus for classroom-based language instruction. *Language Learning and Technology*, 12(3), 33-52.
- BERA. (2011). *Ethical Guidelines for Educational Research* [Online]. Retrieved from <http://www.bera.ac.uk/resources>.
- Bestgen, Y., & Granger, S. (2014). Quantifying the development of phraseological competence in L2 English writing: An automated approach. *Journal of Second Language Writing*, 26, 28–41.
- Bhatia, V. (1993). *Analysing genre: Language use in professional settings*. London: Longman.
- Biber, D. (2006). *University language: A corpus-based study of spoken and written registers*. Amsterdam: John Benjamins Publishing.
- Biber, D. (2009). A corpus-driven approach to formulaic language in English: Multi-word patterns in speech and writing. *International Journal of Corpus Linguistics*, 14(3), 275–311.
- Biber, D., & Barbieri, F. (2007). Lexical bundles in university spoken and written registers. *English for Specific Purposes*, 26(3), 263–286.
- Biber, D., & Conrad, S. (2009). *Register, genre, and style*. Cambridge: Cambridge University Press.
- Biber, D., Conrad, S. & Cortes, V. (2004). If you look at...: Lexical bundles in university teaching and textbooks. *Applied Linguistics*, 25(3), 371–405.
- Biber, D., & Gray, B. (2010). Challenging stereotypes about academic writing: Complexity, elaboration, explicitness. *Journal of English for Academic Purposes*, 9(1), 2–20.
- Biber, D., & Gray, B. (2012). The competing demands of popularization vs. economy. In T. Nevalainen & E. C. Traugott (Eds.), *The Oxford handbook on the history of English* (pp. 314- 328). Oxford: Oxford University Press.
- Biber, D., & Gray, B. (2013). Being specific about historical change: The influence of sub-register. *Journal of English Linguistics*, 41(2), 104–134.



- Biber, D., Gray, B., & Poonpon, K. (2011). Should we use characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly*, 45(1), 5–35.
- Biber, D., Johansson, S., Leech, G., Conrad, S. & Finegan, E. (1999). *Longman grammar of spoken and written English*. London: Longman.
- Bod, R., J. Hay, & S. Jannedy. (2003). Introduction. In R. Bod, J. Hay, & S. Jannedy (Eds.), *Probabilistic linguistics* (pp. 1–10). Cambridge/MA: MIT Press.
- Bolker, B. M., Brooks, M. E., Clark, C. J., Geange, S. W., Poulsen, J. R., Stevens, M. H. H., & White, J. S. S. (2009). Generalized linear mixed models: a practical guide for ecology and evolution. *Trends in Ecology and Evolution*, 24(3), 127–135.
- Bolker, B.M., Brooks, M.E., Clark, C.J., Geange, S.W., Poulsen, J.R., Stevens, M.H.H. & White, J. S.S. (2011). *GLMMs in action: gene-by-environment interaction in a total fruit production of wild populations of Arabidopsis thaliana. Revised version part 2*. Retrieved from [www.glmm.wikidot.com](http://www.glmm.wikidot.com).
- British Council & TEPAV. (2013). *Turkey national needs assessment of state school English language teaching*. Retrieved from [https://www.britishcouncil.org.tr/sites/default/files/turkey\\_national\\_needs\\_assessment\\_of\\_state\\_school\\_english\\_language\\_teaching.pdf](https://www.britishcouncil.org.tr/sites/default/files/turkey_national_needs_assessment_of_state_school_english_language_teaching.pdf)
- Bruce, I. (2010). Textual and discursive resources used in the essay genre in sociology and English. *Journal of English for Academic Purposes*, 9(3), 153–166.
- Bybee, J. (2008). Usage-based grammar and second language acquisition. In P. Robinson & N. C. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 216-236). New York: Routledge.
- Bybee, J. (2010). *Language, usage, and cognition*. Cambridge, UK: Cambridge University Press.
- Bybee, J., & Hopper, P. (Eds.). (2001). *Frequency and the emergence of linguistic structure*. Amsterdam: John Benjamins.
- Byrnes, H. (2009). Emergent L2 German writing ability in a curricular context: A longitudinal study of grammatical metaphor. *Linguistics and Education*, 20, 50–66.
- Callies, M. (2013). Agentivity as a determinant of lexico-grammatical variation in L2 academic writing. *International Journal of Corpus Linguistics*, 18(3), 357–390.
- Canagarajah, S. (2002). Multilingual writers and the academic community: Towards a critical relationship. *Journal of English for Academic Purposes*, 1, 29–44.
- Canagarajah, S. (2004). Subversive identities, pedagogical safe houses, and critical learning. In B. Norton & K. Toohey (Eds.), *Critical pedagogies and language learning* (pp. 116–37). Cambridge: Cambridge University Press.
- Carter, R., & McCarthy, M. (2001). Size isn't everything: Spoken English, corpus and the classroom. *TESOL Quarterly*, 35(2), 337-340.

- Chen, Y., & Baker, P. (2010). Lexical bundles in L1 and L2 academic writing. *Language Learning & Technology*, 14(2), 30–49.
- Chen, Y., & Baker, P. (2014). Investigating criterial discourse features across second language development: Lexical bundles in rated learner essays, CEFR B1, B2 and C1. *Applied Linguistics*, 1–33.
- Cheng, W., Greaves, C., & Warren, M. (2006). From n-gram to skipgram to concgram. *International Journal of Corpus Linguistics*, 11(4), 411–433.
- Cochran, W.G. (1950). The comparison of percentages in matched samples. *Biometrika*, 37, 256-66.
- Coffin, C. (1996). *Exploring literacy in school history*. Sydney: NSW Department of School Education.
- Coffin, C., & Hewings, A. (2003). Writing for different disciplines. In C. Coffin, M. J. Curry, S. Goodman, A. Hewings, T. Lillis, & J. Swann (Eds.), *Teaching academic writing: A toolkit for higher education* (pp. 45-72). London: Routledge.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 20, 37-46.
- Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education* (7<sup>th</sup> ed.). London: Routledge.
- Cortes, V. (2002). Lexical bundles in freshman composition. In R. Reppen, S.M. Fitzmaurice, & D. Biber (Eds.), *Using corpora to explore linguistic variation* (pp. 131–145). Amsterdam/Philadelphia: Benjamins.
- Cortes, V. (2004). Lexical bundles in published and student disciplinary writing: Examples from history and biology. *English for Specific Purposes*, 23(4), 397–423.
- Cortes, V. (2006). Teaching lexical bundles in the disciplines: An example from a writing intensive history class. *Linguistics and Education*, 17(4), 391–406.
- Cortes, V. (2013). The purpose of this study is to: Connecting lexical bundles and moves in research article introductions. *Journal of English for Academic Purposes*, 12(1), 33–43.
- Council for Cultural Co-operation, Education Committee, Modern Languages Division, Strasbourg. (2001). *Common European framework of reference for languages: learning, teaching, assessment*. Cambridge: Cambridge University Press.
- Cowie, A. P. (1998). *Phraseology: Theory, analysis and applications*. Oxford: Oxford University Press.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3<sup>rd</sup> ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W., & Tashakkori, A. (2007). Differing perspectives on mixed methods research. *Journal of Mixed Methods Research*, 1(4), 303–8.

- Crossley, S., & Salsbury, T. L. (2011). The development of lexical bundle accuracy and production in English second language speakers. *IRAL - International Review of Applied Linguistics in Language Teaching*, 49(1), 1–26.
- Çandarlı, D., Bayyurt, Y., & Martı, L. (2015). Authorial presence in L1 and L2 novice academic writing: Cross-linguistic and cross-cultural perspectives. *Journal of English for Academic Purposes*, 20, 192–202.
- Davis, M., & Morley, J. (2015). Phrasal intertextuality: The responses of academics from different disciplines to students' re-use of phrases. *Journal of Second Language Writing*, 28, 20–35.
- de Bot, K. & Larsen-Freeman, D. (2011). Researching second language development from a dynamic systems theory perspective. In M. Verspoor, K. de Bot, & W. Lowie (Eds.), *A dynamic approach to second language development: Methods and techniques* (pp. 5-24). Amsterdam: John Benjamins.
- de Bot, K., Lowie, W., & Verspoor, M. (2007). A dynamic systems theory approach to second language acquisition. *Bilingualism: Language and Cognition*, 10(1), 7-21.
- Dechert, H. (1984). Second language production: Six hypotheses. In H. Dechert, D. Mohle, & M. Raupach (Eds.), *Second language productions* (pp. 211–230). Tübingen: Gunter Narr Verlag.
- De Cock, S. (1998). A recurrent word combination approach to the study of formulae in the speech of native and non-native speakers of English. *International Journal of Corpus Linguistics*, 3(1), 59–80.
- De Cock, S. (2000). Repetitive phrasal chunkiness and advanced EFL speech and writing. In C. Mair & M. Hundt (Eds.), *Corpus linguistics and linguistic theory* (pp. 51–68). Amsterdam: Rodopi.
- Diedenhofen B., & Musch, J. (2015). cocor: A comprehensive solution for the statistical comparison of correlations. *PLoS ONE*, 10(4), 1-12.
- Dontcheva-Navratilova, O. (2013). Lexical bundles in academic texts by non-native speakers. *Brno Studies in English*, 38(2), 37-58.
- Durrant, P., & Mathews-Aydinlı, J. (2011). A function-first approach to identifying formulaic language in academic writing. *English for Specific Purposes*, 30(1), 58–72.
- Durrant, P., & Schmitt, N. (2009). To what extent do native and non-native writers make use of collocations? *IRAL - International Review of Applied Linguistics in Language Teaching*, 47(2), 157-177.
- Ebeling, S. O., & Hasselgård, H. (2015). Learners' and native speakers' use of recurrent word-combinations across disciplines. *Bergen Language and Linguistics Studies*, 6, 87-106.
- Eeg-Olofsson, M. & Altenberg, B. (1994). Discontinuous recurrent word combinations in the London-Lund Corpus. In U. Fries, G. Tottie & P. Schneider (Eds.), *Creating and Using English Language Corpora: Papers from the Fourteenth International*

*Conference on English Language Research on Computerized Corpora* (pp. 63-77). Amsterdam: Rodopi.

- Ellis, N.C. (Ed.). (1994). *Implicit and explicit learning of languages*. London: Academic Press.
- Ellis, N. C. (1996). Sequencing in SLA: Phonological memory, chunking, and points of order. *Studies in Second Language Acquisition*, 18, 91–126.
- Ellis, N. C. (1998). Emergentism, connectionism and language learning. *Language Learning*, 48, 631– 664.
- Ellis, N. C. (2002). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24, 143–188.
- Ellis, N. C. (2006). Cognitive perspectives on SLA: The associative-cognitive CREED. *Aila Review*, 19(1), 100-121.
- Ellis, N. C. (2008). The dynamics of second language emergence: Cycles of language use, language change, and language acquisition. *The Modern Language Journal*, 92(2), 232-249.
- Ellis, N. C. (2015). Cognitive and social aspects of learning from usage. In T. Cadierno & S. W. Eskildsen (Eds.), *Usage-based perspectives on second language learning* (pp. 49–73). Berlin, Germany: DeGruyter Mouton.
- Ellis, N. C., & Larsen-Freeman, D. (2006). Language emergence: Implications for applied linguistics--introduction to the special issue. *Applied Linguistics*, 27(4), 558–589.
- Ellis, N. C., O'Donnell, M. B., & Römer, U. (2014). The processing of verb-argument constructions is sensitive to form, function, frequency, contingency and prototypicality. *Cognitive Linguistics*, 25(1), 55–98.
- Ellis, N.C., Römer, U., & O'Donnell. (2016). *Usage-based approaches to language acquisition and processing: Cognitive and corpus investigations of construction grammar*. Malden, MA: Wiley-Blackwell.
- Ellis, N.C., Simpson-Vlach, R., & Maynard, C. (2008). Formulaic language in native and second language speakers: psycholinguistics, corpus linguistics and TESOL. *TESOL Quarterly*, 42(3), 375–396.
- Erman, B., & Warren, B. (2000). The idiom principle and the open choice principle. *Text*, 20(1), 29-62.
- Eskildsen, S.W. (2009). Constructing another language: Usage-based linguistics in second language acquisition. *Applied Linguistics*, 30, 335–357.
- Eskildsen, S.W. (2012). L2 negation constructions at work. *Language Learning*, 62, 335–372.
- Evans, S., & Morrison, B. (2011). Meeting the challenges of English-medium higher education: The first-year experience in Hong Kong. *English for Specific Purposes*, 30(3), 198–208.
- Field, A., Miles, J., & Field, Z. (2012). *Discovering statistics using R*. London: Sage.

- Fletcher, W. (2007). *kfNgram*. Retrieved from <http://www.kwicfinder.com/kfNgram/kfNgramHelp.html>
- Flowerdew, L. (2005). An integration of corpus-based and genre-based approaches to text analysis in EAP/ESP: countering criticisms against corpus-based methodologies. *English for Specific Purposes*, 24(3), 321–332.
- Gardner, S., & Nesi, H. (2013). A classification of genre families in university student writing. *Applied Linguistics*, 34(1), 25–52.
- Garner, J. R. (2016). A phrase-frame approach to investigating phraseology in learner writing across proficiency levels. *International Journal of Learner Corpus Research*, 2(1), 31–67.
- Gelman, A., & Hill, J. (2006). *Data analysis using regression and multi-level/hierarchical models*. Cambridge: Cambridge University Press.
- Gilquin, G., Granger, S., & Paquot, M. (2007). Learner corpora: The missing link in EAP pedagogy. *Journal of English for Academic Purposes*, 6(4), 319–335.
- Goldberg, A. E. (1995). *Constructions: A construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, A. E. (2006). *Constructions at work: The nature of generalization in language*. Oxford, UK: Oxford University Press.
- Goldstein, J. (1999). Emergence as a construct: History and issues. *Emergence*, 1(1), 49–72.
- Granger, S. (1996). From CA to CIA and back: an integrated approach to computerized bilingual and learner corpora. In K. Aijmer, B. Altenberg, & M. Johansson (Eds.), *Languages in contrast: Papers from a symposium on text-based cross-linguistic studies* (pp. 37–51). Lund: Lund University Press.
- Granger, S. (1998a). The computer learner corpus: a versatile new source of data for SLA research. In S. Granger (Ed.), *Learner English on computer* (pp. 3–18). London: Longman.
- Granger, S. (1998b). Prefabricated patterns in advanced EFL writing. Collocations and formulae. In A. P. Cowie (Ed.), *Phraseology: Theory, analysis, and applications* (pp. 145–160). Oxford: Oxford University Press.
- Granger, S. (2004). Computer learner corpus research: current status and future prospects. *Language and Computers*, 52(1), 123–145.
- Granger, S. (2015). Contrastive interlanguage analysis: A reappraisal. *International Journal of Learner Corpus Research*, 1(1), 7–24.
- Granger, S., & Bestgen, Y. (2014). The use of collocations by intermediate vs. advanced non-native writers: A bigram-based study. *International Review of Applied Linguistics in Language Teaching*, 52, 229–252.

- Granger, S., & Paquot, M. (2008). Disentangling the phraseological web. In S. Granger & F. Meunier (Eds.), *Phraseology: An interdisciplinary perspective* (pp. 27-49). Amsterdam / Philadelphia: John Benjamins.
- Gray, B., & Biber, D. (2013). Lexical frames in academic prose and conversation. *International Journal of Corpus Linguistics*, 18(1), 109–136.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis*, 11(3), 255-274
- Greene, S., & Higgins, L. (1994). Once upon a time: The use of retrospective accounts in building theory in composition. In P. Smagorinsky (Ed.), *Speaking about writing: Reflections on research methodology* (pp. 115-140). Newbury Park, CA: Sage
- Gries, S. T. (2006). Exploring variability within and between corpora: Some methodological considerations. *Corpora*, 1(2), 109-151.
- Gries, S. T. (2008). Phraseology and linguistic theory. A brief survey. In S. Granger & F. Meunier (Eds.), *Phraseology: An interdisciplinary perspective* (pp. 3–25). Amsterdam, the Netherlands: John Benjamins.
- Gries, S. T. (2013). 50-something years of work on collocations: What is or should be next .... *International Journal of Corpus Linguistics*, 18(1), 137–166.
- Gries, S. T. (2015a). The most under-used statistical method in corpus linguistics: Multi-level (and mixed-effects) models. *Corpora*, 10(1), 95–125.
- Gries, S. T. (2015b). Quantitative designs and statistical techniques. In D. Biber & R. Reppen (Eds.), *The Cambridge handbook of English corpus linguistics* (pp. 50–72). Cambridge: Cambridge University Press.
- Gries, S. T. (2015c). Some current quantitative problems in corpus linguistics and a sketch of some solutions. *Language and Linguistics*, 16(1), 93-117.
- Gries, S. T., & Mukherjee, J. (2010). Lexical gravity across varieties of English: An ICE-based study of n -grams in Asian Englishes. *International Journal of Corpus Linguistics*, 15(4), 520–548.
- Gudykunst, W. B. (2004). *Bridging differences: Effective intergroup communication* (4th ed.). London: SAGE.
- Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. Thousand Oaks, CA: Sage.
- Gutiérrez, X. (2008). What does metalinguistic activity in learners' interaction during a collaborative L2 writing task. *The Modern Language Journal*, 92(4), 519–537.
- Halliday, Michael A. K. (1985). *An introduction to functional grammar*. London: Edward Arnold.
- Hardie, A. (2015). *Statistical identification of keywords, lockwords and collocations as a two-step procedure*. Paper presented at 35<sup>th</sup> ICAME Conference: Corpus Linguistics, Context and Culture, The University of Nottingham, UK.

- Harwood, N. (2005). Nowhere has anyone attempted... In this article I am to do just that': A corpus-based study of self-promotional I and we in academic writing across four disciplines. *Journal of Pragmatics*, 37, 1207–1231.
- Harwood, N., & Hadley, G. (2004). Demystifying institutional practices: critical pragmatism and the teaching of academic writing. *English for Specific Purposes*, 23(4), 355–377.
- Hewings, M., & Hewings, A. (2002). "It is interesting to note that...": A comparative study of anticipatory "it" in student and published writing. *English for Specific Purposes*, 21, 367–383.
- Hewings, M. (2010). Materials for university essay writing. In N. Harwood (Ed.), *English language teaching materials: Theory and practice* (pp. 251-278). New York: Cambridge University Press.
- Hinds, J. (1987). Reader versus writer responsibility: a new typology. In U. Connor & R. B. Kaplan (Eds.), *Writing across languages* (pp.141-152). Reading, UK: Addison-Wesley.
- Hinkel, E. (2002). *Second language writers' text: Linguistic and rhetorical features*. Mahwah, NJ: Lawrence Erlbaum.
- Hinkel, E. (2011). What research on second language writing tells us and what it doesn't. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 523–538). New York: Routledge.
- Hoey, M. (2005). *Lexical priming: A new theory of words and language*. London/New York: Routledge.
- Hoey, M. (2014). *Old approaches, new perspectives: the implications of a corpus linguistic theory for learning the English language*. Plenary Session, 48th Annual International IATEFL Conference, Harrogate, 4 April. Retrieved from <http://iatefl.britishcouncil.org/2014/sessions/2014-04-04/plenary-session-michael-hoey>.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA: Sage Publications.
- Housen, A., & Kuiken, F. (2009). Complexity, accuracy and fluency in second language acquisition. *Applied Linguistics*, 30(4), 461-473.
- Howarth, P. (1998). The phraseology of learners' academic writing. In A. P. Cowie (Ed.), *Phraseology: Theory, analysis, and applications* (pp. 161–186). Oxford: Oxford University Press.
- Howell, D. (1997). *Statistical methods for psychology*. Belmont: Wadsworth.
- Huang, K. (2015). More does not mean better: Frequency and accuracy analysis of lexical bundles in Chinese EFL learners' essay writing. *System*, 53, 13–23.
- Hunston, S. & Francis, G. (2000). *Pattern grammar: A corpus-driven approach to the lexical grammar of English*. Amsterdam/Philadelphia: John Benjamins.

- Hyland, K. (2001). Humble servants of the discipline? Self-mention in research articles. *English for Specific Purposes*, 20(3), 207–226.
- Hyland, K. (2002). Options of identity in academic writing. *English Language Teaching Journal*, 56(4), 351–358.
- Hyland, K. (2003). Genre-based pedagogies: A social response to process. *Journal of Second Language Writing*, 12, 17–29.
- Hyland, K. (2008). As can be seen: Lexical bundles and disciplinary variation. *English for Specific Purposes*, 27(1), 4–21.
- Hyland, K. (2012). Bundles in academic discourse. *Annual Review of Applied Linguistics*, 32, 150–169.
- Hyland, K. (2013). Writing in the university: education, knowledge and reputation. *Language Teaching*, 46, 53–70.
- Hyland, K. (2015). Corpora and written academic English. In D. Biber & R. Reppen (Eds.), *The Cambridge handbook of English corpus linguistics* (pp. 292–308). Cambridge: Cambridge University Press.
- Ivanic, R. (1998). *Writing and identity: The discursive construction of identity in academic writing*. Amsterdam: John Benjamins.
- Jarvis, S. (2000). Methodological rigor in the study of transfer: Identifying L1 influence in the interlanguage lexicon. *Language Learning*, 50(2), 245–309.
- Jarvis, S. (2013). Capturing the diversity in lexical diversity. *Language Learning*, 63(SUPPL. 1), 87–106.
- Johnson, B., & Christensen, L. (2014). *Educational research: Quantitative, qualitative, and mixed approaches* (5<sup>th</sup> ed.) Thousand Oaks, CA: Sage.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research*, 1(2), 112–133.
- Jones, C. (2015). A response to Paweł Scheffler. *ELT Journal*, 69(4), 440–441.
- Jones, M., & S. Haywood. (2004). Facilitating the acquisition of formulaic sequences: an exploratory study in an EAP context. In N. Schmitt (Ed.), *Formulaic sequences* (pp. 269–92). Amsterdam: John Benjamins.
- Karabacak, E., & Qin, J. (2013). Comparison of lexical bundles used by Turkish, Chinese, and American university students. *Procedia-Social and Behavioral Sciences*, 70, 622–628.
- Kirk, J. & Miller, M. M. (1986). *Reliability and validity in qualitative research*. Beverly Hills: Sage Publications.
- Knoch, U., Roushad, A., & Storch, N. (2014). Does the writing of undergraduate ESL students develop after one year of study in an English-medium university? *Assessing Writing*, 21, 1–17.



- Landis, J. R., & Koch, G.G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-74.
- Langacker, R.W. (1987). *Foundations of cognitive grammar: Vol. 1. Theoretical prerequisites*. Stanford, CA: Stanford University Press.
- Langacker, R. W. (2000). A dynamic usage-based model. In M. Barlow & S. Kemmer (Eds.), *Usage-based models of language* (pp. 1–63). Palo Alto, CA: CSLI.
- Larsen-Freeman, D. (2006). The emergence of complexity, fluency, and accuracy in the oral and written production of five Chinese learners of English. *Applied Linguistics*, 27(4), 590-619.
- Larsen-Freeman, D. (2014). Another step to be taken—Rethinking the end point of the interlanguage continuum. In Z. Han & E. Tarone (Eds.), *Interlanguage: Forty years later* (pp. 203-220). Amsterdam/Philadelphia: John Benjamins.
- Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford, UK: Oxford University Press.
- Lee, D. Y. W. (2001). Genres, registers, text types, domains, and styles: Clarifying the concepts and navigating a path through the BNC jungle. *Language Learning & Technology*, 5(3), 37–72.
- Leki, I. (2007). *Undergraduates in a second language: Challenges and complexities of academic literacy development*. New York, NY: Lawrence Erlbaum Associates.
- Levshina, N. (2015). *How to do linguistics with R: Data exploration and statistical analysis*. Amsterdam: John Benjamins.
- Lewis, M. (1997). *Implementing the lexical approach*. Hove: Language Teaching Publications.
- Li, J., & Schmitt, N. (2009). The acquisition of lexical phrases in academic writing: A longitudinal case study. *Journal of Second Language Writing*, 18(2), 85–102.
- Li, J., & Schmitt, N. (2010). The development of collocation use in academic texts by advanced L2 learners: A multiple case study approach. In D. Wood (Ed.), *Perspectives on formulaic language: Acquisition and communication* (p. 22–46). New York: Continuum.
- Lillis, T. M. (2001). *Student writing: Access, regulation, desire*. London: Routledge.
- Lillis, T. M. (2008). Ethnography as method, methodology, and “Deep Theorizing” closing the gap between text and context in academic writing research. *Written Communication*, 25(3), 353-388.
- Lillis, T. M., & Curry, M. J. (2010). *Academic writing in global context*. London: Routledge.
- Lillis, T.M., & Scott, M. (2007). Defining academic literacies research: Issues of epistemology, ideology and strategy. *Journal of Applied Linguistics*, 4(1), 5-32.
- Linck, J. A., & Cunnings, I. (2015). The utility and application of mixed-effects models in second language research. *Language Learning*, 65(S1), 185–207.

- Lindstromberg, S. (2016). Inferential statistics in language teaching research: A review and ways forward. *Language Teaching Research*, 20(6), 741–768.
- Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data*. New York: Wiley.
- Liu, D. (2012). The most frequently-used multi-word constructions in academic written English: A multi-corpus study. *English for Specific Purposes*, 31(1), 25–35.
- Lorenz, G. (1999). *Adjective intensification—Learners versus native speakers. A corpus study of argumentative writing*. Amsterdam: Rodopi.
- Lowie, W., & Verspoor, M. (2015). Variability and variation in second language acquisition orders: A dynamic reevaluation. *Language Learning*, 65(1), 63–88.
- Luke, A. (1996). Genres of power? Literacy education and the production of capital. In R. Hasan & A. G. Williams (Eds.), *Literacy in society* (pp. 308–338). London: Longman.
- Lyons, J. (1977). *Semantics, vol. 2*. Cambridge: Cambridge University Press.
- Macqueen, S. (2012). *The emergence of patterns in second language writing: a sociocognitive exploration of lexical trails*. Frankfurt am Main, Germany: Peter Lang.
- Macqueen, S. (2013). Emergence in second language writing: A methodological Inroad. *RBLA, Belo Horizonte*, 13(2), 493–515.
- MacWhinney, B. (1997). Implicit and explicit processes. *Studies in Second Language Acquisition*, 19(2), 277–81.
- MacWhinney, B. (2001). The competition model: The input, the context, and the brain. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 69–90). New York: Cambridge University Press.
- Maden-Weinberger, U. (2009). *Modality in learner German: A corpus-based study investigating modal expressions in argumentative texts by British learners of German*. (Unpublished doctoral dissertation). Lancaster University, Lancaster, UK.
- Martinez, R., & Schmitt, N. (2012). A phrasal expressions list. *Applied Linguistics*, 33(3), 299–320.
- Matsuda, P. K. (1997). Contrastive rhetoric in context: A dynamic model of L2 writing. *Journal of Second Language Writing*, 6(1), 45–60.
- Matsuda, P. K. (2012). Let's face it: language issues and the writing program administrator. *WPA: Writing Program Administration*, 36(1), 141–163.
- Mauranen, A. (2012). *Exploring ELF: Academic English shaped by non-native speakers*. Cambridge: Cambridge University Press.
- McCarthy, M. & Carter, R. (2002). This that and the other: multi-word clusters in spoken English as visible patterns of interaction. *Teanga (Yearbook of the Irish Association for Applied Linguistics)*, 21, 30–52.

- McEnery, T., & Hardie, A. (2011). *Corpus linguistics: Method, theory and practice*. Cambridge: Cambridge University Press.
- McSweeney, B. (2002). Hofstede's model of national cultural differences and their consequences: A triumph of faith-a failure of analysis. *Human relations*, 55(1), 89-118.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage.
- Miller, G.A. (1956). The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review*, 63, 81-97.
- Mirman, D. (2014). *Growth curve analysis and visualization using R*. Boca Raton: CRC Press.
- Mirman, D., Dixon, J. A., & Magnuson, J. S. (2008). Statistical and computational models of the visual world paradigm: Growth curves and individual differences. *Journal of Memory and Language*, 59(4), 475-494.
- MoNE. (2011). *İngilizce dersi öğretim programı [English language curriculum]*. Retrieved from <http://ttkb.meb.gov.tr/www/ogretim-programlari/icerik/72>
- Moreno, A. I. (2008). The importance of comparable corpora in cross-cultural studies. In U. Connor, E. Nagelhout, & W. V. Rozycki (Eds.), *Contrastive rhetoric: Reaching to intercultural rhetoric* (pp. 147-168). Amsterdam: John Benjamins.
- Morton, J., Storch, N., & Thompson, C. (2015). What our students tell us: Perceptions of three multilingual students on their academic writing in first year. *Journal of Second Language Writing*, 30, 1-13.
- Nakagawa, S., & Schielzeth, H. (2013). A general and simple method for obtaining R<sup>2</sup> from generalized linear mixed-effects models. *Methods in Ecology and Evolution*, 4(2), 133-142.
- Nattinger, J. R., & DeCarrico, J. (1992). *Lexical phrases and language teaching*. Oxford: Oxford University Press.
- Nesi, H. & Gardner, S. (2006). Variation in disciplinary culture: University tutors' views on assessed writing tasks In R. Kiely, P. Rea-Dickins, H. Woodfield, & G. Clibbon (Eds.), *Language, culture and identity in applied Linguistics* (pp. 99-117). London: Equinox Publishing.
- Nesi, H., & Gardner, S. (2012). *Genres across the disciplines: Student writing in higher education*. Cambridge: Cambridge University Press.
- Odell, L., Goswami, D., & Harrington, A. (1983). The discourse-based interview: a procedure for exploring the tacit knowledge of writers in non-academic settings. In P. Mosenthal, L. Tamor, & S. A. Walmsley (Eds.), *Research on writing: Principles and methods* (pp. 221-236). New York: Longman.
- O'Donnell, M. B., Römer, U., & Ellis, N. C. (2013). The development of formulaic sequences in first and second language writing: Investigating effects of frequency, association, and native norm. *International Journal of Corpus Linguistics*, 18(1), 83-108.

- Onwuegbuzie, A. J., & Johnson, R. B. (2006). The validity issue in mixed research. *Research in the Schools, 13*(1), 48-63.
- Ortega, L., & Byrnes, H. (Eds.). (2008). *The longitudinal study of advanced L2 capacities*. New York/London: Routledge.
- Ortega, L., & Ibarra-Shea, G. (2005). Longitudinal research in second language acquisition: Recent trends and future directions. *Annual Review of Applied Linguistics, 25*, 26-45.
- Pan, F., Reppen, R., & Biber, D. (2016). Comparing patterns of L1 versus L2 English academic professionals: Lexical bundles in Telecommunications research journals. *Journal of English for Academic Purposes, 21*, 60–71.
- Paquot, M. (2010). *Academic vocabulary in learner writing: From extraction to analysis*. London & New-York: Continuum.
- Paquot, M. (2013). Lexical bundles and L1 transfer effects. *International Journal of Corpus Linguistics, 18*(3), 391–417.
- Paquot, M. (2014). Cross-linguistic influence and formulaic language: recurrent word sequences in French learner writing. *EUROSLA Yearbook, 1–30*.
- Paquot, M. (2017a). L1 frequency in foreign language acquisition: Recurrent word combinations in French and Spanish EFL learner writing. *Second Language Research, 33*(1), 13-32.
- Paquot, M. (2017b). The phraseological dimension in interlanguage complexity research. *Second Language Research, 1-25*.
- Paquot, M., & Granger, S. (2012). Formulaic language in learner corpora. *Annual Review of Applied Linguistics, 32*, 130-149.
- Pennycook, A. (1996). Borrowing others' words: Text, ownership, memory, and plagiarism. *TESOL Quarterly, 30*(2), 201-230.
- Pérez-Llantada, C. (2014). Formulaic language in L1 and L2 expert academic writing: Convergent and divergent usage. *Journal of English for Academic Purposes, 14*, 84–94.
- Pessoa, S., Miller, R. T., & Kaufer, D. (2014). Students' challenges and development in the transition to academic writing at an English-medium university in Qatar. *International Review of Applied Linguistics in Language Teaching, 52*(2), 127-156.
- Peters, E., & Pauwels, P. (2015). Learning academic formulaic sequences. *Journal of English for Academic Purposes, 20*, 28-39.
- Pinheiro, J. C., & Bates, D. M. (2000). *Mixed-effects models in S and S- PLUS*. New York: Springer.
- Rayson, P., & Garside, R. (2000). Comparing corpora using frequency profiling. In proceedings of the *workshop on Comparing Corpora, held in conjunction with the*

38th annual meeting of the Association for Computational Linguistics (ACL 2000) (pp. 1-6). 1-8 October 2000, Hong Kong.

- Robson, C. (2001). *Real world research* (2<sup>nd</sup> ed.). Chichester: John Wiley & Sons Ltd.
- Roehr-Brackin, K. (2014). Explicit knowledge and processes from a usage-based perspective: The developmental trajectory of an instructed L2 learner. *Language Learning*, 64(4), 771–808.
- Roehr-Brackin, K. (2015). Long-term development in an instructed adult L2 learner: Usage-based and complexity theory applied. In T. Cadierno & S. W. Eskildsen (Eds.), *Usage-based perspectives on second language learning* (pp. 181–206). Berlin, Germany: DeGruyter Mouton.
- Römer, U. (2009a). English in academia: Does nativeness matter? *Anglistik: International Journal of English Studies*, 20(2), 89–100.
- Römer, U. (2009b). The inseparability of lexis and grammar: Corpus linguistic perspectives. *Annual Review of Cognitive Linguistics*, 7, 140–162.
- Römer, U. (2010). Establishing the phraseological profile of a text type: The construction of meaning in academic book reviews. *English Text Construction*, 3(1), 95–119.
- Römer, U. (2016). Teaming up and mixing methods: Collaborative and cross-disciplinary work in corpus research on phraseology. *Corpora*, 11(1), 113–129.
- Römer, U., O'Donnell, M. B., & Ellis, N. C. (2014). Second language learner knowledge of verb-argument constructions: Effects of language transfer and typology. *The Modern Language Journal*, 98(4), 952–975.
- Salsbury, T. & Bardovi-Harlig, K. (2000). Oppositional talk and the acquisition of modality in L2 English. In B. Swierzbin, F. Morris, M. Anderson, C. Klee & E. Tarone (Eds.), *Social and cognitive factors in second language acquisition. Selected proceedings of the 1999 Second Language Research Forum (SLRF)* (pp. 57-76). Somerville, MA: Cascadilla Press.
- Scheffler, P. (2015). Grammar and lexis: better safe than sorry. *ELT Journal*, 69(4), 437-439.
- Schmitt, N. (2010). *Researching vocabulary: A vocabulary research manual*. London, UK: Palgrave Macmillan.
- Scott, M. (2012). *WordSmith tools (Version 6.0)*. Liverpool: Lexical Analysis Software [Computer software].
- Selvi, A. F. (2014). The medium-of-instruction debate in Turkey: Oscillating between national ideas and bilingual ideals. *Current Issues in Language Planning*, 15(2), 133-152.
- Siepmann, D. (2011). Sinclair revisited: Beyond idiom and open choice. In T. Herbst, S. Faulhaber, & P. Uhrig (Eds.), *The phraseological view of language: a tribute to John Sinclair* (pp. 59-86). Berlin: Mouton de Gruyter.

- Simpson-Vlach, R., & Ellis, N. C. (2010). An academic formulas list: New methods in phraseology research. *Applied Linguistics*, 31(4), 487–512.
- Sinclair, J. M. (1991). *Corpus, concordance, collocation*. Oxford: Oxford University Press.
- Sinclair, J. M. (2004). *Trust the text: Language, corpus and discourse*. London, England: Routledge.
- Sinclair, J. M. (2008). The phrase, the whole phrase, and nothing but the phrase. In S. Granger, & F. Meunier (Eds.), *Phraseology: An interdisciplinary perspective* (pp. 407–410). Amsterdam: John Benjamins.
- Sinclair, J., & Renouf, A. (1991). Collocational frameworks in English. In K. Aijmer, & B. Altenberg (Eds.), *English corpus linguistics* (pp. 128–143). Harlow: Longman.
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York: Oxford University Press.
- Siyanova-Chanturia, A., & Martinez, R. (2014). The idiom principle revisited. *Applied Linguistics*, 1–22.
- Slowikowski, K. (2016). *ggrepel: Repulsive Text and Label Geoms for “ggplot2”* <https://CRAN.Rproject.org/package=ggrepel>. R package version 0.5.
- Staples, S., Egbert, J., Biber, D., & Gray, B. (2016). Academic writing development at the university level: Phrasal and clausal complexity across level of study, discipline, and genre. *Written Communication*, 33(2), 149-183.
- Staples, S., Egbert, J., Biber, D., & McClair, A. (2013). Formulaic sequences and EAP writing development: Lexical bundles in the TOEFL iBT writing section. *Journal of English for Academic Purposes*, 12(3), 214–225.
- Staples, S., & Reppen, R. (2016). Understanding first-year L2 writing: A lexicogrammatical analysis across L1s, genres, and language ratings. *Journal of Second Language Writing*, 32, 17–35.
- Stelma, J., Fay, R., & Zhou, X. (2013). Developing intentionality and researching multilingually: An ecological and methodological perspective. *International Journal of Applied Linguistics*, 23(3), 300-315.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Procedures and techniques for developing grounded theory*. Thousand Oaks, CA: Sage.
- Stubbs, M. (1986). Language development, lexical competence and nuclear vocabulary. In M. Stubbs (Ed.), *Educational linguistics* (pp. 98–115). Oxford / New York: Blackwell.
- Stubbs, M. (2002). Two quantitative methods of studying phraseology in English. *International Journal of Corpus Linguistics*, 7(2), 215–244.
- Sung Park, E. (2004). The comparative fallacy in UG studies. *Working papers in TESOL and Applied Linguistics*, 4(1). Retrieved from: <http://www.tc.columbia.edu/academic/tesol/Webjournal/forum2004.html>

- Swales, J. M. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.
- Swales, J. M. (2004). *Research genres: Exploration and applications*. Cambridge: Cambridge University Press.
- Swales, J. M. (2016). Reflections on the concept of discourse community. *ASp la revue du GERAS*, 69, 7–19.
- Taguchi, N., Crawford, W., & Wetzel, D. Z. (2013). What linguistic features are indicative of writing quality? A case of argumentative essays in a college composition program. *TESOL Quarterly*, 47(2), 420-430.
- Tang, R., & John, S. (1999). The ‘I’ in identity: exploring writer identity in student academic writing through the first person pronoun. *English for Specific Purposes*, 18(1), 23-39.
- Tardy, C. M. (2012). Current conceptions of voice. In K. Hyland & C. Guinda (Eds.), *Stance and voice in written academic genres* (pp. 34-48). Palgrave Macmillan UK.
- Thewissen, J. (2013). Capturing L2 accuracy developmental patterns: Insights from an error-tagged EFL learner corpus. *The Modern Language Journal*, 97(S1), 77-101.
- Tribble, C., & Wingate, U. (2013). From text to corpus - A genre-based approach to academic literacy instruction. *System*, 41(2), 307–321.
- Uysal, H. H. (2012). Argumentation across L1 and L2 writing: exploring cultural influences and transfer issues. *Vial, Vigo International Journal of Applied Linguistics*, 9, 133-156.
- Verspoor, M., & Behrens, H. (2011). Dynamic systems theory and a usage-based approach to second language development. In M. Verspoor, K. de Bot, & W. Lowie (Eds.), *A dynamic approach to second language development: Methods and techniques* (pp. 25–38). Amsterdam: John Benjamins.
- Verspoor, M., Lowie, W., & van Dijk, M. (2008). Variability in second language development from a dynamic systems perspective. *The Modern Language Journal*, 92, 214–231.
- Verspoor, M., Schmid, M. S., & Xu, X. (2012). A dynamic usage based perspective on L2 writing. *Journal of Second Language Writing*, 21(3), 239–263.
- Walker, D. A. (2003). JMASM9: converting Kendall’s tau for correlational or meta-analytic analyses. *Journal of Modern Applied Statistical Methods*, 2(2), 525-530.
- White, L. (2003). On the nature of interlanguage representation: Universal grammar in the second language. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language acquisition* (pp. 19-42). Malden, MA: Blackwell.
- Wingate, U. (2012). Using Academic Literacies and genre-based models for academic writing instruction: A “literacy” journey. *Journal of English for Academic Purposes*, 11(1), 26–37.

- Wingate, U. (2014). Approaches in acculturating novice writers into academic literacy. In A. Lyda & K. Warchal (Eds.), *Occupying niches: Interculturality, cross-culturality and aculturality in academic research* (pp. 103 - 118). Heidelberg, New York: Springer.
- Wingate, U., & Tribble, C. (2012). The best of both worlds? Towards an English for Academic Purposes / Academic Literacies writing pedagogy. *Studies in Higher Education*, 37(4), 481–495.
- Wood, D. (2015). *Fundamentals of formulaic language: An introduction*. London /New York: Bloomsbury Publishing.
- Wray, A. (2002). *Formulaic language and the lexicon*. Cambridge: Cambridge University Press.
- Wray, A. (2009). Formulaic language in learners and native speakers. *Language Teaching*, 32(4), 213.
- Wray, A., & T. Fitzpatrick. (2008). Why can't you just leave it alone? Deviations from memorized language as a gauge of nativelike competence. In F. Meunier, & S. Granger (Eds.), *Phraseology in foreign language learning and teaching* (pp. 123-148). Philadelphia: John Benjamins.
- Wulff, S. & Gries, S. T. (2011). Corpus-driven methods for assessing accuracy in learner production. In P. Robinson (Ed.), *Second language task complexity: researching the cognition hypothesis of language learning and performance* (pp. 61-87). Amsterdam: John Benjamins.
- Wulff, S., Römer, U., & Swales, J. (2012). Attended/unattended this in academic student writing: Quantitative and qualitative perspectives. *Corpus Linguistics and Linguistic Theory*, 8(1), 129-157.
- Yorio, C. A. (1989). Idiomaticity as an indicator of second language proficiency. In K. Hyltenstam & L. K. Obler (Eds.), *Bilingualism across the lifespan: Aspects of acquisition, maturity and loss* (pp. 55–72). Cambridge: Cambridge University Press.
- Young, R., & Johnson, D. R. (2015). Handling missing values in longitudinal panel data with multiple imputation. *Journal of Marriage and Family*, 77(1), 277-294.
- Yuldashev, A., Fernandez, J., & Thorne, S. L. (2013). Second language learners' contiguous and discontiguous multi-word unit use over time. *The Modern Language Journal*, 97(S1), 31–45.
- Zheng, Y. (2016). The complex, dynamic development of L2 lexical use: A longitudinal study on Chinese learners of English. *System*, 56, 40–53.
- Zhu, H., & David, A. (2008). Cross-sectional, longitudinal, case, and group. In W. Li & M. G. Moyer (Eds.), *The Blackwell guide to research methods in bilingualism and multilingualism* (pp. 88-107). Malden, MA: Blackwell.



Zipf, G. K. (1935). *The psycho-biology of language: An introduction to dynamic philology*. Cambridge, MA: MIT Press.

Zuur, A. F., Ieno, E. N., Walker, N. J., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology with R*. New York: Springer.

## **Appendices**

### **Appendix A. Assignment instructions**

#### **Month 3 (The British university)**

##### **Assignment**

This assignment requires you to reflect on the process of reading. The main aim is to apply the concepts covered in the reading part of the course (for example, bottom up, top down, interactive processing, schema theory) to an example of actual reading. You also need to draw on literature you have read relating to the concepts discussed on the course.

You will be provided with a transcript of an undergraduate student of Management Studies thinking aloud as she reads a medical text about the liver. She is a non-native speaker of English. Each sentence of the text is provided, followed by the student's verbal report.

- a) Using examples, assess and discuss some of the problems the student appears to have in understanding the text, and the different strategies she uses in trying to solve these problems.
- b) Using examples, assess and discuss the extent to which the student relates the content of the text to her own knowledge and experience.

#### **Month 3 (The Turkish university)**

##### **Assignment**

Read the articles "Who are smarter-boys or girls?" by John Dewey and "Are men born with more power?" by Helen Fisher. Please write a critical analysis of these two articles. Your analysis should be organised clearly and supported with evidence. Compare and contrast the authors' arguments toward this topic. Which point of view is more persuasive, and why?

#### **Month 5 (The British university)**

You are required to write a critical evaluation of an article. This article can be one of the readings, or it can be one that you have found yourself. The evaluation should demonstrate critical thinking skills. I would expect to see the following:

1. A full reference for the article you have selected (so I can find it and compare it with your critique).
2. A brief summary of the author's argument.
3. A brief description and evaluation (i.e. what are the strengths and weaknesses) of the article's structure.
4. Say what evidence the author uses to make this argument.
5. Say to what extent you find this evidence, and the method of its discovery, useful and convincing.
6. Justify this statement.
7. Say how this article uses literature to support the argument.
  - a. Is there any bias or are there gaps in the use of literature?
8. How does the argument fit into wider debates on this topic?
9. What is missing?

10. What is particularly good and why?

**Month 5 (The Turkish university)**

In his article ‘The rhetoric of advertising’, Hirschberg explains the characteristics of language of advertising. Discuss how advertising strategies manipulate two modes of existence put forward by Eric Fromm in his book “To have or to be”. Use relevant examples from advertising strategies and the literature you read.

**Month 9 (The UK university)**

Complete a standard written essay of 2000 words addressing **ONE** of the questions outlined below:

1. It is argued that the introduction of the National Curriculum in England and Wales in 1988 signalled a new era in education – it was part of a raft of changes which transformed the education system into a ‘free market’ where students and parents (consumers) are able to choose what, how and where they learn. To what extent is ‘free choice’ available to students in the present state-funded English education system? Do you agree that ‘free choice’ should be made available to students?

2. What can theory tell us about educational practice and/or policy? You should include in your discussion one or more of:

- Figured worlds, positioning and world making (see Julian Williams paper)
- Foucault’s idea of the Panopticon (see Courtney’s paper)
- Arendt’s notion of totalitarianism
- Queer theory
- Or any other theory/set of theoretical tools which you have encountered in the readings for the seminars this semester.

3. School leaders, especially those of academies, have considerable freedom to do as they wish in their school. Discuss this statement using the literature and policy texts where appropriate.

4. Schools cannot help but reproduce patriarchal and heteronormative societal structures. Discuss.

5. The education system is increasingly centred on getting teachers and leaders to act in a certain way, with negative consequences for professional practice and children’s learning. Discuss.

6. In the forward to Paulo Freire’s book ‘Pedagogy of the Oppressed’, Richard Shaull writes: ‘Education either functions as an instrument that is used to facilitate the integration of the younger generation into the logic of the present system and bring about conformity to it, *or* it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.’ Outline the key differences between these two functions of education and explain how they influence what is taught to students, how it is taught and what is achieved through the educational process. You may wish to use particular examples from both the developing and developed world.

### **Month 9 (The Turkish university)**

Evaluate and assess the effects of social media on any area in education (e.g. English language learning) that you would like to focus on by reviewing previous studies in the area. Write your critical evaluation in a 2000-word essay.

**Appendix B. E-mail invitation sent to the students for interviews**

Dear all,

Thank you very much for agreeing to participate in an interview on your essay for my PhD study. The interview will take approximately half an hour. I will schedule all the interviews at your convenience within one week. Below are some suggested date and time slots for the interviews:

.....

To arrange a time for the interview, please reply to this e-mail and tell me the dates and times that are convenient for you. Many thanks for your cooperation.

Best wishes,

Duygu Candarli  
PhD Student  
Manchester Institute of Education  
University of Manchester

## **Appendix C. Interview protocol for students**

### **Interview protocol (Month 3)**

#### **A. Introduction:**

Introducing my research topic to the participant and explaining what a multi-word unit is.

#### **B. Warm-up questions:**

1. How did the English Composition class go?
2. How did you find writing this essay?
  - 2.1. Did you find it easy or difficult to write this essay?
  - 2.2. Why was it easy/difficult?
  - 2.3. How would you define a good essay?

#### **C. Main interview questions:**

3. How did you learn these multi-word units?
4. Were they taught explicitly in academic writing classes?
5. Since you have been at uni., do you feel your understanding/use of phrases in academic writing has improved?
6. Is the use of phrases something you think about? Is it something you spent time on to develop your usage?
7. Why did you use these particular multi-word units as opposed to ....? (e.g. Why did you use *in order to* rather than *to*?)
  - 7.1. Do you use this sequence a lot? Did you consider other alternatives? Do you consciously try to vary these phrases? While writing your essays, do you think about them? Easy or difficult? *These questions change according to the underlined multi-word units in the essays of participants.*
8. Did you feel confident using these phrases? How comfortable? (Do you use them a lot because it easy?)
9. What do you think about the role of phrases in academic writing?
  - 9.1. Do you find these phrases easy or difficult to use in your essays?
  - 9.2. To what extent do you think these phrases influence your argument in your writing?
  - 9.3. Do you think whether there is a relationship between the phrases that you use and your academic identity/culture?
10. Do you have any thoughts about teaching these phrases to university students?

**D. Cool-off question:** Is there anything else you would like to add (or share with me)?

**E. Closure:** Thank you for your participation in my interview.

## **Interview protocol (Month 9)**

### **A. Introduction:**

### **B. Warm-up question:**

1. How is the essay writing going on?
2. Do you think you have improved your academic writing skills this year? What have you learned new since our interview in the first semester?
  - 2.1. Have your views on writing/ how to write a good essay changed?

### **C. Main interview questions:**

3. Do you feel your understanding/use of phrases in academic writing has improved?
  - 3.1. Have your thoughts about the phrases/using these changed this year?
4. Why did you use these particular phrases as opposed to ....? (e.g. Why did you use *in order to* rather than *to*?)
  - 4.1. Do you use this sequence a lot? Did you consider other alternatives? Do you consciously try to vary these phrases? In your first essay, you relied on (A); however, in your final essay, you preferred to use (B). Why do you think it is so? *These questions change according to the underlined multi-word units in the essays of participants.*
5. Did you feel confident using these phrases? How comfortable?
6. What do you think about the role of phrases in academic writing? Have your opinions on this changed?
7. To what extent do you think they contribute your argument in your essays? Have your opinions on this changed?
8. Do you have any thoughts about teaching these phrases to university students? Have your opinions on this changed?

**D. Cool-off question:** Is there anything else you would like to add (or share with me)?

**E. Closure:** Thank you for your participation in my interview.

**Appendix D. A short extract from one of the interviews with an L1 novice writer that I conducted at the UK university**

.....

Interviewer: Now, let's look at some of the phrases you used, like first page: 'this means that'? Why did you use it?

Rachel: Yeah. Before 'this means that', I used a quote, a reference. For that reference, I cannot just you know for a good grade I cannot just make a reference and not explain it.

Interviewer: Thank you. And 'it could be argued that'?

Rachel: Yeah, that is what I think, so it is my opinion.

Interviewer: Hmm

Rachel: Basically, I am thinking that you know if somebody else reads the text, I am thinking they would get the same meaning about I get.

Interviewer: Then, you could have said 'I argue that'?

Rachel: But I cannot argue that without any reference, without anyone to back me up because no else has actually seen this text, I cannot actually use anyone. Basically if I have a quote, if I have a solid reference from a writer that could agree with me, I would put the reference and then I would say I believe this and this, since I did not, I put 'it could be argued that' to you know...

Interviewer: To play safe?

Rachel: Yeah, to play safe.

Interviewer: But are you sure about this argument yourself?

Rachel: Yeah, because I think once the text we are supposed to be analysing, once someone reads the text for you for yourself for example, you would actually realise that it is actually true. You could see from her understanding that she was not able to apply the skills I was talking earlier.

.....

Interviewer: On the final page, we have 'on the whole'. Why did you use this?

Rachel: 'On the whole', basically I am summing up the whole essay. 'Overall' I think everyone would have used it. To sum up the whole essay, it is either 'overall' it is either 'on the whole' it is either 'to conclude'.

Interviewer: So you decided to be more creative?

Rachel: Yeah.

Interviewer: Finally, we have 'I think that'? Here you are present.



Rachel: This is basically my opinion. [A lecturer] did say that you know individual critical thinking would come out. If it comes out in an essay, it would be really helpful towards my grade. And then I did have some strong opinions about the text that we were analysing. You know about the student I was reading about, about the analysis of the text. I wanted to put that through. You know my opinions so I thought why not?

Interviewer: A final one: 'as well as'.

Rachel: Again demand of the sentence.

Interviewer: Why did you prefer to use 'as well as'? You could have used 'and'.

Rachel: Good question [laughter]. I will read it again, so basically I am taking here about two features of the student: She was from a different discipline and being a non-native speaker of English. As well as... as an effect for that. She has two features to herself that you know to contribute her understanding of reading...

Interviewer: Okay, thank you.

## **Appendix E. E-mail invitation sent to lecturers for interviews**

Dear all,

I am Duygu Candarli, a PhD student at the University of Manchester. My PhD study aims to investigate how multi-word units are used by L1 Turkish and L1 English students in their academic writing over one academic year. I have gained permission to access to the students' essays, and I am in the process of analysing them.

I also aim to conduct interviews with two lecturers on their perceptions of novice students' use of multi-word units in their essays. You are being invited to take part in an interview. To this e-mail, I have attached the participation information sheets for my study. The interview will take approximately half an hour. I will schedule all the interviews at your convenience.

To arrange a time for the interview, I would be very grateful if you could reply to this e-mail and tell me the dates and times that are convenient for you.

Thank you very much.

Kind regards,

Duygu Candarli  
PhD Student  
Manchester Institute of Education  
University of Manchester

## **Appendix F. Interview protocol for lecturers**

### **A. Introduction:**

Introducing my research topic to the participant.

### **B. Warm-up question:**

1. Which essential skills would you like your students to develop in academic writing classes?

1.1. What are your main priorities in developing your students' academic writing?

2. Do you follow a certain teaching approach, such as genre-based writing, academic literacies, etc. in academic writing classes?

### **C. Main interview questions:**

3. Do you teach phrases in academic writing classes?

3.1. How do you teach them?

4. What do you think about the role of phrases in novice student writers' academic writing?

4.1. What are your expectations of your students' use of phrases in academic writing?

4.2. To what extent do you think these phrases could contribute to the argument in students' essays?

4.3. Do you think whether there is a relationship between the phrases that students use and their academic identity/culture?

5. To what extent do you think your grading is influenced by their use of these phrases?

5.1. Do you give students feedback on the use of these phrases in their essays? What kind of feedback do you provide?

**D. Cool-off question:** Is there anything else you would like to add (or share with me)?

**E. Closure:** Thank you for your participation in my interview.

## Appendix G. Participant information sheets and consent forms (essays)

The University  
of Manchester

MANCHESTER  
1824

### A longitudinal study of multi-word units in L1 and L2 novice academic writing

#### Participant Information Sheet

You are being invited to take part in a research study undertaken for a PhD degree in Education. The study aims to explore how multi-word units are used by Turkish and British students in their academic writing.

Before you decide 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 discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

#### Who will conduct the research?

Duygu Candarli, PhD student, Manchester Institute of Education, The University of Manchester.

#### What is the aim of the research?

I aim to understand how and to what extent multi-word units are used by L1 and L2 novice academic writers. The study aims to offer implications for teaching academic writing and multi-word units in English-medium institutions.

#### Why have I been chosen?

You have been chosen because you study BA in English Language Education at the university.

#### What would I be asked to do if I took part?

We would ask you to give us a permission to use the essays that you will write this academic year for research purposes.

#### What happens to the data collected?

I will transfer essays and interviews to my computer and analyse them for my study.

#### How is confidentiality maintained?

All data will be kept secure in encrypted files. Your name will be anonymised, and numbers will be given for the essays.

### **What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason.

### **Will I be paid for participating in the research?**

Participation is voluntary.

### **What is the duration of the research?**

It is a one-year data collection process. Only your first-year work will be collected.

### **Where will the research be conducted?**

On university campus.

### **Will the outcomes of the research be published?**

The outcomes of the research may be published in academic books and journals.

### **Contact for further information**

Duygu Candarli, PhD student, The University of Manchester:

[duygu.candarli@postgrad.manchester.ac.uk](mailto:duygu.candarli@postgrad.manchester.ac.uk)

Thesis supervisor - Dr Steven Jones, The University of Manchester:

[sj@manchester.ac.uk](mailto:sj@manchester.ac.uk)

### **What if something goes wrong?**

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'The Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL', by emailing: [Research-Governance@manchester.ac.uk](mailto:Research-Governance@manchester.ac.uk), or by telephoning 0161 275 7583 or 275 8093

**CONSENT FORM**

If you are happy to participate please complete and sign the consent form below.

- |   | <b>Please<br/>Initial<br/>Box</b> |
|---|-----------------------------------|
| 1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily. | <input type="checkbox"/>          |
| 2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.   | <input type="checkbox"/>          |
| 3. I agree that any data collected may be published in anonymous form in academic books or journals.  | <input type="checkbox"/>          |

I agree to take part in the above project.

|                                  |       |           |
|----------------------------------|-------|-----------|
| _____                            | _____ | _____     |
| Name of participant              | Date  | Signature |
| _____                            | _____ | _____     |
| Name of person taking<br>consent | Date  | Signature |

**Appendix H. Participant profile questionnaires**  
**Participant profile questionnaire (The Turkish university)**

The following questionnaire aims to find out your foreign language learning background. Thank you for taking the time to fill in this questionnaire. It will only take 5 minutes. Your answers will be kept completely anonymous.

1. Age:

2. Gender: F  M

3. Nationality:

4. First language:

5. Language(s) spoken at family home: (if more than one, please give the average % use of each)

6. Secondary school - medium of instruction: Turkish  English

7. How long have you been learning English?

8. Did you ever live in an English-speaking country?

Where?

When?

How long?

9. Please state any other foreign languages that you know and circle your proficiency level:

\_\_\_\_\_Near-native    Advanced    Intermediate    Elementary    Beginner

\_\_\_\_\_Near-native    Advanced    Intermediate    Elementary    Beginner

\_\_\_\_\_Near-native    Advanced    Intermediate    Elementary    Beginner

10. If you are willing to attend a short interview in which we will talk about phrases in your essay, please write your e-mail address below:

---

## Participant Profile Questionnaire (The UK university)

The following questionnaire aims to find out your background in other languages. Thank you for taking the time to fill in this questionnaire. It will only take 5 minutes. Your answers will be kept completely anonymous.

1. Age:

2. Gender:

3. Nationality:

4. First language:

5. Language(s) spoken at family home: (if more than one, please give the average % use of each)

8. Undergraduate programme:

9. Current year of study:

10. Secondary school education (please circle your answer):

All in UK / All overseas / Some in UK, some overseas

If overseas, where? \_\_\_\_\_ and how long? \_\_\_\_\_

11. Please state any foreign languages that you know and circle your proficiency level:

\_\_\_\_\_ Near-native      Advanced      Intermediate      Elementary      Beginner

\_\_\_\_\_ Near-native      Advanced      Intermediate      Elementary      Beginner

\_\_\_\_\_ Near-native      Advanced      Intermediate      Elementary      Beginner

12. Please write your e-mail address if you would be willing to attend a short follow-up interview on phrases in your essay:

\_\_\_\_\_



## Appendix I. Participant information sheets and consent forms (students' interviews)

The University  
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### A longitudinal study of multi-word units in L1 and L2 novice academic writing

#### Participant Information Sheet

You are being invited to take part in a research study undertaken for a PhD degree in Education. The study aims to explore how multi-word units are used by Turkish and British students in their academic writing.

Before you decide 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 discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

#### Who will conduct the research?

Duygu Candarli, PhD student, Manchester Institute of Education, The University of Manchester.

#### What is the aim of the research?

I aim to understand how and to what extent multi-word units are used by advanced foreign language learners and novice L1 English academic writers. The study aims to offer implications for teaching academic writing and multi-word units in English-medium institutions.

#### Why have I been chosen?

You have been chosen because you are one of the students who have previously indicated that you would be willing to take part in an interview on your essay.

#### What would I be asked to do if I took part?

You would be asked to participate in two interviews, both of which would take about half an hour. The interviews will be audio-recorded.

#### What happens to the data collected?

I will transfer the audio recordings of the interviews to my computer and analyse them for my study.

### **How is confidentiality maintained?**

All data will be kept secure in encrypted files. For the interviews, I will use pseudonyms to refer to my interviewees during data analysis and reporting.

### **What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason.

### **Will I be paid for participating in the research?**

Participation is voluntary.

### **What is the duration of the research?**

It is a one-year data collection process. If you take part in an interview this semester and at the end of the next semester, they will take approximately half an hour.

### **Where will the research be conducted?**

On university campus.

### **Will the outcomes of the research be published?**

The outcomes of the research may be published in academic books and journals.

### **Contact for further information**

Duygu Candarli, PhD student, The University of Manchester:

[duygu.candarli@postgrad.manchester.ac.uk](mailto:duygu.candarli@postgrad.manchester.ac.uk)

Thesis supervisor - Dr Steven Jones, The University of Manchester:

[sj@manchester.ac.uk](mailto:sj@manchester.ac.uk)

### **What if something goes wrong?**

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'The Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL', by emailing: [Research-Governance@manchester.ac.uk](mailto:Research-Governance@manchester.ac.uk), or by telephoning 0161 275 7583 or 275 8093.

**A longitudinal study of multi-word units in L1 and L2 novice academic writing****CONSENT FORM**

If you are happy to participate please complete and sign the consent form below.

**Please Initial Box**

3. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

4. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.

5. I understand that the interviews will be audio-recorded.

6. I agree to the use of anonymous quotes.

5. I agree that any data collected may be published in anonymous form in academic books or journals.

I agree to take part in the above project.

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of person taking  
consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

## **Appendix J. Participant information sheets and consent forms (lecturers' interviews)**

The University  
of Manchester

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1824

### **A longitudinal study of multi-word units in L1 and L2 novice academic writing**

#### **Participant Information Sheet**

You are being invited to take part in a research study undertaken for a PhD degree in Education. The study aims to explore how multi-word units are used by Turkish and British students in their academic writing.

Before you decide 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 discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

#### **Who will conduct the research?**

Duygu Candarli, PhD student, Manchester Institute of Education, The University of Manchester.

#### **What is the aim of the research?**

I aim to understand how and to what extent multi-word units are used by advanced foreign language learners and novice L1 English academic writers. The study aims to offer implications for teaching academic writing and multi-word units in English-medium institutions.

#### **Why have I been chosen?**

You have been chosen because you are one of the lecturers in English Language for Education programme.

#### **What would I be asked to do if I took part?**

We would ask you to participate in an interview which would take about half an hour. The interview will be audio-recorded.

#### **What happens to the data collected?**

I will transfer the audio recording of the interviews to my computer and analyse them for my study.

### **How is confidentiality maintained?**

All data will be kept secure in encrypted files. For the interviews, I will use pseudonyms to refer to my interviewees during data analysis and reporting.

### **What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason.

### **Will I be paid for participating in the research?**

Participation is voluntary.

### **What is the duration of the research?**

It is a one-year data collection process. If you take part in any interview, it will take approximately half an hour.

### **Where will the research be conducted?**

On university campus.

### **Will the outcomes of the research be published?**

The outcomes of the research may be published in academic books and journals.

### **Contact for further information**

Duygu Candarli, PhD student, The University of Manchester:

[duygu.candarli@postgrad.manchester.ac.uk](mailto:duygu.candarli@postgrad.manchester.ac.uk)

Thesis supervisor - Dr Steven Jones, The University of Manchester:

[sj@manchester.ac.uk](mailto:sj@manchester.ac.uk)

### **What if something goes wrong?**

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Co-ordinator by either writing to 'The Research Practice and Governance Co-ordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL', by emailing: [Research-Governance@manchester.ac.uk](mailto:Research-Governance@manchester.ac.uk), or by telephoning 0161 275 7583 or 275 8093.

**A longitudinal study of multi-word units in L1 and L2 novice academic writing**

**CONSENT FORM**

If you are happy to participate please complete and sign the consent form below.

**Please**

**Initial**

**Box**

1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.

3. I understand that the interviews will be audio-recorded.

4. I agree to the use of anonymous quotes.

5. I agree that any data collected may be published in anonymous form in academic books or journals.

I agree to take part in the above project.

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of person taking  
consent

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**Appendix K. Top-ten most frequent lexical bundles at each stage of data collection in L1 and L2 novice writers' essays**

Table A29. The top-ten most frequent lexical bundles in L2 novice writers' essays at Month 3.

|    | <b>Lexical bundle</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|-----------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | on the other hand     | 56            | 1.10                                | Discourse organiser       | PP-based bundle            |
| 2  | in terms of           | 45            | 0.89                                | Referential expression    | PP-based bundle            |
| 3  | according to the      | 27            | 0.53                                | Discourse organiser       | PP-based bundle            |
| 4  | there are some        | 24            | 0.47                                | Referential expression    | VP-based bundle            |
| 5  | the fact that         | 24            | 0.47                                | Stance expression         | NP-based bundle            |
| 6  | in the article        | 23            | 0.45                                | Referential expression    | PP-based bundle            |
| 7  | there is a            | 23            | 0.45                                | Referential expression    | VP-based bundle            |
| 8  | it is a               | 21            | 0.41                                | Referential expression    | VP-based bundle            |
| 9  | it can be             | 20            | 0.39                                | Stance expression         | VP-based bundle            |
| 10 | when it comes to      | 20            | 0.39                                | Discourse organiser       | VP-based bundle            |

Table A30. The top-ten most frequent lexical bundles in L1 novice writers' essays at Month 3.

|   | <b>Lexical bundle</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|-----------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | in order to           | 130           | 2.32                                | Discourse organiser       | PP-based bundle            |
| 2 | due to the            | 48            | 0.86                                | Discourse organiser       | NP-based bundle            |
| 3 | the use of            | 43            | 0.77                                | Referential expression    | NP-based bundle            |
| 4 | the use of the        | 39            | 0.70                                | Referential expression    | NP-based bundle            |
| 5 | in the text           | 35            | 0.63                                | Referential expression    | PP-based bundle            |
| 6 | as a whole            | 24            | 0.43                                | Discourse organiser       | Others                     |
| 7 | to use the            | 23            | 0.41                                | Discourse organiser       | VP-based bundle            |
| 8 | this may be           | 22            | 0.39                                | Stance expression         | VP-based bundle            |

|    |            |    |      |                   |                 |
|----|------------|----|------|-------------------|-----------------|
| 9  | may not be | 21 | 0.38 | Stance expression | VP-based bundle |
| 10 | be able to | 19 | 0.36 | Stance expression | VP-based bundle |

Table A31. The top-ten most frequent lexical bundles in L2 novice writers' essays at Month 5.

|    | <b>Lexical bundle</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|-----------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | in the article        | 58            | 1.03                                | Referential expression    | PP-based bundle            |
| 2  | in order to           | 50            | 0.89                                | Discourse organiser       | PP-based bundle            |
| 3  | the aim of            | 32            | 0.57                                | Referential expression    | NP-based bundle            |
| 4  | the idea of           | 32            | 0.57                                | Referential expression    | NP-based bundle            |
| 5  | on the other hand     | 30            | 0.53                                | Discourse organiser       | PP-based bundle            |
| 6  | to sum up             | 25            | 0.44                                | Discourse organiser       | Others                     |
| 7  | in other words        | 23            | 0.41                                | Discourse organiser       | PP-based bundle            |
| 8  | the goal of           | 21            | 0.37                                | Referential expression    | NP-based bundle            |
| 9  | there is a            | 19            | 0.34                                | Referential expression    | VP-based bundle            |
| 10 | that we are           | 18            | 0.32                                | Referential expression    | VP-based bundle            |

Table A32. The top-ten most frequent lexical bundles in L1 novice writers' essays at Month 5.

|   | <b>Lexical bundle</b>  | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|------------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | in order to            | 91            | 1.36                                | Discourse organiser       | PP-based bundle            |
| 2 | due to the             | 37            | 0.55                                | Discourse organiser       | NP-based bundle            |
| 3 | the article is         | 32            | 0.48                                | Referential expression    | VP-based bundle            |
| 4 | as well as             | 31            | 0.46                                | Discourse organiser       | Others                     |
| 5 | the fact that          | 27            | 0.40                                | Stance expression         | NP-based bundle            |
| 6 | the lack of            | 26            | 0.39                                | Referential expression    | NP-based bundle            |
| 7 | throughout the article | 25            | 0.37                                | Referential expression    | PP-based bundle            |



|    |             |    |      |                        |                 |
|----|-------------|----|------|------------------------|-----------------|
| 8  | in terms of | 23 | 0.34 | Referential expression | PP-based bundle |
| 9  | such as the | 23 | 0.34 | Discourse organiser    | PP-based bundle |
| 10 | the use of  | 23 | 0.34 | Referential expression | NP-based bundle |

Table A33. The top-ten most frequent lexical bundles in L2 novice writers' essays at Month 9.

|    | <b>Lexical bundle</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|-----------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | in order to           | 147           | 0.92                                | Discourse organiser       | PP-based bundle            |
| 2  | in terms of           | 95            | 0.59                                | Referential expression    | PP-based bundle            |
| 3  | the use of            | 68            | 0.42                                | Referential expression    | NP-based bundle            |
| 4  | according to the      | 65            | 0.41                                | Discourse organiser       | PP-based bundle            |
| 5  | it can be             | 63            | 0.39                                | Stance expression         | VP-based bundle            |
| 6  | on the other hand     | 59            | 0.37                                | Discourse organiser       | PP-based bundle            |
| 7  | there is a            | 54            | 0.34                                | Referential expression    | VP-based bundle            |
| 8  | one of the            | 48            | 0.30                                | Referential expression    | NP-based bundle            |
| 9  | the number of         | 48            | 0.30                                | Referential expression    | NP-based bundle            |
| 10 | the effects of        | 45            | 0.28                                | Referential expression    | NP-based bundle            |

Table A34. The top-ten most frequent lexical bundles in L1 novice writers' essays at Month 9.

|   | <b>Lexical bundle</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|-----------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | in order to           | 81            | 1.24                                | Discourse organiser       | PP-based bundle            |
| 2 | due to the            | 53            | 0.81                                | Discourse organiser       | NP-based bundle            |
| 3 | as well as            | 31            | 0.48                                | Discourse organiser       | Others                     |
| 4 | this suggests that    | 26            | 0.40                                | Stance expression         | VP-based bundle            |
| 5 | the idea of           | 24            | 0.37                                | Referential expression    | NP-based bundle            |
| 6 | as they are           | 24            | 0.37                                | Discourse organiser       | VP-based bundle            |

|    |                 |    |      |                        |                 |
|----|-----------------|----|------|------------------------|-----------------|
| 7  | that they are   | 24 | 0.37 | Referential expression | VP-based bundle |
| 8  | it can be       | 19 | 0.29 | Stance expression      | VP-based bundle |
| 9  | the idea that   | 19 | 0.29 | Referential expression | NP-based bundle |
| 10 | this is because | 19 | 0.29 | Discourse organiser    | VP-based bundle |

**Appendix L. Top-ten most frequent phrase frames at each stage of data collection in L1 and L2 novice writers' essays**

Table A35. The top-ten most frequent phrase frames in L2 novice writers' essays at Month 3.

|    | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | the * of            | 424           | 8.36                                | Multifunctional           | Function-based p-frame     |
| 2  | are * to            | 93            | 1.83                                | Multifunctional           | Verb-based p-frame         |
| 3  | that * are          | 87            | 1.72                                | Referential p-frame       | Verb-based p-frame         |
| 4  | the * that          | 84            | 1.66                                | Multifunctional           | Function-based p-frame     |
| 5  | between * and       | 83            | 1.64                                | Referential p-frame       | Function-based p-frame     |
| 6  | in * of             | 70            | 1.38                                | Multifunctional           | Function-based p-frame     |
| 7  | the * in            | 63            | 1.24                                | Multifunctional           | Function-based p-frame     |
| 8  | that * is           | 63            | 1.24                                | Referential p-frame       | Verb-based p-frame         |
| 9  | the * and           | 62            | 1.22                                | Multifunctional           | Function-based p-frame     |
| 10 | it is * that        | 57            | 1.12                                | Stance expression         | Verb-based p-frame         |

Table A36. The top-ten most frequent phrase frames in L1 novice writers' essays at Month 3.

|   | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | the * of            | 466           | 8.33                                | Multifunctional           | Function-based p-frame     |
| 2 | to * the            | 304           | 5.44                                | Discourse organiser       | Function-based p-frame     |
| 3 | the * is            | 200           | 3.58                                | Referential p-frame       | Verb-based p-frame         |
| 4 | the * of the        | 190           | 3.40                                | Multifunctional           | Function-based p-frame     |
| 5 | in * to             | 183           | 3.27                                | Multifunctional           | Function-based p-frame     |
| 6 | a * of              | 147           | 2.63                                | Multifunctional           | Function-based p-frame     |
| 7 | the * and           | 128           | 2.29                                | Multifunctional           | Function-based p-frame     |
| 8 | to * a              | 127           | 2.27                                | Discourse organiser       | Function-based p-frame     |

|    |           |     |      |                     |                    |
|----|-----------|-----|------|---------------------|--------------------|
| 9  | that * is | 120 | 2.15 | Referential p-frame | Verb-based p-frame |
| 10 | the * has | 101 | 1.81 | Multifunctional     | Verb-based p-frame |

Table A37. The top-ten most frequent phrase frames in L2 novice writers' essays at Month 5.

|    | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | the * of            | 634           | 11.23                               | Multifunctional           | Function-based p-frame     |
| 2  | to * the            | 115           | 2.04                                | Discourse organiser       | Function-based p-frame     |
| 3  | the * that          | 106           | 1.88                                | Multifunctional           | Function-based p-frame     |
| 4  | a * of              | 90            | 1.59                                | Multifunctional           | Function-based p-frame     |
| 5  | in * to             | 73            | 1.29                                | Multifunctional           | Function-based p-frame     |
| 6  | the * and           | 72            | 1.27                                | Multifunctional           | Function-based p-frame     |
| 7  | we * not            | 63            | 1.12                                | Multifunctional           | Content-based p-frame      |
| 8  | that * are          | 58            | 1.03                                | Referential p-frame       | Verb-based p-frame         |
| 9  | that * is           | 57            | 1.01                                | Referential p-frame       | Verb-based p-frame         |
| 10 | the * of the        | 57            | 1.01                                | Multifunctional           | Function-based p-frame     |

Table A38. The top-ten most frequent phrase frames in L1 novice writers' essays at Month 5.

|   | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | the * of            | 758           | 11.29                               | Multifunctional           | Function-based p-frame     |
| 2 | to * the            | 233           | 3.47                                | Discourse organiser       | Function-based p-frame     |
| 3 | in * to             | 202           | 3.01                                | Multifunctional           | Function-based p-frame     |
| 4 | the * that          | 162           | 2.41                                | Multifunctional           | Function-based p-frame     |
| 5 | the * of the        | 160           | 2.38                                | Multifunctional           | Function-based p-frame     |
| 6 | a * of              | 153           | 2.28                                | Multifunctional           | Function-based p-frame     |
| 7 | the * and           | 146           | 2.17                                | Multifunctional           | Function-based p-frame     |

|    |           |     |      |                     |                    |
|----|-----------|-----|------|---------------------|--------------------|
| 8  | the * is  | 113 | 1.68 | Referential p-frame | Verb-based p-frame |
| 9  | are * to  | 89  | 1.33 | Multifunctional     | Verb-based p-frame |
| 10 | that * is | 87  | 1.30 | Referential p-frame | Verb-based p-frame |

Table A39. The top-ten most frequent phrase frames in L2 novice writers' essays at Month 9.

|    | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|----|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1  | the * of            | 1466          | 9.16                                | Multifunctional           | Function-based p-frame     |
| 2  | to * the            | 300           | 1.87                                | Discourse organiser       | Function-based p-frame     |
| 3  | a * of              | 269           | 1.68                                | Multifunctional           | Function-based p-frame     |
| 4  | the * and           | 259           | 1.62                                | Multifunctional           | Function-based p-frame     |
| 5  | the * that          | 216           | 1.35                                | Multifunctional           | Function-based p-frame     |
| 6  | in * to             | 213           | 1.33                                | Multifunctional           | Function-based p-frame     |
| 7  | and * of            | 191           | 1.19                                | Multifunctional           | Function-based p-frame     |
| 8  | the * of the        | 168           | 1.05                                | Multifunctional           | Function-based p-frame     |
| 9  | in * of             | 167           | 1.04                                | Multifunctional           | Function-based p-frame     |
| 10 | to * a              | 154           | 0.96                                | Discourse organiser       | Function-based p-frame     |

Table A40. The top-ten most frequent phrase frames in L1 novice writers' essays at Month 9.

|   | <b>Phrase frame</b> | <b>Raw f.</b> | <b>Normalised f. per 1000 words</b> | <b>Discourse function</b> | <b>Structural category</b> |
|---|---------------------|---------------|-------------------------------------|---------------------------|----------------------------|
| 1 | the * of            | 758           | 11.64                               | Multifunctional           | Function-based p-frame     |
| 2 | to * the            | 207           | 3.18                                | Discourse organiser       | Function-based p-frame     |
| 3 | in * to             | 160           | 2.46                                | Multifunctional           | Function-based p-frame     |
| 4 | the * and           | 150           | 2.30                                | Multifunctional           | Function-based p-frame     |
| 5 | the * that          | 148           | 2.27                                | Multifunctional           | Function-based p-frame     |
| 6 | the * of the        | 143           | 2.20                                | Multifunctional           | Function-based p-frame     |

|    |          |     |      |                   |                        |
|----|----------|-----|------|-------------------|------------------------|
| 7  | a * of   | 135 | 2.07 | Multifunctional   | Function-based p-frame |
| 8  | are * to | 110 | 1.69 | Multifunctional   | Verb-based p-frame     |
| 9  | be * to  | 87  | 1.34 | Multifunctional   | Verb-based p-frame     |
| 10 | it * be  | 86  | 1.32 | Stance expression | Verb-based p-frame     |

## Appendix M. Descriptive statistics for lexical bundles and phrase frames in two groups

Table A41. Descriptive statistics for four-word lexical bundles in two groups over time.

|         | L1-English essays |        |      | L2-English essays |        |      |
|---------|-------------------|--------|------|-------------------|--------|------|
|         | Four-word bundles |        |      | Four-word bundles |        |      |
|         | Mean              | Median | SD   | Mean              | Median | SD   |
| Month 3 | 1.21              | 1.11   | 0.72 | 1.13              | 1.06   | 0.90 |
| Month 5 | 0.79              | 0.56   | 0.65 | 0.95              | 0.78   | 0.74 |
| Month 9 | 0.82              | 0.78   | 0.44 | 0.71              | 0.61   | 0.53 |

Table A42. Descriptive statistics for three-word lexical bundles in two groups over time.

|         | L1-English essays  |        |      | L2-English essays  |        |      |
|---------|--------------------|--------|------|--------------------|--------|------|
|         | Three-word bundles |        |      | Three-word bundles |        |      |
|         | Mean               | Median | SD   | Mean               | Median | SD   |
| Month 3 | 8.43               | 8.08   | 1.97 | 8.56               | 8.46   | 2.47 |
| Month 5 | 7.43               | 7.35   | 1.92 | 7.95               | 7.83   | 2.75 |
| Month 9 | 6.91               | 6.63   | 2.08 | 6.48               | 6.42   | 1.63 |

Table A43. Descriptive statistics for each discursual category of lexical bundles in two groups over time.

|                         |         | L1-English essays |        |      | L2-English essays |        |      |
|-------------------------|---------|-------------------|--------|------|-------------------|--------|------|
|                         |         | Mean              | Median | SD   | Mean              | Median | SD   |
| Referential expressions | Month 3 | 3.20              | 2.78   | 1.48 | 3.77              | 3.74   | 1.46 |
|                         | Month 5 | 2.82              | 2.86   | 1.38 | 3.67              | 3.59   | 1.39 |
|                         | Month 9 | 2.34              | 2.17   | 1.06 | 3.01              | 2.84   | 1.16 |
| Discourse organisers    | Month 3 | 1.98              | 1.69   | 1.16 | 2.30              | 2.09   | 1.13 |
|                         | Month 5 | 2.05              | 1.97   | 1.03 | 1.92              | 1.93   | 1.07 |
|                         | Month 9 | 2.13              | 1.93   | 1.16 | 1.45              | 1.33   | 0.71 |
| Stance expressions      | Month 3 | 1.43              | 1.23   | 0.85 | 0.97              | 0.90   | 0.81 |
|                         | Month 5 | 1.18              | 0.88   | 0.89 | 0.93              | 0.76   | 0.79 |
|                         | Month 9 | 1.38              | 1.12   | 0.84 | 0.85              | 0.82   | 0.49 |

Table A44. Descriptive statistics for each structural category of lexical bundles in two groups over time.

|                  |         | L1-English essays |        |      | L2-English essays |        |      |
|------------------|---------|-------------------|--------|------|-------------------|--------|------|
|                  |         | Mean              | Median | SD   | Mean              | Median | SD   |
| NP-based bundles | Month 3 | 1.85              | 1.45   | 1.25 | 1.24              | 1.02   | 0.92 |
|                  | Month 5 | 1.49              | 1.36   | 0.81 | 1.27              | 1.25   | 0.87 |
|                  | Month 9 | 1.53              | 1.47   | 0.86 | 1.55              | 1.48   | 0.70 |

|                  |         |      |      |      |      |      |      |
|------------------|---------|------|------|------|------|------|------|
| PP-based bundles | Month 3 | 1.86 | 1.52 | 1.19 | 2.33 | 2.34 | 1.31 |
|                  | Month 5 | 1.65 | 1.36 | 0.95 | 2.29 | 2.13 | 1.33 |
|                  | Month 9 | 1.55 | 1.49 | 0.75 | 1.21 | 1.09 | 0.74 |
| VP-based bundles | Month 3 | 3.21 | 2.95 | 1.49 | 2.86 | 2.87 | 1.48 |
|                  | Month 5 | 2.39 | 2.04 | 1.15 | 2.16 | 2.23 | 1.07 |
|                  | Month 9 | 2.60 | 2.08 | 1.54 | 2.23 | 2.23 | 0.91 |

Table A45. Descriptive statistics for four-word p-frames in two groups over time.

|         | L1-English essays  |        |      | L2-English essays  |        |      |
|---------|--------------------|--------|------|--------------------|--------|------|
|         | Four-word p-frames |        |      | Four-word p-frames |        |      |
|         | Mean               | Median | SD   | Mean               | Median | SD   |
| Month 3 | 3.67               | 3.38   | 1.31 | 2.69               | 2.35   | 1.53 |
| Month 5 | 2.85               | 2.78   | 0.95 | 2.71               | 2.60   | 1.24 |
| Month 9 | 3.17               | 3.05   | 0.95 | 2.71               | 2.66   | 0.87 |

Table A46. Descriptive statistics for three-word p-frames in two groups over time.

|         | L1-English essays   |        |      | L2-English essays   |        |      |
|---------|---------------------|--------|------|---------------------|--------|------|
|         | Three-word p-frames |        |      | Three-word p-frames |        |      |
|         | Mean                | Median | SD   | Mean                | Median | SD   |
| Month 3 | 20.14               | 20.40  | 3.95 | 17.26               | 17.12  | 3.73 |
| Month 5 | 18.95               | 18.57  | 3.22 | 17.46               | 17.95  | 4.07 |
| Month 9 | 19.20               | 19.72  | 3.54 | 16.62               | 16.40  | 2.56 |

Table A47. Descriptive statistics for each discursual category of p-frames in two groups over time.

|                               |         | L1-English essays | L2-English essays |
|-------------------------------|---------|-------------------|-------------------|
|                               |         | Mean              | Mean              |
| Referential p-frames          | Month 3 | 0.33              | 0.37              |
|                               | Month 5 | 0.47              | 0.35              |
|                               | Month 9 | 0.44              | 0.28              |
| Discourse-organising p-frames | Month 3 | 0.26              | 0                 |
|                               | Month 5 | 0.28              | 0.25              |
|                               | Month 9 | 0.23              | 0.25              |
| Stance p-frames               | Month 3 | 0.38              | 0.37              |
|                               | Month 5 | 0.26              | 0.22              |
|                               | Month 9 | 0.37              | 0.26              |



Table A48. Descriptive statistics for each structural category of p-frames in two groups over time.

|                         |         | L1-English essays |        |      | L2-English essays |        |      |
|-------------------------|---------|-------------------|--------|------|-------------------|--------|------|
|                         |         | Mean              | Median | SD   | Mean              | Median | SD   |
| Function-based p-frames | Month 3 | 14.29             | 14.14  | 2.81 | 9.94              | 9.73   | 3.20 |
|                         | Month 5 | 14.38             | 13.86  | 2.92 | 11.06             | 10.78  | 3.62 |
|                         | Month 9 | 14.47             | 14.48  | 3.10 | 11.33             | 11.33  | 2.68 |
| Content-based p-frames  | Month 3 | 1.19              | 1.08   | 0.76 | 2.98              | 2.74   | 1.73 |
|                         | Month 5 | 1.20              | 1.16   | 0.67 | 3.22              | 3.14   | 1.53 |
|                         | Month 9 | 1.22              | 0.99   | 0.82 | 2.55              | 2.44   | 0.88 |
| Verb-based p-frames     | Month 3 | 8.74              | 8.69   | 2.82 | 7.19              | 7.10   | 3.00 |
|                         | Month 5 | 6.51              | 6.22   | 1.89 | 5.97              | 5.67   | 2.57 |
|                         | Month 9 | 7.17              | 6.77   | 2.29 | 5.63              | 5.55   | 1.46 |

Table A49. Descriptive statistics for internal variability of p-frames in two groups over time.

|         | L1-English essays |        |      | L2-English essays |        |      |
|---------|-------------------|--------|------|-------------------|--------|------|
|         | Mean              | Median | SD   | Mean              | Median | SD   |
| Month 3 | 0.54              | 0.56   | 0.22 | 0.67              | 0.75   | 0.22 |
| Month 5 | 0.71              | 0.76   | 0.20 | 0.67              | 0.71   | 0.21 |
| Month 9 | 0.71              | 0.79   | 0.20 | 0.79              | 0.79   | 0.20 |

Table A50. Descriptive statistics for predictability of p-frames in two groups over time.

|         | L1-English essays |        |      | L2-English essays |        |      |
|---------|-------------------|--------|------|-------------------|--------|------|
|         | Mean              | Median | SD   | Mean              | Median | SD   |
| Month 3 | 0.40              | 0.38   | 0.21 | 0.28              | 0.19   | 0.22 |
| Month 5 | 0.27              | 0.20   | 0.19 | 0.30              | 0.28   | 0.20 |
| Month 9 | 0.29              | 0.22   | 0.21 | 0.25              | 0.18   | 0.19 |

## Appendix N. Growth curve modelling selection steps

### Model 1. Frequency of four-word and three-word lexical bundles

| Model | Parameters  | AIC    | ΔAIC | Notes  |
|-------|---|--------|------|--|
| 1     | Frequency ~ Time*Bundle_length*Group + (1 + Time   Group:Bundle_length:ID)                                |        |      | The correlation of random effects is -1.         |
| 2     | Frequency ~ Time*Bundle_length*Group + (1   Group:Bundle_length:ID) + (0 + Time   Group:Bundle_length:ID) |        |      | The slope of random effects is 0.                |
| 3     | Frequency ~ Time*Bundle_length*Group + (1 + Time   ID)  |        |      | The correlation of random effects is -1.         |
| 4     | Frequency ~ Time*Bundle_length*Group + (1   ID) + (0 + Time   ID)   |        |      | The slope of random effects is 0.                |
| 5     | Frequency ~ Time*Bundle_length*Group + (1   Group: Bundle_length : ID)                                    | 3101.8 |      |  |
| 6     | Frequency ~ Time*Bundle_length + Group + (1   Group: Bundle_length : ID)                                  | 3098.9 | 2.9  |  |
| 7     | Frequency ~ Time*Bundle_length + (1   Group: Bundle_length : ID)  | 3096.9 | 2    | Final model. No other parameters can be dropped. |

### Model 2. The discourse functions of lexical bundles in L2 novice writers' essays

| Model | Parameters  | AIC    | ΔAIC | Notes  |
|-------|---|--------|------|--|
| 1     | Frequency ~ Time*Discoursal_category + (1 + Time   Discoursal_category:ID)                                |        |      | The correlation of random effects is -1.         |
| 2     | Frequency ~ Time*Discoursal_category + (1   Discoursal_category:ID) + (0 + Time   Discoursal_category:ID) |        |      | The slope of random effects is 0.                |
| 3     | Frequency ~ Time*Discoursal_category + (1 + Time   ID)  |        |      | The correlation of random effects is -1.         |
| 4     | Frequency ~ Time*Discoursal_category + (1   ID) + (0 + Time   ID)   |        |      | The slope of random effects is 0.                |
| 5     | Frequency ~ Time*Discoursal_category + (1   Discoursal_category:ID)                                       | 2551.2 |      |  |
| 6     | Frequency ~ Time*Discoursal_category + (1   ID)   | 2550.2 | 1.2  |  |
| 7     | Frequency ~ Time*Discoursal_category + (1   ID) + (1   Discoursal_category:ID)                            | 2548.9 | 1.3  | Final model. No other parameters can be dropped. |

### Model 3. The discourse functions of lexical bundles in L1 novice writers' essays

| Model | Parameters   | AIC    | ΔAIC | Notes  |
|-------|--|--------|------|--|
| 1     | (Frequency ~ Time*Discoursal_category + (1+ Time  Discoursal_category:ID)                                |        |      | The correlation of random effects is -1.         |
| 2     | (Frequency ~ Time*Discoursal_category + (1  Discoursal_category:ID) + (0 + Time  Discoursal_category:ID) |        |      | The slope of random effects is 0.                |
| 3     | (Frequency ~ Time*Discoursal_category + (1 + Time   ID) + (1   Discoursal_category:ID)                   | 1029.9 |      | Final model. No other parameters can be dropped. |

### Model 4. The structural categories of lexical bundles in L2 novice writers' essays

| Model | Parameters  | AIC  | ΔAIC | Notes  |
|-------|---|------|------|--|
| 1     | Frequency ~ Time*Structural_category + (1+ Time   Structural_category:ID)                                 |      |      | The correlation of random effects is -1.         |
| 2     | Frequency ~ Time*Structural_category + (1   Structural_category:ID) + (0 + Time   Structural_category:ID) |      |      | The slope of random effects is 0.                |
| 3     | Frequency ~ Time*Structural_category + (1 + Time   ID)  |      |      | The correlation of random effects is -1          |
| 4     | Frequency ~ Time*Structural_category + (1   ID) + (0 + Time   ID)   |      |      | The slope of random effects is 0.                |
| 5     | Frequency ~ Time*Structural_category + (1   Structural_category:ID)                                       | 2586 |      |  |
| 6     | Frequency ~ Time*Structural_category + (1   Structural_category:ID) + (1   ID)                            | 2582 | 4    | Final model. No other parameters can be dropped. |

### Model 5. The structural categories of lexical bundles in L1 novice writers' essays

| Model | Parameters  | AIC    | ΔAIC | Notes  |
|-------|---|--------|------|--|
| 1     | Frequency ~ Time*Structural_category + (1+ Time   Structural_category:ID)                     | 1097   |      |  |
| 2     | Frequency ~ Time*Structural_category + (1 + Time   ID) + (1+ Time   Structural_category:ID)   | 1089.4 | 7.6  |  |
| 3     | Frequency ~ Time + Structural_category + (1 + Time   ID) + (1+ Time   Structural_category:ID) | 1065   | 24.4 | Final model. No other parameters can be dropped. |

### Model 6. The frequencies of four-word and three-word phrase frames

| Model | Parameters   | AIC    | $\Delta$ AIC | Notes  |
|-------|--|--------|--------------|--|
| 1     | Frequency ~ Time*Frame_length*Group + (1+ Time   Group: Frame_length:ID)                             |        |              | The correlation of random effects is -1.         |
| 2     | Frequency ~ Time*Frame_length*Group + (1  Group:Frame_length:ID) + (0 + Time  Group:Frame_length:ID) |        |              | The slope of random effects is 0.                |
| 3     | Frequency ~ Time*Frame_length*Group + (1 + Time   ID)  |        |              | The correlation of random effects is -1.         |
| 4     | Frequency ~ Time*Frame_length*Group + (1   ID) + (0 + Time   ID)                                     |        |              | The slope of random effects is 0.                |
| 5     | Frequency ~ Time*Frame_length*Group + (1   Group: Frame_length : ID)                                 | 3863.2 |              |  |
| 6     | Frequency ~ Time + Frame_length * Group + (1   Group:Frame_length:ID)                                | 3859.9 | 3.3          | Final model. No other parameters can be dropped. |

### Model 7. The structural categories of phrase frames in L2 novice writers' essays

| Model | Parameters  | AIC    | $\Delta$ AIC | Notes  |
|-------|---|--------|--------------|--|
| 1     | Frequency ~ Time*Structural_category + (1+ Time   Structural_category:ID)                               |        |              | The correlation of random effects is -1.         |
| 2     | Frequency ~ Time*Structural_category + (1  Structural_category:ID) + (0 + Time  Structural_category:ID) |        |              | The slope of random effects is 0.                |
| 3     | Frequency ~ Time*Structural_category + (1 + Time   ID)  |        |              | The correlation of random effects is -1.         |
| 4     | Frequency ~ Time*Structural_category + (1   ID) + (0 + Time   ID)                                       |        |              | The slope of random effects is 0.                |
| 5     | Frequency ~ Time*Structural_category + (1   ID) + (1   Structural_category:ID)                          |        |              | The random intercept of ID is zero.              |
| 6     | Frequency ~ Time*Structural_category + (1   Structural_category:ID)                                     | 3991.8 |              |  |
| 7     | Frequency ~ Time:Structural_category + Structural_category + (1   Structural_category:ID)               | 3990   | 1.8          | Final model. No other parameters can be dropped. |

### Model 8. The structural categories of phrase frames in L1 novice writers' essays

| Model | Parameters  | AIC    | $\Delta$ AIC | Notes  |
|-------|---|--------|--------------|--|
| 1     | Frequency ~ Time*Structural_category + (1+ Time   Structural_category:ID)   | 1586.4 |              |  |
| 2     | Frequency ~ Time*Structural_category + (1 + Time   ID) + (1+ Time   Structural_category:ID)                       | 1584   | 2.4          |  |
| 3     | Frequency ~ Time:Structural_category + Structural_category + (1 + Time   ID) + (1+ Time   Structural_category:ID) | 1571.4 | 12.6         | Final model. No other parameters can be dropped. |

### Model 9. The internal variability of phrase frames

| Model | Parameters  | AIC   | $\Delta$ AIC | Notes  |
|-------|---|-------|--------------|--|
| 1     | Variability ~ Time*Group + (1 + Time   Group: ID)                   |       |              | The correlation of random effects is -1.         |
| 2     | Variability ~ Time*Group + (1   Group: ID) + (0 + Time   Group: ID) |       |              | The slope of random effects is 0.                |
| 3     | Variability ~ Time*Group + (1   Group: ID)                          | -65.2 |              |  |
| 4     | Variability ~ Time + Group + (1   Group: ID)                        | -72.0 | -6.8         |  |
| 5     | Variability ~ Time + (1   Group: ID)                                | -72.5 | -0.5         | Final model. No other parameters can be dropped. |

### Model 10. The predictability of phrase frames

| Model | Parameters   | AIC  | $\Delta$ AIC | Notes  |
|-------|--|------|--------------|--|
| 1     | Predictability ~ Time*Group + (1 + Time   Group: ID)                   |      |              | The correlation of random effects is -1.         |
| 2     | Predictability ~ Time*Group + (1   Group: ID) + (0 + Time   Group: ID) |      |              | The slope of random effects is 0.                |
| 3     | Predictability ~ Time*Group + (1   Group: ID)                          | -110 |              |  |
| 4     | Predictability ~ Time + Group + (1   Group: ID)                        | -111 | -1           | Final model. No other parameters can be dropped. |

## Appendix O. An example for checking the assumptions of the growth curve model

This example is provided for the assumptions of the growth curve model that was built for the frequencies of four-word and three-word phrase frames.

1. The standardised residuals vs fitted values: The scatter is mostly uniform, and there is relatively constant variance across the values.

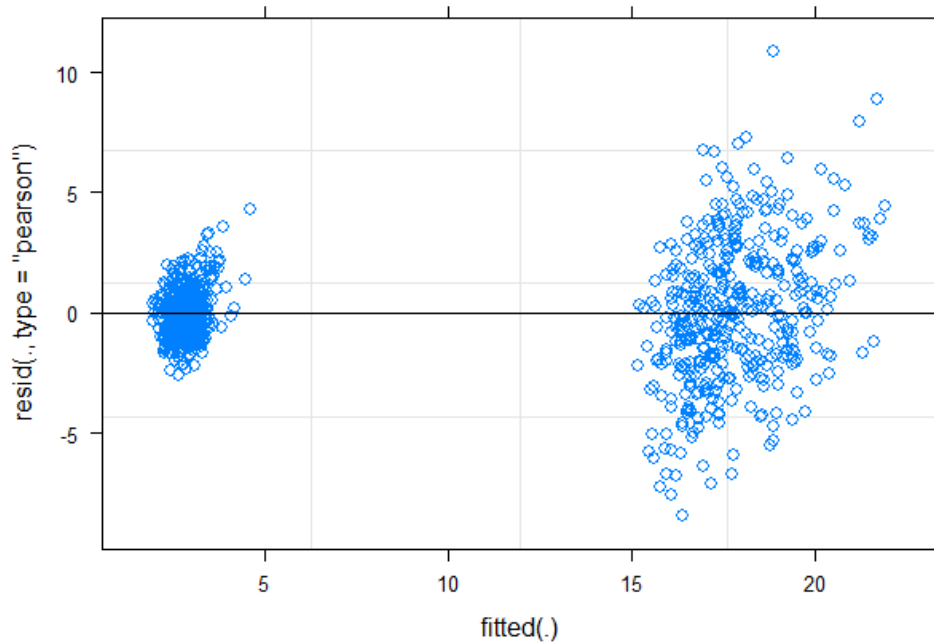


Figure A31. The standardised residuals vs fitted values.

2. The normal distribution of residuals: The distribution of residuals is normal.

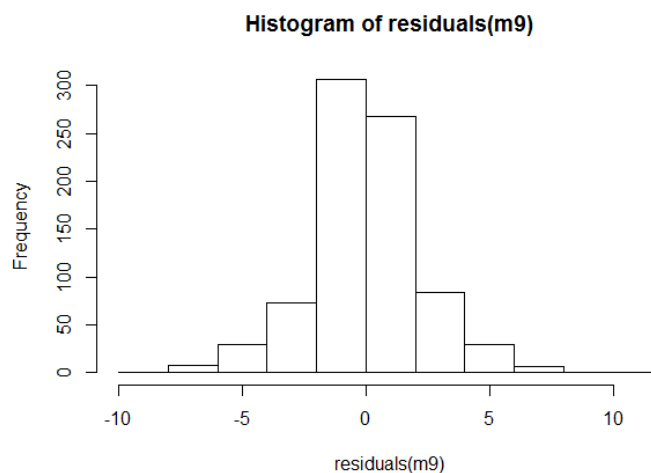


Figure A32. The histogram of residuals.

3. The constant variance of random effects: The variance of random effects is largely constant.

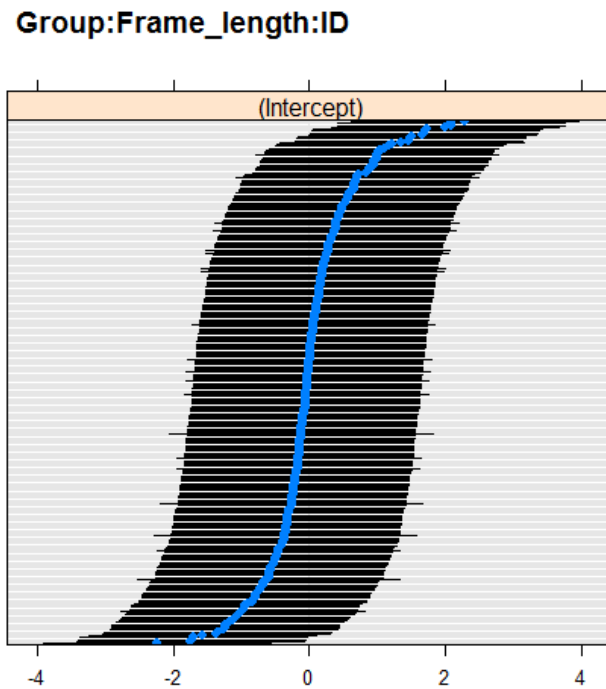


Figure A33. The caterpillar plot of random effects.

4. The normality of random effects: For random effects, there is no significant deviation from the normality.

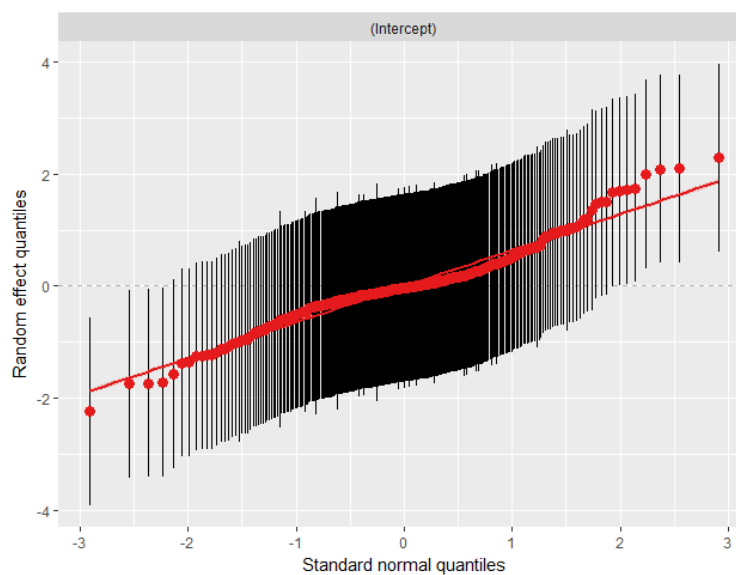


Figure A34. The normal probability plot of random effects.

## Appendix P. Chi-square tests of independence and Cochran's Q chi-squared test results

Table A51. Cochran's Q chi-squared test results for functional distribution of p-frames in L2 English novice writers' essays over time (types).

|                               | Results                                      |
|-------------------------------|--|
| Referential p-frames          | $X^2 = 3.23, df = 2, p = .19, \eta^2 = .018$ |
| Discourse-organising p-frames | $X^2 = 1.2, df = 2, p = .54, \eta^2 = .007$  |
| Stance p-frames               | $X^2 = 3.64, df = 2, p = .16, \eta^2 = .02$  |
| Multifunctional p-frames      | $X^2 = 1.16, df = 2, p = .55, \eta^2 = .006$ |

Table A52. Cochran's Q chi-squared test results for functional distribution of p-frames in L1 English novice writers' essays over time (types).

|                               | Results   |
|-------------------------------|---|
| Referential p-frames          | $X^2 = .53, df = 2, p = .76, \eta^2 = .007$   |
| Discourse-organising p-frames | $X^2 = 8.66, df = 2, p < .05, \eta^2 = .114$<br>The statistical difference is between Month 3 and Month 9.<br>$X^2 = 4.9, df = 1, p < .001, OR = .11$ |
| Stance p-frames               | $X^2 = 1.8, df = 2, p = .4, \eta^2 = .02$   |
| Multifunctional p-frames      | $X^2 = 1, df = 2, p = .6, \eta^2 = .01$   |

Table A53. Standardized residuals in a chi-square contingency table for functional distribution (types).

| Standardised residuals                                      |                   | Referential p-frames | Discourse-organising p-frames | Stance p-frames | Multifunctional p-frames |
|---|-------------------|----------------------|-------------------------------|-----------------|--------------------------|
| Month 3<br>$X^2 = 11.71, df = 3, p < .05, Cramer's V = .45$ | L1-English essays | 0.79                 | <b>-3.32</b>                  | 1.26            | 1.26                     |
|   | L2-English essays | -0.79                | <b>3.32</b>                   | -1.26           | -1.26                    |
| Month 5<br>$X^2 = 2.96, df = 3, p = .39, Cramer's V = .22$  | L1-English essays | 1.07                 | -1.62                         | -0.14           | 0.25                     |
|   | L2-English essays | -1.07                | 1.62                          | 0.14            | -0.25                    |
| Month 9<br>$X^2 = 2.51, df = 3, p = .47, Cramer's V = .19$  | L1-English essays | 0.27                 | -0.57                         | 1.04            | -1.27                    |
|   | L2-English essays | -0.27                | 0.57                          | -1.04           | 1.27                     |